



MASTER OF ORAL AND MAXILLOFACIAL SURGERY

GUIDEBOOK FOR CANDIDATES



SCHOOL OF DENTAL
SCIENCES
UNIVERSITI SAINS MALAYSIA
HEALTH CAMPUS

2020



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1. INTRODUCTION

The Master of Oral and Maxillofacial Surgery is a surgical specialty program, which will be offered by the School of Dental Sciences, Universiti Sains Malaysia. The program is a continuous 48-month course duration that prepares the graduate for the practice of Oral and Maxillofacial Surgery.

Oral and Maxillofacial Surgery covers that part of surgery which deals with the diagnosis, surgical and adjunctive treatment of diseases, injuries and defects of the human jaws and associated maxillofacial structures. The four-year program is designed to prepare residents for a career in education, research, or clinical practice in the specialty of Oral and Maxillofacial Surgery. Clinical training is aimed at providing the resident with the broadest possible exposure to oral and maxillofacial surgery including : dentoalveolar surgery, trauma, orthognathic, craniofacial surgery, temporomandibular joint surgery, pre-prosthetic, reconstructive, head and neck oncology surgery, implant surgery, treatment of pathology and cosmetic surgery.

The Oral and Maxillofacial Surgery Department at School of Dental sciences, Universiti Sains Malaysia will be conducting this program. This program will prepare the candidate for holistic management of patients in the Oral and Maxillofacial Surgery specialty. The scope of Oral and Maxillofacial Surgery and length of training fulfills the guidelines of training defined by the Asian Association of Oral and Maxillofacial Surgery (2005).

2. GENERAL OBJECTIVES

The Master of Oral and Maxillofacial Surgery degree is designed to provide candidates with the opportunity to advance their knowledge and skills in the specialty of Oral and Maxillofacial Surgery. The program is designed to facilitate the advanced development of clinical, academic and research skills necessary for them to further their career in academia, research or specialty practice. This course provides the educational component required for specialist training.

3. SPECIFIC OBJECTIVES

On completion of the Master of Oral and Maxillofacial Surgery course, the candidates should be able to :

- 1) Be exposed to the full scope of oral and maxillofacial surgery.
- 2) Provide the candidates with knowledge in medical and surgery relevant to oral and maxillofacial surgery.
- 3) Provide the candidates with knowledge of basic sciences relevant to clinical applications and research.
- 4) Provide the candidates with clinical skills training in oral and maxillofacial surgery.
- 5) Provide the candidates with good problem solving ability in the management of oral and maxillofacial diseases.
- 6) Expose the candidates to multidisciplinary approach in management of oral and maxillofacial problems.
- 7) Maintain self- development by continuing education and knowledge updating.
- 8) Prepare individuals for a career in the specialty of oral and maxillofacial surgery in Malaysia and to be a leader in a multi-disciplinary team.

4. PROGRAM STRUCTURE

The **Master of Oral and Maxillofacial Surgery** program is a coursework program. This program consists of three phases: Phase I, II and III.

i **PHASE I** is the first year of the Master of Oral and Maxillofacial Surgery program. It comprises of instructions in Basic Medical and Dental Science subjects such as Pathology, Physiology, Biochemistry, Microbiology, Anatomy and Histology over a period of six (6) months. The candidates have to sit for their Basic Medical Sciences examination at the end of semester I Year 1. The final six (6) months of Year 1 comprises of General Dentistry lectures, attachment in the oral maxillofacial unit as well as introducing the students to research methodology and biostatistics.

ii **PHASE II** is the second year of the program. It comprises of a research component and clinical attachment over a period of 12 months including training in the Oral and Maxillofacial and Head and Neck Surgery in USM.

iii **PHASE III** is the third and fourth year of the program. Year three consists of course work such as lectures, seminar and review of past year questions as a preparation for the students to sit for their Third Year examination. There will be a hospital residency training program at the selected departments in HUSM (12 months). The hospital residency training program includes rotations in Anaesthesia, Internal Medicine, General Surgery, ORL and Accident & Emergency Unit.

iv The Year Four program comprises of a three (10) month clinical attachment in the specialty, either in the Faculty of Dentistry, University of Malaya or other clinical training centers recognized by the University. It also includes research component leading to the submission of dissertation followed by a defense viva.

