King Saud University
College of Dentistry

Postgraduate Orthodontic Program

Curriculum
And
Course description
## Curriculum

### First Year Curriculum:

<table>
<thead>
<tr>
<th>Course No</th>
<th>Course Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>DENS 510</td>
<td>Biostatistics in Dentistry</td>
<td>1 (1.0)**</td>
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<tr>
<td>DENS 511</td>
<td>Advanced Oral Biology</td>
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<tr>
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<tr>
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<td>Orthodontic Literature Review</td>
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<tr>
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* Pass/Fail Course
** Half-year course
### First Year

#### First Semester

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<tbody>
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<td>Ortho Clinic-S1</td>
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# Orthodontic Postgraduate Program - 2007

## King Saud University

*College of Dentistry*

## Department of Preventive Dental Science

## Division of Orthodontics

### Second Year

#### First Semester

<table>
<thead>
<tr>
<th>Day/Time</th>
<th>8-9</th>
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<tr>
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<td>DENS 516 Occlusion</td>
<td>PDS 547 Philosophies of Tx Tech</td>
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<td>Sun</td>
<td>DENS 520 Research Method</td>
<td>PDS 548 Case Assessment and Progress</td>
<td>PDS 554 Ortho Clinic-II</td>
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<td>Mon</td>
<td>DENS 522 Education</td>
<td>PDS 549 Multidisciplinary Treatment</td>
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<td>PDS 550 CL&amp;P</td>
<td>PDS 554 Ortho Clinic-II</td>
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<td>PDS 551 Current Literature Review</td>
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<td>PDS 554 Ortho Clinic-II</td>
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<td>Sun</td>
<td>PDS 553 Genetics</td>
<td>PDS 548 Case Assessment and Progress</td>
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<td>Mon</td>
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King Saud University  
*College of Dentistry*  
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### Third Year

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<td>Sun</td>
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King Saud University  
*College of Dentistry*  
Department of Preventive Dental Science  
Division of Orthodontics

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* Pass/Fail Course  
** Half-year course
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

Biostatistics in Dentistry

DENS 510
1) Course Title  :  Biostatistics in dentistry.

2) Course Code and Number  :  DENS 510

3) Credit Hour  :  One credit hour.

4) Contact Hour  :  One contact hour.

5) Pre-requisite and or Co-requisite  :  None.

6) Course Level  :  First Year (Half Year).

7) Course Description:
   This didactic course is offered to all graduate students during the first year. It is given in a manner, which progressively combines basic with intermediate level statistical concepts, definitions and methods commonly applied to research and data analysis. Topics covered include variables, frequency distribution, sampling, measure of central tendency, variance, and measures of dispersion, various statistical tests, analysis and probability. The course also includes introduction to computer application in dental sciences.

8) Course Objectives:
   The course objectives are to help the student:
   1) Understand the statistical procedures needed for data analysis of the dental literatures.
   2) Understand the statistical procedures needed for performing research.

9) Course Outline.
   Week (1); Lecture (50 minutes duration)
       Topic: Definition, statistics, variables, population and sample.

   Week (2); Lecture (50 minutes duration)
       Topic: Mean, median and mode
       Variance, standard deviation and coefficient of variance.

   Week (3); Lecture (50 minutes duration)
Topic: Probability.

Week (4); Lecture (50 minutes duration)
Topic: Normal distribution.

Week (5); Lecture (50 minutes duration)
Topic: Confidence interval.

Week (6); Lecture (50 minutes duration)
Topic: Hypothesis testing.

Week (7); Lecture (50 minutes duration)
Topic: Hypothesis testing for two samples.

Week (8); Mid-term Written Examination
Topic. ***** Mid-term Written Examination *****
• Multiple choice questions
• 40 Marks
• 60 minutes duration

Week (9); Lecture (50 minutes duration)
Topic: Chi-square distribution.

Week (10); Lecture (50 minutes duration)
Topic: F-distribution.

Week (11); Lecture (50 minutes duration)
Topic: Regression.

Week (12); Lecture (50 minutes duration)
Topic: Non-parametric statistics.

Week (13); Lecture (50 minutes duration)

Week (14); Lecture (50 minutes duration)
Topic: Morbidity rates.

Week (15); Final Written Examination (50 minutes duration)
Topic. ***** Final Written Examination *****
• Multiple choice questions
• 60 marks
• 120 minutes duration

10) Method of Teaching:
   ○ Lectures format.
11) Evaluation:
Students are evaluated during the course by mid-term written examination and final written examination. At the beginning of the course the students will be given a list of reading assignment from various textbook and published articles related to the topics covered in the course.

12) Grading:
The total mark of the course is 100 marks and distributed as follow;
- Mid-term Written Examination (40 Marks)
- Final Written Examination (60 Marks)
The total marks gained by the students will be graded according to the King Saud University grading scheme as follow.
- 95-100 = A+
- 90-94 = A
- 85-89 = B+
- 80-84 = B
- 75-79 = C+
- 70-74 = C
- 65-69 = D+
- 60-64 = D
- 0-60 = F

13) References
A) Textbook(s).
B) Selected Article(s).
Some articles suitable for the course will be distributed on time.

14) Course Director.
The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and or any required change or changes in the course.

15) Course Revision.
This course and its contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes.

16) Course Approval.
The course and its contents was approval at the meeting number (………….) date (………….).
King Saud University
*College of Dentistry*
Department of Preventive Dental Science
Division of Orthodontics

Advanced Oral Biology

DENS 511
King Saud University  
*College of Dentistry*  
Department of Preventive Dental Science  
Division of Orthodontics

1) **Course Title** : Advanced oral biology.

2) **Course Code and Number** : DENS 511

3) **Credit Hour** : One credit hour.

4) **Contact Hour** : One contact hour.

5) **Pre-requisite and or Co-requisite** : None.

6) **Course Level** : First Year (Half Year).

7) **Course Description:**
This course is offered in the first year of the graduate studies. The lectures cover the development of the face, microanatomy of the hard dental tissues, oral mucous membrane, periodontium and salivary glands. In addition, lectures cover various oral and dental structures, their functions, relationship and response to systemic and environmental influences. Clinical consideration is emphasized throughout the course in the lecture topics. Latest literature information on these topics and the current controversies on them are discussed.

8) **Course objectives:**
Upon successful completion of the course, the students will be able to:

1. Know in detail the cell structure, function and its specific specialization
2. Understand the mechanism involved in oral-facial growth and development.
3. Be able to describe the interrelationships between macroscopic, light and electron microscopic structures and functions of the appropriate oral tissues.
4. Know correctly the chemical composition of enamel, dentin, cementum, alveolar bone and the major similarities and or/differences among them.
5. Have a fair knowledge of the roles of some minerals and factors that affect the metabolism of mineralized tissue (bone, teeth).
6. Have a clear understanding of the biology of the periodontium.
7. Understand the microanatomy and ultrastructure of the oral mucosa; the regional variation and its significance.
8. Understand the microanatomy and ultrastructure of the sulcular and junctional epithelium of the dentogingival junction.
9. Be able to describe the anatomy and ultrastructure of salivary glands and physiology of salivary secretions.
10. Understand the principles of occlusal function and articulation as determined by craniomandibular relationship.
11. To be familiar with the age changes that occurs in the oral and dental tissues.
12. Have a fair knowledge of the clinical implication or significance of the aforementioned subjects.
13. Know the response of the oral tissues to systemic and environmental influences.
14. Be able to discuss the latest literature information on these topics and the current controversies.

9) Course Outline.
Week (1); Lecture (50 minutes duration)
   Topic: Introduction to the course.

Week (2); Lecture (50 minutes duration)
   Topic: Cell structure and function.

Week (3); Lecture (50 minutes duration)
   Topic: General embryology.

Week (4); Lecture (50 minutes duration)
   Topic: Advances in the embryology of the orofacial complex.

Week (5); Lecture (50 minutes duration)
   Topic: Odontogenesis.

Week (6); Lecture (50 minutes duration)
   Topic: Enamel – properties, light and ultrastructure.

Week (7); Lecture (50 minutes duration)
   Topic: Dentin – structure and function.

Week (8); Mid-term Written Examination (50 minutes duration)
   Topic: ***** Mid-term Written Examination *****
   • Multiple choice questions
   • 40 marks
   • 60 minutes duration
Week (9); Lecture (50 minutes duration)  
Topic: Dental pulp – structure and function.

Week (10); Lecture (50 minutes duration)  
Topic: Cementum and alveolar process.

Week (11); Lecture (50 minutes duration)  
Topic: Periodontal ligament.

Week (12); Lecture (50 minutes duration)  
Topic: Oral mucosa – structure and function.

Week (13); Lecture (50 minutes duration)  
Topic: Salivary glands – structure and function.

Week (14); Lecture (50 minutes duration)  
Topic: TMJ – structure and function.

Week (15); Lecture (50 minutes duration)  
Topic: Eruption, exfoliation of deciduous teeth.

Week (16) (Examination)  
Topic: Final Written Examination  
- Multiple choice questions  
- 60 marks  
- 120 minutes duration

10) **Method of Teaching:**  
  - Lectures format.

11) **Evaluation:**  
Students are evaluated during the course by mid-term written examination and final written examination. At the beginning of the course the students will be given a list of reading assignment from various textbook and published articles related to the topics covered in the course.

12) **Grading:**  
The total mark of the course is 100 marks and distributed as follow;  
- Mid-term Written Examination (40 Marks)  
- Final Written Examination (60 Marks)  
The total marks gained by the students will be graded according to the King Saud University grading scheme.

13) **References**  
A) Textbook(s).

B) Atlas.

C) Additional helpful references

14) Course Director.
The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and or any required change or changes in the course.

15) Course Revision.
This course and its contents should be revised at least every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes.

16) Course Approval.
The course and its contents was approval at the meeting number (…………..) date (……………).
King Saud University

College of Dentistry

Department of Preventive Dental Science

Division of Orthodontics

General Epidemiology

DENS 513
King Saud University  
*College of Dentistry*  
Department of Preventive Dental Science  
Division of Orthodontics

1) **Course Title** : General Epidemiology.

2) **Course Code and Number** : DENS 513

3) **Credit Hour** : One credit hour.

4) **Contact Hour** : One contact hour.

5) **Pre-requisite and or Co-requisite** : None.

6) **Course Level** : First Year (Half Year).

7) **Course Description:**
   This course is an introduction to epidemiology and to epidemiologic approach to problems of health and disease. The basic principles and methods of epidemiology are presented together with many of the application of epidemiology to public and clinical practice.

8) **Course objectives:**
   That by the end of the course, the student will be able to demonstrate knowledge of:
   - The nature and uses of epidemiology.
   - The epidemiological approach to defining and measuring the occurrence of health related states in population.
   - The strengths and limitations of epidemiological study design.
   - The epidemiological approach to causation.
   - The contribution of epidemiology to the prevention of disease.
   - The contribution of epidemiology to clinical practice.

9) **Course Outline.**
   - Week (1); Lecture (50 minutes duration)
     Topic: Introduction to the course – Basic concepts.

   - Week (2); Lecture (50 minutes duration)
     Topic: Epidemiologic concepts.

   - Week (3); Lecture (50 minutes duration)
Topic: Dynamic of disease transmission.

Week (4); Lecture (50 minutes duration)
Topic: Measures of disease frequency -1.

Week (5); Lecture (50 minutes duration)

Week (6); Lecture (50 minutes duration)
Topic: Descriptive epidemiology.

Week (7); Lecture (50 minutes duration)
Topic: Epidemiologic aspects of infectious disease.

Week (8); Lecture (50 minutes duration)
Topic: (Mid-term Written Examination)
- Multiple choice questions
- 30 marks
- 60 minutes duration

Week (9); Lecture (50 minutes duration)
Topic: Types of epidemiological studies – Observational.

Week (10); Lecture (50 minutes duration)
Topic: Types of epidemiological studies – Analytical.

Week (11); Lecture (50 minutes duration)
Topic: Types of epidemiological studies – Qusi experimental.

Week (12); Lecture (50 minutes duration)
Topic: Types of epidemiological studies – Choice of study.

Week (13); Lecture (50 minutes duration)
Topic: Causation in epidemiology.

Week (14); Lecture (50 minutes duration)
Topic: Clinical epidemiology.

Week (15); Lecture (50 minutes duration)
Topic: Ethical and professional issues in epidemiology

Week (16) (Examination) Topic: Final Written Examination
- Multiple choice questions
- 40 marks
- 120 minutes duration
10) **Method of Teaching:**
Class activities will be in the form of lectures and discussions. The discussion will be organized so that both faculty and students will discuss the concepts presented. Home procedures assignment in form of problem-solving exercises will be given.

11) **Evaluation:**
Students are evaluated during the course by two written examination in the form of short answer questions, multiple choice questions and problem-solving questions.

12) **Grading:**
The total mark of the course is 100 marks and distributed as follow;
- 10 marks – classroom participation.
- 20 marks – assignments.
- 30 marks - mid-term Written Examination.
- 40 marks - final Written Examination.
The total marks gained by the students will be graded according to the King Saud University grading scheme.

13) **References**
**Textbooks used in this course are:**
- Gordis L. Epidemiology.
- Hennekens CH, Buring JE. Epidemiology in medicine.
- Mausner j, Kramer S. Epidemiology – An introductory Test.
Note: A “course pack” of the selected references will be distributed to the students. This is because the number of available textbook in the library is not compatible with the number of expected students.

14) **Course Director.**
The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and or any required change or changes in the course.

15) **Course Revision.**
This course and its contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes.

16) **Course Approval.**
The course and its contents was approval at the meeting number (…………) date (………….).
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

Applied Head and Neck Anatomy

DENS 514
1) **Course Title**: Applied head and neck anatomy

2) **Course Code and Number**: DENS 514

3) **Credit Hour**: One credit hour.

4) **Contact Hour**: One contact hour.

5) **Pre-requisite and or Co-requisite**: None.

6) **Course Level**: First Year (Half Year).

7) **Course Description**: This half-year course is normally offered during the second half of the first year in the Department of the College of Medicine. Topics reviewed highlight salient anatomical structures of the head and neck as applied to dentistry to reflect significant clinical considerations. The form of teaching is didactic. This is supplemented with selected practical sessions or laboratory audio-visual learning aids may be decided. Topics covered include but are not limited to; facial skeleton, muscles of the face and mastication, the mouth, oropharynx and larynx, blood vessels, lymphatic and nerve supply of the oral cavity and of the salivary glands.

8) **Course objectives**: That by the end of the course, the student will be able to demonstrate knowledge of the salient anatomical structures of the head and neck as applied to dentistry.

9) **Course Outline**.
   - **Week (1); Lecture (50 minutes duration)**
     - **Topic**: Development of face and palate;
       - Congenital anomalies;
       - Derivative of brachial arches
   - **Week (2); Lecture (50 minutes duration)**
     - **Topic**: Skull - Normas;
       - Foramina;
Mandible

Week (3); Lecture (50 minutes duration)
Topic: Face – Muscles, Vessels, Nerves.
Facial nerves.

Week (4); Lecture (50 minutes duration)
Topic: Deep fascia of the neck
Applied anatomy of the posterior triangle of the neck

Week (5); Lecture (50 minutes duration)
Topic: Anterior triangle of the neck
Thyroid gland
Carotid sheath

Week (6); Lecture (50 minutes duration)
Topic: Oral cavity
Palate
Tongue

Week (7); Lecture (50 minutes duration)
Topic: Trigeminal nerve
Topography and applied anatomy

Week (8); Lecture (50 minutes duration)
Topic: Anatomy and innervation of – Parotid gland
Submandibular gland
Sublingual gland

○○○○○ (Mid-term Written Examination between weeks 8 and 9) ○○○○○
- Multiple choice questions
- 40 marks
- 60 minutes duration

Week (9); Lecture (50 minutes duration)
Topic: Histology – Oral cavity
Salivary glands

Week (10); Lecture (50 minutes duration)
Topic: Temporomandibular joint
Muscles of mastication
Nasal cavity
Paranasal sinus

Week (11); Lecture (50 minutes duration)
Topic: Pharynx
Trachea
Eosophagus

Week (12); Lecture (50 minutes duration)
Topic: Larynx
Anatomical basis of intubation
Tracheostomy

Week (13); Lecture (50 minutes duration)
Topic: Histology – Nasal cavity
Pharynx
Larynx
Week (14); Lecture (50 minutes duration)
Topic: Cranial nerves 9, 11, and 12
Week (15); Lecture (50 minutes duration)
Topic: Orbit and eyeball
Lymphatic drainage of the head and neck
Week (16) (Examination)
Topic: Final Written Examination
  • Multiple choice questions
  • 60 marks
  • 120 minutes duration

10) Method of Teaching:
  • Lectures and discussions.

11) Evaluation:
Students are evaluated during the course by written examination.

12) Grading:
The total mark of the course is 100 marks and distributed as follow;
  o 40 marks - mid-term Written Examination.
  o 60 marks - final Written Examination.
The total marks gained by the students will be graded according to the King Saud University grading scheme.

13) References
Textbooks used in this course are:
  • Anatomy Textbook.

14) Course Director.
The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director regarding the course progress and or any required change or changes in the course.

15) Course Revision.
This course and its contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes.

16) Course Approval.
The course and its contents was approval at the meeting number (…………..) date (……………..).
King Saud University
*College of Dentistry*
Department of Preventive Dental Science
Division of Orthodontics

Advanced Oral and Maxillofacial Radiology

DENS 515
1) Course Title : Advanced oral and maxillofacial radiology.

2) Course Code and Number : DENS 515

3) Credit Hour : One credit hour.

4) Contact Hour : One contact hour.

5) Pre-requisite and Co-requisite : None.

