

Republic of Yemen  
Ministry of Higher Education & Information Technology  
Emirates International University



Faculty of Dentistry

Department of POP

Doctor of Dental Surgery (DDS)

Course Specification of  
**Orthodontics I (pre-clinical)**

Course No. (-----)



All Rights Reserved, © Emirates International University.

Review committee:

Head of the Department

Quality Assurance head

Dean of Faculty



### I. Course Identification and General Information:

1	Course Title:	Orthodontics I (pre-clinical)			
2	Course Code & Number:	----			
3	Credit Hours:	Credit Hours	Theory Hours		Lab. Hours
			Lecture	Exercise	
		3	2	--	2
4	Study Level/ Semester at which this Course is offered:	3 <sup>th</sup> Level / 2nd Semester			
5	Pre –Requisite (if any):	General Histology& Embryology			
6	Co –Requisite (if any):	None			
7	Program (s) in which the Course is Offered:	Doctor of Dental Surgery (DDS)			
8	Language of Teaching the Course:	English			
9	Study System:	Semester based System			
10	Mode of Delivery:	Full Time			
11	Location of Teaching the Course:	Faculty of Dentistry			
12	Prepared by:	Dr.Ghamdan Abdullah Al-Harazi			

### II. Course Description:

This course is an introduction to orthodontics to provide students with basic principles of orthodontics, knowledge of growth and development of face, arch and dentitions, for identifying existing and developing problems associated with dental and skeletal malocclusion, tracing cephalometric radiographs, manipulation of orthodontic wires and acrylics, process of soldering and welding, the most appropriate appliances for malocclusion with practical applications and demonstrations. This course has a preclinical practice that helps in offering experience needed for the preceding clinical courses.

III. Course Intended Learning Outcomes (CILOs) : Upon successful completion of the course, students will be able to:		Referenced PILOs Learning out of program		
<b>A. Knowledge and Understanding:</b>		I, A or E		
a1	Know the principles and fundamentals of orthodontics		A1	
a2	Understand normal facial, dental and occlusal development and recognize deviations from normal		A1	
a3	Recognize dental and skeletal malocclusion		A2	
a4	Outline cephalometric lines and points and analyze the results		A1,A2, A4	
<b>B. Intellectual Skills:</b>				
b1	Construct preventive and interceptive treatment		B4	
b2	Design different types of orthodontic appliances using selected instruments and materials		B5	
<b>C. Professional and Practical Skills:</b>				
c1	Apply infection control protocols during lab sessions		C3	
c2	Perform fabrication of orthodontic appliances including wires bending, soldering and welding and acrylic base		C1,C4	
<b>D. Transferable Skills:</b>				
d1	Use the latest technology for presenting and collecting data.		D2	
d2	Manage time and resources.		D4	

<b>(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:</b>			
<b>Course Intended Learning Outcomes</b>		<b>Teaching Strategies</b>	<b>Assessment Strategies</b>
a1	Know the principles and fundamentals of orthodontics	<ul style="list-style-type: none"> <li>▪ Lectures</li> <li>▪ Brainstorming</li> <li>▪ Discussion</li> </ul>	<ul style="list-style-type: none"> <li>▪ Midterm Exam</li> <li>▪ Final Exam</li> <li>▪ Oral Exam</li> </ul>
a2	Understand normal facial, dental and occlusal development and recognize deviations from normal	<ul style="list-style-type: none"> <li>▪ Lectures</li> <li>▪ Brainstorming</li> <li>▪ Discussion</li> </ul>	<ul style="list-style-type: none"> <li>▪ Midterm Exam</li> <li>▪ Final Exam</li> <li>▪ Oral Exam</li> </ul>
a3	Recognize dental and skeletal malocclusion	<ul style="list-style-type: none"> <li>▪ Lectures</li> <li>▪ Brainstorming</li> <li>▪ Discussion</li> </ul>	<ul style="list-style-type: none"> <li>▪ Midterm Exam</li> <li>▪ Final Exam</li> <li>▪ Oral Exam</li> </ul>
a4	Outline cephalometric lines and points and analyze the results	<ul style="list-style-type: none"> <li>▪ Lectures</li> <li>▪ Brainstorming</li> <li>▪ Discussion</li> </ul>	<ul style="list-style-type: none"> <li>▪ Midterm Exam</li> <li>▪ Final Exam</li> <li>▪ Oral Exam</li> </ul>
<b>(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:</b>			
<b>Course Intended Learning Outcomes</b>		<b>Teaching Strategies</b>	<b>Assessment Strategies</b>
b1	Construct preventive and interceptive treatment	<ul style="list-style-type: none"> <li>▪ Lectures</li> <li>▪ Lab training</li> </ul>	<ul style="list-style-type: none"> <li>▪ Midterm Exam</li> <li>▪ Final Exam</li> <li>▪ Practical Exam</li> <li>▪ Oral Exam</li> </ul>
b2	Design different types of orthodontic appliances using selected instruments and materials	<ul style="list-style-type: none"> <li>▪ Lectures</li> <li>▪ Lab training</li> </ul>	<ul style="list-style-type: none"> <li>▪ Midterm Exam</li> <li>▪ Final Exam</li> <li>▪ Practical Exam</li> <li>▪ Oral Exam</li> </ul>
<b>(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:</b>			
<b>Course Intended Learning Outcomes</b>		<b>Teaching Strategies</b>	<b>Assessment Strategies</b>
c1	Apply infection control protocols during lab sessions	<ul style="list-style-type: none"> <li>▪ Lab training</li> </ul>	<ul style="list-style-type: none"> <li>▪ Observation</li> <li>▪ Practical Exam</li> </ul>

