



**Model (No 12)**  
**Course Specification: Orthodontics**  
**MSc: P 201 Or**

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

### **1- Course data:**

**Course name:** Orthodontics.                      **Code:** P 201Or.                      **Study year:** 2020/2022.

**Specialization:** Master Degree in Oral and Dental Surgery in Branch of Orthodontics.

**Teaching Hours :**

**Lecture:** 4h/week for 60 weeks

**Practical:** 12h/week for 60 weeks

**No of units:** 60

### **2- Course aim:**

The orthodontic master course aims to prepare the students to develop insights into basic orthodontic science with deep knowledge regarding different orthodontic techniques and materials and establish proficient clinical skills in the light of currently available scientific knowledge to master treatment of different orthodontic cases.

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

**a-Knowledge and understanding:**

- a.1- Describe craniofacial growth and development and its clinical considerations in orthodontic treatment.
- a.2- Describe normal occlusion development and abnormal deviations at different age stages.
- a.3- Identify the six keys to normal occlusion and their clinical implications.
- a.4- Identify forces of occlusion and its effect on dental apparatus.
- a.5- Identify different types, the commonly used classifications and indices of malocclusion.
- a.6- Understand the different etiological factors contributing to the development of clinical features a skeletal and/ or dental malocclusion.
- a.7- Explain how to take history taking and perform clinical examination as a systematic assessment of the face and dentition in three dimensions.
- a.8- Understand the need and the method to have contemporary orthodontic records.
- a.9- List different methods of mixed and permanent cast analysis
- a.10- List different x-rays needed for diagnosis and treatment planning.
- a.11- List different methods of cephalometric analysis with regard indications, limitations and errors.
- a.12- Describe the biological response of tissue components to different forces and various types of orthodontic tooth movements.
- a.13- Report the design, use, insertion, adjustment and limitations of different removable appliances.
- a.14- Describe types and clinical management of functional and extraoral appliances.



**Model (No 12)**  
**Course Specification: Orthodontics**  
**MSc: P 201 Or**

**University:** Mansoura University

**Faculty:** Faculty of Dentistry

**Department:** Department of Orthodontics

- a.15- Outline basics and new advances in bracketing and bonding systems, orthodontic materials and orthodontic appliances.
- a.16- Describe different types of anchorage and available approaches to reinforce the anchorage.
- a.17- List different types of wires and adhesive materials used in orthodontics and its properties and limitations.
- a.18- Recognize the potential adverse effects of orthodontic appliance wear especially white spot lesions and root resorption and how to prevent or manage them.
- a.19- Delineate the steps of decision-making process with focus on the diagnosis and treatment plan for different orthodontic cases.
- a.20- Identify Preventive and interceptive measures used in orthodontics to intervene and reduce the severity of a developing malocclusion in a growing patient.
- a.21- Recognize appropriate methods of guided tooth removal as an option for interceptive orthodontics, with goals for decreased time in fixed orthodontic mechanotherapy.
- a.22- Report relation between soft tissue, oral habits and dental apparatus.
- a.23- Outline diagnostic considerations and treatment approaches of a variety of skeletal malocclusions in children and preadolescents.
- a.24- Underline the proper timing for dentofacial orthopedic–orthodontic intervention, appliance construction and management in children and preadolescent.
- a.25- List different maturity indicators.
- a.26- Underline different methods of gaining space.
- a.27- Recognize the need of extraction in some cases and factors controlling the choice of different teeth for extraction to treat a certain malocclusion.
- a.28- List different distalization and expansion appliances with regard to their indications.
- a.29- Discuss the indications for stripping and available adjuncts.
- a.30- Recognize different biomechanical principles needed in treatment of different orthodontic cases.
- a.31- Dealinate the principles of the contemporary straight wire appliance and the three separate phases of straight wire mechanics.
- a.32- Underline specific movements of teeth that will occur during each stage, and specific goals that have to be achieved before continuing to the next stage of treatment.
- a.33- Explain how CBCT may be used to enhance orthodontic diagnosis and treatment focusing on selection criteria, dose reduction, and current guidance regarding reporting.
- a.34- Recognize the different approaches and adjunctive techniques to accelerate tooth movement and reduce treatment time.
- a.35- Discuss specific challenges and the increased esthetic demand in adult orthodontic treatment.
- a.36- Discuss biomechanical considerations with Temporary Anchorage Devices (TADs).
- a.37- Discuss the unique aspects of diagnosis and treatment planning for clear aligners with highlighting the continuous development of adjuncts within the aligner system.