6) Course Level : First Year (Half Year).

7) Course Description:
Radiology is usually given during the first year of the graduate dental education. The lecture-seminar format of teaching the course allows complementing didactic lectures or seminar topics with clinical-radiographic materials and radiological interpretations. The course provides all graduate dental students the opportunity to refresh and add to their knowledge of radiation physics, radiation biology, hazards and protection, advanced imaging techniques and diagnostic oral radiology thereby enhancing clinical competence in their different specialties.

8) Course objectives:
The course objectives are to refresh and update the students with the knowledge of radiation physics, radiation biology, hazards and protection, advanced imaging techniques and diagnostic oral radiology thereby enhancing clinical competence in their different specialties.

9) Course Outline.
Week (1); Lecture (50 minutes duration)
   Topic: Introduction to the course.

Week (2); Lecture (50 minutes duration)
   Topic: Radiology upgrading.

Week (3); Lecture (50 minutes duration)
Topic: Advanced imaging modalities.

Week (4); Lecture (50 minutes duration)
  Topic: Cysts of the jaws.

Week (5); Lecture (50 minutes duration)
  Topic: Inflammatory lesions of the jaws.

Week (6); Lecture (50 minutes duration)
  Topic: Benign tumors of the jaws.

Week (7); Lecture (50 minutes duration)
  Topic: Malignant tumors of the jaws.

Week (8); Lecture (50 minutes duration)
  Topic: (Mid-term Written Examination)
    • Multiple choice questions
    • 40 marks
    • 60 minutes duration

Week (9); Lecture (50 minutes duration)
  Topic: Systemic diseases with jaw manifestations.

Week (10); Lecture (50 minutes duration)
  Topic: Digital radiography.

Week (11); Lecture (50 minutes duration)
  Topic: TMJ imaging.

Week (12); Lecture (50 minutes duration)
  Topic: TMJ disorders TMD.

Week (13); Lecture (50 minutes duration)
  Topic: Trauma to the teeth.

Week (14); Lecture (50 minutes duration)
  Topic: Protection from radiation.

Week (15); Lecture (50 minutes duration)
  Topic: Review and discussion.

Week (16) (Examination)
  Topic: Final Written Examination
    • Multiple choice questions
    • 60 marks
    • 120 minutes duration
10) **Method of Teaching:**
   - Lectures format.

11) **Evaluation:**
    Students are evaluated during the course by mid-term written examination and final written examination. At the beginning of the course the students will be given a list of reading assignment from various textbook and published articles related to the topics covered in the course.

12) **Grading:**
    The total mark of the course is 100 marks and distributed as follow;
    - Mid-term Written Examination (40 Marks)
    - Final Written Examination (60 Marks)
    The total marks gained by the students will be graded according to the King Saud University grading scheme.

13) **References**
    A) Textbook(s).
    B) Additional reference

14) **Course Director.**
    The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and or any required change or changes in the course.

15) **Course Revision.**
    This course and its contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes.

16) **Course Approval.**
    The course and its contents was approval at the meeting number (………….) date (………….).
King Saud University  
*College of Dentistry*  
Department of Preventive Dental Science  
Division of Orthodontics

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Principles of Orthodontics

540 PDS
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

1) Course Title : Principles of Orthodontics.

2) Course Code and Number : PDS 540

3) Credit Hour : One credit hour.

4) Contact Hour : Two contact hours.

5) Pre-requisite and or Co-requisite : None.

6) Course Level : First Year (Whole Year).

7) Course Description:
This didactic course is developed to presents the principles of orthodontics to the students. It will cover the theoretical and scientific backgrounds that are essentials in the study of orthodontics.

8) Course objectives:
The course is designed to quantify the student to;
1. Have a sound knowledge of the theoretical and scientific backgrounds that are essentials for the study of orthodontics.
2. Fully understand the scope and limitation of orthodontic treatment.
3. Explain the indication and contraindication for orthodontic treatment.
4. Be able to identify malocclusions and be able to have the correct classification of malocclusion.
5. Have a through understanding of etiology of malocclusion.
6. Identify the salient features of class I, class II/1 malocclusion, class II/2 malocclusion and class III malocclusion.
7. Understand the orthodontic diagnosis, treatment planning and treatment progress.
8. Understand the different options for the treatment of malocclusion.
9. Recognize and identify the types of malocclusion suitable for specific type of treatment.
10. Institute preventive and interceptive measures and appreciate the importance treatment timing.
11. Understand the principles of treating class of class I, class II/1, class II/2 and class III malocclusions.
12. Have knowledge of biomechanics, force, force system and reaction.
13. Have knowledge of anchorage in orthodontics.
14. Understand the principles of force applications and tissue reactions.
15. Have a sound knowledge of the theoretical and scientific backgrounds for the treatment of non-skeletal, skeletal and adult orthodontics

9) Course Outline.
   Week (1) Topic: Introduction and orientation
   Week (2) Topic: Scope and limitation of orthodontics
   Week (3) Topic: Classification of malocclusion
   Week (4) Topic: Etiology of malocclusion -I
   Week (5) Topic: Etiology of malocclusion -II
   Week (6) Topic: Etiology of malocclusion -III
   Week (7) Topic: Class I malocclusion
   Week (8) Topic: Class II/1 malocclusion
   Week (9) Topic: Class II/2 malocclusion
   Week (10) Topic: Class III malocclusion
   Week (11) Topic: *** Written Continuous Examination [1] ***
      • Multiple choice questions
      • 15 Marks
      • 60 minutes duration
   Week (12) Topic: Orthodontic Treatment Options
   Week (13) Topic: Introduction to Principles of Treatment -I
   Week (14) Topic: Introduction to Principles of Treatment -II
   Week (15) Topic: Introduction to Principles of Treatment –III
      • Multiple choice questions
      • 15 Marks
      • 60 minutes duration
   *** End of First Semester ***

   *** Start of Second Semester ***
   Week (16) Topic: Introduction to Biomechanics –I
   Week (17) Topic: Introduction to Biomechanics –II
   Week (18) Topic: Introduction to Tissue Reactions –I
   Week (19) Topic: Introduction to Tissue Reactions –II
      • Multiple choice questions
      • 15 Marks
      • 60 minutes duration
   Week (21) Topic: Treatment of non-skeletal problems – I
   Week (22) Topic: Treatment of non-skeletal problems – II
   Week (23) Topic: Treatment of non-skeletal problems – III
Week (24) Topic: Treatment of skeletal problems - I
Week (25) Topic: Treatment of skeletal problems - II
Week (26) Topic: Treatment of skeletal problems - III
Week (27) Topic: Adult Orthodontics - I
Week (28) Topic: Adult Orthodontics - II
Week (29) Topic: Adult Orthodontics - III
  • Multiple choice questions
  • 15 Marks
  • 60 minutes duration

Week (Examination) Topic: *** Written Final Examination ***
  • Multiple choice questions
  • 40 Marks
  • 120 minutes duration

10) Method of Teaching:
  o Lectures and or illustration format.

11) Evaluation:
  Students are evaluated by assessment written examinations, and final written examination. The list of reading(s) and textbook(s) should be given to the students at the beginning of the course.

12) Grading:
  The 100 marks of the course are distributed as follow;
  o First Assessment Examination - 1 (15 Marks)
  o Second Assessment Examination - 2 (15 marks)
  o Third Assessment Examination - 3 (15 Marks)
  o Fourth Assessment Examination - 4 (15 Marks)
  o Final Written Examination (40 Marks)
  The total marks gained by the students will be graded according to the King Saud University grading scheme.

13) References
A) Textbook(s).
B) Selected Article(s).
  • Selected reference articles will be distributed to the student as required.
  • The selected articles support the reference textbook.
14) **Course Director.**
The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and or any required change or changes in the course.

15) **Course Revision.**
This course and its contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes.

16) **Course Approval.**
The course and its contents was approval at the meeting number (…………..) date (……………..).
Orthodontic Diagnosis and Treatment Planning

PDS 541
1) Course Title : Orthodontic Diagnosis and Treatment Planning.

2) Course Code and Number : PDS 541

3) Credit Hour : One credit hour.

4) Contact Hour : Two contact hours.

5) Pre-requisite and or Co-requisite : None.

6) Course Level : First Year (Whole Year).

7) Course Description:
Orthodontic diagnosis and treatment planning is a systematic procedures carried out at several stages. Diagnosis is the identification and listing of the patient problems whereas the treatment planning is the planning of the correct and necessary procedures that is performed clinically to treat the malocclusion. This course in addition to the orthodontic case assessment and progress (547 PDS) and the orthodontic case progress and evaluation (537 PDS) are three consecutive courses designed to follow the patient from the start to the finish of treatment, that is usually take more than two years to complete. At the orthodontic diagnosis and treatment planning course the students will learn how to perform the art of collecting the data base from the patient interview, clinical examination, study models, radiographs, and clinical photographs. The analysis and interpretation of the data and listing the patient's problems. The presentation and discussion of the diagnosis and treatment planning of cases that will be treated by the student in the clinical courses.

8) Course objectives:
The course objectives are to teach the students;
1) The theoretical background of diagnosis and treatment planning.
2) How to write the clinical form and patient file.
3) How to perform patient's interview.
4) How to make orthodontic clinical examination.
5) How to take impression and construct study models.
6) How to take and analyze the radiographs that includes orthopantomographic radiographs, hand wrist x-ray, cephalometric radiographs.
7) Cephalometric radiography; analysis and interpretations.
8) How to perform model analysis.
9) How to take and present orthodontic clinical photographs.
10) How present cases for diagnosis.
11) How to discus cases for treatment, progress and evaluation

9) Course Outline.
   Week (1) Topic: Introduction and orientation
   Week (2) Topic: Diagnosis defined.
   Week (3) Topic: Diagnostic records.
   Week (4) Topic: Diagnostic records.
   Week (5) Topic: Diagnostic records.
   Week (6) Topic: Diagnostic records.
   Week (7) Topic: Diagnostic records.
   Week (8) Topic: Diagnostic records.
   Week (9) Topic: Diagnostic records.
   Week (10) Topic: Diagnostic records.
   Week (11) Topic: Diagnostic records.
   Week (12) Topic: Cases from the archive, presentation and discussion.
   Week (13) Topic: Cases from the archive, presentation and discussion.
   Week (14) Topic: Cases from the archive, presentation and discussion.
   Week (15) Topic: Cases from the archive, presentation and discussion.
   *** End of First Semester ***
   Week (16) Topic: Presentation and discussion of clinical cases.
   Week (17) Topic: Presentation and discussion of clinical cases.
   Week (18) Topic: Presentation and discussion of clinical cases.
   Week (19) Topic: Presentation and discussion of clinical cases.
   Week (20) Topic: Presentation and discussion of clinical cases.
   Week (21) Topic: Presentation and discussion of clinical cases.
   Week (22) Topic: Presentation and discussion of clinical cases.
   Week (23) Topic: Presentation and discussion of clinical cases.
   Week (24) Topic: Presentation and discussion of clinical cases.
   Week (25) Topic: Presentation and discussion of clinical cases.
   Week (26) Topic: Presentation and discussion of clinical cases.
   Week (27) Topic: Presentation and discussion of clinical cases.
   Week (28) Topic: Presentation and discussion of clinical cases.
   Week (29) Topic: Presentation and discussion of clinical cases.
   Week (30) Topic: Presentation and discussion of clinical cases.

10) Method of Teaching:
The method of conducting the course is based on lectures, illustrations, demonstrations, presentation, and discussion formats.
11) Evaluation:
This is a pass and fail course and the students are evaluated by their performance, attendance and discussion. The list of reading textbook(s) should be given to the students at the beginning of the course.

12) Grading:
This is a pass or fail course. The grading of the course is [P] for pass student who satisfied the requirement of passing the course, [F] for fail student who did not satisfied the requirement of the course.

13) Requirement for the pass mark:
The following are the requirements for the pass mark of the course;

- Cases from the archive, presentation and discussion of five old cases, pretreatment records from the previous groups.
  - Filling the patient’s records.
  - Collect patient’s data base.
  - Construct orthodontic problem list.
  - Plan the orthodontic treatment.
  - Presentation and discussion of cases.

- New cases, presentation and discussion of their own cases.
  - Filling the patient’s records.
  - Collect patient’s data base.
  - Construct orthodontic problem list.
  - Plan the orthodontic treatment.
  - Presentation and discussion of cases.

- Presentation of the start of treatment and treatment procedures.
- Active participation during case discussion.

The student must understand the requirements of the course and Procedures hard to satisfy fulfilling the requirement for the pass mark.

14) Course Director.
The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and or any required change or changes in the course.

15) Course Revision.
This course and its contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes.

16) Course Approval.
The course and its contents was approval at the meeting number (………….) date (………….).
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

Orthodontic Bioengineering and Materials

PDS 542
1) Course Title : Orthodontic Bioengineering and Materials.

2) Course Code and Number : PDS 542

3) Credit Hour : One credit hour.

4) Contact Hour : Two contact hours.

5) Pre-requisite and or Co-requisite : None.

6) Course Level : First Year (Whole Year).

7) Course Description:
This didactic course consists of two parts. The first part is designed to provide detailed information regarding the principles of bioengineering and its application to the orthodontic materials and appliances. Bioengineering has a board application to orthodontics and, hence, this part of the course will includes; an introduction to the concepts of bioengineering and its mathematical topics; forces and reactions to forces; force system produced from orthodontic appliance; behavior of the materials subjected to forces; and the relationship between the force systems and the biological changes that occur in the dentition and periodontium. The second part will cover materials used in the daily orthodontic practice. This part includes the following topics; an introduction to the concepts of materials science; study of the composition, structure, and properties of specific orthodontic materials used in clinical practice; interactions of orthodontic materials with other dental materials and dental hard tissues in the oral cavity; and the issues of biocompatibility, cytotoxicity, and allergic reactions for both patients and operators.

8) Course objectives:
The course objectives are;
1) Familiar the students with the concept of bioengineering and its wide application to orthodontics.
2) Explain to the students the theoretical background and the clinical use of the orthodontic materials.
9) Course Outline.

Week (1) Topic: Introduction and mathematical topics.
Session One - Lecture (50 minutes duration)
1) Introduction to the course and course outline.
2) Definition of terms.
3) Constants, variables, and functions.
4) Frame of reference.
Session Two - Lecture (50 minutes duration)
1) Displacement of particles and solid bodies.
2) Trigonometry.
3) An introduction to vector algebra.
4) Dimensions and units.
5) Measurements, computations, and numerical accuracy.
Reference  Chapter One – Bioengineering Analysis of Orthodontic Mechanics, RJ Nikolai

Week (2) Topic: Introduction to analysis of orthodontic force
Session One - Lecture (50 minutes duration)
1) Mechanics.
2) Force.
3) Vector addition and decomposition of concentrated forces.
4) Moment of a concentrated force.
5) Couple.
Session Two - Lecture (50 minutes duration)
1) Resultants of force systems exerted on rigid bodies.
2) Friction.
3) Mechanical equilibrium.
4) Applicability of mechanical equilibrium.
Reference  Chapter Two – Bioengineering Analysis of Orthodontic Mechanics, RJ Nikolai

Week (3) Topic: Material behavior of the orthodontic appliances
Session One - Lecture (50 minutes duration)
1) Internal structure of a solid material.
2) Load-deformation behavior of a structural member.
3) Mechanical stress.
Session Two - Lecture (50 minutes duration)
1) Mechanical and structural properties; standardized testing.
2) Chemical and thermal influences.
3) Selection of materials.
Reference  Chapter Three – Bioengineering Analysis of Orthodontic Mechanics, RJ Nikolai

Week (4) Topic: Energy analysis in orthodontics
Session One - Lecture (50 minutes duration)
1) Introduction.
2) Displacement.
3) Mechanical Procedures.
4) Energy.
5) Heat transfer and thermal energy.

Session Two - Lecture (50 minutes duration)
1) Conservation-of-energy law
2) Available energy.
3) Activation and deactivation process
4) Strain hardening and heat treatment of metals and alloys.
5) Procedures-energy analysis of arch wire preparation.

Reference  Chapter Four – Bioengineering Analysis of Orthodontic Mechanics, RJ Nikolai

Week (5) Topic: Response of dentition and periodontium to force.
Session One - Lecture (50 minutes duration)
1) Introduction.
2) Mechanical response to applied force
3) Transverse crown force system
4) Extrusion, intrusion, rotation.
5) Response of the periodontium to force

Session Two - Lecture (50 minutes duration)
1) Response of the periodontium to force
2) Displacement, and force magnitude, duration.
3) Controlling force time pattern
4) Proper orthodontic forces
5) Dentofacial orthopedics

Reference  Chapter Five – Bioengineering Analysis of Orthodontic Mechanics, RJ Nikolai

Week (6) Topic: Introduction to structural analysis of orthodontic appliance
Session One - Lecture (50 minutes duration)
1) Introduction.
2) Orthodontic appliance; a structure or a machine?
3) Attachment of appliance to dentition.
4) Continuous arch wire model

Session Two - Lecture (50 minutes duration)
1) Overview of structural analysis of orthodontic appliance
2) Activation and deactivation characteristics
3) Action and responsive forces
4) Control of orthodontic appliance.

