

YENEPOYA



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(DEEMED TO BE UNIVERSITY)

Recognized under Sec 3(A) of the UGC Act 1956

Accredited by NAAC with 'A' Grade

POST GRADUATE COURSE

SYLLABUS

Subject

PROSTHODONTICS AND CROWN & BRIDGE

PROSTHODONTICS AND CROWN & BRIDGE

OBJECTIVES:

At the end of 3 years of training the candidate should be able to acquire adequate knowledge of the discipline.

KNOWLEDGE:

The candidate should possess knowledge of applied basic and systemic medical sciences, knowledge to diagnose and plan treatment for patients requiring Prosthodontic therapy, ability to read and interpret a radiograph and other investigations for the purpose of diagnosis and treatment plan. Candidates should have theoretical, clinical and practical knowledge regarding tooth and tooth surface restorations, complete denture Prosthodontics, removable partial denture Prosthodontics, fixed Prosthodontics, maxillofacial and craniofacial Prosthodontics, implants and implant supported Prosthodontics, T.M.J and occlusion, craniofacial esthetic, and biomaterials, craniofacial disorders, problems of psychogenic origin.

SKILLS AND ATTITUDE:

Following important skills need to be imparted

1. Diagnostic skill to examine the patients requiring Prosthodontic therapy, investigate the patient systemically, analyze the investigation results, radiography, diagnose the ailment, plan a treatment, communicate it with the patient and execute it.
2. Clinical and practical skills to demonstrate the clinical competence necessary to carry out appropriate treatment at higher level of knowledge, training and practice skills currently available in their specialty area. The candidate should be able to restore lost functions of stomatognathic system namely mastication, speech, appearance and psychological comforts. By understanding biological, biomedical, bioengineering principles and systemic condition of the patient to provide a quality health care of the craniofacial region. Perform clinical and laboratory procedures with understanding of biomaterials, tissue conditions related to prosthesis and have competent dexterity and skills for

performing clinical and laboratory procedures in fixed, removable, implant, maxillofacial, TMJ and esthetics Prosthodontics.

3. Laboratory technique management based on skills and knowledge of dental materials and dental equipment and instrument management.
4. Research skills in handling scientific problems pertaining to diagnosis and treatment in Prosthodontic therapy.
5. Clinical and didactic skills in encouraging younger doctors to attain learning objectives.

ATTITUDES:

The positive mental attitude and the persistence of continued learning need to be inculcated

COURSE CONTENTS

PART-I

Paper I: APPLIED BASIC SCIENCES

Applied Anatomy of head and neck:

1. General Human Anatomy: Gross anatomy, anatomy of head and neck in detail:
 - a. Cranial and facial bones
 - b. Anatomy of TMJ ,movement of TMJ and myofascial pain dysfunction syndrome
 - c. Muscles of Facial Expression and Muscles of Mastication
 - d. Muscles of neck and back
 - e. Muscles of deglutition and tongue
 - f. Arterial supply and venous drainage of head and neck
 - g. Anatomy of paranasal sinus in relation to V cranial nerve
 - h. Salivary glands, pharynx, larynx, trachea and esophagus
 - i. General considerations of the structure and function of the brain
 - j. Brief considerations of V, VII, XI, XII cranial nerves and autonomic nervous system of head and neck.
2. Functional anatomy of mastication, deglutition, speech, respiration and circulation.
3. Teeth eruption, morphology,occlusion and function.

EMBRYOLOGY:

1. Development of face, palate, tongue, jaws, TMJ, Para nasal sinus, pharynx, larynx, trachea, esophagus, salivary glands.
2. Development of oral and Para oral tissue including detailed aspects of tooth and dental hard tissue formation.
3. Pharyngeal apparatus in detail including the floor of the primitive pharynx.
4. Congenital anomalies of face must be dealt in detail.

GROWTH AND DEVELOPMENT:

1. Facial form, Facial growth and development, overview of dento facial growth process and physiology from fetal period to maturity and old age, comprehensive study of craniofacial biology.
2. General physical growth, functional and anatomical aspects of the head, changes in craniofacial skeletal relationship between development of the dentition and facial growth.

DENTAL ANATOMY:

1. Anatomy of primary and secondary dentition
2. Concept of occlusion, mechanism of articulation, and masticatory function.
3. Detailed structural and functional study of the oral, dental and para oral tissues.
4. Normal occlusion, development of occlusion in deciduous, mixed and permanent dentitions, root length, root configuration, tooth-numbering system.

HISTOLOGY:

1. Histology of enamel, dentin, cementum, periodontal ligament and alveolar bone, pulpal anatomy, histology and biological consideration.
2. Salivary glands and histology of epithelial tissues including the glands
3. Histology of general and specific connective tissue including bone, hematopoietic system, lymphoid system
4. Study of epithelium of oral cavity and the respiratory tract
5. Muscular tissue
6. Nervous tissue
7. Blood vessels
8. Cartilage
9. Tongue
10. Salivary glands
11. Tonsil, thymus, lymph nodes

ANTHROPOLOGY AND EVOLUTION:

1. Comparative study of tooth, joints, jaws, muscles of mastication and facial expression, tongue, palate, facial profile and facial skeletal system.
2. Comparative anatomy of skull, bone, brain, musculo - skeletal system, neuromuscular coordination, posture and gait .