c2	Perform fabrication of orthodontic appliances including wires bending, soldering and welding and acrylic base	<ul style="list-style-type: none"> <li>▪ Lab training</li> </ul>	<ul style="list-style-type: none"> <li>▪ Observation</li> <li>▪ Practical Exam</li> </ul>
<b>(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:</b>			
<b>Course Intended Learning Outcomes</b>		<b>Teaching Strategies</b>	<b>Assessment Strategies</b>
d1	Use the latest technology for presenting and collecting data.	<ul style="list-style-type: none"> <li>▪ Exercises</li> <li>▪ Brainstorming</li> <li>▪ Discussion</li> </ul>	<ul style="list-style-type: none"> <li>▪ Assignments</li> <li>▪ Practical sessions</li> </ul>
d2	Manage time and resources.	<ul style="list-style-type: none"> <li>▪ Exercises</li> <li>▪ Brainstorming</li> <li>▪ Discussion</li> </ul>	<ul style="list-style-type: none"> <li>▪ Assignments</li> <li>▪ Practical sessions</li> </ul>

#### IV. Course Contents:

##### A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	<b>Fundamentals of orthodontics</b>	<ul style="list-style-type: none"> <li>• Definition and terminology</li> <li>• Aims of orthodontics</li> <li>• scope of orthodontics</li> </ul>	1	2	a1, b1
2	<b>Craniofacial growth and development</b>	<ul style="list-style-type: none"> <li>• Postnatal growth</li> <li>• Growth pattern and variability</li> <li>• Nature of skeletal growth</li> <li>• Growth in craniofacial complex</li> <li>• Theories of growth control</li> </ul>	2,3	4	a2
3	<b>Development of occlusion</b>	<ul style="list-style-type: none"> <li>• Ideal VS. normal occlusion</li> <li>• Tooth development</li> <li>• Stages of occlusal development</li> </ul>	4	2	a2
4	<b>Malocclusion</b>	<ul style="list-style-type: none"> <li>• Etiology of malocclusion</li> <li>• Classification of malocclusion</li> <li>• Factors that has role in malocclusion:                             <ul style="list-style-type: none"> <li>- Skeletal</li> <li>- Soft tissue</li> <li>- Local factors</li> </ul> </li> </ul>	5,6	4	a3

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
5	Midterm Exam	<ul style="list-style-type: none"> <li>Written exam</li> </ul>	7	2	a1,a2,a3, b1
6	Orthodontic Materials and instruments	<ul style="list-style-type: none"> <li>Materials used in orthodontics</li> <li>Instruments used in orthodontics</li> </ul>	8	2	b2
7	Interceptive treatment	<ul style="list-style-type: none"> <li>Principles of interceptive orthodontics</li> <li>Components of removable appliance</li> <li>The most appropriate removable appliances for different malocclusions</li> <li><b>Indications for fabrication of orthodontic appliances.</b></li> <li>Procedures for fabrication of orthodontic appliances                             <ul style="list-style-type: none"> <li>Manipulation of orthodontics wires and acrylics</li> <li>Characters of different wires and acrylic</li> </ul> </li> </ul>	9,10,11	6	b1,b2
8	Cephalometric identification and analysis	<ul style="list-style-type: none"> <li>Definition</li> <li>Indications</li> <li>Cephalometric points and lines</li> <li>Cephalometric analysis</li> <li>Tracing and interpretation</li> </ul>	12,13	4	a4
9	Review	<ul style="list-style-type: none"> <li>Previous topics</li> </ul>	14,15	4	a1,a2,a3,a4 ,b1,b2
10	Final Exam	<ul style="list-style-type: none"> <li>MCQs</li> </ul>	16	4	a1,a2,a3,a4 ,b1,b2
<b>Number of Weeks /and Units Per Semester</b>			<b>16</b>	<b>32</b>	