Reference  Chapter Six – Bioengineering Analysis of Orthodontic Mechanics, RJ Nikolai

Week (7) Topic: Behavior of orthodontic wire in bending
Session One - Lecture (50 minutes duration)
1) Introduction.
2) Beam deformation, strain, and stress
3) Force system within the beam
4) Beam stiffness
5) Elastic bending
Session Two - Lecture (50 minutes duration)
1) Elastic beam theory
2) Application of elastic beam theory to orthodontic arch wire
3) Inelastic behavior in bending
4) Orthodontic wire loop

Reference  Chapter Seven - Bioengineering Analysis of Orthodontic Mechanics, RJ Nikolai

Week (8) Topic: First Assessment [1].
- Orthodontic Bioengineering
- Multiple choice questions
- 15 marks
- 100 minutes duration

Week (9) Topic: Delivery of torque by orthodontic appliance
Session One - Lecture (50 minutes duration)
1) Introduction.
2) Structural theory for straight, circular shaft
3) Extension of theory to rectangular cross-section
4) Application of shaft theory to orthodontic arch wire
5) Isolation of activating torque
6) Response of appliance to torsional activation.

Session Two - Lecture (50 minutes duration)
1) Response of dentition to torsional activation.
2) Structural influences on torque force systems
3) Anterior segment torque mechanics
4) Torquing by rectangular-wire
5) Torquing by spurs in the appliance
6) Inelastic behavior in third-order mechanics
7) Wire loops, springs, and torsion

Reference  Chapter Eight - Bioengineering Analysis of Orthodontic Mechanics, RJ Nikolai

Week (10) Topic: Extraoral appliances.
Session One - Lecture (50 minutes duration)
1) Introduction.
2) Cervical pull face bow appliance.
3) Occlusal plane analysis.
4) Buccal view analysis
5) Coronal plane view analysis
6) Asymmetric problems

Session Two - Lecture (50 minutes duration)
1) Canine retraction with head gear
2) Extraoral force delivered to anterior segment
3) Extraoral force delivered to entire arch.
4) Delivery of extraoral force to mandibular arch.
5) Dual force headgear
6) Reverse pull appliances

Reference  Chapter Nine - Bioengineering Analysis of Orthodontic...
Mechanics, RJ Nikolai

Week (11) Topic: Force and structural analysis of orthodontic mechanics
Session One - Lecture (50 minutes duration)
  1) Introduction.
  2) Individual tooth malalignments
  3) Leveling displacement
  4) Rotational corrections
Session Two - Lecture (50 minutes duration)
  1) Bilateral action
  2) Interarch mechanics
Reference  Chapter Ten - Bioengineering Analysis of Orthodontic Mechanics, RJ Nikolai

Week (12) Topic: Force and structural analysis (Continues)
Session One - Lecture (50 minutes duration)
  1) Introduction.
  2) Intra-arch mechanics
  3) Intra-arch vertical position
  4) Intra-arch retraction mechanics
Session Two - Lecture (50 minutes duration)
  1) Prepared anchorage
  2) Posterior segment anchorage
Reference  Chapter Ten – Bioengineering Analysis of Orthodontic Mechanics, RJ Nikolai

Week (13) Topic: Force and structural analysis (Continues).
Session One - Lecture (50 minutes duration)
  1) Introduction.
  2) Class II mechanics
Session Two - Lecture (50 minutes duration)
  1) Class III mechanics
  5) Synopsis
Reference  Chapter Ten – Bioengineering Analysis of Orthodontic Mechanics, RJ Nikolai

Week (14) Topic: Illustrations of Clinical Application.
Session One - Lecture (50 minutes duration)
  1) Case number one illustration.
    a) Alignment
    b) Space closure
    c) Finishing
  2) Case number two illustration.
    a) Alignment
    b) Space closure
    c) Finishing
Session Two - Lecture (50 minutes duration)
1) Case number three illustration.
   a) Alignment
   b) Space closure
   c) Finishing

2) Case number four illustration.
   a) Alignment
   b) Space closure
   c) Finishing

Week (15) Topic: Second Assessment [2].
   • Orthodontic Bioengineering
   • Multiple choice questions
   • 15 marks
   • 100 minutes duration

------- End of first semester – Restart at the second semester -------

Week (16) Topic: Structures and properties of orthodontic materials
   Session One - Lecture (50 minutes duration)
   1) Introduction.
   2) Interatomic bonding and atomic arrangement
      a) Mode of interatomic bonding
      b) Atomic arrangements for metallic materials
      c) Atomic arrangements for ceramic materials
      b) Atomic arrangements for polymeric materials
   3) Properties of orthodontic materials
      a) Property of importance
      b) Mechanical properties
      c) Surface properties
   Session Two - Lecture (50 minutes duration)
   1) Structures of orthodontic materials
      a) Metallic materials
      b) Ceramic materials
      c) Polymeric materials.

Week (17) Topic: Mechanics and mechanical testing of orthodontic materials
   Session One - Lecture (50 minutes duration)
   1) Introduction.
   2) Bending deformation.
   3) Torsional deformation
   Session Two - Lecture (50 minutes duration)
   1) Mechanical testing methods of orthodontic materials
   2) Mechanical testing machines and experimental procedures
   3) Specific tests for evaluation of mechanical properties
Week (18) Topic: Techniques for study of orthodontic materials

Session One - Lecture (50 minutes duration)
1) Introduction.
2) X-ray fluorescence (XRF) spectrometry
3) X-ray fluorescence (XRF) microanalysis
4) X-ray diffraction (XRD)
5) Electron probe microanalysis (EPMA)
6) Auger electron spectroscopy (AES)
7) Scanning auger microprobe (SAM)

Session Two - Lecture (50 minutes duration)
1) X-ray photoelectron spectroscopy (XPS)
2) Secondary ion mass spectrometry (SIMS)
3) Fourier transform infrared spectroscopy (FTIR)
4) Raman microspectroscopy
5) Multi-technique characterization
6) Differential scanning calorimetry (DSC)


Week (19) Topic: Orthodontic Wires

Session One - Lecture (50 minutes duration)
1) Introduction.
2) Desirable properties for orthodontic wires.
3) Manufacturing of orthodontic wires.
4) Wire alloys.

Session Two - Lecture (50 minutes duration)
1) Gold alloys wires.
2) Stainless steel wires.
3) Cobalt chromium nickel wire.
4) Beta titanium wires.
5) Nickel titanium wires.
6) Clinical selection of orthodontic wires.
7) Future of orthodontic wires


Week (20) Topic: Enamel etching and bond strength.

Session One - Lecture (50 minutes duration)
1) Introduction.
2) Effects of variables on bond strength.
3) Measurement of debonding force and bond strength.

Session Two - Lecture (50 minutes duration)
1) Experimental models for evaluating bond strength.
2) Bonding of brackets to enamel.
3) Troubleshooting bond failures.


Week (21) Topic: Oral microbiological changes.
Session One - Lecture (50 minutes duration)
1) Introduction.
2) Oral microbiological changes.
3) Long term enamel alteration
4) Orthodontic treatment and caries development.

Session Two - Lecture (50 minutes duration)
1) Caries prophylactic aspects of orthodontic treatment.
2) Rational caries prophylactic measures for orthodontic patients.
3) Clinical recommendations.


Week (22) Topic: Third Assessment [3].
- Orthodontic materials
- Multiple choice questions
- 15 marks
- 100 minutes duration

Week (23) Topic: Orthodontic Brackets.
Session One - Lecture (50 minutes duration)
1) Introduction.
2) Metallic brackets.
3) Aesthetic brackets.
4) Lingual brackets.

Session Two - Lecture (50 minutes duration)
1) Wettability and potential for plaque accumulation.
2) Bracket slot archwire friction.
3) Debonding brackets.

Reference; Chapter Seven – Orthodontic Materials; Scientific and Clinical Aspects, W.A. Brantley and T. Eliades 2001.

Week (24) Topic: Elastomeric ligatures and chains.
Session One - Lecture (50 minutes duration)
1) Introduction.
2) Composition and structure.
3) Elastomeric ligatures.
4) Conventional ligatures
5) Fluoride releasing elastomeric.

Session Two - Lecture (50 minutes duration)
1) Elastomeric chains.
2) In vitro studies of force degradation.
3) In vivo aging phenomena.


Session One - Lecture (50 minutes duration)
1) Introduction.
2) Broad rational of adhesive science.
3) Scope of orthodontic adhesives.
4) Resin matrix biomaterials.

Session Two - Lecture (50 minutes duration)
1) Enamel adhesive resin interface.
2) Bonding agents.
3) Classification of orthodontic adhesive systems.
   a) Chemically activated.
   b) Light cured.
   c) Dual cured systems.
   d) Thermocured systems.
   e) Moisture activated adhesives.
4) Precoated brackets.
5) Degradation of polymeric systems.


Week (26) Topic: Cements + Impression in orthodontics.
Session One - Lecture (50 minutes duration)
1) Introduction.
2) Zinc phosphate cements.
3) Zinc polycarboxylate cements.
4) Glass inomer cements.

Session Two - Lecture (50 minutes duration)
1) Introduction.
2) Classes of impression materials.
3) Thermoplastic bite impression materials.
4) Alginate hydrocolloid.
5) Rubber impression materials.
6) Properties of impression materials.
7) Clinical use of impression materials.


Week (27) Topic: Orthodontic bonding to non-conventional surfaces.
Session One - Lecture (50 minutes duration)
1) Introduction.
2) Bonding to ceramics.
3) Bonding to casting alloys.

Session Two - Lecture (50 minutes duration)
1) Bonding to dental amalgam.
2) Bonding to resin composites.
3) Bonding to acrylic resins.
4) Bonding to implant attachments.
Week (28) Topic: Orthodontic materials biocompatibility and allergic reactions.

Session One - Lecture (50 minutes duration)
1) Relevance of biocompatibility.
2) Definition of biocompatibility.
3) Measurements of biocompatibility.
4) Factors in assessing biocompatibility.

Session Two - Lecture (50 minutes duration)
1) Decomposition and absorption mechanism.
2) Allergic reactions.
3) Adverse patient reactions.
4) Occupational implications.


Week (29) Topic: Fourth Assessment [4].
- Orthodontic materials
- Multiple choice questions
- 15 marks
- 100 minutes duration

Week (30) Topic: Final Written Examination
- Orthodontic bioengineering and materials.
- Multiple choice questions
- 40 marks
- 120 minutes duration

10) Method of Teaching:
- Lectures format.

11) Evaluation:
Students are evaluated continuously during the course by four assessment and final written examination.

12) Grading:
The total mark of the course is 100 marks and distributed as follow:
- First Assessment [1] = 15 Marks
- Second Assessment [2] = 15 Marks
- Third Assessment [3] = 15 Marks
- Fourth Assessment [4] = 15 Marks
o Final Examination = 40 Marks
The total marks gained by the students will be graded according to the King Saud University grading scheme.

13) References
   A) Textbook(s).
   B) Selected Article(s).

14) Course Director.
The course director must understand the course, its content and procedures of delivering it to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and or any required change or changes in the course.

15) Course Revision.
This course and its contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes in the course.

16) Course Approval.
The course and its contents was approval at the meeting number (…………..) date (……………..).
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

Craniofacial Growth and Development

PDS 543
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

1) Course Title : Craniofacial Growth and Development.

2) Course Code and Number : PDS 543.

3) Course Code : PDS.

4) Credit Hour : One credit hour, two contact hours.

5) Prerequisite : None

6) Course Level : First year (Whole Year).

7) Course Description:
The course is designed to provide detailed information regarding the human craniofacial growth and development. It will cover the following topics. (1) The concepts of craniofacial growth and development. (2) The prenatal craniofacial period. (2) The postnatal period. (3) The development of dentition. (4) The application of craniofacial growth data in clinical orthodontics.

8) Course objectives:
The course objectives are to teach the student:
- Concepts of craniofacial growth and development.
- Prenatal growth
- Postnatal growth
- Mechanics of craniofacial growth
- Methods of studying growth
- Growth curves and charts
- Theories of growth
- Growth assessment and prediction
- Application of craniofacial growth data in clinical orthodontics

9) Course Outline:
The course outline, lectures, contents and references are presented below.
Week (1) Topic: Introduction and orientation.
   Session One - Lecture (50 minutes duration)
1) Introduction to the course and course orientation.
2) Why to study growth?
   a) Importance of studying growth and development.

Session Two - Lecture (50 minutes duration)
1) Definitions of terms.
   a) Why the definitions?
   b) What are the terms need definitions?

Week (2) Topic: Definitions of terms.
Session One - Lecture (50 minutes duration)
1) Concepts of craniofacial growth.
   a) Growth.
   b) Development.
   c) Pattern.

Session Two - Lecture (50 minutes duration)
1) Concepts of craniofacial growth (Continues).
   a) Growth variability.
   b) Differential growth.
   c) Growth predictability.

Week (3) Topic: Prenatal -1.
Session One - Lecture (50 minutes duration)
1) Developmental periods.
2) Prenatal period.
   a) An overview of general embryology.
   b) Ovum Period.
   c) Embryogenesis period.
   d) Fetus period.

Session Two - Lecture (50 minutes duration)
1) Embryogenesis
   The creation of human – An Overview day 1 to 280

Session One - Lecture (50 minutes duration)
1) Pharyngeal arches

Session Two - Lecture (50 minutes duration)
1) Pharyngeal pouches and Pharyngeal grooves.

Session One - Lecture (50 minutes duration)
1) General development of the face
2) Calvarium.
2) Cranial base.

Session Two - Lecture (50 minutes duration)
1) Nasomaxillary complex.
2) Mandible.
Week (6) Topic: Postnatal-1.
    Session One - Lecture (50 minutes duration)
    1) Mechanism of bone growth.
       a) Bone structure.
          * Bone cells.
          * Bone matrix.
       b) Bone formation.
          * Endochondral (Cartilage replacement).
          * Periosteal (Intramembranous).
       c) Bone transformation.
          * Compact bone.
          * Spongy bone.
    Session Two - Lecture (50 minutes duration)
    1) Principles of bone growth.
       a) Drift –vs- displacement.
       b) Posterior growth anterior displacement.
       c) Surface deposition and resorption.
       d) The V-principle.
       e) Bone bending and surface curvature.
       f) Laws of electrogensis.

    Session One - Lecture (50 minutes duration)
    1) Postnatal growth of calvarium.
       a) Suture system
    2) Postnatal growth of the cranial base.
       a) Sychondrosis
    3) Postnatal growth of the nasomaxillary complex.
       a) Nasal cartilage
       b) Suture system
    Session Two - Lecture (50 minutes duration)
    1) Postnatal growth of the mandible.
       a) Condylar cartilage.

    Session One - Lecture (50 minutes duration)
    1) Methods of studying growth.
       a) Experimental methods.
       b) Measurement methods.
    Session Two - Lecture (50 minutes duration)
    1) Type of growth data.
       a) Longitudinal.
       b) Cross sectional.
       c) Semilongitudinal.
   Session One - Lecture (50 minutes duration)
   1) Growth curves and growth charts.
      a) Distance growth curve.
      b) Velocity growth curve.
   Session Two - Lecture (50 minutes duration)
   1) Adolescent growth and growth curve.
      a) Adolescent defined.
      b) Adolescent and active growth.
      c) Adolescent and orthodontic treatment.

Week (10) Topic: First Assessment Examination [1].
   One Session Only - (100 minutes duration)
   *** First Assessment Examination [1] – 15 Marks ***.
   • Multiple choice questions.
   • True and false.
   • Fill in the blanks.
   • Short notes and essays.

Week (11) Topic: Development of oral function.
   Session One - Lecture (50 minutes duration)
   1) Normal oral functions.
      a) Breathing.
         • Airway maintenance
         • Mandibular posture
         • Oral seal
      b) Feeding, mastication and swallowing
      c) Speech and facial expression
      d) Mandibular position and path of closure
      e) Occlusal function.
   Session Two - Lecture (50 minutes duration)
   1) Oral habits.
      a) Digit sucking
      b) Thumb sucking
      c) Oral breathing
      d) Other oral habits.

Week (12) Topic: Development of occlusion-1.
   Session One - Lecture (50 minutes duration)
   1) Development of dentition.-1.
      a) Odontogenesis.
      b) Tooth eruption.
   Session Two - Lecture (50 minutes duration)
   1) Deciduous dentition.
      a) Development of deciduous dentition
      b) Completion of deciduous dentition
Session One - Lecture (50 minutes duration)
1) The mixed dentition
   a) The change in the mixed dentition
      • Anterior segment
      • Posterior segment
Session Two - Lecture (50 minutes duration)
1) The permanent dentition.
   a) Early permanent dentition.
   b) Late permanent dentition.
   c) Changes in the permanent dentition.

Session One - Lecture (50 minutes duration)
1) The development of occlusion.
   a) Occlusion of deciduous teeth.
   b) Deciduous molars and terminal plane.
      • Mesial terminal plane
      • Flush terminal plane.
      • Distal terminal plane
   c) Occlusion of the permanent teeth.
Session Two - Lecture (50 minutes duration)
1) Facial growth and occlusion
   a) Changes in the anterior segments.
   b) Changes in the posterior segments.
   b) Late growth and occlusal changes.

Session One - Lecture (50 minutes duration)
1) The controversies.
2) The genetic theories [1]
   a) Location of gene.
   b) Growth center and growth site.
Session Two - Lecture (50 minutes duration)
1) The genetic theories [2]
   a) The sutural theories.
   b) The cartilage theories.

Session One - Lecture (50 minutes duration)
1) The functional matrix theory [1].
   a) The origin.
   b) Functional components and skull units.
   c) Functional matrix by regions
Session Two - Lecture (50 minutes duration)
1) The functional matrix theory [2]
   a) The functional matrix theory revisited.
2) The current concepts.

***** End of semester – continue next semester *****

Session One - Lecture (50 minutes duration)
1) Assessment of maximum growth period [1].
   a) Methods of assessment.
   b) Growth and skeletal age.
   c) Growth and dental age.
Session Two - Lecture (50 minutes duration)
1) Assessment of maximum growth period [2]
   a) Hand and writ x-ray.

