

# **B.D.S. COURSE**

## **Duration of course:**

The undergraduate dental training programme leading to BDS degree shall be of 5 years with 240 teaching days in each academic year. During this period, the student shall be required to have engaged in full time study at a dental college recognised or approved by DCI.

## **Attendance, Progress and Conduct:**

75% in theory and 75% in practical/ clinical in each year.

In case of a subject in which there is no examination at the end of academic year, the percentage of attendance shall not be less than 70%. However to appear in that examination, the attendance must be 75%.

**The subject of orthodontics is included in fourth year of BDS course.**

## **EXAMINATIONS:**

These regulations shall be applicable for BDS degree examination conducted by various universities in the country.

### **Preface:**

Evaluation is a continuous process and is based on the criteria developed by concerned authorities with certain objectives to assess the performance of the learner.

**Evaluation is achieved by two processes:**

**Formative or internal assessment:** this is done through a series of tests and examinations conducted periodically by the institution.

**Summative or university examinations:** this is done by university through examinations conducted at the end of specified course.

### **Methods of evaluation:**

Evaluation may be achieved by the following tested methods:

#### **Written tests**

#### **Practicals**

#### **Clinical examination**

#### **Viva voce**

### **Internal assessment examination:**

The continuing assessment examination may be held frequently at least 3 times in a given academic year and the average marks of these examinations should be considered. Ten percent of the total marks in each subject separately for theory and practical should be set aside for internal assessment examinations.

### **Scheme of Examination:**

The scheme of examination for BDS course shall be divided into 5 academic years with 240 days minimum in each academic year. The teaching shall start from 1<sup>st</sup> AUGUST in each academic year.

### **Written Examination:**

The written examination shall consist of one paper of 3 hours duration and shall have maximum of 70 marks.

The question paper should contain different types of questions such as essays, short answer and MCQ's.

The nature of questions set should be aimed to evaluate students of different standards, ranging from average to excellent.

The questions should cover as broad an area of contents of the course.

The university may set up a question bank.

### **Practical and Clinical Examination:**

**Objective structured clinical evaluation:** This can include clinical procedures, laboratory experiments, spotters etc. Evaluation must be made objective and structured.

**Record and Log book:** The candidate should be given credit for his/ her records based on the scores obtained in the record book. The marks obtained in first appearance can be carried over to subsequent appearances.

**Scheme of clinical and practical examination:** The specific scheme of clinical and practical examination, the type of clinical procedures/ experiments to be performed and marks allotted for each are to be discussed and finalised by Chairman and other examiners and it is to be published prior to the conduct of the examinations along with the publication of time table for the practical examinations. This scheme should be brought to the notice of external examiners as and when the examiners report. The practical examination should be evaluated by two examiners of which one shall be external appointed by the university preferably outside the state. Each candidate should be evaluated independently and marks computed at the end of the examination.

**Viva Voce:** It is an excellent mode of assessment. It should be conducted independently by each examiner and questions can be preformulated before administering them to the student. 20 marks are exclusively allotted for viva voce and can be equally divided amongst the examiners i.e. 10 marks per examiner.

**Marks distribution:**

<b>Theory :</b>	100
University written examination:	70
Viva voce	20
Internal assessment (written)	10
<b>Practical/ Clinical :</b>	100
University examination	90
Internal assessment (written)	10

**Criteria for a pass:** For declaration of pass in a subject, a candidate shall secure 50% marks in university exams both in theory and practical separately. This includes internal assessment also.

**MINIMUM WORKING HOURS FOR ORTHODONTICS (BDS COURSE)**

Subject	Lecture hours	Practical Hours	Clinical hours	Total hours
Orthodontics(3 <sup>rd</sup> & 4 <sup>th</sup> year)	50	-	200	250
3 <sup>rd</sup> Year	20	-	70	90
4 <sup>th</sup> Year	30	-	130	160

There should be a minimum of 240 teaching days every academic year consisting of 8 working hours including one hour of lunch break.

**Recommended Reference Books for ORTHODONTICS for BDS Course:**

- Contemporary Orthodontics- Proffit
- Orthodontics for dental students- White and Gardiner
- Handbook of Orthodontics- Moyers
- Orthodontics principles and practise- Graber
- Design, construction and use of removable orthodontic appliances- Adams
- Clinical orthodontics vol.1 and vol.2- Salzmann

**SYLLABUS OF ORTHODONTICS FOR BDS COURSE:**

- 1) Introduction, Definition, Historical background, aims and Objectives of Orthodontics and Need for Orthodontic care.

- 2) Growth and Development: in general
  - Definition
  - Growth spurts and Differential growth
  - Factors influencing growth and development
  - Methods of measuring growth
  - Growth theories (genetic, Sicher, Moss, Petrovic, Multifactorial)
  - Genetic and epigenetic factors in growth
  - Cephalocaudal gradient in growth
- 3) Morphologic Development of Craniofacial structures
  - Methods of bone growth
  - Prenatal growth of craniofacial structures
  - Postnatal growth and development of cranial base, maxilla, mandible, dental arches and occlusion.
- 4) Functional Development of Dental arches and Occlusion
  - Factors influencing functional development of dental arches and occlusion
  - Forces of occlusion
  - Wolfe law of transformation of bone
  - Trajectories of forces
- 5) Clinical Application of Growth and Development
- 6) Malocclusion- in general
  - Concept of normal occlusion
  - Definition of malocclusion
  - Description of different types of dental, skeletal and functional malocclusion.
- 7) Classification of Malocclusion
  - Principle, description, advantages and disadvantages of classification of malocclusion by Angle, Simon, Lischer, Ackerman and Proffit.
- 8) Normal and Abnormal function of Stomatognathic System
- 9) Aetiology of Malocclusion
  - Definition, importance, classification, local and general aetiological factors
  - Etiology of following different types of malocclusion:
    - a) Midline diastema
    - b) Spacing
    - c) Crowding
    - d) Crossbite: anterior/ posterior
    - e) Class 111 malocclusion
    - f) Class 11 malocclusion
    - g) Deepbite
    - h) Openbite
- 10) Diagnosis and Diagnostic Aids
  - Definition, importance and classification of diagnostic aids
  - Importance of case history and clinical examination in orthodontics
  - Study models: - importance and uses- preparation and preservation of study models
  - Importance of intraoral x-rays in orthodontics
  - Panoramic radiographs: - principles, advantages, disadvantages and uses
  - Cephalometrics:- advantages and disadvantages
    - a) Definition
    - b) Description and use of cephalostat

