**University:** Mansoura University
**Faculty:** Faculty of Dentistry
**Department:** Department of Orthodontics

## 1- Course data:

**Course name:** Orthodontics **Code:** 1404 Or **Study year:** 2020/2021
**Specialization: Bachelor Degree of Dentistry**
**Teaching Hours :**
**Lecture:** 2 hours/week **Practical:** 2 hours/week
**No of units:** 30 weeks

## 2- Course aim:

The aim of this course is to provide the student with basic knowledge and skills related to postnatal facial growth, normal dental development and tissue behavior to integrate this knowledge to diagnose both dental and skeletal malocclusions and design a treatment plan for simple orthodontic cases using various orthodontic appliances for stable treatment results.

## 3- Intended learning outcomes of course (ILOS):

**a-Knowledge and understanding:**

***By the end of the course, students should be able to:***

a.1. Identify orthodontics as science and art with regard to the scope and limitations of orthodontics.
a.2. Identify the aims of orthodontics treatment.
a.3. Understand basis of postnatal growth of Cranio-facial complex and its clinical considerations in orthodontic treatment.
a.4. Identify the normal form and activity of the oral soft tissues and their role in molding the form of the dental arches.
a.5. Summarize the forces of occlusion and the importance of their balance to produce harmonious jaw growth and dental development.
a.6. Identify the criteria of the normal dental development and occlusion in different age stages.
a.7. List the six keys to Normal occlusion.
a.8. Delineate the biological reaction to orthodontic forces applied on the teeth regarding different types of tooth movement.
a.9. List definition, types, and classification of malocclusions.
a.10. List different etiological factors for Malocclusion with their clinical features.
a.11. Explain how to make accurate clinical examination of the patient and state the required records for accurate diagnosis.
a.12. Outline the importance of orthodontic study casts and different methods of cast analysis.
a.13. Recognize the importance of x-rays in orthodontic diagnosis.
a.14. Underline various methods of growth modification for different skeletal problems based on facial growth principles and growth modification theories.
a.15. List the suitable orthodontic interceptive measures in different cases.

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a.16. Recognize the need of extraction in some cases and factors controlling the choice of different teeth for extraction to treat a certain malocclusion.
a.17. List the indications, contraindications and steps of serial extraction.
a.18. List definition, sources, types, classifications and importance of anchorage for orthodontic treatment.
a.19. Identify components, uses and indications of fixed and removable orthodontic appliances.
a.20. Summarize the mode of action, classification and uses of different functional appliances.
a.21. State the uses, indications and contraindications, and procedures for insertion of microimplants and precautions of their use.
a.22. Recognize the importance of retention and the need of different retainers for stable treatment results.
a.23. Identify the deleterious effects of orthodontic treatment.

**b- Intellectual skills:**

***By the end of the course ,students should be able to*:**

b.1. Inspect the impact of postnatal facial growth on normal dental development of occlusion.
b.2. Distinguish between different types of tooth movement.
b.3. Estimate the complications and deleterious effects associated with orthodontic treatment.
b.4. Relate different malocclusions to their causes.
b.5. Analyze the data collected from clinical examination and different records to diagnose orthodontic cases.
b.6. Interpret different radiographs to reach accurate orthodontic diagnosis.
b.7. Differentiate between growing patients from non-growing patients.
b.8. Differentiate cases requiring treatment from those with self-corrected problems
b.9. Compare between different orthodontic appliances.
b.10. Choose the appropriate appliance needed for orthodontic treatment and retention of different cases.
b.11. Select the type of anchorage and the appliance needed for each case.
b.12. Design a treatment plan for simple orthodontic cases.

**c- Professional and practical skills:**

***By the end of the course ,students should be able to*:**

c.1. Practice wire bending.
c.2. Construct various active and retentive components of removable appliances and check for their passivity.
c.3. Construct different modifications of various active and retentive components of removable appliances
c.4. Activate different removable appliances to get accurate force magnitude and direction.
c.5. Trace cephalometric x-rays and analyze them.
c.6. Illustrate different methods of cast analysis.

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**d- General and transferable skills:**

***By the end of the course ,students should be able to:***

d.1 Recognize the situations that necessitate to refer patients for a specialist opinion.

## 4- Course contents:

| No | Topic | Week |
|---|---|---|
| 1 | Introduction to orthodontics | 1 |
| 2 | Growth and development of the head | 2 |
| 3 | Development of normal occlusion | 4-5 |
| 4 | Normal adult occlusion and six keys to normal occlusion | 6-7 |
| 5 | Malocclusion (Distribution of dental anomalies in Egyptians) | 8 |
| 6 | Classification of malocclusion | 9-10 |
| 7 | Etiology of malocclusion (General and local factors) | 11-12 |
| 8 | Clinical examination | 13 |
| 9 | Orthodontic diagnostic records | 15-16 |
| 10 | Stomatognathic system (soft tissues and forces of occlusion) | 14 |
| 11 | Tissue changes and orthodontic tooth movements | 17 |
| 12 | Growth modification | 18-20 |
| 13 | Removable orthodontic appliances | 21 |
| 14 | Fixed orthodontic appliances | 22 |
| 15 | Functional appliances | 23 |
| 16 | Therapeutic teeth extraction | 24 |
| 17 | Anchorage in orthodontics | 25 |
| 18 | Micro-implants in orthodontics | 26 |
| 19 | Retention after orthodontics | 27 |
| 20 | Interceptive measures | 28-29 |
| 21 | Hazards in orthodontics | 30 |

