

Republic of Yemen
Ministry of Higher Education & Scientific Research
Emirates International University



Faculty of Dentistry
Department of Oral Surgery
Doctor of Dental Surgery

Course Specification of
Local Anesthesia and Pain Control
Course No. ()



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Review committee:

Head of the Department

Quality Assurance head

Dean of Faculty



I. Course Identification and General Information:

1	Course Title:	Local Anesthesia and Pain Control			
2	Course Code & Number:				
3	Credit Hours:	Credit Hours	Theory Hours		Lab. Hours
			Lecture	Exercise	
		2	2	---	---
4	Study Level/ Semester at which this Course is offered:	3 rd Level / 1 st Semester			
5	Pre –Requisite (if any):	Anatomy of head and neck			
6	Co –Requisite (if any):	None			
7	Program (s) in which the Course is Offered:	Doctor of Dental Surgery			
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. Sam Da'er			

II. Course Description:

Aim of this course is introduces the students to the concept of pain control and widens their knowledge in the neuro-physiology of the oral cavity and pharmacokinetics of local anesthesia drugs. It covers patient assessment and suitability for local anesthesia and surgery, it also addresses the potential local and systemic complications of LA and how to manage them and begin basic exodontia steps, as well as developing an understanding of aseptic techniques, local anesthetic for exodontia techniques, armentarium, and pain control

III. Course Intended Learning Outcomes (CILOs) : Upon successful completion of the course, students will be able to:		Referenced PILOs Learning out of program		
A. Knowledge and Understanding:		I, A or E		
a1	Describe the osteology and physiologic mechanism of pain modulation and pain control			A2
a2	Identify the mechanism of action of local anesthetics, Recognize the different local anesthetic solutions and vasoconstrictors, Describe & identify the armamentarium used for administering local anesthesia and sedation			A1
a3	Describe the different local anesthetic techniques & its anatomical considerations			A2
a4	Describe the local and systemic complications of local anesthesia and Sedation			A5
B. Intellectual Skills:				
b1	Apply critical thinking when selecting and providing local anesthesia.			B2
b2	Select and list the armamentarium needed for minor oral surgery procedures.			B5
C. Professional and Practical Skills:				
c1	Properly prepare the armamentarium and the treatment environment for local anesthesia & minor oral surgery procedures			C1
c2	Properly execute infection control and asepsis standards			C3
D. Transferable Skills:				
d1	Show an appropriate attitude while performing the requested tasks by his instructors			D6

d2	Manage time and work to prescribed time limits			D4
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(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
a1	Describe the osteology and physiologic mechanism of pain modulation and pain control	<ul style="list-style-type: none"> ▪ Lectures ▪ Discussion 	<ul style="list-style-type: none"> ▪ Quizzes ▪ Midterm exam. ▪ Final exam. ▪ Oral exam.
a2	Identify the mechanism of action of local anesthetics, Recognize the different local anesthetic solutions and vasoconstrictors, Describe & identify the armamentarium used for administering local anesthesia	<ul style="list-style-type: none"> ▪ Lectures ▪ Discussion 	<ul style="list-style-type: none"> ▪ Quizzes ▪ Midterm exam. ▪ Final exam. ▪ Oral exam.
a3	Describe the different local anesthetic techniques & its anatomical considerations	<ul style="list-style-type: none"> ▪ Lectures ▪ Discussion 	<ul style="list-style-type: none"> ▪ Quizzes ▪ Midterm exam. ▪ Final exam. ▪ Oral exam.
a4	Describe the local and systemic complications of local anesthesia	<ul style="list-style-type: none"> ▪ Lectures ▪ Discussion 	<ul style="list-style-type: none"> ▪ Quizzes ▪ Midterm exam. ▪ Final exam. ▪ Oral exam.
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
b1	Apply critical thinking when selecting and providing local anesthesia.	<ul style="list-style-type: none"> ▪ Lecture ▪ Debate 	<ul style="list-style-type: none"> ▪ Oral exam. ▪ Assignments
b2	Select and list the armamentarium needed for minor oral surgery procedures.	<ul style="list-style-type: none"> ▪ Lecture ▪ Debate 	<ul style="list-style-type: none"> ▪ Oral exam. ▪ Assignments
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies

