



Model (No 12)
Course Specification: Orthodontics
PhD: P 301 Or

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

1- Course data:

Course name: Orthodontics **Code:** P 301Or **Study year:** 2020/2021

Specialization: Doctor of Dental Science (Orthodontics)

Teaching Hours :

Lecture: 4h/week for 60 weeks **Practical:** 12h/week for 60 weeks

No of units: 60

2- Course aim:

The orthodontic course aims to provide the students with knowledge about advanced orthodontic techniques and skills to take accurate decisions in treatment of different cases of malocclusion and solve different orthodontic problems.

3- Intended learning outcomes of course (ILOS):

a-Knowledge and understanding

- a.1. Understand the role of the orthodontist in teams for management of cases with craniofacial syndromes.
- a.2. Describe distraction osteogenesis and its role in treatment of different malocclusions and facial deformities including cleft lip and palate patient.
- a.3. Express deep knowledge of basics, updates, and advances in orthodontic diagnosis, treatment, and retention.
- a.4. Recognize Visual Treatment Objective (VTO) as a diagnostic tool.
- a.5. Recognize the role of the orthodontist in treatment of cases with other dental problems.
- a.6. Recognize appropriate intervention in orthodontic cases with potential need for other dental treatments.
- a.7. Understand the different theories of orthodontic tooth movement (OTM).
- a.8. Understand the biological control of OTM on the molecular and cellular level.
- a.9. Recognize the different surgical and non-surgical methods introduced to accelerate OTM.
- a.10. Understand the possible deleterious effects of the orthodontic force.
- a.11. Understand the limitations of OTM in adults.
- a.12. Describe different bracket systems and their biomechanical behavior.
- a.13. Describe different archwires and their biomechanical behavior.
- a.14. Explain the force systems that develop from archwire-bracket interactions.
- a.15. Understand the biomechanics of the orthodontic appliances.
- a.16. Describe the use of skeletal anchorage in the treatment of complex orthodontic cases.



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- a.17. Recognize the objectives of Orthognathic Surgery.
- a.18. Identify the indication and contraindication of orthognathic surgery.
- a.19. Detect timing of surgical intervention in certain cases.
- a.20. Recognize 3-D radiographs in diagnosis, treatment planning and evaluation of surgical cases.
- a.21. Recognize causes of postsurgical relapse.
- a.22. Recognize the normal temporomandibular joint position with the optimum static and functional occlusion.
- a.23. Define different Temporomandibular disorders (TMDS).
- a.24. Relate the different signs and symptoms of TMDS to their etiological factors.
- a.25. Identify the relationship between malocclusion and TMDS.
- a.26. Delineate the role of the orthodontist in management of cases with TMDS.
- a.27. Recognize the concept of precision in orthodontics.
- a.28. Recognize 3-D printing potential indication, applications, and effectiveness and efficiency in orthodontics.
- a.29. Describe the role of tissue engineering in enhanced prediction of a given patient's response to orthodontic force application.
- a.30. Outline legal and ethical principles related to dealing with patients.
- a.31. Describe the role of social media in sharing patient experience with orthodontic treatment.
- a.32. Describe the impact of social media on the cooperation of orthodontic patients.
- a.33. Summarize the varieties of materials used in orthodontics and their developments.

b- Intellectual skills:

- b.1. Differentially diagnose cases with craniofacial syndromes.
- b.2. Analyze and interpret data pertinent to diagnosis and treatment of craniofacial syndromes.
- b.3. Integrate other interventions needed for management of craniofacial syndromes in the orthodontic treatment plan.
- b.4. Apply critical and problem-solving thinking in diagnosis, treatment, and retention of orthodontic cases.
- b.5. Integrate orthodontics with other dental and non-dental professions.
- b.6. Differentiate between biomechanical effects of different brackets-archwire combinations.
- b.7. Select the appropriate biomechanics to achieve efficient tooth movement with least undesirable effects.
- b.8. Integrate new orthodontic materials and techniques including skeletal anchorage in biomechanics planning.
- b.9. Justify the need for skeletal anchorage as part of orthodontic treatment plan.
- b.10. Assess risks that may happen due to implant placement.