APPLIED GENETICS AND HEREDITARY:

1. Principles of orofacial genetics, molecular basis of genetics, genetic risks, counseling, bioethics.
2. Dentofacial anomalies, anatomical, psychological and pathological characteristic of major groups of developmental defects of the orofacial structures.

CELL BIOLOGY:

1. Detailed study of the structure and function of the mammalian cell with special emphasis on ultra structural features and molecular aspects.
2. Detailed consideration of Inter cellular junctions, cell cycle and division, cell to cell and cell-extra cellular matrix interactions.

PHYSIOLOGY:

Mastication, deglutition, digestion and assimilation

Homeostasis, fluid and electrolyte balance.

Blood composition, volume, function, blood groups and hemorrhage, blood transfusion, circulation, heart, pulse, blood pressure, capillary and lymphatic circulation

Shock, respiration control, anoxia, hypoxia, asphyxia, artificial respiration.

Role of calcium and Vitamin D in growth and development of teeth, bone and jaws.

Role of Vitmain A, C and B complex in oral mucosal and periodontal health.

Physiology and function of the masticatory system.

Speech mechanism, mastication, swallowing and deglutition mechanism, salivary glands and saliva

General principles of endocrine activity and disorders relating to pituitary, thyroid, pancreas, parathyroid, adrenals, gonads, including pregnancy and lactation.

Physiology of saliva, urine formation, normal and abnormal constituents.

Physiology of pain, sympathetic and parasympathetic nervous system.

Neuromuscular coordination of the stomatognathic system.

Laboratory determinations: Blood groups, blood matching, R.B.C and W.B.C. count, bleeding and clotting time

APPLIED NUTRITION:

General principles, balanced diet, effect of dietary deficiencies and starvation.
Diet, digestion, absorption, transportation and utilization, diet for elderly patients.

BIOCHEMISTRY:

General principles governing the various biological activities of the body, such as osmotic pressure, electrolytic dissociation, oxidation-reduction, intermediary metabolism.

Carbohydrates, proteins, lipids and their metabolism.

Enzymes, Vitamins and minerals, Hormones, Blood and other body fluids, Metabolism of inorganic elements, Detoxification in the body, Anti metabolites.

PATHOLOGY:

Inflammation, repair and degeneration.

Necrosis and gangrene.

Circulatory disturbances, Ischemia, hyperemia, chronic venous congestion, edema, thrombosis, embolism and infarction, infection and infective granulomas.

Allergy and hypersensitive reaction.

Neoplasm; Classification of tumors. Carcinogenesis, characteristics of benign and malignant tumors, spread of tumors.

Applied histopathology and clinical pathology.

Applied Oral Pathology:

Developmental disturbances of oral and Para oral structures, Regressive changes of teeth.

Bacterial, viral and mycotic infections of oral cavity, dental caries, diseases of pulp and periapical tissues.

Physical and chemical injuries of the oral cavity

Oral manifestations of metabolic and endocrine disturbances.

Diseases of the blood in relation to the oral cavity, Periodontal diseases.

Diseases of the skin, nerves and muscles in relation to the Oral cavity.

MICROBIOLOGY:

Immunity

Knowledge of organisms commonly associated with diseases of the oral cavity (morphology cultural characteristics etc) of streptococcus, staphylococcus, pneumococcus, gonococcus and

meningococci, Clostridia group of organisms, Spirochetes, organisms of tuberculosis, leprosy, diphtheria, actinomycosis and moniliasis etc.

Virology

Cross infection control, sterilization and hospital waste management

Laboratory determinations: Smear and cultures - urine analysis and culture

PHARMACOLOGY:

Definition of terminologies used - dosage and mode of administration of drugs.

Action and fate of drugs in the body.

Drug addiction, tolerance and hypersensitive reactions.

Drugs acting on the central nervous system, general anesthetics, hypnotics. Analeptics and tranquilizers, Local anesthetics.

Chemotherapeutics and antibiotics. Antitubercular and anti syphilitic drugs. Analgesics and antipyretics, Antiseptics, styptics. Sialogogues and antisialogogues.

Haematinics,

Cortisone, ACTH, insulin and other anti diabetics

Vitamins: A, D, B - complex group, C and K

Chemotherapy and Radiotherapy

BIOSTATISTICS

Study of Biostatistics as applied to dentistry and research.

Definition, aim ,characteristics and limitations of statistics, planning of statistical experiments, sampling, collection, classification and presentation of data (Tables, graphs, pictograms etc)

Analysis of data.

INTRODUCTION TO BIOSTATISTICS

Scope and need for statistical application to biological data.

Definition of selected terms - scale of measurements related to statistics.

Methods of collecting data, presentation of the statistical diagrams and graphs.

Frequency curves, mean, mode and median, Standard deviation and co-efficient of variation.

Correlation - Co-efficient and its significance.

Binominal distributions, normal distribution and Poisson distribution.

Tests of significance

RESEARCH METHODOLOGY

Understanding and evaluating dental research, scientific method

Measurement and Errors of measurement, Presentation of results, Reliability, Sensitivity and Specificity diagnosis test and measurement, Research Strategies, Observation, Correlation, Experimentation and Experimental design.

Logic of statistical interference, clinical vs scientific judgement, problem with clinical judgement, forming scientific judgements, the problem of contradictory evidence, citation analysis as a means of literature evaluation, influencing judgement

APPLIED RADIOLOGY

Introduction, radiation, background of radiation, sources, radiation biology, somatic damage genetic damage, protection from primary and secondary radiation, Principles of X-ray production Applied principles of radio therapy and after care.