Session One - Lecture (50 minutes duration)
1) Growth prediction.
   a) Methods of growth prediction.
Session Two - Lecture (50 minutes duration)
1) Computerized growth prediction.

Week (19) Topic: Cephalometric and craniofacial growth.
Session One - Lecture (50 minutes duration)
1) Cephalometric and craniofacial growth
   a) Standardization.
   b) Cephalometric and growth data.
      • Longitudinal growth data.
      • Cross-sectional data.
      • Semilongitudinal data
Session Two - Lecture (50 minutes duration)
1) Cephalometric cranial base superimpositioning
   a) The problems of superimpositioning
   b) The S-N plane registered at S.
   c) The N-Ba plane line.
   d) The N-Bo plane registered at R.
   e) The Rickett’s Pt point

Week (20) Topic: Second Assessment Examination [2].
One Session Only - (100 minutes duration)

• Multiple choice questions.
• True and false.
• Fill in the blanks.
• Short notes and essays.
Week (21) Topic: Tracing and clinical application of growth data.
One Session – (100 minutes duration)
  1) Normal growth from 6 to 16 years for male.
      a) Direction of growth.
      b) Amount of growth.


Week (22) Topic: Tracing and clinical application of growth data.
One Session – (100 minutes duration)
  1) Normal growth from 3-6-9-12-15-18 years for male.
      a) Direction of growth.
      b) Amount of growth.
      c) Time of growth

Week (23) Topic: Tracing and clinical application of growth data.
One Session – (100 minutes duration)
  1) Normal growth from 3-6-9-12-15-18 years for female.
      a) Direction of growth.
      b) Amount of growth.
      c) Time of growth

Week (24) Topic: Tracing and clinical application of growth data.
One Session – (100 minutes duration)
  1) Comparisons of normal growth from 3-6-9-12-15-18 years between male and female.
      a) Direction of growth.
      b) Amount of growth.
      c) Time of growth

Week (25) Topic: Tracing and clinical application of growth data.
One Session – (100 minutes duration)
  1) Normal growth rotation.
      a) Anterior growth rotation.
      b) Posterior growth rotation.

Week (26) Topic: Tracing and clinical application of growth data.
One Session – (100 minutes duration)
  1) Class II skeletal – growth and treatment [Case # 1]

Week (27) Topic: Tracing and clinical application of growth data.
One Session – (100 minutes duration)
  1) Class II skeletal – growth and treatment [Case # 2]

Week (28) Topic: Tracing and clinical application of growth data.
week (29) topic: tracing and clinical application of growth data.

one session – (100 minutes duration)
1) class ii skeletal – growth and treatment [case # 3]

week (30) topic: third assessment examination [3].

one session only - (100 minutes duration)
*** third assessment examination [3] – 15 marks ***.
a case tracing and clinical application of growth data to predict future growth and expected treatment changes.

final examination week.

one session only - (120 minutes duration)
*** final examination – 40 marks ***.

• multiple choice questions.
• true and false.
• fill in the blanks.
• short notes and essays.

10) method of teaching:
   o lectures format.
   o illustrations format.
   o demonstrations and practical exercises of clinical application.

11) evaluation:
    students are evaluated continuously by quizzes and written examination. at the beginning of the course the student will be given a list of reading assignment from various textbook and published articles related to the specific topics.

12) grading:
    • 10 quizzes and assignment evaluation (15 marks)
    • first assessment written examination-1 (15 marks)
    • second assessment written examination-2 (15 marks)
    • third assessment examination-3 (15 marks)
    • final written examination (40 marks)

13) references:
    a) textbook(s).
    • chapters 2-4; contemporary orthodontics. w.r. proffit. mosby 2000, third edition.
    • chapters 2-6; handbook of orthodontics. r.e. moyers. year book medical publishers 1988, fourth edition.

B) Selected Article(s).
• References of the selected articles will be distributed to the students as required.

14) Course Director.
The course director must understand the course, its content and procedures of delivering it to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and or any required change or changes in the course.

15) Course Revision.
This course and its contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes in the course.

16) Course Approval.
The course and its contents was approval at the meeting number (…………..) date (……………..).
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

Orthodontic Literature Review

PDS 544
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

1) Course Title : Orthodontic Literature Review.

2) Course code and number : PDS 544

3) Credit Hour : One credit hour.

4) Contact Hour : Two contact hours.

5) Pre-requisite and or Co-requisite : None.

6) Course Level : First Year (Whole Year).

7) Course Description:
This course was designed to provide detailed reviewing of the literature in
specific orthodontic topics. The topics were preliminarily covered during the
undergraduate study of dentistry. The topic oriented approach of the seminar
is formulated to teach the student how to perform in depth search of the
literature(s) for a specified topic. The result of the search should be written
according to the guidelines outlined in “How to write and publish a scientific
paper” by Day 1979 that is suitable for publication. The written topic is
distributed to the class for quiz before presentation and scientific discussion
after the presentation.

8) Course objectives:
Upon completion of the course, the students will be able to:
- Perform search of the appropriate literatures and prepare updated
  reading list of library references.
- Prepare written review of a topic according to the guidelines outlined in
  “How to write and publish a scientific paper” by Day 1979 that is
  suitable for publication.
- Preparing 10 multiple choice questions from the written review as
  quizzes for the class.
- Oral presentation of the reviewed topic followed by scientific
  discussion.

9) Course Outline.
Week (1) Topic: Introduction and orientation.
Week (2) Topic: Topic selection and preparation.

*** End of First Semester ***
Week (16) Topic: Topic presentation and discussion.
Week (17) Topic: Topic presentation and discussion.
Week (18) Topic: Topic presentation and discussion.
Week (19) Topic: Topic presentation and discussion.
Week (20) Topic: Topic presentation and discussion.
Week (21) Topic: Topic presentation and discussion.
Week (22) Topic: Topic presentation and discussion.
Week (23) Topic: Topic presentation and discussion.
Week (24) Topic: Topic presentation and discussion.
Week (26) Topic: Topic presentation and discussion.
Week (27) Topic: Topic presentation and discussion.
Week (28) Topic: Topic presentation and discussion.
Week (29) Topic: Topic presentation and discussion.
Week (30) Topic: Topic presentation and discussion.

10) Topics for selection:
The following are some suggested topics;
   1. Scope and limitation of orthodontic treatment
   2. Prevalence of malocclusion
   3. Interceptive orthodontics
   4. Etiology of class II/1 malocclusion
   5. Orthodontic diagnosis
   7. Facial growth and hand and wrist x-ray.
   8. Dentoalveolar compensatory mechanism
   9. Significant of the vertical dimension
  10. Cross bite
  11. Maxillary arch expansion
  12. Rapid palatal expansion
  13. Anchorage in orthodontic treatment and planning
15. Principles of orthodontic treatment
16. Orthognathic surgery
17. Adult orthodontics
18. Growth modification
19. Functional appliances
20. Role of removable appliance in contemporary orthodontics
22. Anterior openbite.
23. Application of the principles of biomechanics in orthodontics.
24. Beam theory and orthodontic archwire.
25. Orthodontic materials
26. Nickel titanium and orthodontics
27. Nickel titanium orthodontic arch wires.
28. Allergy and orthodontic materials.
31. Mandibular deficiency and orthognathic surgery
32. Maxillary deficiency and orthognathic surgery
33. Mandibular excess and orthognathic surgery
34. Tissue reaction to orthodontic forces.
35. Theories of facial growth – historical perspective.
36. Theories of facial growth – an update.
38. Cephalometric and facial growth
40. Facial growth and sutures.

Note the above list is suggestion of topics for literature review and seminars. The titles in the list can be modified or changed as required.

11) Method of Teaching:
   Seminar and illustrations format

12) Evaluation:
   This is a pass and fail course and the students are evaluated by their performance, attendance and discussion. The list of reading textbook(s) should be given to the students at the beginning of the course.

13) Grading:
   This is a pass or fail course. The grading of the course is [P] for pass student who satisfied the requirement of passing the course, [F] for fail student who did not satisfied the requirement of the course.

14) Requirement for the pass mark:
   The following are the requirements for the pass mark of the course;
   • Reviewing minimum of four topics.
   • Typing the reviewed topic as a review article.
• Presentation of the reviewed topic followed by scientific discussion,
• Preparing 10 multiple choice questions for each topic as quizzes for the remaining students before the presentation.
• Active participation during the scientific discussion.
• Passing 60% of all the quizzes questions.

The student must understand the requirements of the course and Procedures hard to satisfy fulfilling the requirement for the pass mark.

15) References:
   A) Textbook(s) and Selected Article(s).
      After selecting the topics for literature reviewing the student must reach for the key reference articles, guided by the reference textbook that covered the selected topic. In addition the student must cover the updated knowledge from the most recent textbook(s) and published articles related to the topic under reviewing.

16) Course Director.
   The course director must understand the course, its content and procedures of delivering it to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and or any required change or changes in the course.

17) Course Revision.
   This course and its contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes in the course.

18) Course Approval.
   The course and its contents was approval at the meeting number (…………..) date (……………..).
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

Orthodontic Clinic [I]

PDS 545
1) Course Title : Orthodontic Clinic [I].

2) Course Code and Number : PDS 545

3) Credit Hour : Five credit hours.
Two and half contact hours per one credit hour.

4) Pre-requisite and or Co-requisite : None.

5) Course Level : First Year (Whole Year).

6) Course Description:
This course is offered to the first year students in the orthodontic postgraduate program. It consists of two parts, the orthodontic pre-clinic and the orthodontic clinic. The pre-clinical part is designed to teach the students the orthodontic techniques to develop the psychomotor skills and the manual dexterity of the students to perform the orthodontic laboratory procedures to a high standard of skills required for the orthodontic practice. This part consists of lectures and or demonstrations followed by the practical exercises on a daily bases. The lectures provide the theoretical background and the demonstrations illustrate the steps required for the practical exercises, whereas the practical sessions is to execute the scheduled practical. The orthodontic technique will cover the following topics. (1) The construction of orthodontic models. (2) The wire bending exercise. (3) The orthodontic soldering and welding. (4) The construction of holding arches. (5) The removable orthodontic appliances. (6) The orthodontic expansion appliances. (7) The orthodontic retainers and positioners. (8) The functional appliances. (9) Hands-on typodont treatment of malocclusion with simulation of treatment stages and mechanics.
The second part will teach the clinical treatment procedures. At this stage the students will learn how to select patients, collect the diagnostic records, construct problem list, plan the treatment and start the first stages of orthodontic treatment. The orthodontic treatment of patients is a continues-procedure that will continue in the following clinical courses to the end of the postgraduate program.
7) Course objectives:
   A) The objectives of the pre-clinical part of the course were;
      1. To develop the manual dexterity of the students so that they learn and acquire the necessary digital skill in order to perform the basic technical procedures required for the treatment of orthodontic patients.
      2. To enable the students to perform the following:
         • Ideal study models.
         • Wire bending.
         • Solder orthodontic wire.
         • Orthodontic welding.
         • Construct holding arches.
         • Fabricate orthodontic removable appliances
         • Fabricate orthodontic retainers.
         • Construct orthodontic positioners.
         • Fabricate orthodontic expansion appliances.
         • Fabricate functional appliances
         • Hands-on typodont simulation of treatment mechanics.
      3. To prepare students to apply the acquired technical knowledge in treating orthodontic patients during their clinical courses.

   B) The objective of the clinical part of the course and all other clinical courses, generally is to teach the student how to treat and manage the treatment of orthodontic patients.
      The objectives are to train the students;
         • Patient selection, according to the requirements.
         • Data collection and patient’s interview.
         • Clinical examination of patients.
         • Orthodontic impression techniques.
         • Radiographic records, OPG, Cephalometric and hand-wrist x-ray.
         • Cephalometric tracing and analysis.
         • Model and space analysis.
         • Treatment planning and presentation to the patient.
         • Preparation of patients for treatment.
         • Methods of separating teeth.
         • Bands selection and cementation.
         • Bonding of teeth.
         • Wire selection and start of treatment.
         • Alignment and leveling stage of treatment.

8) Course Outline.
   Week (1) Topic: Orthodontic Study Models
   Lecture and or Demonstration (fifty minutes duration)
1) Sat - Impression and pouring
2) Sun - Standardized orthodontic study models
3) Mon – None standardized orthodontic study models
4) Tue – Model trimming
5) Wed - Model storage

Practical Session (One hundred twenty minutes duration)
1) Sat - Impression and pouring [Case # 1]
2) Sun - Model trimming [Case # 1]
3) Mon - Model trimming [Case # 1]
4) Tue - Model trimming [Case # 1]
5) Wed - Finishing and Submit for Evaluation [Case # 1]

Week (2) Topic: Orthodontic Study Models (Continues)
Lecture and or Demonstration (fifty minutes duration)
1) Sat – Demonstration - Impression and pouring [Case # 2]
2) Sun - Demonstration - Model trimming [Case # 2]
3) Mon - Demonstration - Model trimming [Case # 2]
4) Tue - Demonstration - Model trimming [Case # 2]
5) Wed - Demonstration - Model storage [Case # 2]

Practical Session (One hundred twenty minutes duration)
1) Sat - Impression and pouring [Case # 2]
2) Sun - Model trimming [Case # 2]
3) Mon - Model trimming [Case # 2]
4) Tue - Model trimming [Case # 2]
5) Wed - Finishing and Submit for Evaluation [Case # 2]

Week (3) Topic: Wire Bending
Lecture and or Demonstration (fifty minutes duration)
1) Sat – Wire bending - Essentials
2) Sun – Wire bending – Round and rectangular wire bend
3) Mon – Wire bending – U-shape and curve bend
4) Tue - Wire bending – Sharp and circle bend
5) Wed – Problems of wire bending

Practical Session (One hundred twenty minutes duration)
1) Sat – Exercise # 1 and 2 + Take home exercise # 3 and 4
2) Sun - Exercise # 5 and 6 + Take home exercise # 7 and 8
3) Mon - Exercise # 9 and 10 + Take home exercise # 11 and 12
4) Tue - Exercise # 13 and 14 + Take home exercise # 15 and 16
5) Wed - Exercise #17 and 18 + Evaluation and marking

Week (4) Topic: Orthodontic Wire Bending (Continues)
Lecture and or Demonstration (fifty minutes duration)
1) Sat – Ideal arch
2) Sun – Sectional arch
3) Mon – Utility arch
4) Tue – Loop closing arch
5) Wed – Continuous closing arch

Practical Session (One hundred twenty minutes duration)
1) Sat – Bending U/L ideal arches
2) Sun – Bending canine retraction arches
3) Mon – Bending U/L utility arches
4) Tue – Bending U/L loop closing arches
5) Wed – Bending U/L Continuous closing arches
+ Submit for Evaluation

Week (5) Topic: Orthodontic Wire Soldering and welding
Lecture and or Demonstration (fifty minutes duration)
1) Sat – Orthodontic wire soldering - I
2) Sun – Orthodontic wire soldering - II
3) Mon - Problems of soldering
4) Tue – Orthodontic welding
5) Wed – Welding machine
Practical Session (One hundred twenty minutes duration)
1) Sat – Free Hand Two Points Soldering
2) Sun – Free Hand Three and Five Pints Soldering
3) Mon – Assembled Parts Soldering
4) Tue – Fabrication of orthodontic bands and welding exercise
5) Wed – Welding of bracket to band + Evaluation

Week (6) Topic: Orthodontics Holding Arches
Lecture and or Demonstration (fifty minutes duration)
1) Sat – Anchorage and Holding Arches
2) Sun – Upper Stationary Holding Arches
3) Mon – Lower Lingual Arch
4) Tue – Upper Holding and Expansion Aches
5) Wed – Clinical Application and Discussion
Practical Session (One hundred twenty minutes duration)
1) Sat – TPA. Bands fabrication, wire bending and soldering
2) Sun – Nance. Bands fabrication, wire bending and soldering
3) Mon – LLA. Bands fabrication, wire bending and soldering
4) Tue – QH. Bands fabrication, wire bending and soldering
5) Wed - Finishing and Submit for Evaluation

Week (7) Topic: Midterm-Examination + Removable Appliances - I
1) Sat – Midterm Written Examination
2) Sun – Introduction to Removable appliances
3) Mon – Role of removable appliance in the contemporary orthodontics
4) Tue - Components of removable appliances – Anchorage
5) Wed – Components of removable appliances – Retentive
Practical Session (One hundred twenty minutes duration)
1) Sat – Midterm Practical Examination
2) Sun – Adam’s clasp – Upper molars
3) Mon - Adam’s clasp – Lower molars
4) Tue - Adam’s clasp - Premolars
5) Wed – Other clasps; C, B, eyelet, and Ball end clasps.