**Model (No 12)**  
**Course Specification: Orthodontics**  
**MSc: P 201 Or**

**University:** Mansoura University

**Faculty:** Faculty of Dentistry

**Department:** Department of Orthodontics

- a.38- Review the relation between the orthodontic therapy and TMD and how these disorders potentially impact orthodontic patients before, during and after treatment.
- a.39- Summarize the multi-stage needs of the cleft lip and / or palate patients with the emphasis on an orthodontist as a component of the Cleft Palate–Craniofacial team and the appropriate timing for various interventions for the cleft patient.
- a.40- Outline the common surgical approaches used to correct dentofacial deformity, and the risks involved in surgery.
- a.41- Outline methods of obtaining stable treatment results to preserve treatment accomplishments and long-term patient satisfaction.

**b- Intellectual skills:**

- b.1- Correlate the craniofacial growth and dental development to their influence on the form and function.
- b.2- Relate the role of forces of occlusion to produce harmonious jaw growth and dental development.
- b.3- Interpret different forms of malocclusion and relate them to their possible etiology.
- b.4- Correlate between orthodontics and orofacial tissues.
- b.5- Interpret space analysis to provide a disciplined approach to treatment planning, and to assess the feasibility of treatment aims and aid planning of anchorage and treatment mechanics.
- b.6- Interpret different types of x rays and the results of cephalometric analysis in consideration to clinical findings.
- b.7- Apply radiographic guidelines to provide an excellent overview of appropriate use of radio-graphic records in orthodontics.
- b.8- Analyze the information gathered from the history, examination, and collection of records to form a problem list or diagnosis.
- b.9- Interpret different orthodontic records for complete three-dimensional evaluation of the patient's aesthetic presentation.
- b.10- Distinguish between different types of tooth movement and their optimum forces in regard to the biological tissue response.
- b.11- Compare between different removable and fixed appliances and conclude the best one for each orthodontic case.
- b.12- Compare between different extra oral appliances and justify the use of each one.
- b.13- Choose the suitable orthodontic appliance for each patient according to his treatment needs.
- b.14- Analyze properties of different materials and value its use in orthodontic practice.



**Model (No 12)**  
**Course Specification: Orthodontics**  
**MSc: P 201 Or**

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

- b.15- Compare between different orthodontic wire materials and justify the use of each one for treatment of different cases
- b.16- Judge the use of recent dental materials and orthodontic techniques.
- b.17- Compare the perceived benefits of orthodontic intervention against the potential risks associated with treatment.
- b.18- Assess risks of orthodontic treatment and complications that may result.
- b.19- Apply a problem-based approach to form the basis of an appropriate therapeutic plan.
- b.20- Apply the aims of treatment based on an understanding of the probable etiology.
- b.21- Correlate between oral habits and its effect on dental apparatus
- b.22- Select accurate time of treatment beginning.
- b.23- Relate patient's growth stage with treatment approach needed.
- b.24- Differentiate between growing and non-growing patients.
- b.25- Select the appropriate method of gaining space according to the patient needs.
- b.26- Relate the effect of orthodontic treatment to patient's facial esthetics.
- b.27- Evaluate different biomechanical strategies needed for efficient treatment of orthodontic cases.
- b.28- Apply the new techniques and adjuncts for shorter and more esthetic treatment.
- b.29- Assess the importance of the orthodontist role in the interdisciplinary treatment in relation to the treatment need.
- b.30- Evaluate limitations of orthodontic techniques and the need for correlation between orthodontics and surgery to solve certain problems.