ROENTGENOGRAPHIC TECHNIQUES

Intra oral , Extra oral roentgenography,
Methods of localization, digital radiology and ultra sound
Normal anatomical landmarks of teeth and jaws in radiograms
Temporomandibular joint radiograms
Neck radiograms.

APPLIED MEDICINE

Systemic diseases and its influence on general health and oral and dental health.
Medical emergencies in the dental offices - Prevention, preparation, medico legal consideration, unconsciousness, respiratory distress, altered consciousness, seizures, drug related emergencies, chest pain, cardiac arrest, premedication, and management of ambulatory patients, resuscitation, applied psychiatry, child, adult and senior citizens.
Assessment of case, premedication, inhibition, monitoring, extubation, complication, assist in O.T. for anesthesia.

APPLIED SURGERY & ANESTHESIA

General principles of surgery, wound healing, incision wound care, hospital care, control of hemorrhage, electrolyte balance.
Common bandages, sutures, splints, shifting of critically ill patients, prophylactic therapy, bone surgeries, grafts, etc, surgical techniques, nursing assistance, anesthetic assistance.
Principles in speech therapy, surgical and radiological craniofacial oncology, applied surgical ENT and ophthalmology.

PLASTIC SURGERY

Applied understanding and assistance in programmes of plastic surgery for prosthodontics therapy.

APPLIED DENTAL MATERIAL

- All materials used for treatment of craniofacial disorders - Clinical, treatment, and laboratory materials, Associated materials, Technical consideration, shelf life, storage, manipulations, sterilization, and waste management.

- Students shall acquire knowledge and practice of history taking, examination of systemic and oral and craniofacial region and diagnosis and treatment plan and prognosis record maintaining. A comprehensive rehabilitation concept with pre prosthetic treatment plan including surgical reevaluation and Prosthodontic treatment plan, impressions, jaw relations, utility of face bow and articulators, selection and positioning of teeth for retention, stability, esthetics, phonation and psychological comfort. Fit and insertion and instruction for patients after care and preventive Prosthodontic, management of failed restorations.

- TMJ syndromes, occlusion rehabilitation and craniofacial esthetics. State of the art clinical methods and materials for implants supported extra oral and intra oral prosthesis.

- Knowledge of testing biological, mechanical and other physical property of all material used for the clinical and laboratory procedures in Prosthodontic therapy.

PART II

REMOVABLE PROSTHODONTICS AND IMPLANT SUPPORTED PROSTHESIS (IMPLANTOLOGY), GERIATRIC DENTISTRY AND CRANIO FACIAL PROSTHODONTICS

Study includes Seminars / lectures / Demonstrations

Removable Prosthodontics and implants:

- a. Prosthodontic treatment for completely edentulous patients - Complete denture, immediate complete denture, single complete denture, tooth supported complete denture, Implant supported Prosthesis for completely edentulous patients
- b. Prosthodontic treatment for partially edentulous patients: Clasp-retained partial dentures, intra coronal and extra coronal precision attachments retained partial dentures, maxillofacial prosthesis

Prosthodontic treatment for edentulous patients - Complete Dentures and Implant supported Prosthesis.

Complete Denture Prosthesis –

Definitions, terminology (G.P.T., Boucher's clinical dental terminology)

Scope of Prosthodontic - The Cranio Mandibular system and its functions, the reasons for loss of teeth and methods of restorations

Infection control, cross infection barrier - clinical and laboratory and hospital and lab waste management

- a. Edentulous Predicament, Biomechanics of the edentulous state, Support mechanism for the natural dentition and complete dentures.

Biological considerations, Functional and Para functional considerations, Esthetic, Behavioral and adaptive responses, Temporomandibular joints changes.

- b. Effects of aging, distribution of edentulism in old age, impact of age on edentulous mouth - Mucosa, Bone, saliva, jaw movements in old age, taste and smell, nutrition, aging, skin and teeth, concern for personal appearance in old age.
- c. Sequelae caused by wearing complete denture - the denture in the oral environment - mucosal reactions, altered taste perception, burning mouth syndrome, gagging, residual ridge resorption, denture stomatitis, flabby ridge, denture irritation hyperplasia, traumatic ulcers, oral cancer in denture wearers, nutritional deficiencies, masticatory ability and performance, nutritional status and masticatory functions.

- d. Temporomandibular disorders in edentulous patients - Epidemiology, etiology and management, Pharmacotherapy, Physical modalities, and Bio-behavioral modalities.
- e. Nutrition Care for the denture wearing patient - Impact of dental status on food intake, gastrointestinal functions, nutritional needs and status of older adults, Calcium and bone health, vitamin and nutritional supplementation, dietary counseling and risk factor for malnutrition in patients with dentures and when teeth are extracted.
- f. Complete denture patients –
Diagnosis and treatment planning for edentulous and partially edentulous patients - problem identification, prognosis and treatment planning - contributing history - patient's history, social information, medical status - systemic status with special reference to debilitating diseases, diseases of the joint, cardiovascular, disease of the skin, neurological disorders, oral malignancies, use of drugs, mental health - mental attitude, psychological changes, adaptability, geriatric changes - physiologic, pathological and intra oral changes.