Week (8) Removable Appliances - II
Lecture and or Demonstration (fifty minutes duration)
1) Sat - Components of removable appliances – Active
2) Sun - Components of removable appliances – Base plate
3) Mon – Clinical application of removable appliances
4) Tue - Removable appliances in the interceptive orthodontic treatment
5) Wed – Problems of removable appliances

Practical Session (One hundred twenty minutes duration)
1) Sat – Upper removable appliance with finger spring
2) Sun - Upper removable appliance with Z-spring
3) Mon - Upper removable appliance with retraction labial bow
4) Tue - Upper removable appliance with posterior bite plane
5) Wed - Upper removable appliance with anterior bite plane

Week (9) Expansion Appliances (continues)
Lecture and or Demonstration (fifty minutes duration)
1) Sat – Introduction
2) Sun – Dental arch expansion – the controversies
3) Mon – Upper expansion appliances + lower expansion
4) Tue – Rapid palatal expansion
5) Wed – Problems of expansion – relapse and retention

Practical Session (One hundred twenty minutes duration)
1) Sat - Upper removable appliance with expansion screw
2) Sun – URA with expansion screw + headgear
3) Mon – QH for expansion of upper arch
4) Tue - Rapid palatal expansion
5) Wed – Lower expansion appliances

Week (10) Topic: Orthodontics Retainers + Positioners
Lecture and or Demonstration (fifty minutes duration)
1) Sat – Retention, Relapse and Retainers
2) Sun – Types of retainers
3) Mon - AAO standard
4) Tue – Lower fixed retainers
5) Wed – Review and Discussion

Practical Session (One hundred twenty minutes duration)
1) Sat – Upper Hawley Retainer
2) Sun – Lower Hawley Retainer.
3) Mon – Upper Wraparound Retainers
4) Tue – Upper and Lower Positioners
5) Wed - Finishing and Submit for Evaluation

Week (11) Functional Appliances
Lecture and or Demonstration (fifty minutes duration)
1) Sat – Introduction – Historical background
2) Sun – The role of functional appliances
3) Mon – The importance of growth
4) Tue – Mode of action
5) Wed – Case selection for functional appliances

Practical Session (One hundred twenty minutes duration)
1) Sat – Activators – Andresen activator
2) Sun - Activators – Andresen activator
3) Mon - Activators – Bionator
4) Tue - Activators – Bionator
5) Wed - Andresen + Bionator - Finishing and Evaluation

Week (12) Functional Appliances (continues)
Lecture and or Demonstration (fifty minutes duration)
1) Sat – Types of functional appliances
2) Sun – The activators – Andresen type
3) Mon – The activator - The variations
4) Tue – The twinblock and variations
5) Wed - The Herbst appliance and variations
Practical Session (One hundred twenty minutes duration)
1) Sat – Harvold activator
2) Sun – Harvold activator
3) Mon - Twin block -
4) Tue - Twin block -
5) Wed - Twin block - Finishing and Evaluation

Week (13) Functional Appliances (continues)
Lecture and or Demonstration (fifty minutes duration)
1) Sat – The functional regulator – Frankel appliances
2) Sun – Frankel – II appliance
3) Mon – Frankel – III appliance
4) Tue – Use functional appliances with other forms of treatment
5) Wed – Functional appliances and the problems of research
Practical Session (One hundred twenty minutes duration)
1) Sat – Frankel - II
2) Sun - Frankel - II
3) Mon - Frankel - III
4) Tue - Frankel - III
5) Wed - Frankel -Finishing and Evaluation

Week (14) Toypodont
Lecture and or Demonstration (fifty minutes duration)
1) Sat – Fixed appliances and typodont
2) Sun – Anchorage
3) Mon – Bracket positioning
4) Tue – Alignment and leveling
5) Wed - Alignment and leveling (continues)
Practical Session (One hundred twenty minutes duration)
1) Sat – Typodont Preparation
2) Sun – Anchorage Preparation
3) Mon – Bracket positioning
4) Tue – Alignment and leveling
5) Wed - Alignment and leveling (continues)

Week (15) Toypodont (Continues)
Lecture and or Demonstration (fifty minutes duration)
1) Sat – Space closure - I
2) Sun - Space closure - II
3) Mon – Finishing - I
4) Tue – Finishing - II
5) Wed – Review and Discussion

Practical Session (One hundred twenty minutes duration)
1) Sat – Space Closure
2) Sun – Space Closure (Continues)
3) Mon – Finishing
4) Tue – Finishing (Continues)
5) Wed – Finishing and Submit for Evaluation

------- End of first semester – Restart at the second semester -------

Week (16) Topic: Clinical Procedures.
Cases Selection, Records and Preparation
Week (17) Topic: Clinical Procedures.
Cases Selection, Records and Preparation
Week (18) Topic: Clinical Procedures.
Cases Selection, Records and Preparation
Week (19) Topic: Clinical Procedures.
Cases Selection, Records and Preparation
Week (20) Topic: Clinical Procedures.
Cases Selection, Records and Preparation
Week (21) Topic: Clinical Procedures.
Cases Selection, Records and Preparation
Week (22) Topic: Clinical Procedures.
Start Treatment - Alignment and Leveling Stage.
Week (23) Topic: Clinical Procedures.
Start Treatment - Alignment and Leveling Stage.
Week (24) Topic: Clinical Procedures.
Start Treatment - Alignment and Leveling Stage.
Start Treatment - Alignment and Leveling Stage.
Week (26) Topic: Clinical Procedures.
Start Treatment - Alignment and Leveling Stage.
Week (27) Topic: Clinical Procedures.
Start Treatment - Alignment and Leveling Stage.
Week (28) Topic: Clinical Procedures.
Start Treatment - Alignment and Leveling Stage.
Week (29) Topic: Clinical Procedures.
Start Treatment - Alignment and Leveling Stage.
Week (30) Topic: Clinical Procedures.
Start Treatment - Alignment and Leveling Stage.

------- End of first year – Continue clinical Procedures in the following clinical course -------

9) Method of Teaching:
A) The first part “orthodontic pre-clinic”
o Lectures and or Demonstrations format.
o Practical Laboratory Exercises and Procedures.
o Hand-on an in vivo treatment of malocclusion on typodont.

B) The second part “orthodontic clinic I”
o Clinical demonstrations and discussion.
o Clinical supervisions

10) Evaluation and Grading:
This is a pass or fail course. For pass mark the students must fulfill the requirement of the course. The grading of the course is (P) for pass student who satisfied the requirement of the course, (F) for fail student who did not satisfied the requirement of the course, and (L) for incomplete for the student how require time to finish the requirement.

11) Requirements for the pass mark:
(a) The requirement of the orthodontic pre-clinical part are;
The students must submit as scheduled the following:
- 2 sets of ideal study models.
- 16 wire bending exercises.
- Two, three and five points soldered orthodontic wire.
- 4 band fabrication and orthodontic welding.
- 6 upper and lower holding arches.
- 6 removable appliances
- 4 upper and lower orthodontic retainers.
- 2 orthodontic positioners.
- 2 orthodontic expansion appliances.
- 3 functional appliances
- Successful hands-on typodont exercise.

(b) The requirements of the clinical courses.
The main aim of the clinical courses is to teach the student how to treat orthodontic patients. The students is allowed to treat up to 65 patients as follow; 20 to 30 patients using the conventional orthodontic treatment methods, 10 to 15 patients by the interceptive orthodontic treatment, 5 to 10 patients by the multidisciplinary treatment modalities; and between 5 to 10 patients as finishing of referred cases treated by the previous group.

To fulfill the requirements of passing the clinical courses, the student is expected to finish the treatment of a minimum of 45 patients utilizing different treatment methods and techniques to a very high standard. The students must submit to the program director at the end of the clinical courses the full records of minimum 45 patients from the start to the finish with signed documentation of the treatment plan and the clinical procedures.

For example; the achievement of the pass mark student is as follow;
• 25 Patients - Conventional orthodontic treatment
• 10 Patients - Interceptive orthodontic treatment
• 5 Patients - Multidisciplinary treatment
• 5 Patients - Finishing of referred cases.
• 45 Patients - Total number of treated patients.

12) References:
   A) Textbook(s).

   B) Selected Article(s).
   References of the selected articles will be distributed to the students as required.

13) Course Director.
   The course director must understand the course, its content and procedures of delivering it to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and or any required change or changes in the course.

14) Course Revision.
   This course and its contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes in the course.

15) Course Approval.
   The course and its contents was approval at the meeting number (………….) date (………….).
1) Course Title:  Orthodontic Clinic [Summer 1].

2) Course Code and Number:  PDS 546

3) Credit Hour:  Three credit hours.
Two and half contact hours per one credit hour.

4) Pre-requisite and or Co-requisite:  545 PDS.

5) Course Level:  First Year Summer Course.

6) Course Description:
   This summer course is a continuation of the course “orthodontic techniques and orthodontic clinic 545 PDS”. In this clinical course the students will continue the treatment of patients that was started in the previous clinical course. The treatment techniques and philosophies should continue without any changes as started. The student should prepare the full records of each patient under treatment with the signed documentations of the treatment plan and the previously carried out clinical procedures.

7) Course objectives:
   The objectives of the course are;
   o To teach the students the continuation of treatment procedures.
   o To teach the students the different alignment and leveling procedures.
   o To prepare the patients for space closure stage
   o To start space closure if indicated.

8) Course Outline:
   Week (1) Topic: Clinical Procedures.
   Continue Alignment and Leveling Stage.
   Week (2) Topic: Clinical Procedures.
   Continue Alignment and Leveling Stage.
   Week (3) Topic: Clinical Procedures.
   Continue Alignment and Leveling Stage.
   Week (4) Topic: Clinical Procedures.
Continue Alignment and Leveling Stage.
Week (5) Topic: Clinical Procedures.
Continue Alignment and Leveling Stage.
Week (6) Topic: Clinical Procedures.
Continue Alignment and Leveling Stage.
Week (7) Topic: Clinical Procedures.
Continue Alignment and Leveling Stage.
Week (8) Topic: Clinical Procedures.
Continue Alignment and Leveling Stage.

------ End of summer course – Continue clinical Procedures in the following clinical course -----

9) Requirements of the clinical courses:
The requirements of passing the clinical courses (545PDS, 546PDS, 554PDS, 556PDS, and 559PDS) are to finish at the end of the clinical course 559PDS the treatment of a minimum of 45 patients utilizing different treatment methods and techniques to a very high standard. The students must submit to the program director at the end of the clinical course (559PDS) the full records of a minimum 45 patients from the start to the finish with signed documentation of the treatment plan and the clinical procedures. During the clinical courses the students is allowed to treat up to 65 patients. However, the achievement of the pass mark student could be as follow;

- 25 Patients - Conventional orthodontic treatment
- 10 Patients - Interceptive orthodontic treatment
- 5 Patients - Multidisciplinary treatment
- 5 Patients - Finishing of referred cases.
- 45 Patients - Total number of treated patients.

10) Method of Teaching:
- Clinical demonstrations.
- Clinical supervisions.

11) Evaluation and Grading:
This is a pass or fail course. For pass mark the students must fulfill the requirement of finishing the treatment of 45 patients. The grading of the course is (P) for pass student who satisfied the requirement of the clinical courses, (F) for fail student who did not satisfied the requirement of the clinical courses, and (L) for incomplete for the student how require time to finish the requirement.

12) References:
See the list in courses PDS 540, PDS 541, PDS 542, and PDS 545.

13) Course Director:
The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and any required change or changes in the course.

14) Course Revision:
This course contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course.

15) Course Approval:
The course and its contents was approval at the meeting number (………….) date (………….).
King Saud University  
*College of Dentistry*  
Department of Preventive Dental Science  
Division of Orthodontics

**Second Year Curriculum and Courses:**

<table>
<thead>
<tr>
<th>Course No</th>
<th>Course Title</th>
<th>Credit:</th>
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<tbody>
<tr>
<td>DENS 516</td>
<td>Occlusion [Craniomandibular Dysfunction]</td>
<td>1 (1,0)**</td>
</tr>
<tr>
<td>DENS 520</td>
<td>Research Methods &amp; Scientific Writing</td>
<td>1 (1,0)**</td>
</tr>
<tr>
<td>DENS 522</td>
<td>Education Methods</td>
<td>1 (1,0)**</td>
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<tr>
<td>PDS 552</td>
<td>Child Psychology</td>
<td>1(1,0)**</td>
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<td>PDS 553</td>
<td>Genetics</td>
<td>1(1,0)**</td>
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<td>PDS 547</td>
<td>Philosophies of Orthodontic Treatment Techniques</td>
<td>1(1,0)</td>
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<tr>
<td>PDS 548</td>
<td>Orthodontic Case Assessment and Progress</td>
<td>1(1,0)</td>
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<tr>
<td>PDS 549</td>
<td>Orthodontics Multidisciplinary Treatment</td>
<td>1(1,0)</td>
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<tr>
<td>PDS 550</td>
<td>Cleft Lip &amp; Palate and Craniofacial Syndromes</td>
<td>1(1,0)</td>
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<tr>
<td>PDS 551</td>
<td>Orthodontic Current Literature Review</td>
<td>1(1,0)*</td>
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<tr>
<td>PDS 554</td>
<td>Orthodontic Clinic [II]</td>
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**Summer Course II:**

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<td>Orthodontic Clinic [Summer 2]</td>
<td>3(0,3)*</td>
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<td>DENS 600</td>
<td>Research/Thesis</td>
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*Pass/Fail Course*  
**Half-year course**
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

Oclusion [Craniomandibular Dysfunction]

DENS 516
King Saud University  
*College of Dentistry*  
Department of Preventive Dental Science  
Division of Orthodontics

1) **Course Title**: Occlusion [Craniomandibular Dysfunction].

2) **Course Code and Number**: DENS 516

3) **Credit Hour**: One credit hour.

4) **Contact Hour**: One contact hour.

5) **Pre-requisite and or Co-requisite**: None.

6) **Course Level**: First Year (Half Year).

7) **Course Description**:  
The design of this course meets the requirements of graduate students in Prosthodontics, Restorative Dentistry and Orthodontics in particular, and other students in general.  
The course provides the background for the static and dynamic aspects of occlusion and its importance in clinical dentistry. Topics on stomatognathic physiology and craniomandibular dysfunctions are adequately covered. Engineering principles of Mandibular motion to explain the articulator design principles of occlusion in natural and restored dentitions will be reviewed and presented, as necessary, in laboratory demonstrations.

8) **Course objectives**:  
The course objectives are to help the student:  
3) Understand the anatomical and functional requirements for a healthy and properly functioning stomatognathic system.  
4) Understand the biological and mechanical considerations of static and dynamic occlusal contacts.  
5) Recognise the etiology, clinical picture, be able to diagnose, and manage cases of TMD.

9) **Course Outline**.  
Week (1); Lecture (50 minutes duration)  
   Topic: Introduction.  
   Chapter 1 – A Textbook of Occlusion by Mohl et al.
Week (2); Lecture (50 minutes duration)
Topic: Occlusal Morphology and Relationship.
Chapter 4 – A Textbook of Occlusion by Mohl et al. PP 57-69.

Week (3); Lecture (50 minutes duration)
Topic: Mechanics of Mandibular Movements.
Chapter 9 – A Textbook of Occlusion by Mohl et al. PP 129-140.

Week (4); Lecture (50 minutes duration)
Topic: Physiology of the Masticatory System (Part 1)
Chapter 10 – A Textbook of Occlusion by Mohl et al. PP 143-151.

Week (5); Lecture (50 minutes duration)
Topic: Physiology of the Masticatory System (Part 2).
Chapter 11 – A Textbook of Occlusion by Mohl et al. PP 153-156.

Week (6); Lecture (50 minutes duration)
Topic: Occlusal Variations and Problems.

Week (7); Lecture (50 minutes duration)
Topic: Temporomandibular Joint Variations and Problems.

Week (8); Lecture (50 minutes duration)
Topic: Occlusal Parafunction.
Chapter 18 – A Textbook of Occlusion by Mohl et al. PP 249-256.
(Mid-term Written Examination)
- Multiple choice questions
- 40 marks
- 60 minutes duration

Week (9); Lecture (50 minutes duration)
Topic: Epidemiology and Etiology of Temporomandibular Disorders.

Week (10); Lecture (50 minutes duration)
Topic: Examination of Dysfunction Indices.
Chapter 14 – A Textbook of Occlusion by Mohl et al. PP 185-198.

Week (11); Lecture (50 minutes duration)
Topic: Concepts in diagnosis and therapy of TMD.
Chapter 19 – A Textbook of Occlusion by Mohl et al. PP 265-270.
Week (12); Lecture (50 minutes duration)
  Topic: Behavioral Therapy.
  Chapter 23 – A Textbook of Occlusion by Mohl et al. PP 329-337.

Week (13); Lecture (50 minutes duration)
  Topic: Physical Therapy.
  Chapter 24 – A Textbook of Occlusion by Mohl et al. PP 339-349.

Week (14); Lecture (50 minutes duration)
  Topic: Interocclusal Appliance Therapy.

Week (15); Lecture (50 minutes duration)
  Topic: Occlusal Adjustment Therapy.

Week (16) (Examination) Topic: Final Written Examination
  • Multiple choice questions
  • 60 marks
  • 120 minutes duration

10) Method of Teaching:
   o Lectures format.

11) Evaluation:
    Students are evaluated during the course by mid-term written examination
    and final written examination. At the beginning of the course the students
    will be given a list of reading assignment from various textbook and
    published articles related to the topics covered in the course.

12) Grading:
    The total mark of the course is 100 marks and distributed as follow;
    Mid-term Written Examination (40 Marks)
    Final Written Examination (60 Marks)
    The total marks gained by the students will be graded according to the King
    Saud University grading scheme.

13) References
    A) Textbook(s).
       A textbook of occlusion by Mohl et al.

    B) Selected Article(s).

14) Course Director.
    The course director must understand the course, its content and procedures of
    delivering it to the students as approved. The course director should write to
the program director at the end of each academic year report regarding the
course progress and or any required change or changes in the course.

15) Course Revision.
This course and its contents should be revised at last every five years by the
curriculum committee and or by subcommittee specialized in the topics of the
course for any required change or changes in the course.

16) Course Approval.
The course and its contents was approval at the meeting number (……………)
date (……………).
King Saud University
*College of Dentistry*
Department of Preventive Dental Science
Division of Orthodontics

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Educational Methods

DENS 522
King Saud University  
*College of Dentistry*  
Department of Preventive Dental Science  
Division of Orthodontics

1) **Course Title**: Educational methods.

2) **Course Number**: DENS 522

3) **Credit Hour**: One credit hour.