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- b.11. Select the appropriate surgical intervention in collaboration with the maxillofacial surgeon.
- b.12. Differentially diagnose the different categories of TMDS.
- b.13. Integrate TMDS management in orthodontic treatment planning.
- b.14. Manage use of digital orthodontics on daily basis.
- b.15. Value the legal and ethical aspects of orthodontics.
- b.16. Appraise social media effects on practice of orthodontics.
- b.17. Inspect updates in orthodontics.

c- Professional and practical skills:

- c.1. Perform complete professional clinical and functional examination.
- c.2. Design diagnostic records individually as required for each case.
- c.3. Interpret accurately 2D and 3D orthodontic diagnostic tools.
- c.4. Utilize 3-D diagnostic radiographs proficiently in diagnosis and treatment planning.
- c.5. Utilize 3-D scanners efficiently in diagnosis and treatment planning.
- c.6. Use orthodontic biomechanics effectively and efficiently.
- c.7. Design treatment plans and mechanics individually as required for each case.
- c.8. Make different wire bends of the various orthodontic biomechanics.
- c.9. Apply research ethics guidelines to research projects.
- c.10. Apply research design principles to research projects.

d- General and transferable skills:

- d.1. Communicate with children, adolescents and their parents.
- d.2. Communicate with other healthcare professionals both verbally and in globally accepted written formats.
- d.3. Show caring attitude when dealing with patients.
- d.4. Work in team with other involved professionals in cases of interdisciplinary dentistry, craniofacial syndromes, TMDS, and others.
- d.5. Develop moral and ethical responsibilities involved in the provision of care to patients and community.
- d.6. Develop good time management attitudes.
- d.7. Show passion for lifelong learning and development.
- d.8. Use computer and software programs.
- d.9. Use different information resources for self-learning and development.
- d.10. Make decisions.



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4- Course contents:

1	Craniofacial normal growth and anomalies	1 st ,2 nd ,3 rd ,4 th weeks
2	Diagnosis, treatment, and retention in orthodontics.	5 th ,6 th ,7 th ,8 th weeks
3	Multidisciplinary orthodontics	9 th ,10 th ,11 th ,12 th weeks
4	Advances in orthodontic tooth movement	13 th ,14 th 15 th 16 th weeks
5	Adult orthodontics	17 th ,18 th ,19 th ,20 th weeks
6	Biomechanics in orthodontics	21 st , 22 nd ,23 rd ,24 th weeks
7	Skeletal anchorage	25 th ,26 th ,27 th 28 th weeks
8	Orthognathic surgery	29 th ,30 th ,31 st ,32 nd weeks
9	TMD and orthodontics	33 rd ,34 th ,35 th ,36 th weeks
10	Digital orthodontics: 3-D imaging in orthodontics	37 th ,38 th ,39 th ,40 th weeks
11	Digital orthodontics: 3-D printing in orthodontics	41 st ,42 nd ,43 rd ,44 th weeks
12	Tissue engineering and orthodontics	45 th ,46 th ,47 th ,48 th weeks
13	Legal and ethical issues in orthodontics	49 th ,50 th ,51 st ,52 nd weeks
14	Orthodontics in the era of social media	53 rd ,54 th ,55 th ,56 th weeks
15	New developments in orthodontics	57 th ,58 th ,59 th ,60 th weeks

5- Teaching and learning methods:

	Method	Basic knowledge	Intellectual skills	Professional skills	General skills
1	lectures	√	√		
2	seminars	√	√		√
3	Case studies	√	√		√
4	Group discussions	√	√		√
5	Clinical cases		√	√	√
6	Laboratory			√	

6- Teaching and learning methods of disables: none.



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7- Activities and sources of teaching and learning:

S	Activities and resources	Basic knowledge	Intellectual skills	Professional skills	General skills
1	Seminars	√	√		√
2	Treatment of different 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.

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	April or November
2	Written exam second paper	
3	Oral exam	
4	Clinical exam	
5	Practical exam	



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c-Weighting of assessments:

No	Method	Weight	Proportion
1	Two Written Tests	200	33.3%
2	Two Practical Tests	200	33.3%
3	Clinical Test	100	16.7%
4	Oral Test	100	16.7%

9- List of references:

S	Item	Type
1	Melsen B, editor. Adult orthodontics. Wiley-Blackwell; 2012 Jan 30.	Text book
2	Thomas M. Graber, and Robert L. Vanarsdall: Orthodontics current principles and techniques. Third edition. 2000 Mosby.	Text book
3	Jeffery P. Okeson: Management of temporomandibular disorders and occlusion. Second edition.1989 Mosby (Part I and IV).	Text book
4	Proffit, W.R.: Contemporary Orthodontics, CV. Mosby Co., Louis, 2011.	Text book
5	McNamara. Mixed dentition. 2003	Text book
6	Graber, T.M., Rakosi, T. and Petrovic, A.G., 1997. Dentofacial Orthopedics with Functional Applications.	Text book
7	Clark WJ. Twin-block functional therapy: application in dentofacial orthopaedics. London: Mosby-Wolfe, Times Mirror Int Pub Ltd. 1995.	Text book
8	Subtelny JD. Early orthodontic treatment. Quintessence Pub Co; 2000.	Text book
9	Berkovitz BK, Holland GR, Moxham BJ. Oral anatomy, embryology and histology. Mosby Incorporated; 2002.	Text book
10	Ranly DM. A synopsis of craniofacial growth. Norwalk:	Text book