Intra oral health - mucose membrane, alveolar ridges, palate and vestibular sulcus and dental health.

Data collection and recording, visual observation, radiography, palpation, measurement-sulci or fossae, extra oral measurement, the vertical dimension of occlusion, diagnostic casts.

Specific observations - existing dentures, soft tissue health, hard tissue health - teeth, bone

Biomechanical considerations - jaw relations, border tissues, saliva, and muscular development - muscle tone, neuromuscular co-ordination, tongue, cheek and lips.

Interpreting diagnostic findings and treatment planning

- g. Pre prosthetic surgery - Improving the patients denture bearing areas and ridge relations:
 - non surgical methods - rest for the denture supporting tissues, occlusal correction of the old prosthesis, good nutrition, conditioning of the patients musculature
 - surgical methods - Correction of conditions, that preclude optimal prosthetic function - hyperplastic ridge - epulis fissuratum and papillomatosis, frenular attachments and pendulous maxillary tuberosities, ridge augmentation, maxillary and Mandibular oral implants, corrections of congenital deformities, discrepancies in jaw size, relief of pressure on the mental foramen, enlargement of denture bearing areas, vestibuloplasty, ridge augmentation, replacement of tooth roots with Osseo integrated denture implants.

- h. Immediate Denture - Advantages, disadvantages, contra indication, diagnosis treatment plan and prognosis, Explanation to the patient, Oral examinations, examination of existing prosthesis, tooth modification, prognosis, referrals/adjunctive care, oral prophylaxis and other treatment needs.

First extraction / surgical visit, preliminary impressions and diagnostic casts, management of loose teeth, custom trays, final impressions and final casts two tray or sectional custom impression tray, location of posterior limit and jaw relation records, setting the denture teeth / verifying jaw relations and the try in, laboratory phase, setting of anterior teeth, Wax contouring, flasking and dewaxing, processing and finishing, surgical templates, surgery and immediate denture insertion, post operative care and patient instructions, subsequent service for the patient on the immediate denture, over denture tooth attachments, implants or implant attachments.

- i. Over dentures (tooth supported complete dentures) - indications and treatment planning, "advantages and disadvantages, selection of abutment teeth, lose of abutment teeth, tooth supported complete dentures. Non-coping abutments, abutment with copings, abutments with attachments, submerged vital roots, preparations of the retained teeth.
- j. Single Dentures: Single Mandibular denture to oppose natural maxillary teeth, single complete maxillary denture to oppose natural Mandibular teeth, to oppose a partially edentulous Mandibular arch with fixed prosthesis, partially edentulous Mandibular arch with removable partial dentures. Opposing existing complete dentures, preservation of the residual alveolar ridge, necessity for retaining maxillary teeth and mental trauma,
- k. Art of communication in the management of the edentulous predicament - Communication - scope, a model of communication, why communication important, what are the elements of effective communications, special significance of doctor / patient communication, doctor behavior, The iatrosedative (doctor & act of making calm) recognizing and acknowledging the problem, exploring and identifying the problem, interpreting and explaining the problem, offering a solution to the problem for mobilize their resources to operate most efficient way, recognizing and acknowledging the problem, interpreting and explaining the problem, offering a solution to the problem.
- l. Materials prescribed in the management of edentulous patients - Denture base materials, General requirements of biomaterials for edentulous patients, requirement of an ideal denture base, chemical composition of denture base resins, materials used in the fabrication of prosthetic denture teeth, requirement of prosthetic denture teeth, denture lining materials and tissue conditioners, cast metal alloys as denture, bases - base metal alloys

m. Articulators - Classification, selection, limitations, precision, accuracy and sensitivity, and Functional activities of the lower member of the articulator and uses.

n. Fabrications of complete dentures –

Complete denture impressions - muscles of facial expressions and anatomical landmarks, support, retention, stability, aims and objectives - preservation, support, stability, aesthetics, and retention.

Impression materials and techniques - the preliminary impression and final impression ,Developing an analogue / substitute for the maxillary denture bearing area - anatomy of supporting structures - mucous membrane:, hard palate, residual ridge, shape of the supporting structure and factors that influence the form and size of the supporting bones, incisive foramen, maxillary tuberosity, sharp spiny process, torus palatunis, Anatomy of peripheral or limiting structures, labial vestibule, Buccal vestibule, vibrating line.

Preliminary and final impressions, custom tray and refining the custom tray, preparing the tray to secure the final impression, making the final impression, boxing impression and making the casts.

Developing an analogue / substitute for the Mandibular denture bearing area-Mandible - anatomy of supporting structure, crest of the residual ridge, the buccal shelf, shape of supporting structure, mylohyoid ridge, mental foramen, genial tubercles, torus mandibularis, anatomy of peripheral or limiting structure - labial vestibule, buccal vestibule, lingual border, mylohyoid muscle, retromylohyoid fossa, sublingual gland region, alveolingual sulcus.

Mandibular impressions - preliminary impressions, custom tray, refining, preparing the tray, final impressions.

o. Mandibular movements, Maxillo mandibular relation and concepts of occlusion - Gnathology, identification of shape and location of arch form - mandibular and maxillary, occlusion rim, level of occlusal plane and recording of trail denture base, tests to determine vertical dimension of occlusion, interocclusal and centric relation records. Biological and clinical considerations in making jaw relation records and transferring records from the patients to the articulator.