4) **Contact Hour**: One contact hour.

5) **Pre-requisite and or Co-requisite**: None.

6) **Course Level**: Second Year (Half Year).

7) **Course Description**:  
The aim of this course is to expose all graduate students, regardless of their future professional expectations, to the methods of teaching and learning. It is assumed that teaching professionally in the University, teaching dental interns and residents outside of the University setting, presenting papers to professional and related bodies or organization and participation in educational Proceduresshops, conferences and seminars all require a formal exposure to the strategy and tactics of teaching and learning. Topics include the nature of learning and teaching, curriculum development, instructional objectives, instructional media, audio-visual teaching and learning aids and assessment methods for knowledge, skills and attitude. Students are encouraged to design and produce course objectives, self-instructional packages and to practice teaching undergraduates in their specialty courses.

8) **Course Components**:  
The course includes sessions on teaching / learning process which will give an opportunity to widen the concepts and improve the teaching skills. There will be sessions on methods like lecture, discussion, structured discussion, simulation, and self learning sessions. The course is designed to provide the postgraduate students with basic concepts necessary to apply fundamental principles of teaching and learning.
A variety of instructional formats will be used in this course including lecture, seminar, and small group discussion. Participation in the discussions is important part of learning and therefore attendance is required.

9) Course objectives:
- To develop understanding of the complex interrelationship between learning and teaching with special relevance to medical education
- To develop the skills and knowledge base in the areas of learning and teaching.
- To distinguish between different styles and strategies of learning.
- To demonstrate an awareness of the range of communication methods and understand the appropriateness of each of these technique.
- Be able to give a presentation to a group understanding the core values of learning and teaching.
- To develop awareness of the different methods of assessment available and their appropriate use.
- To develop awareness of how students view assessment and how this affects their learning.
- To develop an understanding of how assessment information is recorded and used constructively to inform student.

10) Course Outline.
Week (1); Lecture (50 minutes duration)
   Topic: Introduction to the course.

Week (2); Lecture (50 minutes duration)
   Topic: Teachings methods - Lecture.

Week (3); Lecture (50 minutes duration)
   Topic: Teachings methods – Lecture and group discussion.

Week (4); Lecture (50 minutes duration)
   Topic: Chair side / bedside Teaching.

Week (5); Lecture (50 minutes duration)
   Topic: Instructional media - 1.

Week (6); Lecture (50 minutes duration)
   Topic: Instructional media - 2.

Week (7); Lecture (50 minutes duration)
   Topic: Effective use of power point in the classroom.

Week (8); Lecture (50 minutes duration)
   Topic: (Mid-term Written Examination)
   - Multiple choice questions
• 40 marks
• 60 minutes duration

Week (9); Lecture (50 minutes duration)
Topic: Course websites as instructional tools.

Week (10); Lecture (50 minutes duration)
Topic: Problem based learning.

Week (11); Lecture (50 minutes duration)
Topic: Preparing and revising a course.

Week (12); Lecture (50 minutes duration)
Topic: Assessment and evaluation - 1.

Week (13); Lecture (50 minutes duration)
Topic: Assessment and evaluation - 2.

Week (14); Lecture (50 minutes duration)
Topic: Improving teaching with feedback.

Week (15); Lecture (50 minutes duration)
Topic: Course evaluation and revision.

Week (16) (Examination) Topic: Final Written Examination
• Multiple choice questions
• 60 marks
• 120 minutes duration

11) Method of Teaching:
   o Lectures format.

12) Evaluation:
    Students are evaluated during the course by mid-term written examination and final written examination. At the beginning of the course the students will be given a list of reading assignment from various textbook and published articles related to the topics covered in the course.

13) Grading:
    The total mark of the course is 100 marks and distributed as follow;
    Mid-term Written Examination (40 Marks)
    Final Written Examination (60 Marks)
    The total marks gained by the students will be graded according to the King Saud University grading scheme.

14) References
Course materials and references books
- Course handouts / course guidelines and assignment outlines.

15) Course Director.
The course director must understand the course, its content and procedures of delivering it to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and or any required change or changes in the course.

16) Course Revision.
This course and its contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes in the course.

17) Course Approval.
The course and its contents was approval at the meeting number (………….) date (……………).
King Saud University

College of Dentistry

Department of Preventive Dental Science

Division of Orthodontics

Research Methods
And
Scientific Writing

DENS 520
1) Course Title : Research methods and scientific writing

2) Course Code and Number : DENS 520

3) Credit Hour : One credit hour.

4) Contact Hour : One contact hour.

5) Pre-requisite and or Co-requisite : None.

6) Course Level : Second Year (Half Year).

7) Course Description:
The course was developed in the college of dentistry as a core course for all students admitted to the M.Sc. (Dentistry) program regardless of the intended dental specialty certification. Traditionally, it is offered at the beginning of the second year for a semester. The timing of the course facilitate the preparation of the research that a student intends to carry out for the mandatory thesis of the M.Sc. As the title of the course clearly indicates, the topics selected cover both the research methods and the art of scientific writing.
The college of dentistry of King Saud university believes that research methods and scientific writing can effectively taught graduate students in preference to allowing them to learn research methods and scientific writing by unstructured but intensive apprenticeship which some institutional still practice.

8) Course objectives:
The major objectives of the course are:
- To teach graduate students how to carry scientific research based on the principles and techniques commonly used in the process of research.
- To develop the ability needed by the student to plan and implement a research project in general and to carry out an M.Sc. thesis research in particular as required by the regulations of the college of graduate studies of King Saud university.
To assist the students to become effective and critical evaluators as well as avid consumers of published research finding.

9) Course Outline.

Week (1); Lecture (50 minutes duration)
Topic: Introduction of the course
  History and evolution of scientific research

Week (2); Lecture (50 minutes duration)
Topic: The scientific method

Week (3); Lecture (50 minutes duration)
Topic: Attributes of a scientific research
  Fallacies in research

Week (4); Lecture (50 minutes duration)
Topic: Research models in health research - I

Week (5); Lecture (50 minutes duration)
Topic: Research models in health research - II

Week (6); Lecture (50 minutes duration)
Topic: The research problem

Week (7); Lecture (50 minutes duration)
Topic: Review of relevant literature
  Research design

Week (8); Lecture (50 minutes duration)
Topic: Methodology
  ********** Written Examination between weeks 8 and 9 *******

Week (9); Lecture (50 minutes duration)
Topic: Analysis of data
  Errors in measurements
  Inter / intra examiner reliability

Week (10); Lecture (50 minutes duration)
Topic: Introduction to scientific writing and terminology

Week (11); Lecture (50 minutes duration)
Topic: Writing a research proposal / Thesis

Week (12); Lecture (50 minutes duration)
Topic: Writing a scientific paper
Week (13); Lecture (50 minutes duration)
Topic: Analysis of research grants
Sources of research topics and grants in the Kingdom

Week (14); Lecture (50 minutes duration)
Topic: Ethics in human and animal research

Week (15); Lecture (50 minutes duration)
Topic: Selection of published papers to “Critique”
Instructions to authors
Uniform requirements for manuscript submissions

Week (16); Lecture (50 minutes duration)
Topic: Presentation of selected papers

************ Final Written Examination ************

10) Method of Teaching:
• Lectures and discussions.

11) Evaluation:
Students are evaluated during the course as follow;
Assessment written examination
Critique of selected paper
Final written examination

12) Grading:
The total mark of the course is 100 marks and distributed as follow;
• 30 marks - Mid-term Written Examination.
• 10 marks – Critique of a selected published paper
• 60 marks - Final Written Examination.
  ▪ 20 marks – Research method
  ▪ 40 marks – Scientific writing
The total marks gained by the students will be graded according to the King Saud University grading scheme.

13) References
Recommended Textbooks:
Reference Textbooks:

14) Course Director.
The course director must understand the course, its content and procedures of delivering it to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and or any required change or changes in the course.

15) Course Revision.
This course and its contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes in the course.

16) Course Approval.
The course and its contents was approval at the meeting number (…………..) date (……………..).
CHILD PSYCHOLOGY

PDS 552
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

1) Course Title : Child Psychology.

2) Course Code and Number : PDS 552

3) Credit Hour : One credit hour.

4) Contact Hour : One contact hour.

5) Pre-requisite and or Co-requisite : None.

6) Course Level : Second Year (Half Year).

7) Course Description:
This course is designed to impart knowledge of psychosocial nature of developing children, adolescents and adults. Psychological development from infancy through early adulthood will be described with greater emphasis placed on application of this information to clinical health care delivery services. The course also covers the psychological preparation of the child for hospitalization and surgical management of dentofacial disfigurements and surgery.

8) Course objectives:
Upon completion of the course, the students will be able to:
- Know in detail the psychology of the child and adolescence.
- Understand the life cycle and health.
- Know correctly personality, perception and intelligence
- Develop knowledge in the areas of child learning and thinking.
- Know correctly the child communication skills.
- Understand the interrelationship between society and health.
- Demonstrate knowledge of health protection and health promotion.
- To be familiar with the procedures of coping with illness, disability and illness behavior.
- Know the process of child psychological preparation for surgery and hospitalization.

10) Course Outline.
Week (1); Lecture (50 minutes duration)
  Topic: Introduction and course orientation.

Week (2); Lecture (50 minutes duration)
  Topic: The life cycle - Childhood and child health

Week (3); Lecture (50 minutes duration)
  Topic: The life cycle - Adolescence

Week (4); Lecture (50 minutes duration)
  Topic: Development of personality

Week (5); Lecture (50 minutes duration)
  Topic: Learning process

Week (6); Lecture (50 minutes duration)
  Topic: Perception and intelligence.

Week (7); Lecture (50 minutes duration)
  Topic: Development of thinking.

Week (8); Lecture (50 minutes duration)
  Topic: (Mid-term Written Examination)
    ▪  Multiple choice questions
    ▪  40 marks
    ▪  60 minutes duration

Week (9); Lecture (50 minutes duration)
  Topic: Communication skills.

Week (10); Lecture (50 minutes duration)
  Topic: Society and health.

Week (11); Lecture (50 minutes duration)
  Topic: Health protection and promotion.

Week (12); Lecture (50 minutes duration)
  Topic: Coping with illness and disability.

Week (13); Lecture (50 minutes duration)
  Topic: Illness behavior.

Week (14); Lecture (50 minutes duration)
  Topic: Psychological preparation for surgery and hospitalization.

Week (15); Lecture (50 minutes duration)
Topic: Final Written Examination
- Multiple choice questions
- 60 marks
- 120 minutes duration

11) Method of Teaching:
   ○ Lectures format.

12) Evaluation:
   Students are evaluated during the course by mid-term written examination and final written examination. At the beginning of the course the students will be given a list of reading assignment from various textbook and published articles related to the topics covered in the course.

13) Grading:
   The total mark of the course is 100 marks and distributed as follow;
   - Mid-term Written Examination (40 Marks)
   - Final Written Examination (60 Marks)
   The total marks gained by the students will be graded according to the King Saud University grading scheme.

14) References
    Reference Books
    ○ Child Psychology – 1.
    ○ Child Psychology – 2.
    Reference Articles
    Some articles suitable for the course will be distributed on time.

15) Course Director.
    The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and or any required change or changes in the course.

16) Course Revision.
    This course and its contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes.

17) Course Approval.
    The course and its contents was approval at the meeting number (…………..) date (…………..).
1) Course Title : Genetics.

2) Course Code and Number : PDS 553

3) Credit Hour : One credit hour.

4) Contact Hour : One contact hour.

5) Pre-requisite and or Co-requisite : None.

6) Course Level : Second Year (Half Year).

7) Course Description:
The aim of this course is to expose the orthodontic graduate students to the methods of principles of genetics. This course is an introduction into human genetics. Molecular biology of genes, cytogenetics, mechanisms of inheritance, inheritance of malocclusion, dental anomalies, craniofacial syndromes and medical genetics will be taught. Effects of the environment on inheritance, population genetics, genetics in medicine and dentistry, and methods of genetic research will be discussed. Special emphasis will be made on inherited diseases and anomalies, with the possibility of prevention. Genetic engineering and its advantages and disadvantages will be discussed.

8) Course objectives:
- To develop understanding of the complex interrelationship between learning and teaching with special relevance to medical education
- To develop the skills and knowledge base in the areas of learning and teaching.
- To distinguish between different styles and strategies of learning.
- To demonstrate an awareness of the range of communication methods and understand the appropriateness of each of these technique.
- Be able to give a presentation to a group understanding the core values of learning and teaching.
- To develop awareness of the different methods of assessment available and their appropriate use.
• To develop awareness of how students view assessment and how this affects their learning.
• To develop an understanding of how assessment information is recorded and used constructively to inform student.

10) Course Outline.

Week (1); Lecture (50 minutes duration)
Topic: Introduction to the course.

Week (2); Lecture (50 minutes duration)
Topic: Methods in genetic research.

Week (3); Lecture (50 minutes duration)
Topic: Cytogenetics.

Week (4); Lecture (50 minutes duration)
Topic: Mendelian laws of inheritance.

Week (5); Lecture (50 minutes duration)
Topic: Deviations from Mendelian laws -1

Week (6); Lecture (50 minutes duration)
Topic: Deviations from Mendelian laws - 2.

Week (7); Lecture (50 minutes duration)
Topic: Manifestation of inheritance.

Week (8); Lecture (50 minutes duration)
Topic: (Mid-term Written Examination)
- Multiple choice questions
- 40 marks
- 60 minutes duration

Week (9); Lecture (50 minutes duration)
Topic: Inheritance and environment.

Week (10); Lecture (50 minutes duration)
Topic: Population genetics.

Week (11); Lecture (50 minutes duration)
Topic: Genetics in medicine - 1

Week (12); Lecture (50 minutes duration)
Topic: Genetics in medicine - 2

Week (13); Lecture (50 minutes duration)
Topic: Genetics in dentistry - 1

Week (14); Lecture (50 minutes duration)
Topic: Genetics in dentistry -2.

Week (15); Lecture (50 minutes duration)
Topic: Final Written Examination
  - Multiple choice questions
  - 60 marks
  - 120 minutes duration

11) Method of Teaching:
   - Lectures format.

12) Evaluation:
Students are evaluated during the course by mid-term written examination and final written examination. At the beginning of the course the students will be given a list of reading assignment from various textbook and published articles related to the topics covered in the course.

13) Grading:
The total mark of the course is 100 marks and distributed as follow;
   - Mid-term Written Examination (40 Marks)
   - Final Written Examination (60 Marks)
The total marks gained by the students will be graded according to the King Saud University grading scheme.

14) References
Reference Books
   - Rasmussen P.: Genetics for Postgraduate Students in Dentistry. University of Bergen, School of Dentistry, Bergen Norway, 1981

Reference Articles
15) **Course Director.**
   The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and or any required change or changes in the course.

16) **Course Revision.**
   This course and its contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes.

17) **Course Approval.**
   The course and its contents was approval at the meeting number (………….) date (…………..).
Philosophies of Orthodontic Treatment Techniques

PDS 547
1) **Course Title**: Philosophies of Orthodontic Treatment Techniques.

2) **Course Number**: PDS 547

3) **Credit Hour**: One credit hour.

4) **Contact Hour**: Two contact hours.

5) **Pre-requisite and or Co-requisite**: PDS 540 and PDS 542.

6) **Course Level**: Second Year (Whole Year).

7) **Course Description**:
There are different fixed orthodontic appliances applied world wide for the treatment of malocclusion. This didactic specialty course is designed to provide the student with the theoretical background behind the different treatment mechanics, philosophies, and the clinical applications. Starting with the history of orthodontics the course covers the original edgewise mechanic and its modification to the Andrews’ straight-wire technique. It also covers the different treatment philosophies such as Tweed philosophy, The Merrifield sequential directional force, leveling anchorage, Roth modification, Ricketts bioprogressive, Alexander discipline, and the MBT mechanics. The course extended to cover the Begg technique and its updated version, the tip-edge technique. It also covers the lingual orthodontics and the most recent esthetic orthodontic appliances. The Bergen technique also covered in the course.

8) **Course objectives**:
The course objectives are;

1) Familiar the students with the concept and the theoretical background behind the different techniques applied the orthodontics

9) **Course Outline**.

Week (1) Topic: Introduction and orientation.

Week (2) Topic: History of orthodontics.

Week (3) Topic: Tweed method and philosophy.
Reference; The Tweed Method, Chapter 23, pages 864-907

Week (4) Topic: Standard Edgewise.

Week (5) Topic: Ackerman Modification of Edgewise Treatment.

Week (6) Topic: Andrew straight wire-1.
Ref; Andrew L.F: Straight Wire, the concept and appliance. L.A. Wells Co. San Diego, CA. 1988.

Week (7) Topic: Andrew straight wire-2.
Ref; Andrew L.F: Straight Wire, the concept and appliance. L.A. Wells Co. San Diego, CA. 1988.

Week (8) Topic: Roth modification -1.

Week (9) Topic: Roth modification -2.

Week (10) Topic: *** Assessment Written Examination (1) ***
- Multiple choice questions
- 15 marks
- 60 minutes duration

Week (11) Topic: Merrifield sequential directional force.
Week (12) Topic: Level anchorage edgewise.

Week (13) Topic: Ricketts bioprogressive -1.
Ref; Ricketts R.M; The wisdom of the bioprogressive philosophy. Seminar in Orthodontics, 4; 201-209; 1998.
Ref; Ricketts R.M; Bioprogressive therapy as an answer to orthodontic needs – Part II Am. J. Orthod. 70: 359-397, 1976.

Week (14) Topic: Ricketts bioprogressive -2.
Ref; Ricketts R.M; Bioprogressive therapy as an answer to orthodontic needs – Part II. Am. J. Orthod. 70: 359-397, 1976.