**c- Professional and practical skills:**

- c.1- Master wire bending techniques, removable appliance fabrication and delivery.
- c.2- Master bonding and banding techniques.
- c.3- Master dealing with different adhesive materials.
- c.4- Handle different intraoral, extra oral appliances, and different types of brackets.
- c.5- Handle different wire materials.
- c.6- Utilize different removable and fixed appliances to reach his treatment goals.
- c.7- Use different types of x-rays.
- c.8- Trace cephalometric x-rays and analyze them.
- c.9- Perform different methods of cast analysis.
- c.10- Treat different classes of malocclusion.
- c.11- Treat patients with different age groups.
- c.12- Apply different biomechanics and choose the most appropriate one for each orthodontic case.
- c.13- Write case reports.



**Model (No 12)**  
**Course Specification: Orthodontics**  
**MSc: P 201 Or**

**University:** Mansoura University

**Faculty:** Faculty of Dentistry

**Department:** Department of Orthodontics

**d- General and transferable skills:**

- d.1. Apply evidence-based approach in everyday clinical practice.
- d.2. Display appropriate communication with patients with the display of caring attitude.
- d.3. Delineate medicolegal and ethical principles when dealing with patients.
- d.4. Take good and complete patient history.
- d.5. Guide patients to comply with instructions both in the office setting and at home.
- d.6. Show decent and respectful method of dealing with colleagues, dental team and other relevant persons.
- d.7. Demonstrate passion for continuous self-improvement and dealing with new advances in orthodontics.
- d.8. Utilize different financial and information resources for improvement of his practice.
- d.9. Accept others suggestions and recommendations.
- d.10. Lead a working team.
- d.11. Display good time management.

**4- Course contents:**

No	Topics	Weeks
1	Craniofacial growth and development.	1 <sup>st</sup> ,2 <sup>nd</sup> weeks
2	Development of normal occlusion.	3 <sup>rd</sup> week
3	Andrews six keys of normal occlusion.	4 <sup>th</sup> week
4	Stomatognathic system and Forces of occlusion.	5 <sup>th</sup> ,6 <sup>th</sup> week
5	Malocclusion.	7 <sup>th</sup> week
6	Classification of malocclusion.	8 <sup>th</sup> week
7	Etiology of malocclusion.	9 <sup>th</sup> week
8	Orthodontic examination and Diagnosis: a) Patient history and clinical examination. b) Orthodontic records: a. Photographs b. Casts (including dental arch space analysis) c. Radiographs: - Lateral cephalometry. - Panorama – PA – Occlusal – Periapical – Bitewing - CBCT)	10 <sup>th</sup> ,11 <sup>th</sup> ,12 <sup>th</sup> ,13 <sup>th</sup> ,14 <sup>th</sup> weeks
9	Biological Basis of Orthodontic Tooth Movement	15 <sup>th</sup> week
10	Orthodontic tooth movement	16 <sup>th</sup> week