Recording of Mandibular movements - influence of opposing tooth contacts, temporomandibular joint, muscular involvements, neuromuscular regulation of mandibular motion, the envelope of motion, rest position, Maxillo - Mandibular relations - the centric, eccentric, physiologic rest position, vertical dimension, occlusion, recording methods - mechanical, physiological.

Determining the horizontal jaw relation - Functional graphics, tactile or interocclusal check record method, Orientation / sagittal relation records, Arbitrary / Hinge axis and face bow record, significance and requirement, principles and biological considerations and securing on articulators.

- p. Selecting and arranging artificial teeth and occlusion for the edentulous patient -anterior tooth selection, posterior tooth selection, and principles in arrangement of teeth, -and factors governing position of teeth - horizontal, vertical. The inclinations and arrangement of teeth for aesthetics, phonetics and mechanics - to concept of occlusion.
- q. The Try in - verifying vertical dimension, centric relation, establishment of posterior palatal seal, creating a facial and functional harmony with anterior teeth, harmony of spaces of individual teeth position, harmony with sex, personality and age of the patient, co-relating aesthetics and incisal guidance.
- r. Speech considerations with complete dentures - speech production - structural and functional demands, neuropsychological background, speech production and the role of teeth and other oral structures - bilabial sounds, labiodentals sounds, linguodental sounds, linguoalveolar sound, articulatoric characteristics, acoustic characteristics, auditory characteristics, linguopalatal and linguoalveolar sounds, speech analysis and prosthetic considerations.
- s. Waxing ,contouring and processing the dentures their fit and Insertion and after care .
Laboratory procedure - wax contouring, flasking and processing, laboratory remount procedures and selective, finishing and polishing.

Critiquing the finished prosthesis -doctors evaluation, patients evaluation, friends evaluation, elimination of basal surface errors, errors in occlusion, interocclusal records for remounting procedures - verifying: centric relation, eliminating occlusal errors, special instructions to the patient -appearance with new denture, mastication with new dentures, speaking with new dentures, oral hygiene with dentures, preserving of residual ridges and educational material for patients, maintaining the comfort and health of the oral cavity in the rehabilitated edentulous patients.

24hrs oral examination and treatment and Prosthodontic - periodontic recall for oral examination 3 to 4 months intervals and yearly intervals.

- t. **Implant supported Prosthesis for partially edentulous patients** - Science of osseointegration and clinical protocol for treatment with implant supported over dentures, managing problems and complications, implant Prosthodontics for edentulous patients – current and future directions.

- u. Implant supported prosthesis for partially edentulous patients – clinical and laboratory protocol: Implant supported prosthesis, managing problems and complications
 - Introduction and historical Review
 - Biological, clinical and surgical aspects of oral implant
 - Diagnosis and treatment planning
 - Radiological interpretation for selection of fixtures
 - Splints for guidance for surgical placement of fixtures
 - Intra oral plastic surgery
 - Guided bone and Tissue generation consideration for implants fixture.
 - Implants supported prosthesis for complete edentulism and partial edentulism
 - Occlusion for implants support prosthesis.
 - Peri implant tissue and Management
 - Peri - implant and management
 - Maintenance and after care
 - Management of failed restoration
 - Work authorization for Implant supported prosthesis - definitive instructions, legal aspects, delineation of responsibility.

Prosthodontic treatment for partially edentulous patients - Removable partial Prosthodontics

- a. Scope, definition and terminology, classification of partially edentulous arches - requirements of an acceptable methods of classification. Kennedy's classification, Apple gates rules

- b. **Components of RPD –**

Major connector - mandibular and maxillary, minor connectors: design, functions, form, and location of major and minor connectors, tissue stops, finishing lines, reaction of tissue to metallic coverage

Rest and rest seats - from of the Occlusal rest and rest seat, interproximal Occlusal rest seats, internal Occlusal rests, possible movements of partial dentures, support for rests, lingual rests on canines and incisor teeth, incisal rest and rest seat.

Direct retainer- Internal attachment. Extra coronal direct retainer, relative uniformity of retention, flexibility of clasp arms, stabilizing reciprocal clasp, criteria for selecting a given clasp design, the basic principles of clasp design, circumferential clasp, bar clasp, combination clasp and other type of retainers.

Indirect Retainer - denture rotation about an axis, factors influencing effectiveness of indirect retainers, forms of indirect retainers, auxiliary Occlusal rest, canine extensions

from Occlusal rests, canine rests, continuous bar retainers and linguoplasts, modification areas, rugae support, direct - indirect retention

Principles of removable partial Denture design - bio mechanical considerations, and the factors influencing it. Mouth preparations - Occlusal relationship of remaining teeth, orientation of Occlusal plane, available space for restoration, arch integrity, tooth morphology, response of oral structure to previous stress, periodontal conditions, abutment support, tooth supported and tooth and tissue supported, need for indirect retention, clasp design, need for rebasing, secondary impressions, need for abutment tooth modification, type of major connector, type of teeth selection, patients past experience, method of replacing single teeth or missing anterior teeth.

Difference between tooth supported and tissue supported partial dentures, essential of partial denture design, components of partial denture design, tooth support, ridge support, stabilizing components, guiding planes, use of splint bar for denture support, internal clip attachments, overlay abutment as support for a denture base, use of a component partial to gain support.