<b>B. Case Studies and Practical Aspect:</b>				
No.	Tasks/ Experiments	Week Due	Contact Hours	Learning Outcomes (CILOs)
1	<ul style="list-style-type: none"> <li>- Wire bending</li> <li>- Zigzag, square</li> <li>- Adam's</li> <li>- Labial bow</li> <li>- z-spring</li> </ul>	1 <sup>st</sup> -14 <sup>th</sup>	28	c1,c2,d1,d2
2	<ul style="list-style-type: none"> <li>- Practical Exam</li> </ul>	15 <sup>th</sup>	2	
<b>Number of Weeks /and Units Per Semester</b>		<b>15</b>	<b>30</b>	

<b>V. Teaching Strategies of the Course:</b>
<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Discussion</li> <li>- Exercises</li> <li>- Brainstorming</li> <li>- Lab training</li> </ul>

<b>VI. Assessment Methods of the Course:</b>
<ul style="list-style-type: none"> <li>- Midterm exam</li> <li>- Final exam</li> <li>- Practical exam</li> <li>- Assignment</li> <li>- Oral Exam</li> </ul>



VII. Assignments:				
No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	<ul style="list-style-type: none"> <li>- Wire bending</li> <li>- Zigzag, square</li> <li>- Adam's</li> <li>- Labial bow</li> <li>- z-spring</li> </ul>	1 <sup>st</sup> -14 <sup>th</sup>	20	b1, b2, c1, c2, d1, d2
<b>Total</b>			<b>20</b>	

VIII. Schedule of Assessment Tasks for Students During the Semester:					
No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignments	1 <sup>st</sup> - 14 <sup>th</sup>	20	20%	b1, b2, c1, c2, d1, d2
2	Practical Exam	15 <sup>th</sup>	10	10%	b1, b2, c1, c2, d1, d2
3	Midterm Exam	7 <sup>th</sup>	20	20%	a1,a2,a3, b1
4	Oral Exam	15 <sup>th</sup>	10	10%	a1,a2,a3,a4,b1,b2
5	Final Exam	16 <sup>th</sup>	40	40%	a1,a2,a3, b1, b2
<b>Total</b>			<b>100</b>	<b>100%</b>	

IX. Learning Resources:
<b>1- Required Textbook(s) :</b>
1. Proffit W., Fields H., Larson B., Sarver D., 2012: Contemporary Orthodontics, 5 <sup>th</sup> ed. Mosby, USA.
<b>2- Essential References:</b>
1- Graber L., Vanarsdall R., Vig K., Huang G., 2016: Orthodontics current principles and techniques, 6 <sup>th</sup> ed., Mosby, USA.
<b>3- Electronic Materials and Web Sites etc.:</b>



**Websites:**

- 1- American association of orthodontists  
www.aacd.com/central/orthodontics
- 2- www.orthfree.com
- 3- www.orthpedic.com

**X. Course Policies: (Based on the Uniform Students' By law (2007))**

1	<b>Class Attendance:</b> Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	<b>Tardiness:</b> A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	<b>Exam Attendance/Punctuality:</b> No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	<b>Assignments &amp; Projects:</b> Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	<b>Cheating:</b> Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	<b>Forgery and Impersonation:</b> Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	<b>Other policies:</b> The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.

Faculty of Dentistry  
**Department of POP**  
**Program of Doctor of Dental Surgery (DDS)**

Course Plan (Syllabus) of  
**Orthodontics I (pre-clinical)**  
Course No. ( -----)

<b>I. Information about Faculty Member Responsible for the Course:</b>							
<b>Name of Faculty Member:</b>	Prof. Dr. Ghamdan Al-Harazi	<b>Office Hours</b>					
<b>Location &amp; Telephone No.:</b>	Sanaa 777422337						
<b>E-mail:</b>	drghamdan@yahoo.com	SAT 1	SUN	MON	TUE	WED	THU 1