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	Appleton & Lange; 1988.	
11	Nanda R. Esthetics and Biomechanics in Orthodontics. Elsevier Health Sciences; 2012 May 7.	Text book
12	Rachmiel A, Srouji S, Peled M. Alveolar ridge augmentation by distraction osteogenesis. International journal of oral and maxillofacial surgery. 2001 Dec 31;30(6):510	Text book
13	Mossey PA, Little J, Munger RG, Dixon MJ, Shaw WC. Cleft lip and palate. The Lancet. 2009 Nov 27;374(9703):1773-85.	Text book
14	Huang GJ, Richmond S, Vig KW, editors. Evidence-based orthodontics. John Wiley & Sons; 2011 Mar 16.	Text book
15	Eliades T, Pandis N. Self-ligation in orthodontics. John Wiley & Sons; 2009 Nov 9.	Text book
16	American Journal of Orthodontics and Dentofacial Orthopedics	International journal
17	The Angle Orthodontist	International journal
18	Seminars in orthodontics	International journal
19	European Journal of Orthodontics	International journal
20	Journal of Orofacial Orthopedics	International journal

10- Matrix of knowledge and skills of the course:

No	Topic	Week	Basic knowledge	Intellectual skills	Professional skills	General skills
1	Craniofacial normal growth and anomalies	1 st -4 th weeks	a.1, a.2	b.1, b.2, b.3	c.1, c.3, c.4	d.1, d.2, d.3, d.4
2	Diagnosis, treatment, and retention in orthodontics.	5 th -8 th weeks	a.3, a.4	b.1, b.2, b.3, b.4	c.1, c.2, c.3, c.4, c.6, c.7	d.1, d.2, d.3, d.6, d.7, d.10
3	Multidisciplinary orthodontics	9-12 th weeks	a.5, a.6	b.5	c.1, c.2, c.7	d.1, d.2, d.3, d.4, d.10
4	Advances in orthodontic tooth	13-16 th weeks	a.7, a.8, a.9, a.10,	b.7	c.6, c.7	d.5, d.6, d.7



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	movement		a.11			
5	Adult orthodontics	17 th -20 th weeks	a.5, a.6, a.11	b.5, b.6, b.7, b.8	c.1, c.2, c.7	d.1, d.2, d.3, d.4
6	Biomechanics in orthodontics	21 st -24 th weeks	a.12, a.13, a.14, a.15	b.4, b.6, b.7, b.8	c.6, c.7, c.8	d.5, d.6, d.7, d.10
7	Skeletal anchorage	25 th - 28 th weeks	a.16	b.7, b.8, b.9, b.10	c.6, c.7	d.5, d.7
8	Orthognathic surgery	29 th - 32 nd weeks	a.1, a.2, a.17, a.18, a.19, a.20, a.21	b.5, b.11	c.1, c.2, c.3, c.4	d.1, d.2, d.3, d.4, d.7
9	TMD and orthodontics	33 rd - 36 th weeks	a.22, a.23, a.24, a.25, a.26	b.5, b.12, b.13	c.1, c.2, c.3, c.4	d.1, d.2, d.3, d.4, d.7
10	Digital orthodontics: 3-D imaging in orthodontics	37 th - 40 th weeks	a.4, a.27	b.14	c.2, c.3, c.5	d.4, d.6, d.7, d.8, d.9
11	Digital orthodontics: 3-D printing in orthodontics	41 st - 44 th weeks	a.27, a.28	b.14	c.5	d.4, d.6, d.7, d.8, d.9
12	Tissue engineering and orthodontics	45 th - 48 th weeks	a.7, a.8, a.29			d.7, d.9
13	Legal and ethical issues in orthodontics	49 th -52 nd weeks	a.30	b.15	c.9, c.10	d.1, d.5, d.10
14	Orthodontics in the era of social media	53 rd - 56 th weeks	a.31, a.32	b.16	c.9	d.1, d.5, d.7
15	New developments in orthodontics	57 th - 60 th weeks	a.4, a.33	b.17		d.7, d.9, d.10

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

Head of department: Prof. / Mona Abdelaziz Montasser



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