- c. Education of patient
- d. Diagnosis and treatment planning
- e. Design, treatment sequencing and mouth preparation
- f. Surveying - Description of dental surveyor, purposes of surveying, Aims and objectives in surveying of diagnostic cast and master cast, final path of placement, factors that determine path of placement and removal.
Recording relation of cast to surveyor, measuring retention, Blocking of master cast - paralleled blockout, shaped blockout, arbitrary blockout and relief.
- g. Diagnosis and treatment planning – infection control and cross infection barriers – clinical and laboratory and hospital waste management,.

Objectives of prosthodontic treatment, records, systemic evaluation, Oral examination, preparation of diagnostic cast, interpretation of examination data, radiographic interpretation, periodontal considerations, caries activity, prospective surgical preparation, endodontic treatment, analysis of occlusal factors, fixed restorations, orthodontic treatment, need for determining the design of components, impression procedures and occlusion, need for reshaping remaining teeth, reduction of unfavorable tooth contours, differential diagnosis : fixed or removable partial dentures, choice between complete denture and removable partial dentures, choice of materials.

- h. Preparation of Mouth for removable partial dentures - Oral surgical preparation, conditioning of abused and irritated tissues, periodontal preparation - objectives at periodontal therapy, periodontal diagnosis, control therapy, periodontal surgery.

- i. Preparation of Abutment teeth - Classification of abutment teeth, sequence of abutment preparations on sound enamel or existing restorations, conservative restoration using crowns, splinting abutment teeth, utilization, temporary crowns to be used as abutment.
- j. Impression Materials and Procedures for Removable Partial Dentures — Rigid materials, thermoplastic materials, Elastic materials, Impressions of the partially edentulous arch, Tooth supported, tooth tissue supported, Individual impression trays.
- k. Support for the Distal Extension Denture Base - Distal extension removable partial denture, Factors influencing the support of distal extension base, Methods for obtaining functional support for the distal extension base.
- l. Laboratory Procedures - Duplicating a stone cast, Waxing the partial denture framework, Anatomic replica patterns, Spruing, investing, burnout, casting and finishing of the partial denture framework, making record bases, occlusion rims, making a stone occlusal template from a functional occlusal record, arranging posterior teeth to an opposing cast or template, types of anterior teeth, waxing and investing the partial denture before processing acrylic resin bases, processing the denture, remounting and occlusal correction to an occlusal template, polishing the denture.
- m. Initial placement, adjustment and servicing of the removable partial denture - adjustments to bearing surfaces of denture framework, adjustment of occlusion in harmony with natural and artificial dentition, instructions to the patient, follow - up services.
- n. Relining and Rebased the removable partial denture - Relining tooth supported dentures bases, relining distal extension denture bases, methods of reestablishing occlusion on a relined partial denture.
- o. Repairs and additions to removable partial dentures - Broken clasp arms, fractured occlusal rests, distortion or breakage of other components — major and minor connectors, loss of a tooth or teeth not involved in the support or retention of the restoration, loss of an abutment tooth necessitating its replacement and making a new direct retainer, Other types of repairs. Repair by soldering.
- p. Removable partial denture considerations in maxillofacial prosthetics – Maxillofacial prosthetics, intra oral prosthesis, design considerations, maxillary prosthesis, Obturators, speech aids, palatal lifts, palatal augmentations, mandibular prosthesis, treatment planning, framework design, class I resection. Class II resection, mandibular flange prosthesis, jaw relation record
- q. Management of failed restorations and work authorization

ii. **MAXILLOFACIAL REHABILITATION**

Scope, terminology, definitions, cross infection control and hospital waste management, work authorization.

Behavioral and psychological issues in head and neck cancer, Psychodynamic interactions - clinician and patient Cancer Chemotherapy: Oral Manifestations, Complications, and management, Radiation therapy of head and neck tumors: Oral effects, Dental manifestations and dental treatment; Etiology, treatment and rehabilitation (restoration) - Acquired defects of the mandible, acquired defects of hard palate, soft palate, clinical management of edentulous and partially edentulous maxillectomy patients, Facial defects, Restoration of speech, Velopharyngeal function, cleft lip and palate, cranial implants, maxillofacial trauma, Lip and cheek support prosthesis, Laryngectomy aids, Obstructive sleep apnoea, Tongue prosthesis, Esophageal prosthesis. Vaginal radiation carrier. Burn stents, Nasal stents, Auditory inserts, trismus appliances, mouth controlled devices for assisting the handicapped, custom prosthesis for lagophthalmos of the eye. Osseo integrated supported facial and maxillofacial prosthesis. Resin bonding for maxillofacial prosthesis, Implant rehabilitation of the mandible compromise by radiotherapy, Craniofacial Osseo Integration, Prosthodontic treatment, Material and laboratory procedures for maxillofacial prosthesis.

GERIATRIC DENTISTRY AND CRANIO FACIAL PROSTHODONTICS

FIXED PROSTHODONTICS, OCCLUSION, TMJ AND ESTHETICS

Study includes seminars / lectures / discussion

FIXED PROSTHODONTICS

Scope, definitions and terminology, classification and principles, design, mechanical and biological considerations of components: retainers, connectors, pontics, work authorization

- Diagnosis and treatment planning –
Patient's history and interview, patient's desires and expectations and needs, systemic and emotional health
clinical examinations - head and neck, oral - teeth, occlusal and periodontal, Preparation of diagnostic cast, radiographic interpretation, Aesthetics, endodontics consideration, abutment selection - bone support, root proximities and inclinations, selection of abutments, for cantilever, pier abutments, splinting, available tooth structures and crown morphology TMJ and muscles mastication and comprehensive planning and prognosis
- Management of Carious teeth - caries in aged, caries control, removal carious, protection of pulp, reconstruction measure for compromising teeth - retentive pins, horizontal slots, retention grooves, prevention of caries, diet, prevention of root caries and vaccine for caries.