## II. Course Identification and General Information:

1	Course Title:	Orthodontics I (pre-clinical)			
2	Course Code & Number:	----			
3	Credit Hours:	Credit Hours	Theory Hours		Lab. Hours
			Lecture	Exercise	
		3	2	--	2
4	Study Level/ Semester at which this Course is offered:	3th Level / 2nd Semester			
5	Pre –Requisite (if any):	General Histology& Embryology			
6	Co –Requisite (if any):	None			
7	Program (s) in which the Course is Offered:	Doctor of Dental Surgery (DDS)			
8	Language of Teaching the Course:	English			
9	Study System:	Semester based System			
10	Mode of Delivery:	Full Time			
11	Location of Teaching the Course:	Faculty of Dentistry			
12	Prepared by:	Dr.Ghamdan Abdullah Al-Harazi			

## III. Course Description:

This course is an introduction to orthodontics to provide students with basic principles of orthodontics, knowledge of growth and development of face, arch and dentitions, for identifying existing and developing problems associated with dental and skeletal malocclusion, tracing cephalometric radiographs, manipulation of orthodontic wires and acrylics, process of soldering and welding, the most appropriate appliances for malocclusion with practical applications and demonstrations. This course has a preclinical practice that helps in offering experience needed for the preceding clinical courses.

#### IV. Course Intended Learning Outcomes (CILOs) :

Upon successful completion of the Course, student will be able to:

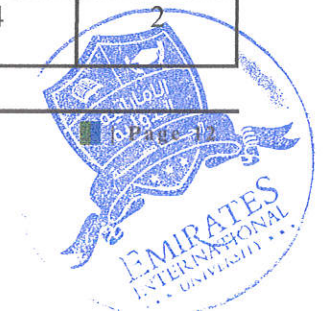
	<b>A. Knowledge and Understanding:</b>
a1	Know the principles and fundamentals of orthodontics
a2	Understand normal facial, dental and occlusal development and recognize deviations from normal
a3	Recognize dental and skeletal malocclusion
a4	Outline cephalometric lines and points and analyze the results
	<b>B. Intellectual Skills:</b>
b1	Construct preventive and interceptive treatment
b2	Design different types of orthodontic appliances using selected instruments and materials
	<b>C. Professional and Practical Skills:</b>
c1	Apply infection control protocols during lab sessions
c2	Perform fabrication of orthodontic appliances including wires bending, soldering and welding and acrylic base
	<b>D. Transferable Skills:</b>
d1	Use the latest technology for presenting and collecting data.
d2	Manage time and resources.

#### V. Course Contents:

##### A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
1	<b>Fundamentals of orthodontics</b>	<ul style="list-style-type: none"> <li>• Definition and terminology</li> <li>• Aims of orthodontics</li> <li>• scope of orthodontics</li> </ul>	1	2
2	<b>Craniofacial growth and development</b>	<ul style="list-style-type: none"> <li>• Postnatal growth</li> <li>• Growth pattern and variability</li> <li>• Nature of skeletal growth</li> <li>• Growth in craniofacial complex</li> <li>• Theories of growth control</li> </ul>	2,3	4
3	<b>Development of</b>	<ul style="list-style-type: none"> <li>• Ideal VS. normal occlusion</li> </ul>	4	2

Orthodontics I (pre-clinical)



<b>V. Course Contents:</b>				
<b>A. Theoretical Aspect:</b>				
<b>No.</b>	<b>Units/Topics List</b>	<b>Sub Topics List</b>	<b>Number of Weeks</b>	<b>Contact Hours</b>
	<b>occlusion</b>	<ul style="list-style-type: none"> <li>• Tooth development</li> <li>• Stages of occlusal development</li> </ul>		
<b>4</b>	<b>Malocclusion</b>	<ul style="list-style-type: none"> <li>• Etiology of malocclusion</li> <li>• Classification of malocclusion</li> <li>• Factors that has role in malocclusion:               <ul style="list-style-type: none"> <li>- Skeletal</li> <li>- Soft tissue</li> <li>- Local factors</li> </ul> </li> </ul>	5,6	4
<b>5</b>	<b>Midterm Exam</b>	<ul style="list-style-type: none"> <li>• Written exam</li> </ul>	7	2
<b>6</b>	<b>Orthodontic Materials and instruments</b>	<ul style="list-style-type: none"> <li>• Materials used in orthodontics</li> <li>• Instruments used in orthodontics</li> </ul>	8	2
<b>7</b>	<b>Interceptive treatment</b>	<ul style="list-style-type: none"> <li>• Principles of interceptive orthodontics</li> <li>• Components of removable appliance</li> <li>• The most appropriate removable appliances for different malocclusions</li> <li>• <b>Indications for fabrication of orthodontic appliances.</b></li> <li>• Procedures for fabrication of orthodontic appliances               <ul style="list-style-type: none"> <li>- Manipulation of orthodontics wires and acrylics</li> <li>- Characters of different wires and acrylic</li> </ul> </li> </ul>	9,10,11	6
<b>8</b>	<b>Cephalometric identification and analysis</b>	<ul style="list-style-type: none"> <li>• Definition</li> <li>• Indications</li> <li>• Cephalometric points and lines</li> <li>• Cephalometric analysis</li> <li>• Tracing and interpretation</li> </ul>	12,13	4
<b>9</b>	<b>Review</b>	<ul style="list-style-type: none"> <li>• Previous topics</li> </ul>	14,15	4
<b>10</b>	<b>Final Exam</b>	<ul style="list-style-type: none"> <li>• MCQs</li> </ul>	16	4