c1	Properly prepare the armamentarium and the treatment environment for local anesthesia	<ul style="list-style-type: none"> ▪ Lectures ▪ Presentation ▪ Debate 	<ul style="list-style-type: none"> ▪ Homework
c2	Properly execute infection control and asepsis standards	<ul style="list-style-type: none"> ▪ Lectures ▪ Presentation ▪ Debate 	<ul style="list-style-type: none"> ▪ Homework
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
d1	Show an appropriate attitude while performing the requested tasks by his instructors	<ul style="list-style-type: none"> ▪ Presentation ▪ Discussion ▪ Brainstorming 	<ul style="list-style-type: none"> ▪ Homework
d2	Manage time and work to prescribed time limits	<ul style="list-style-type: none"> ▪ Presentation ▪ Discussion ▪ Brainstorming 	<ul style="list-style-type: none"> ▪ Homework

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Introduction	History of Anesthesia, Osteology, and anatomy of Maxilla and Mandible and branches of trigeminal nerves	2	4	a1
2	Neurophysiology	Structure and classification of nerve, Electrophysiology & Electrochemistry of Nerve Conduction	1	2	a1, a2
3	Pharmacology of Local Anesthetics	Pharmacokinetics of Local Anesthetics, Ester Local Anesthetics, Amide Local Anesthetics, Excretion, Systemic Actions of Local Anesthetics.	2	4	a2, a4, b1
4	Pharmacology of	Pharmacology of Specific Agents, Mechanism of Action local and Systemic effects, Maximum Doses	1	2	a2, a3

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
	Vasoconstrictors				
5	Armamentarium	The Syringe (Types of Syringes, Nondisposable Syringes, Self-aspirating syringe), The Needle (Types, Anatomy of Needle, Local Gauge, Problems With Needles) & the Cartridge	1	2	a2, b2
6	Midterm Exam		1	2	a1- a3, b1,b2
7	Basic Techniques of Local Anesthesia	Surface or Topical Anesthesia, Infiltration Anesthesia or Local Infiltration, Types of Infiltration Anesthesia, Submucosal Injection, Subperiosteal Injection, Supplementary Injections, Intraligament (Periodontal or Peridental) Injection, Intrapulpal Anesthesia, Intraosseous Injection Technique, Intraseptal Anesthesia, Local Infiltration of the Palate, Field Block & Nerve block	1	2	a1, a3
8	Local Anesthesia techniques for mandible	IA Nerve Blocks: Direct Technique & Indirect Technique, Long Buccal Nerve Block, Mental Nerve Block and Incisive Nerve Block, Gow-Gates' Mandibular Nerve Block, Akinosi (Closed Mouth) Mandibular Nerve Block, Extra oral Techniques for Anesthesia & Aesthetic Technique for Mandibular Nerve	2	4	a1, a3, b1,b2
9	Local Anesthesia techniques for Maxilla	NERVE BLOCKS, Intraoral Nerve Blocks, Infraorbital Nerve Block, Posterior Superior Alveolar Nerve Block, Nasopalatine Nerve Block, Greater Palatine Nerve Block, Nerve Blocks for Maxillary Nerve, Extra oral Nerve Blocks, Infraorbital Nerve Block & Maxillary Nerve Block	2	4	a1, a3, b1, b2

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
10	Local & systemic Complications of LA	Complications arising from the drugs or chemicals used for local anesthesia & Complications arising from injection techniques: Needle-stick injuries, Failure to obtain local anesthesia, Complications arising from both, Bizarre neurological symptoms, Vasodepressor syncope, Adverse drug reactions, Allergic reactions, Toxic reactions, Vasoconstrictor (epinephrine) overdose, Idiosyncratic reactions, Emergency drugs, Equipment used for treatment of complications	1	2	a1, a3
11	Sedation and general anesthesia	Introduction, Preanesthetic evaluation, Problems of General anaesthesia in a Dental chair, Conscious Sedation, Deep Sedation and Sedation Techniques	1	2	a4, b1, b2
12	Final Exam		1	2	a1-a4, b1-b2
Number of Weeks /and Units Per Semester			16	32	