Week (Examination) Topic: *** Assessment Written Examination (2) ***
• Multiple choice questions
• 15 marks
• 60 minutes duration

Week (16) Topic: Bergen Technique-1.
Ref; Bergen technique manual, 1989.

Ref; Bergen technique manual, 1989.

Week (17) Topic: Bergen Technique-3.
Ref; Bergen technique manual, 1989.

Week (18) Topic: MBT mechanics-1.

Week (20) Topic: MBT mechanics-3.

Week (21) Topic: *** Assessment Written Examination (3) ***
• Multiple choice questions
• 15 marks
• 60 minutes duration

Week (22) Topic: Begg technique [1].

Week (23) Topic: Begg technique [2].

Week (24) Topic: Tip-Edge Technique [1].


Week (26) Topic: Lingual Orthodontics -1.


Week (30) Topic: *** Assessment Written Examination (4) ***
- Multiple choice questions
- 15 marks
- 60 minutes duration

Examination Week Topic: *** Final Written Examination ***
- Multiple choice questions
- 40 marks
- 100 minutes duration

10) Method of Teaching:
Lectures and illustrations format

11) Evaluation:
- Written Continuous Examination - 1 (15 Marks).
- Written Continuous Examination – 2 (15 Marks).
- Written Continuous Examination – 3 (15 Marks).
- Written Continuous Examination – 4 (15 Marks).
- Final Written Examination (40 Marks).

13) Grading:
The total mark of the course is 100 marks. The total marks gained by the students will be graded according to the King Saud University grading scheme.

14) Course Director.
The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and or any required change or changes in the course.

15) Course Revision.
This course and its contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course for any required change or changes.

16) Course Approval.
The course and its contents was approval at the meeting number (…………..)
date (……………..).
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

Orthodontic Case Assessment and Progress

PDS 548
1) Course Title : Orthodontic Case Assessment and Progress.

2) Course Code and Number : PDS 548

3) Credit Hour : One credit hour.

4) Contact Hour : Two contact hours.

5) Pre-requisite and or Co-requisite : PDS 541.

6) Course Level : Second Year (Whole Year).

7) Course Description:
   This course is continuation of the course orthodontic diagnosis and treatment planning (PDS 541).

8) Course objectives:
   The course objectives are to teach the students;
   How to discuss cases for treatment, progress and evaluation

9) Course Outline.
   9) Course Outline.
   Week (1) Topic: Introduction and orientation.
   Week (2) Topic: Cases follow up and discussion.
   Week (3) Topic: Cases follow up and discussion.
   Week (4) Topic: Cases follow up and discussion.
   Week (5) Topic: Cases follow up and discussion.
   Week (6) Topic: Cases follow up and discussion.
   Week (7) Topic: Cases follow up and discussion.
   Week (8) Topic: Cases follow up and discussion.
   Week (9) Topic: Cases follow up and discussion.
   Week (10) Topic: Cases follow up and discussion.
   Week (11) Topic: Cases follow up and discussion.
   Week (12) Topic: Cases follow up and discussion.
   Week (13) Topic: Cases follow up and discussion.
   Week (14) Topic: Cases follow up and discussion.
Week (15) Topic: Cases follow up and discussion.
Week (16) Topic: Cases follow up and discussion.

*** End of First Semester ***
Week (17) Topic: Cases follow up and discussion.
Week (18) Topic: Cases follow up and discussion.
Week (19) Topic: Cases follow up and discussion.
Week (20) Topic: Cases follow up and discussion.
Week (21) Topic: Cases follow up and discussion.
Week (22) Topic: Cases follow up and discussion.
Week (23) Topic: Cases follow up and discussion.
Week (24) Topic: Cases follow up and discussion.
Week (25) Topic: Cases follow up and discussion.
Week (26) Topic: Cases follow up and discussion.
Week (27) Topic: Cases follow up and discussion.
Week (28) Topic: Cases follow up and discussion.
Week (29) Topic: Cases follow up and discussion.
Week (30) Topic: Cases follow up and discussion.

10) Method of Teaching:
   Lectures and illustrations format

11) Evaluation:
   This is a pass and fail course and the students are evaluated by their
   performance, attendance and discussion. The list of reading textbook(s)
   should be given to the students at the beginning of the course.

12) Grading:
   This is a pass or fail course. The grading of the course is [P] for pass student
   who satisfied the requirement of passing the course, [F] for fail student who
   did not satisfied the requirement of the course.

13) Requirement for the pass mark:
   The following are the requirements for the pass mark of the course;
   • Presentation of all clinical cases.
   • Presentation of the full records up-to the stage of treatment.
   • Reviewing and presentation of old and new cases.
   • Active discussion and participation.
   The student must understand the requirements of the course and Procedures
   hard to satisfy fulfilling the requirement for the pass mark.

14) References:
   A) Textbook(s) and Selected Article(s).
      As in course PDS 541.

15) Course Director.
The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and any required change or changes in the course.

16) **Course Revision.**
This course contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course.

17) **Course Approval.**
The course and its contents was approval at the meeting number (…………..) date (………………).
Orthodontics Multidisciplinary Treatment

PDS 549
1) **Course Title**: Orthodontics Multidisciplinary Treatment.

2) **Course Number**: PDS 549

3) **Credit Hour**: One credit hour.

4) **Contact Hour**: Two contact hours.

5) **Pre-requisite and or Co-requisite**: PDS 540.

6) **Course Level**: Second Year (Whole Year).

7) **Course Description**: 
This course is designed to provide the students with detailed information regarding the relationship between orthodontic and other dental specialty, such as the orthognathic surgery, periodontic, prosthodontics, implant. The team approach and managements is stressed.

8) **Course objectives**: 
The course objectives are;
1) Familiarize the students with the concept of team approach management of patients.
6) The interrelationships between orthodontist and oral surgeons, prosthodontist, periodontist, and implant.

9) **Course Outline**. 
Week (1) Topic: Introduction and orientation.
Week (2) Topic: Orthognathic surgery.
Week (3) Topic: Orthognathic surgery.
Week (4) Topic: Orthognathic surgery.
Week (5) Topic: Orthognathic surgery.
Week (6) Topic: Orthognathic surgery.
Week (7) Topic: Orthognathic surgery.
Week (8) Topic: Orthognathic surgery.
Week (9) Topic: *** Assessment Written Examination (1) ***
   - Multiple choice questions
10 marks
60 minutes duration

Week (13) Topic: Ortho-Pedo relationship.
Week (14) Topic: Ortho-Pedo relationship.
Week (15) Topic: Ortho-Pedo relationship.
Week (16) Topic: *** Assessment Written Examination (2) ***

- Multiple choice questions
- 15 marks
- 60 minutes duration

*** End of Semester ***
Week (17) Topic: Ortho-Prosthio relationship.
Week (18) Topic: Ortho-Prosthio relationship.
Week (19) Topic: Ortho-Prosthio relationship.
Week (20) Topic: Ortho-Implant relationship.
Week (22) Topic: Ortho-Implant relationship.
Week (23) Topic: *** Assessment Written Examination (3) ***

- Multiple choice questions
- 15 marks
- 60 minutes duration

Week (27) Topic: Ortho-TMJ relationship
Week (29) Topic: Ortho-TMJ relationship
Week (30) Topic: *** Assessment Written Examination (4) ***

- Multiple choice questions
- 15 marks
- 60 minutes duration

Examination Week Topic: *** Final Written Examination ***

- Multiple choice questions
- 40 marks
- 100 minutes duration

10) Method of Teaching:
   - Lectures format.
   - Demonstrations and illustrations.
11) Evaluation:
- Quizzes.
- Written Examination.

At the beginning of the course the student will be given a list of reading assignment from various textbook and published articles related to the specific topics.

12) Grading:
- First Assessment Examination-1 (15 Marks)
- Second Assessment Examination-2 (15 Marks)
- Third Assessment Examination-3 (15 Marks)
- Fourth Assessment Examination-4 (15 Marks)
- Final Written Examination (40 Marks)

13) References:
   A) Textbook(s).
   - 1 MDST
   - 2 MDST
   - 3 MDST
   - 4 MDST
   - 5 MDST

   B) Selected Article(s).
   References of the selected articles will be distributed to the students as required.

14) Course Director:
The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and any required change or changes in the course.

15) Course Revision:
This course contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course.

16) Course Approval:
The course and its contents was approval at the meeting number (…………..) date (…………..).
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

Cleft Lip & Palate and Craniofacial Syndromes

PDS 550
King Saud University  
*College of Dentistry*  
Department of Preventive Dental Science  
Division of Orthodontics

1) **Course Title** : Cleft Lip & Palate and Craniofacial Syndromes.

2) **Course Number** : PDS 550

3) **Credit Hour** : One credit hour.

4) **Contact Hour** : Two contact hours.

5) **Pre-requisite and or Co-requisite** : None.

6) **Course Level** : Second Year (Whole Year).

7) **Course Description:**
   This didactic course consists of two parts. The first part is designed to provide detailed information regarding the cleft lip and palate. The second part will cover the craniofacial anomalies.

8) **Course objectives:**
   The course objectives are;
   1. Familiar the students with the etiology, problems and management of the cleft lip and palate patients.
   2. Familiar the students with the etiology, problems and management of patients with craniofacial anomalies.

9) **Course Outline.**
   Week (1) Topic: Introduction and orientation.
   Week (2) Topic: Cleft lip and palate.
   Week (3) Topic: Cleft lip and palate.
   Week (4) Topic: Cleft lip and palate.
   Week (5) Topic: Cleft lip and palate.
   Week (6) Topic: Cleft lip and palate.
   Week (7) Topic: Cleft lip and palate.
   Week (8) Topic: ***First Assessment Examination (1)***.
   Week (9) Topic: Cleft lip and palate.
   Week (10) Topic: Cleft lip and palate.
   Week (11) Topic: Cleft lip and palate.
Week (12) Topic: Cleft lip and palate.  
Week (13) Topic: Cleft lip and palate.  
Week (14) Topic: Cleft lip and palate.  
Week (15) Topic: *** Second Assessment Examination (2) ***.  
Week (16) Topic: Craniofacial anomalies.  
Week (17) Topic: Craniofacial anomalies.  
Week (18) Topic: Craniofacial anomalies.  
Week (19) Topic: Craniofacial anomalies.  
Week (20) Topic: Craniofacial anomalies.  
Week (21) Topic: Craniofacial anomalies.  
Week (22) Topic: *** Third Assessment Examination (3) ***.  
Week (23) Topic: Craniofacial anomalies.  
Week (24) Topic: Craniofacial anomalies.  
Week (26) Topic: Craniofacial anomalies.  
Week (27) Topic: Craniofacial anomalies.  
Week (28) Topic: Craniofacial anomalies.  
Week (29) Topic: Craniofacial anomalies.  
Week (30) Topic: *** Fourth Written Examination (4) ***.  
Examination Week: *** Final Examination ***

10) Method of Teaching:
  - Lectures format.
  - Demonstrations and illustrations.

11) Evaluation:
Students are evaluated continuously by quizzes and written examination. At
the beginning of the course the student will be given a list of reading
assignment from various textbook and published articles related to the
specific topics.

12) Grading:
First Assessment Written Examination-1 (15 Marks)
Second Assessment Written Examination-2 (15 Marks)
Third Assessment Examination-3 (15 Marks)
Fourth Assessment Examination-4 (15 Marks)
Final Written Examination (40 Marks)

13) References:
A) Textbook(s).
  - CLP
  - CLP
  - CFS
  - CFS
B) Selected Article(s).
  - References of the selected articles will be distributed to the
    students as required.
14) **Course Director:**

The course director must understand the course and its content and Procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and any required change or changes in the course.

15) **Course Revision:**

This course contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course.

16) **Course Approval:**

The course and its contents was approval at the meeting number (………….) date (…………..).
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

Orthodontic Current Literature Review

PDS 551
1) **Course Title** : Orthodontic Current Literature Review.

2) **Course Code and Number** : PDS 551

3) **Credit Hour** : One credit hour.

4) **Contact Hour** : Two contact hours.

5) **Pre-requisite and or Co-requisite** : PDS 544.

6) **Course Level** : Second Year (Whole Year).

7) **Course Description:**
   This course was designed to provide detailed reviewing of the current literature in orthodontics. The topic oriented approach of the seminar is formulated to teach the student how to perform in depth search of the literature(s) for a specified topic. The result of the search should be written according to the guidelines outlined in “How to write and publish a scientific paper” by Day 1979 that is suitable for publication. The written topic is distributed to the class for quiz and scientific discussion during the presentation.

8) **Course objectives:**
   Upon completion of the course, the students will be able to:
   - Perform search of the appropriate literatures and prepare updated reading list of library references.
   - Prepare written review of a topic according to the guidelines outlined in “How to write and publish a scientific paper” by Day 1979 that is suitable for publication.
   - Preparing 10 multiple choice questions from the written review as quizzes for the class.
   - Oral presentation of the reviewed topic.

9) **Course Outline.**
   Week (1) Topic: Introduction and orientation.
   Week (2) Topic: Topic selection and preparation.

*** End of First Semester ***

Week (16) Topic: Topic presentation and discussion.
Week (17) Topic: Topic presentation and discussion.
Week (18) Topic: Topic presentation and discussion.
Week (19) Topic: Topic presentation and discussion.
Week (20) Topic: Topic presentation and discussion.
Week (21) Topic: Topic presentation and discussion.
Week (22) Topic: Topic presentation and discussion.
Week (23) Topic: Topic presentation and discussion.
Week (24) Topic: Topic presentation and discussion.
Week (26) Topic: Topic presentation and discussion.
Week (27) Topic: Topic presentation and discussion.
Week (28) Topic: Topic presentation and discussion.
Week (29) Topic: Topic presentation and discussion.
Week (30) Topic: Topic presentation and discussion.

10) **Method of Teaching:**
   Seminar and illustrations format

11) **Topics for presentation:**
   See the suggested list in course PDS 544.

12) **Evaluation:**
   This is a pass and fail course and the students are evaluated by their performance, attendance and discussion. The list of reading textbook(s) should be given to the students at the beginning of the course.

13) **Grading:**
   This is a pass or fail course. The grading of the course is [P] for pass student who satisfied the requirement of passing the course, [F] for fail student who did not satisfied the requirement of the course.

14) **Requirement for the pass mark:**
The following are the requirements for the pass mark of the course;

- Reviewing minimum of four topics.
- Typing the reviewed topic as a review article.
- Presentation of the reviewed topic followed by scientific discussion,
- Preparing 10 multiple choice questions for each topic as quizzes for the remaining students before the presentation.
- Active participation during the scientific discussion.
- Passing 60% of all the quizzes questions.

The student must understand the requirements of the course and Procedures hard to satisfy fulfilling the requirement for the pass mark.

15) References:
A) Textbook(s) and Selected Article(s).
   After selecting the topics for literature reviewing the student must reach for the key reference articles, guided by the reference textbook that covered the selected topic. In addition the student must cover the updated knowledge from the most recent textbook(s) and published articles related to the topic under reviewing.

16) Course Director.
   The course director must understand the course and its content and Procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and any required change or changes in the course.

17) Course Revision.
   This course contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course.

18) Course Approval.
   The course and its contents was approval at the meeting number (………….) date (………….).
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

Orthodontic Clinic [II]
PDS 554
King Saud University  
*College of Dentistry*  
Department of Preventive Dental Science  
Division of Orthodontics

1) **Course Title**: Orthodontic Clinic [II].

2) **Course Number and Code**: 554 PDS

3) **Credit Hour**: Three credit hours. Two and half contact hours per one credit hour.

4) **Pre-requisite and or Co-requisite**: 545 PDS, 546 PDS.

5) **Course Level**: Second Year (Whole Year).

6) **Course Description**:  
This course is the third of a series of five clinical courses offered to the orthodontic postgraduate students. It is a continuation of the courses 545 PDS, and 546 PDS. In this clinical course the students will continue the treatment procedures of the patients that were started and continued in the previous clinical courses. By this time, the patients or most of the patients, should reach the stage of space closure. The students should continue the treatment of patients that was started in the previous clinical course without any changes in the treatment techniques or philosophies as started. The student should prepare the full records of each patient under treatment with the signed documentations of the treatment plan and the previously carried out clinical procedures. The students should fulfill the requirements of the clinical orthodontic courses.

7) **Course objectives**:  
The main objectives of this course are;  
- Teach the students the space closure stage.  
- Close all extraction spaces for the extraction cases.  
- Apply closing loop mechanics.  
- Apply the sliding space closure mechanics.  
- Produce class I molar and canine relationships  
- Produce normal root angulation and root parallelisms.  
- Produce normal occlusion with group function, canine guidance and anterior guidance.
Identify the clinical features of the finishing stage.
Decide the proper timing for debonding of fixed appliance.
Debonding of appliance and removal of the remnants of adhesive.
Polishing and cleaning.
Taking the finishing records.
Fitting of removable retainers and bonding fixed retainers.
Recall appointment for follow up of cases.
Post treatment recall and maintenance of orthodontic patients.

8) Course Outline.