- Periodontal considerations - attachment units, ligaments, gingivitis, periodontitis
Microbiological aspect of periodontal diseases, marginal lesion, occlusal trauma, periodontal pockets ,attached gingiva, interdental papilla, gingival embrasures, gingival/periodontal prosthesis, radiographic interpretations of Periodontal, intraoral, periodontal splinting – Fixed prosthodontics with periodontially compromised dentitions, placement of margin restorations.
- Biomechanical principle of tooth preparations - individual tooth preparations. Complete metal Crowns - P.F.C., All porcelain - Cere store crowns, dicor crowns, incerem etc., porcelain jacket crowns partial 3/4, fronional half, radicular 7/8, telescopic, pin-ledge,; laminates, inlays, onlays and preparations for restoration of teeth-amalgam, glass ionomer and composite resins, Resin Bond retainers, Gingival marginal preparations - Design, material selection, and biological and mechanical considerations - intracoronal retainer and precision attachments - custom made and ready made
- Isolation and fluid control - Rubber dam applications, tissue dilation - soft tissue management for cast restoration, impression materials and techniques, provisional restoration, interocclusal records, laboratory support for fixed Prosthodontics, Occlusion, Occlusal equilibration, articulators, recording and transferring of occlusal relations, cementing of restorations.
- Resins, Gold and gold alloys, glass ionomer, restorations
- Restorations of endodontically treated teeth, Stomatognathic Dysfunction and management
- Management of failed restorations.

OCCLUSION:

EVALUATION, DIAGNOSIS AND TREATMENT OF OCCLUSAL PROBLEMS:

Scope, definition, terminology, optimum oral health, anatomic harmony, functional harmony, occlusal stability, causes of deterioration of dental and oral health, Anatomical, physiological, neuro - muscular, psychological considerations of teeth, muscles of mastication, temporomandibular joint, intra oral and extra oral and facial musculatures, the functions of Cranio mandibular system.

Occlusal therapy, the stomatognathic system, centric relation, vertical dimension, the neutral zone, the occlusal plane, differential diagnosis of temporomandibular disorders, Understanding and diagnosing intra articular problems, relating treatment to diagnosis of internal derangements of TMJ, Occlusal splints, selecting instruments for occlusal diagnosis and treatment, mounting

casts, Pankey – mann - schuyler philosophy of complete occlusal rehabilitation, long centric, anterior guidance, restoring lower anterior teeth, restoring upper anterior teeth, determining the type of posterior occlusal contours, methods for determining the plane of occlusion, restoring lower posterior teeth, restoring upper posterior teeth, functionally generated path techniques for recording border movements intra orally, occlusal equilibration, Bruxism, Procedural steps in restoring occlusion a, requirements for occlusal stability, solving occlusal problems through programmed treatment planning, splinting, solving - occlusal wear problems, deep overbite problems, anterior overjet problems, anterior open bite problems. Treating - end to end occlusion, splayed anterior teeth, cross bite patient, Crowded, irregular, or interlocking anterior bite, using Cephalometric for occlusal analysis, solving severe arch malrelationship problems, transcranial radiography, postoperative care of occlusal therapy.

Osseo integrated supported fixed Prosthodontics - Osseo integrated supported and tooth supported fixed Prosthodontics

TMJ - Temporomandibular joint dysfunction

Scope, definitions and terminology

Temporomandibular joint and its function, Orofacial pain, and pain from the temporomandibular joint region, temporomandibular joint dysfunction, temporomandibular joint sounds, temporomandibular joint disorders

Anatomy related, trauma, disc displacement, Osteoarthritis/Osteoarthritis, Hyper mobility and dislocation, infectious arthritis, inflammatory diseases, Eagle's syndrome (Styloid - stylohyoid syndrome), Synovial chondromatosis, Osteochondrosis disease, Osteonecrosis, Nerve entrapment process, Growth changes, Tumors, Radiographic imaging

- Etiology, diagnosis and cranio mandibular pain, differential diagnosis and management of orofacial pain - pain from teeth, pulp, dentin, muscle pain, TMJ pain -psychologic, physiologic - endogenous control, acupuncture analgesia, Placebo effects on analgesia, Trigeminal neuralgia, Temporal (**arteritis**)
- Occlusal splint therapy - construction and fitting of occlusal splints, management of occlusal splints, therapeutic effects of occlusal splints, occlusal splints and general muscles performance, TMJ joint uploading and anterior repositioning appliances, use and care of occlusal splints.
- Occlusal adjustment procedures - Reversible - occlusal stabilization splints and physical therapies, jaw exercises, jaw manipulation and other physiotherapy or irreversible therapy - occlusal repositioning appliances, orthodontic treatment, Orthognathic surgery, fixed and removable prosthodontic treatment and occlusal adjustment, removable prosthodontic treatment and occlusal adjustment, Indication for occlusal adjustment,

special nature at orofacial pain, Indication for occlusal adjustment, special nature of orofacial pain

- Psychopathological considerations, occlusal adjustment philosophies, mandibular position excursive guidance,, occlusal contact scheme, goals of occlusal adjustment, significance of a slide in centric, Preclinical procedures, clinical procedures for occlusal adjustment.