V. Teaching Strategies of the Course:

Lectures
Debate
Discussion
Brainstorming
Presentation

VI. Assessment Methods of the Course:

– Quizzes

- Midterm Exam (mcq questions, complete, short essay, enumerate, and define)
- Final Exam (mcq questions, complete, short essay, enumerate, and define)
- Oral Exam (will be performed by internal examiner through free discussion).
- Home work

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	Presentation	2 nd -15 th	10	b1,b2, c1, c2, d1,d2
Total			10	

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	Quizzes	4 th , 12 th	10	10%	a1,a2, a3, b1
2	Midterm Exam	8 th	20	20%	a1- a3, b1,b2
3	Assignment	2 nd -15 th	10	10%	b1,b2, c1, c2, d1,d2
4	Oral Exam	16 th	10	10%	a1- a4, b1,b2
5	Final Exam	16 th	50	50%	a1- a4, b1,b2
Total			100	100%	

IX. Learning Resources:

- 1- Required Textbook(s) (maximum two):**
1. James Hupp, Edward Ellis and Myron Tucker. (2013) Contemporary Oral and Maxillofacial Surgery, 6th edition . Elsevier
- 2- Essential References:**
- 1- Stanley Malamed, 2015, Handbook of Local Anesthesia, 6th edition . elsevier
- 3- Electronic Materials and Web Sites etc.:**

<https://www.bjoms.com/>

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

1	Class Attendance: 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	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	Exam Attendance/Punctuality: 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	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: 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	Forgery and Impersonation: 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	Other policies: 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 Oral Surgery

Doctor of Dental Surgery

Course Plan (Syllabus) of Local Anesthesia and Pain Control Course No. ()

I. Information about Faculty Member Responsible for the Course:							
Name of Faculty Member:		Office Hours					
Location & Telephone No.:							
E-mail:		SAT	SUN	MON	TUE	WED	THU



II. Course Identification and General Information:

1	Course Title:	Local Anesthesia and Pain Control			
2	Course Code & Number:				
3	Credit Hours:	Credit Hours	Theory Hours		Lab. Hours
			Lecture	Exercise	
		2	2	---	---
4	Study Level/ Semester at which this Course is offered:	3rd Level / 1st Semester			
5	Pre –Requisite (if any):	Anatomy of head and neck			
6	Co –Requisite (if any):	None			
7	Program (s) in which the Course is Offered:	Doctor of Dental Surgery			
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. Sam Da'er			

III. Course Description:

Aim of this course is introduces the students to the concept of pain control and widens their knowledge in the neuro-physiology of the oral cavity and pharmacokinetics of local anesthesia drugs. It covers patient assessment and suitability for local anesthesia and surgery, it also addresses the potential local and systemic complications of LA and how to manage them and begin basic exodontia steps, as well as developing an understanding of aseptic techniques, local anesthetic for exodontia techniques, armentarium, and pain control

IV. Course Intended Learning Outcomes (CILOs) :

Upon successful completion of the Course, student will be able to:	
A. Knowledge and Understanding:	
a1	Describe the osteology and physiologic mechanism of pain modulation and pain control
a2	Identify the mechanism of action of local anesthetics, Recognize the different local anesthetic solutions and vasoconstrictors, Describe & identify the armamentarium used for administering local anesthesia and sedation
a3	Describe the different local anesthetic techniques & its anatomical considerations
a4	Describe the local and systemic complications of local anesthesia and Sedation
B. Intellectual Skills:	
b1	Apply critical thinking when selecting and providing local anesthesia.
b2	Select and list the armamentarium needed for minor oral surgery procedures.
C. Professional and Practical Skills:	
c1	Properly prepare the armamentarium and the treatment environment for local anesthesia & minor oral surgery procedures
c2	Properly execute infection control and asepsis standards
D. Transferable Skills:	
d1	Show an appropriate attitude while performing the requested tasks by his instructors
d2	Manage time and work to prescribed time limits