- c) Description and uses of anatomical landmarks , lines and angles used in cephalometric analysis
- d) Analyses:- Steiner, Down, Tweed, Ricket E- line
  - Electromyography and its use in orthodontics
  - Hand and Wrist x- rays and its importance
- 11) General principles in Orthodontic treatment planning of dental and skeletal malocclusions
- 12) Anchorage in Orthodontics- Definition, classification, types and stability of anchorage
- 13) Biomechanical principles in OTM
  - Different types of tooth movements
  - Tissue response to orthodontic force application
  - Age factor in orthodontic tooth movement
- 14) Preventive Orthodontics
  - Definition
  - Different procedures undertaken in preventive orthodontics and their limitations
- 15) Interceptive Orthodontics
  - Definition
  - Different procedures undertaken in interceptive orthodontics
  - Serial extractions: definition, indications, contraindications, technique, advantages, disadvantages
  - Role of muscle exercises as an interceptive procedure
- 16) Corrective Orthodontics
  - Definition, factors to be considered during treatment planning
  - Model analysis: Ponts, Ashley Howe, Bolton, Carey's, Moyer's mixed dentition analysis
  - Methods of gaining space in arch: indications, relative merits and demerits of proximal stripping, arch expansion and extractions
  - Extractions in orthodontics: indications and selection of teeth for extraction
- 17) Orthodontic Appliances: General
  - Requisites for orthodontic appliances
  - Classification, indications of removable and functional appliances
  - Methods of force application
  - Materials used in construction of various orthodontic appliances- use of stainless steel, technical considerations in curing of acrylic, principles of welding and soldering, fluxes and antfluxes
  - Preliminary knowledge of acid etching and direct bonding

#### **Removable Orthodontic Appliances**

- a) Components of removable appliances
- b) Different types of clasps and their use
- c) Different types of labial bows and their use
- d) Different types of springs and their use
- e) Expansion appliances
  - Principles
  - Indications for arch expansion
  - Description of expansion appliances and different types of expansion devices and their uses
  - RME

#### **Fixed Orthodontic Appliances**

- a) Definition, indications, contraindications
- b) Component part and their uses

c) Basic principles of different techniques: Edgewise, Beggs, Straight wire appliance

#### **Extraoral Appliances**

- a) Headgears
- b) Chincups
- c) Reverse pull Headgear

#### **Myofunctional Appliances**

- a) Definition and principles
- b) Muscle exercises and their uses in orthodontics
- c) Functional appliances:
  - Activator, Oral screen, Frankel FR, Bionator, Twinblock, Lipbumper
  - Inclined planes: upper and lower

18) Orthodontic management of Cleft Lip and Palate

19) Principles of Surgical Orthodontics

a) Brief knowledge of correction of:

- Mandibular prognathism and retrognathism
- Maxillary prognathism and retrognathism
- Anterior openbite and deepbite
- Crossbite

20) Principles, Differential diagnosis & methods of treatment of:

- Midline diastema
- Crossbite
- Openbite
- Deepbite
- Spacing
- Crowding
- Class 11 div 1, div 2
- Class 111 malocclusion- true and pseudo class 111

21) Retention and Relapse- Definition, need of retention, causes of relapse, methods of retention, different types of retention devices, duration of retention, theories of retention

### **CLINICAL and PRACTICALS IN ORTHODONTICS**

#### **BDS 3<sup>rd</sup> Year:**

Basic wire bending exercises (22 gauges)

Straightening of wires (4 nos.)

Bending of equilateral triangles

Bending of a rectangle

Bending of a square

Bending of a circle

Bending of U and V

Construction of clasps (u/l, 22 gauge)

- $\frac{3}{4}$  clasp
- Full clasp
- Adam clasp
- Triangular clasp

Construction of springs (upper both sides)

- Finger spring
- Single cantilever spring, Double cantilever spring

- T-spring on premolars

Construction of canine retractors (23 gauge)

- U-loop canine retractor (u/l both sides)
- Helical canine retractors (u/l both sides)
- Buccal canine retractors
- Palatal canine retractor

Labial bow (22 gauge, u/l both sides)

**BDS IVth Year:**

U/l alginate impression making

Study model preparation

Model analysis

- Pont's
- Ashley Howe
- Carey's
- Bolton
- Moyer's mixed dentition analysis

Case history taking

Case discussion

Discussion on a given topic

Cephalometric tracing

- Down's
- Steiner's
- Tweed's

Appliance construction in Acrylic

- U/L Hawley appliance
- Upper Hawley with anterior bite plane
- Upper habit breaking appliance
- Upper Hawley with posterior bite plane with Z- spring
- Activator
- Lower inclined plane/ Catalan appliance
- Upper expansion appliance with expansion screw