AESTHETIC

SCOPE AND DEFINITIONS:

Morpho psychology and esthetics, structural esthetic rules - facial components, dental components, gingival components and physical components.

Esthetics and its relationship to function - Crown morphology, physiology of occlusion, mastication, occlusal loading and clinical aspect in bio esthetic aspects. Physical and physiologic characteristic and muscular activities of facial muscle, perioral anatomy and muscle retaining exercises.

Smile - classification and smile components, smile design, esthetic restoration of smile.

Esthetic management of the dentogingival unit, intraoral materials for management of gingival contours, and ridge contours, Periodontal esthetics, Restorations - Tooth colored restorative materials, the clinical and laboratory aspects, marginal fit, anatomy, inclinations, form, size, shape, color, embrasures, contact point.

EXAMINATION:

The university examination shall consist of theory, practical / clinical examination, viva-voce and Pedagogy

A. Theory:

Part-I: Shall consist of one paper.

There shall be a theory examination in the Basic Sciences at the end of 1st year. The question papers shall be set and evaluated by the concerned Department/Speciality. The candidates shall have to secure a minimum of 50% in the Basic Sciences and shall have to pass the **Part-I** examination at least six months prior to the final (Part-II) examination.

Part-I: Shall consist of one paper namely Paper-I

Paper-I: Applied Basic Sciences- Applied Anatomy, embryology, growth and development, genetics, immunology, anthropology, physiology, nutrition and bio chemistry, pathology and microbiology, virology, applied pharmacology, research methodology and bio statistics, applied dental anatomy and histology, oral pathology and oral microbiology, adult and geriatric psychology, applied dental materials.

Part-II: Shall consist of three papers, namely-

Paper-I: Removable prosthodontics and implant supported prosthodontics (Implantology), geriatric dentistry and Cranio facial Prosthodontics.

Paper-II: Fixed Prosthodontics, occlusion, TMJ and esthetics

Paper-III: Descriptive and analyzing type questions (Essays)

SCHEME OF EXAMINATION:

Theory: Part-I: Basic Sciences Paper - **100 Marks**

Part-II: Paper-I, Paper-II & Paper-III - **300 Marks**

(100 Marks for each Paper)

Part-I: Written examination shall consist of Basic Sciences (Part-I) of three hours duration shall be conducted at the end of First year of MDS course.

Paper I: Applied Basic Sciences: Applied Anatomy, embryology, growth and development, genetics, immunology, anthropology, physiology, nutrition and bio chemistry, pathology and microbiology, virology, applied pharmacology, research methodology and bio statistics, applied dental anatomy and histology, oral pathology and oral microbiology, adult and geriatric psychology, applied dental materials.

Part-II: Examination shall be conducted at the end of Third year of MDS course. Part-II Examination shall consist of Paper-I, Paper-II and Paper-III, each of three hours duration. Questions on recent advances may be asked in any or all the papers. Distribution of topics for each paper will be as follows:

Part-II: Shall consist of three papers, namely-

Paper-I: Removable prosthodontics and implant supported prosthodontics (Implantology), geriatric dentistry and Cranio facial Prosthodontics.

Paper-II: Fixed Prosthodontics, occlusion, TMJ and esthetics

Paper-III: Descriptive and analyzing type questions (Essays)

DISTRIBUTION OF MARKS:

(1) Part I University Examination (100 Marks):- Applied basics sciences conducted at the end of First year

a) Two essays of 25 marks each

b) 10 short answers of 5 marks each

(2) Part II (3 papers of 100 Marks):- Conducted at the end of third year

(i) Paper-I, Paper –II, Paper-III shall consist of

a) Two long essay questions of 25 marks each

b) 5 short essays of 10 mark each. (Total of 100 Marks)

B. PRACTICAL/ CLINICAL EXAMINATION;

1. CLINICAL/PRACTICAL EXAMINATION:

Clinical/practical examination is designed to test the clinical skill, performance and competence of the candidate in skills such as communication, clinical examination, medical/dental procedures or prescription, exercise prescription, latest techniques, evaluation and interpretation of results so as to undertake independent work as a specialist. The affiliating university shall ensure that the candidate has been given ample opportunity to perform various clinical procedures. The practical/clinical examination in all the specialities shall be conducted for eight candidates in three days.

2. Viva-voce: All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach and expression, interpretation of data and communication skills. It includes all components of course contents. It includes presentation and discussion on dissertation also. Viva voce examination aims at assessing the depth of knowledge, logical reasoning, confidence and communication skill of the students.

3. Pedagogy: A topic shall be given to each candidate in the beginning of clinical examination. He/she is asked to make a presentation for micro teaching on the topic for 8-10 minutes.

DISTRIBUTION OF MARKS:

A. Practical / Clinical Examination: 200 Marks

B. Viva Voce and Pedagogy: 100 Marks

1) Viva-Voce examination: 80 marks

2) Pedagogy Exercise: 20 marks

TOTAL MARKS:

THEORY: Part I: 100 Marks

Part II: 300 Marks

CLINICAL: 300 Marks