V. Course Contents:				
A. Theoretical Aspect:				
No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
1	Introduction	History of Anesthesia, Osteology, and anatomy of Maxilla and Mandible and branches of trigeminal nerves	2	4
2	Neurophysiology	Structure and classification of nerve, Electrophysiology & Electrochemistry of Nerve Conduction	1	2

V. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
3	Pharmacology of Local Anesthetics	Pharmacokinetics of Local Anesthetics, Ester Local Anesthetics, Amide Local Anesthetics, Excretion, Systemic Actions of Local Anesthetics.	2	4
4	Pharmacology of Vasoconstrictors	Pharmacology of Specific Agents, Mechanism of Action local and Systemic effects, Maximum Doses	1	2
5	Armamentarium	The Syringe(Types of Syringes, Nondisposable Syringes, Self-aspirating syringe), The Needle(Types, Anatomy of Needle, Local Gauge, Problems With Needles) & the Cartridge	1	2
6	Midterm Exam		1	2
7	Basic Techniques of Local Anesthesia	Surface or Topical Anesthesia, Infiltration Anesthesia or Local Infiltration, Types of Infiltration Anesthesia, Submucosal Injection, Subperiosteal Injection, Supplementary Injections, Intraligament (Periodontal or Peridental) Injection, Intrapulpal Anesthesia, Intraosseous Injection Technique, Intraseptal Anesthesia, Local Infiltration of the Palate, Field Block & Nerve block	1	2
8	Local Anesthesia techniques for mandible	IA Nerve Blocks: Direct Technique & Indirect Technique, Long Buccal Nerve Block, Mental Nerve Block and Incisive Nerve Block, Gow-Gates' Mandibular Nerve Block, Akinosi (Closed Mouth) Mandibular Nerve Block, Extra oral Techniques for Anesthesia & Aesthetic Technique for Mandibular Nerve	2	4
9	Local Anesthesia techniques for Maxilla	NERVE BLOCKS, Intraoral Nerve Blocks, Infraorbital Nerve Block, Posterior Superior Alveolar Nerve Block, Nasopalatine Nerve Block, Greater Palatine Nerve Block, Nerve Blocks for Maxillary Nerve, Extra oral Nerve	2	4

V. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
		Blocks, Infraorbital Nerve Block & Maxillary Nerve Block		
10	Local & systemic Complications of LA	Complications arising from the drugs or chemicals used for local anesthesia & Complications arising from injection techniques: Needle-stick injuries, Failure to obtain local anesthesia, Complications arising from both, Bizarre neurological symptoms, Vasodepressor syncope, Adverse drug reactions, Allergic reactions, Toxic reactions, Vasoconstrictor (epinephrine) overdose, Idiosyncratic reactions, Emergency drugs, Equipment used for treatment of complications	1	2
11	Sedation and general anesthesia	Introduction, Preanesthetic evaluation, Problems of General anaesthesia in a Dental chair, Conscious Sedation, Deep Sedation and Sedation Techniques	1	2
12	Final Exam		1	2
Number of Weeks /and Units Per Semester			16	32

VI. Teaching Strategies of the Course:

- Lectures
- Debate
- Discussion
- Brainstorming
- Presentation

VII. Assessment Methods of the Course:

- Quizzes
- Midterm Exam (mcq questions, complete, short essay, enumerate, and define)
- Final Exam (mcq questions, complete, short essay, enumerate, and define)
- Oral Exam (will be performed by internal examiner through free discussion).
- Home work

VIII. Assignments:			
No.	Assignments	Week Due	Mark
1	Presentation	2nd-15th	10
Total			10

IX. Schedule of Assessment Tasks for Students During the Semester:				
No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Quizzes	4 th , 12 th	10	10%
2	Midterm Exam	8 th	20	20%
3	Assignment	2 nd -15 th	10	10%
4	Oral Exam	16 th	10	10%
5	Final Exam	16 th	50	50%
Total			100	100%

X. Learning Resources:
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