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## 5- Teaching and learning methods:

| | Method | Basic knowledge | Intellectual skills | Professional skills | General skills |
|---|---|---|---|---|---|
| 1 | Class lectures:<br>- using Power Point presentation<br>- Discussion<br>- Case Presentation and Case Study | √ | √ | | √ |
| 2 | Practical:<br>Small group teaching | | √ | √ | √ |

## 6- Teaching and learning methods of disables: none.

## 7- Activities and sources of teaching and learning:

| S | Activities and resources | Basic knowledge | Intellectual skills | Professional skills | General skills |
|---|---|---|---|---|---|
| 1 | Practical requirements | √ | √ | √ | |
| 2 | Cephalometric tracing and analysis | √ | √ | √ | √ |
| 3 | Summer training | | √ | √ | √ |

**Sources of teaching and learning:**

- Faculty library.
- Department notes.
- Text books.
- Plaster models for practical practice

## 8- Student assessment:

**a- Student assessment methods:**

| No | Method | Basic knowledge | Intellectual skills | Professional skills | General skills |
|---|---|---|---|---|---|
| 1 | Written examination | √ | √ | | |
| 2 | Practical examination | | √ | √ | |
| 3 | Oral examination | √ | √ | | √ |

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### b-Assessment schedule:

| No | Method | Week |
|---|---|---|
| 1 | Ongoing Assessment<br>- Multiple choice questions<br>- Periodic evaluations through the year<br>- Practical requirement | <br>March<br>Every 3 Practical sessions<br>Every 3 practical sessions |
| 2 | Practical examination | According to the faculty's official schedule |
| 3 | Final written examination | According to the faculty's official schedule |
| 4 | Oral examination | According to the faculty's official schedule |

### b- Weighting of assessments:

| No | Method | Weight |
|---|---|---|
| 1 | Ongoing Assessment<br>- Multiple choice questions<br>- Periodic evaluations through the year<br>- Practical requirement | 20 marks (13.33%) |
| 2 | Practical examination | 40 marks (26.66%) |
| 3 | Final written examination | 70 marks (46.66%) |
| 4 | Oral examination | 20 marks (13.33%) |
| **Total** | | 150 marks |

## 9- List of references:

| S | Item | Type |
|---|---|---|
| 1 | Department Notes | Book |
| 2 | Singh, Gurkeerat. Textbook of orthodontics. JP Medical Ltd, 2011. | Textbook |
| 3 | Mitchell, Laura. An introduction to orthodontics. OUP Oxford, 2013. | Textbook |
| 4 | Phulari, Basavaraj Subhashchandra. Orthodontics: principles and practice. JP Medical Ltd, 2011. | Textbook |
| 5 | Sundaresa Bhalajhi-Bhalajhi Iyyer-Seema Bhalajhi.Orthodontics: the art and science - Arya (Medi) Publ.,2011 | Textbook |
| 6 | Bishara, Samir E. "Textbook of orthodontics." (2001). | Textbook |

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## 10- Matrix of knowledge and skills of the course:

| S | Items | Details | Basic knowledge | Intellectual skills | Professional skills | General skills |
|---|---|---|---|---|---|---|
| 1 | Course content | Introduction to Orthodontics | a.1, a.2 | | | |
| | | Growth and development of the head | a.3 | b.1 | | d.4 |
| | | Development of normal occlusion | a.6 | b.1, b.8 | | d.4 |
| | | Normal adult occlusion and six keys to normal occlusion | a.6, a.7 | b.1 | | d.4 |
| | | Malocclusion (Distribution of dental anomalies in Egyptians) | a.9 | b.4 | | d.1 |
| | | Classification of malocclusion | a.9 | b.4 | | d.1 |
| | | Etiology of malocclusion (General and local factors) | a.10 | b.4 | | d.1 |
| | | Clinical examination | a.11 | b.5 | | d.1, d.3 |
| | | Orthodontic diagnostic records | a.12, a.13 | b.5, b.6, b.7 | | d.1, d.3 |
| | | Stomatognathic system (soft tissues and forces of occlusion) | a.4, a.5 | b.1, b.4, b.8 | | d.4 |
| | | Tissue changes with orthodontic tooth movements | a.8 | b.2, b.3 | | d.2 |
| | | Growth modification | a.3, a.14 | b.12 | | d.2 |
| | | Removable orthodontic appliances | a.19 | b.9, b.10, b.12 | | d.2 |
| | | Fixed orthodontic appliances | a.19 | b.9, b.10, b.12 | | d.2, d.4 |
| | | Functional orthodontic appliances | a.20 | b.9, b.10, b.12 | | d.2 |
| | | Therapeutic teeth extraction and serial extraction | a.16, a.17 | b.12 | | d.1 |
| | | Anchorage in orthodontics | a.18 | b.11, b.12 | | d.2 |
| | | Micro-implants in orthodontics | a.21 | b.11, b.12 | | d.2, d.4 |
| | | Retention after orthodontics | a.22 | b.9, b.10, b.12 | | d.2 |
| | | Interceptive measures | a.15 | b.12 | | d.1 |

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|---|---|---|---|---|---|---|
| | | Hazards in orthodontics | a.23 | b.3 | | d.2 |
| | | | | | | |
| **2** | Practical | Wire bending practice | | c.1 | | |
| | | Removable appliances construction | b.9, b.10, b.12 | c.1, c.2, c.3, c.4 | d.1, d.3 | b.9, b.10, b.12 |
| | | Cephalometric tracing and analysis | b.5, b.6, b.7 | c.5 | d.1, d.2, .3 | b.5, b.6, b.7 |
| | | Cast analysis | b.5 | c.6 | d.1, d.2, d.3 | b.5 |

**Course Coordinator(s):** Prof. / Mona Abdelaziz Montasser

**Head of department: Prof.** / Mona Abdelaziz Montasser