## V. Course Contents:

### A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
Number of Weeks /and Units Per Semester			16	32

### B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Week Due	Contact Hours
1	<ul style="list-style-type: none"> <li>- Wire bending</li> <li>- Zigzag, square</li> <li>- Adam's</li> <li>- Labial bow</li> <li>- z-spring</li> </ul>	1 <sup>st</sup> -14 <sup>th</sup>	28
2	<ul style="list-style-type: none"> <li>- Practical Exam</li> </ul>	15 <sup>th</sup>	2
Number of Weeks /and Units Per Semester		15	30

## VI. Teaching Strategies of the Course:

- Lectures
- Discussion
- Exercises
- Brainstorming
- Lab training

## VII. Assessment Methods of the Course:

- Midterm exam
- Final exam
- Practical exam
- Assignment
- Oral Exam

<b>VIII. Assignments:</b>			
No.	Assignments	Week Due	Mark
1	<ul style="list-style-type: none"> <li>- Wire bending</li> <li>- Zigzag, square</li> <li>- Adam's</li> <li>- Labial bow</li> <li>- z-spring</li> </ul>	1st -14th	20
<b>Total</b>			<b>20</b>

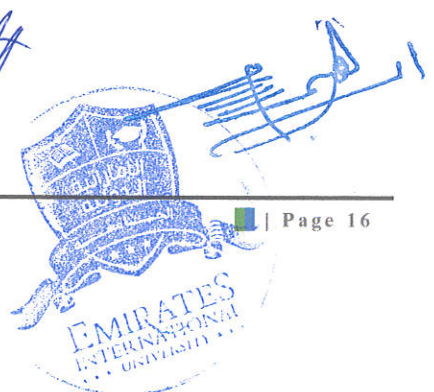
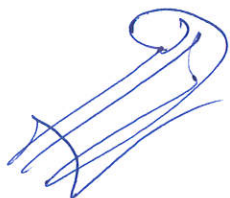
<b>IX. Schedule of Assessment Tasks for Students During the Semester:</b>				
No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Assignments	1 <sup>st</sup> -14 <sup>th</sup>	20	20%
2	Practical Exam	15 <sup>th</sup>	10	10%
3	Midterm Exam	7 <sup>th</sup>	20	20%
4	Oral Exam	15 <sup>th</sup>	10	10%
5	Final Exam	16 <sup>th</sup>	40	40%
<b>Total</b>			<b>100</b>	<b>100%</b>

<b>X. Learning Resources:</b>	
<b>1- Required Textbook(s) :</b>	
Proffit W., Fields H., Larson B., Sarver D., 2012: Contemporary Orthodontics, 5th ed. Mosby, USA.	
<b>2- Essential References:</b>	
1- Graber L., Vanarsdall R., Vig K., Huang G., 2016: Orthodontics current principles and techniques, 6th ed., Mosby, USA.	
<b>3- Electronic Materials and Web Sites etc.:</b>	

<p><b>Websites:</b></p> <p>1- American association of orthodontists www.aacd.com/central/orthodontics</p> <p>2- www.orthfree.com</p> <p>3- www.orthpedic.com</p>
--

**XI. Course Policies: (Based on the Uniform Students' Bylaw (2007))**

<p><b>Class Attendance:</b></p>
<p>1 Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.</p>
<p><b>Tardiness:</b></p>
<p>2 A student will be considered late if he/she is not in class after 10 minutes of the start time of class.</p>
<p><b>Exam Attendance/Punctuality:</b></p>
<p>3 No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.</p>
<p><b>Assignments &amp; Projects:</b></p>
<p>4 Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.</p>
<p><b>Cheating:</b></p>
<p>5 Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.</p>
<p><b>Forgery and Impersonation:</b></p>
<p>6 Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.</p>
<p><b>Other policies:</b></p>
<p>7 The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.</p>



EMIRATES  
INTERNATIONAL  
UNIVERSITY