**Model (No 12)**  
**Course Specification: Orthodontics**  
**MSc: P 201 Or**

**University:** Mansoura University

**Faculty:** Faculty of Dentistry

**Department:** Department of Orthodontics

11	Removable Appliances	17 <sup>th</sup> ,18 <sup>th</sup> weeks
12	Functional Appliances	19 <sup>th</sup> ,20 <sup>th</sup> weeks
13	Extra oral appliances	21 <sup>th</sup> week
14	Fixed Appliances	22 <sup>th</sup> ,23 <sup>th</sup> weeks
15	Bonding and banding	24 <sup>th</sup> ,25 <sup>th</sup> week
16	Anchorage in orthodontics	26 <sup>th</sup> ,27 <sup>th</sup> weeks
17	Orthodontic Materials	28 <sup>th</sup> ,29 <sup>th</sup> week
18	Iatrogenic Effects of Orthodontic Treatment	30 <sup>th</sup> week
19	Orthodontic Treatment Planning	31 <sup>th</sup> , 32 <sup>th</sup> weeks
20	Non-skeletal Problems in Preadolescent Children: a) Preventive and interceptive orthodontics b) Serial extraction c) Space supervision d) Oral habits	33 <sup>th</sup> ,34 <sup>th</sup> , 35 <sup>th</sup> week
21	Skeletal Problems in Children and Preadolescents.	36 <sup>th</sup> ,37 <sup>th</sup> weeks
22	Maturity Indicators	38 <sup>th</sup> week
23	Methods of gaining space: a) Therapeutic Extraction b) Expansion c) Distalization d) Stripping	39 <sup>th</sup> , 40 <sup>th</sup> , 41 <sup>th</sup> , 42 <sup>th</sup> weeks
24	Mechanical principles in orthodontic force control	43 <sup>th</sup> week
25	First stage of orthodontic treatment	44 <sup>th</sup> ,45 <sup>th</sup> weeks
26	Second stage of orthodontic treatment	46 <sup>th</sup> ,47 <sup>th</sup> weeks
27	Third stage of orthodontic treatment	48 <sup>th</sup> ,49 <sup>th</sup> weeks
28	CBCT in Orthodontics	50 <sup>th</sup> ,51 <sup>th</sup> week
29	Methods of accelerating OTM	52 <sup>th</sup> week
30	Adult Orthodontics.	53 <sup>th</sup> week
31	Micro-implants in Orthodontics	54 <sup>th</sup> week
32	Clear Aligners	55 <sup>th</sup> week
33	TMJ disorders and Orthodontics	56 <sup>th</sup> week



**Model (No 12)**  
**Course Specification: Orthodontics**  
**MSc: P 201 Or**

**University:** Mansoura University

**Faculty:** Faculty of Dentistry

**Department:** Department of Orthodontics

34	Orthodontics and cleft lip and palate	57 <sup>th</sup> week
35	Orthognathic surgery	58 <sup>th</sup> ,59 <sup>th</sup> weeks
36	Retention in Orthodontics	60 <sup>th</sup> week

**5- Teaching and learning methods:**

	Method	Basic knowledge	Intellectual skills	Professional skills	General skills
1	lectures	√	√		
2	seminars	√	√		√
3	Group discussion	√	√		√
4	Case study	√	√		√
5	clinical		√	√	√
6	Laboratory		√	√	

**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	Seminars	√	√		√
2	Clinical cases	√	√	√	√
3	Wire bending	√	√	√	
4	Practice different types of Cephalometric analysis	√	√	√	

**Sources of teaching and learning:**

-Orthodontic Lecture hall.

-Orthodontic Practical Laboratory.

-Orthodontic clinic.

-Faculty library.



**Model (No 12)**  
**Course Specification: Orthodontics**  
**MSc: P 201 Or**

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

**8- Student assessment:**

**a- Student assessment methods:**

No	Method	Basic knowledge	Intellectual skills	Professional skills	General skills
1	Written exam	√	√		
2	Oral exam	√	√		√
3	Clinical exam		√	√	√
4	Practical exam		√	√	

**b- Assessment schedule:**

No	Method	Week
1	Written exam first paper	June or November
2	Written exam second paper	
3	Oral exam	
4	Clinical exam	
5	Practical exam	

**c-Weighting of assessments:**

No	Method	Weight	Proportion
1	Written exam first paper	100	12.5%
2	Written exam second paper	100	12.5%
3	Oral exam	100	12.5%
4	Clinical exam	100	12.5%
5	Practical exam	400	50%

**9- List of references:**

S	Item	Type
1	American Journal of Orthodontics and Dentofacial Orthopedics	International Journal
2	European Journal of Orthodontics	International Journal