Week (1) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (2) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (3) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (4) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (5) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (6) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (7) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (8) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (9) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (10) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (11) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (12) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (13) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (14) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (15) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

***** End of semester – Continue second semester *****

Week (16) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage
Week (17) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (18) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (19) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (20) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (21) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (22) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (23) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (24) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Continue Space Closure or Start Finishing Stage

Week (26) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (27) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (28) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (29) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

Week (30) Topic: Clinical Procedures.
Continue Space Closure or Start Finishing Stage

***** End of the academic year– Continue in the following clinical course *****

9) Requirements of the clinical courses:
The requirements of passing the clinical courses (545PDS, 546PDS, 554PDS, 556PDS, and 559PDS) are to finish at the end of the clinical course 559PDS the treatment of a minimum of 45 patients utilizing different treatment methods and techniques to a very high standard. The students must submit to the program director at the end of the clinical course (559PDS) the full records of a minimum 45 patients from the start to the finish with signed documentation of the treatment plan and the clinical procedures. During the clinical courses the students is allowed to treat up to 65 patients. However, the achievement of the pass mark student could be as follow:

- 25 Patients - Conventional orthodontic treatment
- 10 Patients - Interceptive orthodontic treatment
- 5 Patients - Multidisciplinary treatment
- 5 Patients - Finishing of referred cases.
- 45 Patients - Total number of treated patients.
10) **Method of Teaching:**
   - Clinical demonstrations.
   - Clinical supervisions.

11) **Evaluation and Grading:**
   This is a pass or fail course. For pass mark the students must fulfill the requirement of finishing the treatment of 45 patients. The grading of the course is (P) for pass student who satisfied the requirement of the clinical courses, (F) for fail student who did not satisfied the requirement of the clinical courses, and (L) for incomplete for the student how require time to finish the requirement.

12) **References:**
   See the list in courses PDS 540, PDS 541, PDS 542, and PDS 545.

13) **Course Director:**
   The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and any required change or changes in the course.

14) **Course Revision:**
   This course contents should be revised at least every five years by the curriculum committee and or by subcommittee specialized in the topics of the course.

15) **Course Approval:**
   The course and its contents was approval at the meeting number (………….) date (……………).
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

Orthodontic Clinic [Summer 2]

PDS 555
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

1) Course Title : Orthodontic Clinic [Summer 2].

2) Course Code and Number : PDS 555

3) Credit Hour : Three credit hours.
Two and half contact hours per one credit hour.

4) Pre-requisite and or Co-requisite : 545 PDS, 546 PDS and 554 PDS.

5) Course Level : First Year Summer Course.

6) Course Description:
This summer course is a continuation of the courses 545 PDS, 546 PDS and 554 PDS. In this clinical course the students will continue the treatment of patients that was started in the previous clinical course. The treatment techniques and philosophies should continue without any changes as started. The student should prepare the full records of each patient under treatment with the signed documentations of the treatment plan and the previously carried out clinical procedures.

7) Course objectives:
To teach the students the treatment and management of orthodontic patients.

8) Course Outline.
Week (1) Topic: Clinical Procedures.
   Continue – Space Closure or Start Finishing Stage.
Week (2) Topic: Clinical Procedures.
   Continue – Space Closure or Start Finishing Stage.
Week (3) Topic: Clinical Procedures.
   Continue – Space Closure or Start Finishing Stage.
Week (4) Topic: Clinical Procedures.
   Continue – Space Closure or Start Finishing Stage.
Week (5) Topic: Clinical Procedures.
   Continue – Space Closure or Start Finishing Stage.
Week (6) Topic: Clinical Procedures.
Continue – Space Closure or Start Finishing Stage.

Week (7) Topic: Clinical Procedures.
Continue – Space Closure or Start Finishing Stage.
Week (8) Topic: Clinical Procedures.
Continue – Space Closure or Start Finishing Stage.

------ End of summer course ------
------ Continue clinical Procedures in the following clinical course ------

9) Requirements of the clinical courses:
The requirements of passing the clinical courses (545PDS, 546PDS, 554PDS, 556PDS, and 559PDS) are to finish at the end of the clinical course 559PDS the treatment of a minimum of 45 patients utilizing different treatment methods and techniques to a very high standard. The students must submit to the program director at the end of the clinical course (559PDS) the full records of a minimum 45 patients from the start to the finish with signed documentation of the treatment plan and the clinical procedures. During the clinical courses the students is allowed to treat up to 65 patients. However, the achievement of the pass mark student could be as follow;

- 25 Patients - Conventional orthodontic treatment
- 10 Patients - Interceptive orthodontic treatment
- 5 Patients - Multidisciplinary treatment
- 5 Patients - Finishing of referred cases.
- 45 Patients - Total number of treated patients.

10) Method of Teaching:
- Clinical demonstrations.
- Clinical supervisions.

11) Evaluation and Grading:
This is a pass or fail course. For pass mark the students must fulfill the requirement of finishing the treatment of 45 patients. The grading of the course is (P) for pass student who satisfied the requirement of the clinical courses, (F) for fail student who did not satisfied the requirement of the clinical courses, and (L) for incomplete for the student how require time to finish the requirement.

12) References:
See the list in courses PDS 540, PDS 541, PDS 542, and PDS 545.

13) Course Director:
The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and any required change or changes in the course.
14) **Course Revision:**
This course contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course.

15) **Course Approval:**
The course and its contents was approval at the meeting number (…………...) date (………….).
King Saud University  
*College of Dentistry*  
Department of Preventive Dental Science  
Division of Orthodontics

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Thesis  
DENS 600
King Saud University  
*College of Dentistry*  
Department of Preventive Dental Science  
Division of Orthodontics

1) **Course Title** : Thesis  
2) **Course Number** : DENS 600  
3) **Credit Hour** : Six credit hour.  
4) **Contact Hour** : Two contact hours.  
5) **Pre-requisite and or Co-requisite** : None  
6) **Course Level** : Second Year + Third Year (Whole Year).  

7) **Course Description:**  
An investigative program of a clinical or basic science problem conducted under the direction of teaching faculty. The successful completion of this course serves to satisfy the research requirement in partial fulfillment of the Master’s of Science Thesis.

8) **Course objectives:**  
   - To provide the mechanism for the student to obtain experience in the design, conduct and analysis of research hypothesis.  
   - To provide a research experience sufficient to fulfill the requirements of the King Saud University for the Master’s of Science in Dentistry Degree.  

9) **Behavioral Objectives:**  
At the completion of the course sequence the student shall have:  
   1) Identified a research problem and prepared a research proposal consisting of a hypothesis, review of the pertinent literature, method and materials including the method(s) of statistical analysis and submit it for approval to the research committee.  
   2) Complete analysis of the data and present a research seminar which is satisfactory to all member of the supervising degree committee.  
      - Prepare and submit a Thesis fulfilling the requirements of the King Saud University for the Master’s of Science in Dentistry.  
   3) Publish or prepare paper(s) in a form suitable for publication.
10) **Method of Teaching:**
Direct supervision and or illustrations format

11) **Evaluation:**
This is a pass or fail course.

12) **Requirement of Pass Mark:**
The students must fulfill the requirement of passing a Thesis defense according to the requirements of the King Saud University for the Master’s of Science in Dentistry.

13) **Grading:**
The grading of the course is (P) for pass student who satisfied the requirement, (F) for fail student who did not satisfied the requirement, and (L) for incomplete for the student how require time to finish the requirement.

14) **Course Director or the Thesis supervisor.**
The course director is the thesis supervisor appointed by the college of graduate studies of the King Saud University. The thesis supervisor must understand the course, its content, requirement and procedures to be delivered to the students as approved. The thesis supervisor should write to the program director regarding the thesis progress and prepare the student for the thesis defense.

15) **Responsibility of the Thesis supervisor.**
The thesis supervisor is responsible
- Help the student to select the thesis research topic.
- Help the student to define the research problem.
- Help the student to review the literatures.
- Help the student to prepare and write the research proposal.
- Help the student to find the research resources.
- Help the student to conduct the research.
- Help the student to collect the research data.
- Help the student to analysis the research data.
- Help the student to write the thesis.
- Chair the thesis defense session.
- Write to the college of graduate studies of the King Saud University the result of the thesis defense.

16) **Course Approval.**
The course and its contents was approval at the meeting number (…………..) date (………….).
# Third Year Curriculum and Courses:

<table>
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<th>Course No</th>
<th>Course Title</th>
<th>Credit:</th>
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<td>PDS 556</td>
<td>Orthodontic Case Progress and Evaluation</td>
<td>1(1,0)*</td>
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<tr>
<td>PDS 557</td>
<td>Evidence based Orthodontic Seminar</td>
<td>1(1,0)*</td>
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<tr>
<td>PDS 558</td>
<td>Orthodontic Clinic [III]</td>
<td>4(0,4)*</td>
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* Pass/Fail Course
King Saud University
College of Dentistry
Department of Preventive Dental Science
Division of Orthodontics

Orthodontic Case Progress and Evaluation

PDS 556
1) Course Title : Orthodontic Case Progress and Evaluation

2) Course Number : PDS 556

3) Credit Hour : One credit hour.

4) Contact Hour : Two contact hours.

5) Pre-requisite and or Co-requisite : PDS 541 and PDS 548.

6) Course Level : Third Year (Whole Year).

7) Course Description:
This course is continuation of the course orthodontic diagnosis and treatment planning (PDS 541) and the course orthodontic case assessment and progress (PDS 548).

8) Course objectives:
The course objectives are to teach the students how to present the cases under treatment and discuss the treatment, progress. The student should be able to predict and evaluate how to finish these cases.

9) Course Outline.
9) Course Outline.
Week (1) Topic: Introduction and orientation.
Week (2) Topic: Cases follow up and discussion.
Week (3) Topic: Cases follow up and discussion.
Week (4) Topic: Cases follow up and discussion.
Week (5) Topic: Cases follow up and discussion.
Week (6) Topic: Cases follow up and discussion.
Week (7) Topic: Cases follow up and discussion.
Week (8) Topic: Cases follow up and discussion.
Week (9) Topic: Cases follow up and discussion.
Week (10) Topic: Cases follow up and discussion.
Week (11) Topic: Cases follow up and discussion.
Week (12) Topic: Cases follow up and discussion.
10) Method of Teaching:
   Lectures and illustrations format

11) Evaluation:
   This is a pass and fail course and the students are evaluated by their performance, attendance and discussion. The list of reading(s) should be given to the students at the beginning of the course.

12) Grading:
   This is a pass and fail course.

13) Course Director:
   The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and any required change or changes in the course.

14) Course Revision:
   This course contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course.

15) Course Approval:
   The course and its contents was approval at the meeting number (…………..) date (…………….).
King Saud University

College of Dentistry

Department of Preventive Dental Science

Division of Orthodontics

Evidence Based Orthodontic Seminar

PDS 557
1) Course Title : Evidence Based Orthodontic Seminar

2) Course Code and Number : PDS 557

3) Credit Hour : One credit hour.

4) Contact Hour : Two contact hours.

5) Pre-requisite and or Co-requisite : PDS 544 and PDS 551.

6) Course Level : Third Year (Whole Year).

7) Course Description:
   This orthodontic seminar course is focused on the evidence based orthodontics. The seminar should cover the orthodontic topics in the literatures based on the scientific evidence. The topics were covered during the PDS 544 and PDS 551 courses. This course of seminar is formulated to teach the student how to perform in depth search of the literature(s) for the scientific evidences related to the specified topic. The result of the search should be written according to the guidelines outlined in “Journal of Evidence Based Dentistry”. The written topic is distributed to the class for quiz and scientific discussion during the presentation.

8) Course objectives:
   Upon completion of the course, the students will be able to:
   • Search and review the appropriate literatures for specific topic based on the evidence based orthodontics.
   • Prepare written review of a topic according to the guidelines outlined in the “Journal of Evidence Based Dentistry”.
   • Preparing 10 multiple choice questions from the written review as quizzes for the class.
   • Oral presentation of the reviewed topic.

9) Course Outline.
   Week (1) Topic: Introduction and orientation.
   Week (2) Topic: Topic selection and preparation.

*** End of First Semester ***

Week (16) Topic: Topic presentation and discussion.
Week (17) Topic: Topic presentation and discussion.
Week (18) Topic: Topic presentation and discussion.
Week (19) Topic: Topic presentation and discussion.
Week (20) Topic: Topic presentation and discussion.
Week (21) Topic: Topic presentation and discussion.
Week (22) Topic: Topic presentation and discussion.
Week (23) Topic: Topic presentation and discussion.
Week (24) Topic: Topic presentation and discussion.
Week (26) Topic: Topic presentation and discussion.
Week (27) Topic: Topic presentation and discussion.
Week (28) Topic: Topic presentation and discussion.
Week (29) Topic: Topic presentation and discussion.
Week (30) Topic: Topic presentation and discussion.

10) Method of Teaching:
Seminar and illustrations format

11) Evaluation:
This is a pass and fail course and the students are evaluated by their performance, attendance and discussion. The list of reading textbook(s) should be given to the students at the beginning of the course.

12) Grading:
This is a pass or fail course. The grading of the course is [P] for pass student who satisfied the requirement of passing the course, [F] for fail student who did not satisfied the requirement of the course.

13) Requirement for the pass mark:
The following are the requirements for the pass mark of the course;
  • Reviewing minimum of four topics.
  • Typing the reviewed topic as a review article.
• Presentation of the reviewed topic followed by scientific discussion,
• Preparing 10 multiple choice questions for each topic as quizzes for
  the remaining students before the presentation.
• Active participation during the scientific discussion.
• Passing 60% of all the quizzes questions.
The student must understand the requirements of the course and Procedures
hard to satisfy fulfilling the requirement for the pass mark.

14) References:
   A) Textbook(s) and Selected Article(s).
       After selecting the topics for literature reviewing the student must
       reach for the key reference articles, guided by the reference textbook
       that covered the selected topic. In addition the student must cover the
       updated knowledge from the most recent textbook(s) and published
       articles related to the topic under reviewing.

15) Course Director.
    The course director must understand the course and its content and
    Procedures to be delivered to the students as approved. The course director
    should write to the program director at the end of each academic year report
    regarding the course progress and any required change or changes in the
    course.

16) Course Revision.
    This course contents should be revised at last every five years by the
    curriculum committee and or by subcommittee specialized in the topics of the
    course.

17) Course Approval.
    The course and its contents was approval at the meeting number (…………..)
    date (…………..).
King Saud University  
*College of Dentistry*  
Department of Preventive Dental Science  
Division of Orthodontics

1) **Course Title** : Orthodontic Clinic [III].

2) **Course Number and Code** : PDS 558

3) **Credit Hour** : Three credit hours.  
Two and half contact hours per one credit hour.

4) **Pre-requisite and or Co-requisite** : 545 PDS, 546 PDS, 554 PDS, and 556 PDS.

5) **Course Level** : Third Year (Whole Year).

6) **Course Description**:
   This course is the fifth and the last of a series of clinical courses offered to the orthodontic postgraduate students. It is a continuation of the courses “545 PDS, 546 PDS, 554 PDS, and 556 PDS”. In this clinical course the students will finish the treatment of patients that was started and continued in the previous clinical courses. The post treatment retention, recall appointment and maintenance procedures should be followed. The students should submit to the program director the full records of all the cases from the start to finish with signed documentation of the treatment plan and all the clinical procedures.

7) **Course objectives**:
   By this stage the postgraduate students should be able to;
   - Treat orthodontic patients to the finishing stage.
   - Close all extraction spaces for the extraction cases.
   - Maximum intercuspation of posterior segments.
   - Produce normal overbite and overjet.
   - Produce class I molar and canine relationships
   - Produce normal root angulation and root parallelisms.
   - Produce normal occlusion with group function, canine guidance and anterior guidance.
   - Identify the clinical features of the finishing stage.
   - Decide the proper timing for debonding of fixed appliance.
   - Debonding of appliance and removal of the remnants of adhesive.
8) Course Outline.

Week (1) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (2) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (3) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (4) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (5) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (6) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (7) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (8) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (9) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (10) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (11) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (12) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (13) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (14) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (15) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

***** End of semester – Continue second semester *****

Week (17) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (18) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (19) Topic: Clinical Procedures.
Week (20) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (21) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (22) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (23) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (24) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Continue – Finishing Stage and Submit All Cases

Week (26) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (27) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (28) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (29) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Week (30) Topic: Clinical Procedures.
Continue – Finishing Stage and Submit All Cases

Note; the students should fulfill the requirements of the clinical courses.

***** End of the academic year– End of all clinical courses *****

9) Requirements of the clinical courses:
The requirements of passing the clinical courses (545PDS, 546PDS, 554PDS, 556PDS, and 559PDS) are to finish at the end of the clinical course 559PDS the treatment of a minimum of 45 patients utilizing different treatment methods and techniques to a very high standard. The students must submit to the program director at the end of the clinical course (559PDS) the full records of a minimum 45 patients from the start to the finish with signed documentation of the treatment plan and the clinical procedures. During the clinical courses the students is allowed to treat up to 65 patients. However, the achievement of the pass mark student could be as follow;

- 25 Patients - Conventional orthodontic treatment
- 10 Patients - Interceptive orthodontic treatment
- 5 Patients - Multidisciplinary treatment
- 5 Patients - Finishing of referred cases.
- 45 Patients - Total number of treated patients.

10) Method of Teaching:
- Clinical demonstrations.
- Clinical supervisions.
11) Evaluation and Grading:
This is a pass or fail course. For pass mark the students must fulfill the requirement of finishing the treatment of 45 patients. The grading of the course is (P) for pass student who satisfied the requirement of the clinical courses, (F) for fail student who did not satisfied the requirement of the clinical courses, and (L) for incomplete for the student how require time to finish the requirement.

12) References:
See the list in courses PDS 540, PDS 541, PDS 542, and PDS 545.

13) Course Director:
The course director must understand the course, its content and procedures to be delivered to the students as approved. The course director should write to the program director at the end of each academic year report regarding the course progress and any required change or changes in the course.

14) Course Revision:
This course contents should be revised at last every five years by the curriculum committee and or by subcommittee specialized in the topics of the course.

15) Course Approval:
The course and its contents was approval at the meeting number (…………....) date (…………….).