**Model (No 12)**  
**Course Specification: Orthodontics**  
**MSc: P 201 Or**

**University:** Mansoura University

**Faculty:** Faculty of Dentistry

**Department:** Department of Orthodontics

<b>3</b>	The Angle Orthodontist	International Journal
<b>4</b>	Proffit WR, Fields HW, Sarver DM. <i>Contemporary Orthodontics</i> . 6 <sup>th</sup> ed. Philadelphia: Elsevier, 2019.	Text book
<b>5</b>	Graber LW, Vanarsdall RL, Vig KW, Huang GJ. <i>Orthodontics: Current Principles and Techniques</i> . 6 <sup>th</sup> ed. St. Louis, Missouri: Elsevier; 2017.	Text book
<b>6</b>	Littlewood SJ, Mitchell L. <i>An Introduction to Orthodontics</i> . 5th ed. New York: Oxford University Press; 2019.	Text book
<b>7</b>	Cobourne MT, DiBiase AT. <i>Handbook of Orthodontics</i> . 2nd ed. Oxford, UK: Elsevier; 2016.	Text book
<b>8</b>	Moyers RE. <i>Handbook of Orthodontics</i> . 4 <sup>th</sup> ed. London: Year Book Medical Publishers, Inc.;1988.	Text book
<b>9</b>	Bishara SE. <i>Textbook of Orthodontics</i> . Philadelphia: W.B. Saunders Company; 2001	Text book
<b>10</b>	Singh G. <i>Textbook of Orthodontics</i> . 2 <sup>nd</sup> ed. New Delhi: Jaypee Brothers Medical Publishers; 2007	Text book
<b>11</b>	Yanez EE, White L, Araujo RC, Galuffo AG, Yanez SE. <i>1001 Tips for Orthodontics and Its Secrets</i> . Miami: AMOLCA; 2008.	Text book
<b>12</b>	Bhalajhi SI. <i>Orthodontics: The Art and Science</i> . 5 <sup>th</sup> ed. New Delhi: Arya (MEDI) Publishing House Pvt. Ltd.; 2013.	Text book
<b>13</b>	Rakosi T, Jonas I, Graber TM. <i>Color Atlas of Dental Medicine: Orthodontic Diagnosis</i> . New York: Thieme; 1993.	Text book
<b>14</b>	Jacobson A, Jacobson RL. <i>Radiographic Cephalometry: From Basics to 3-D</i> . 2 <sup>nd</sup> ed. Hanover Park: Quintessence Publishing Co, Inc; 2006.	Text book
<b>15</b>	Adams CP. <i>The Design, Construction and Use of Removable Orthodontic Appliances</i> . 5th ed. Bristol: John Wright & Sons Ltd.; 1984.	Text book
<b>16</b>	Isaacson KG, Muir JD, Reed RT. <i>Removable Orthodontics Appliances</i> . 2 <sup>nd</sup> ed. New Delhi: Wright;	Text book



**Model (No 12)**  
**Course Specification: Orthodontics**  
**MSc: P 201 Or**

**University:** Mansoura University

**Faculty:** Faculty of Dentistry

**Department:** Department of Orthodontics

	2006.	
17	Nakajima E. <i>Manual of Wire Bending Techniques</i> . Hanover Park: Quintessence Publishing Co Inc; 2010.	Text book
18	McLaughlin RP, Bennett JC, Trevisi HJ. <i>Systemized Orthodontic Treatment Mechanics</i> . London: Mosby; 2001	Text book
19	Nanda R. <i>Esthetics and Biomechanics in Orthodontics</i> . 2 <sup>nd</sup> ed. St. Louis, Missouri: Elsevier; 2015.	Text book
20	Nanda RS, Tosun YS. <i>Biomechanics in Orthodontics: Principles and Practice</i> . Hanover Park: Quintessence Publishing Co Inc; 2010.	Text book
21	Cousley RRJ. <i>The Orthodontic Mini-Implant Clinical Handbook</i> . London: Wiley-Blackwell, 2013.	Text book

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

No	Topic	Week	Basic knowledge	Intellectual skills	Professional skills	General skills
1	Craniofacial growth and development.	1-2	a.1	b.1		d.1
2	Development of normal occlusion.	3	a.2	b.1		d.1
3	Andrews six keys of normal occlusion.	4	a.3			d.1
4	Stomatognathic system and Forces of occlusion.	5-6	a.4	b.2, b.4		d.1
5	Malocclusion.	7	a.5	b.3		d.1
6	Classification of malocclusion.	8	a.5	b.3		d.1
7	Etiology of malocclusion.	9	a.6	b.3, b.20		d.1
8	Orthodontic examination and Diagnosis	10-14	a.7, a.8, a.9, a.10, a.11	b.5, b.6, b.7, b.8, b.9, b.19	c.7, c.8, c.9	d.2, d.3, d.4, b.6



**Model (No 12)**  
**Course Specification: Orthodontics**  
**MSc: P 201 Or**

**University:** Mansoura University

**Faculty:** Faculty of Dentistry

**Department:** Department of Orthodontics

9	Biological Basis of Orthodontic Tooth Movement	15	a.12	b.10		d.1
10	Orthodontic tooth movement	16	a.12	b.10	c.11	d.1
11	Removable Appliances	17-18	a.13	b.11, b.13	c.1, c.4, c.6	d.5
12	Functional Appliances	19-20	a.14	b.13	c.4	d.5
13	Extra oral appliances	21	a.14	b.12, b.13	c.4	d.5
14	Fixed Appliances	22-23	a.15	b.11, b.13	c.1, c.2, c.3, c.4, c.5, c.6	d.5
15	Bonding and banding	24-25	a.15	b.11, b.13	c.2, c.3	
16	Anchorage in orthodontics	26-27	a.16	b.13	c.1, c.4, c.6	
17	Orthodontic Materials	28-29	a.15, a.17	b.14, b.15, b.16	c.2, c.3, c.5	d.7, d.8
18	Iatrogenic Effects of Orthodontic Treatment	30	a.18	b.17, b.18		d.1
19	Orthodontic Treatment Planning	31-32	a.19	b.19, b.20	c.10, c.11, c.12, c.13	d.2
20	Non-skeletal Problems in Preadolescent Children	33-35	a.20, a.21, a.22	b.13, b.21, b.22, b.23	c.4, c.10, c.11, c.12, c.13	
21	Skeletal Problems in Children and Preadolescents.	36-37	a.1, a.23, a.24	b.13, b.22, b.23, b.26	c.4, c.10, c.11, c.12, c.13	d.1
22	Maturity Indicators	38	a.25	b.12, b.23, b.24	c.7, c.8	d.1
23	Methods of gaining space	39 -42	a.26, a.27, a.28, a.29	b.13, b.25, b.26	c.1, c.4, c.10, c.11, c.12	d.1
24	Mechanical principles	43	a.30	b.27	c.1, c.12	d.12



**Model (No 12)**  
**Course Specification: Orthodontics**  
**MSc: P 201 Or**

**University:** Mansoura University

**Faculty:** Faculty of Dentistry

**Department:** Department of Orthodontics

	in orthodontic force control					
25	First stage of orthodontic treatment	44-45	a.31, a.32	b.27	c.1, c.12	d.1, d.12
26	Second stage of orthodontic treatment	46-47	a.31, a.32	b.27	c.1, c.12	d.1, d.12
27	Third stage of orthodontic treatment	48-49	a.31, a.32	b.27	c.1, c.12	d.1, d.12
28	CBCT in Orthodontics	50-51	a.33	b.6, b.7, b.8, b.9	c.7, c.8	d.3, d.7
29	Methods of accelerating OTM	52	a.34	b.28	c.12	d.11
30	Adult Orthodontics.	53	a.35	b.28	c.10, c.11, c.12, c.13	d.6, d.9, d.10
31	Micro-implants in Orthodontics	54	a.36	b.13, b.26	c.4, c.12	d.3, d.7
32	Clear Aligners	55	a.37	b.28	c.4, c.6, c.12	d.1, d.5, d.7
33	TMJ disorders and Orthodontics	56	a.38	b.18, b.29		d.3
34	Orthodontics and cleft lip and palate	57	a.39	b.13, b.29	c.10, c.11, c.13	d.3, b.6, d.9, d.10
35	Orthognathic surgery	58-59	a.40	b.29, b.30		d.3, d.6, d.9, d.10
36	Retention in Orthodontics	60	a.41	b.13	c.1, c.4	d.3, d.5

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

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



**Model (No 12)**  
**Course Specification: Orthodontics**  
**MSc: P 201 Or**

**University:** Mansoura University

**Faculty:** Faculty of Dentistry

**Department:** Department of Orthodontics