**OUTLINE OF
MASTER OF ORAL AND MAXILLOFACIAL SURGERY
PROGRAM**

Phase	Year	Duration	Contents
I	1	6 months	Basic Medical and Dental Sciences <u>Assessment:</u> Basic Medical Sciences Examination.
		6 months	Introduction to Research Methodology and Biostatistics Lectures on various specialties of Dentistry Clinical Practices <u>Assessment:</u> Continuous Assessment
II	2	12 months	Research Project Clinical training <u>Assessments:</u> Continuous Assessment
III	3	6 months	Research Hospital residency training <u>Assessment:</u> Continuous Assessment Third Year Examination
		6 months	Research Hospital residency training <u>Assessments:</u> Continuous Assessment

	4	10 months	Specialist training at recognized centers <u>Assessments:</u> Submission and Defense of Dissertation Continuous Assessment Final Examination
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5. DETAILS OF STUDY PROGRAM

In general, approximately 50% of time in the program is committed to clinical training and experience. The remainder of the time is committed to coursework (20%) and research (30%). This distribution is in accordance with the international best practice for clinical specialization in dentistry.

The clinical training and exposure are in the disciplines of Oral and Maxillofacial Surgery, Otorhinolaryngology, General Surgery, Internal Medicine, Anaesthesiology, Accident & Emergency Unit.

The candidates will also be required to participate in the undergraduate teaching programs of the School at an appropriate level, as part of their training. This will normally consist of preclinical and clinical supervision of undergraduate students, for at least one session per week throughout the Master of Oral and Maxillofacial Surgery program.

YEAR 1

The candidates will study Basic Medical and Dental Sciences subjects for 6 months and sit for Basic Medical Sciences Examination in February. The candidates will also need to undertake clinical training in Oral and Maxillofacial Surgery and lectures in general dentistry for the final six months.

They will also attend Research Methodology and Basic Statistics classes to introduce them to critical analysis of literature, planning a research design and protocol and writing a dissertation. This is intended to assist them to develop the necessary analytical and writing skills that are needed for dissertation preparation and publication. Identification of suitable study area and discussions regarding research projects with respective supervisors will be carried out during the final six months of Year 1.

ASSESSMENTS :

Basic Medical Sciences Examination - Must pass to be promoted to Year 2**

Continuous Assessment

- ** i. Students must pass at least 4 out of 6 subjects.**
- ii. Failed 1-2 subjects, only re-sit for failed subjects.**
- iii. Failed 3-6 subjects must re-sit for all subjects (repeat Year 1)**

YEAR 2

Embarkation of research projects shall start early, as soon as the proposal has been approved. The students continue their research project and data collection and analyses during Year 2 & 3. Clinical exposure over a period of 12 months involves training in the Oral and Maxillofacial and Head and Neck Surgery specialty in HUSM.

The candidates will observe and manage cases that are of increasing complexity. They will also need to present some seminars on more advanced topics at regular intervals. Some multidisciplinary seminars involving other disciplines, such as Orthodontics, Prosthodontics, Paediatric Dentistry and others will be carried out to render the candidates with the multidisciplinary approach of managing Oral Maxillofacial cases.

Assessment includes continuous assessment based on clinical logbook. The students will need to present some seminars regarding certain topics.

Assessment:

Continuous Assessment – Must be satisfactory to be promoted to Year 3

YEAR 3

The hospital residency training program at selected departments in HUSM (12 months) includes rotations in ORL, Anaesthesia, Internal Medicine, General Surgery and Accident & Emergency unit.

Continuous assessment will be based on overall clinical performance including patient management throughout the period. Patient cases are folioed and will be presented at regular intervals throughout the program. The candidate will also need to present some seminars on selected topics on regular basis and review some past year questions as a preparation for the candidates to sit for their FRACDS Final Examination and satisfactory research progress.

Assessment includes end of Year written and clinical examination (Third Year Examination)

ASSESSMENT:

Third Year Examination – Must pass ** to be promoted to Year 4.

Continuous Assessments

****i. Must pass one out of two components to enter Year 4, but cannot sit Final Year 4 examination.**

ii. Must pass both components to sit Final Year 4 examination.

YEAR 4

The candidates will undertake their clinical attachment in the Oral and Maxillofacial surgery unit at selected centers recognized by the university over a period of ten (10) months in Year 4. A local supervisor will be selected to assist and monitor the candidate's progress throughout the period.

The candidates will see and manage cases that are more complicated in their final year of

clinical practices. They will also need to present some seminars on more advanced topics at regular intervals. Some multidisciplinary seminars involving other disciplines such as Restorative and Orthodontics may be carried out to render the candidates with multidisciplinary approach in managing certain dental cases. Continuous assessment is based on clinical logbook

Submissions of dissertation shall be done three months before the end of year 4, followed by a defense viva. The candidates are also encouraged to publish their work and present at the national and/or international dental research conference.

As part of their examination, the candidates will present their case reports based on cases that they had encountered and managed.

Assessment:

Continuous Assessments

Final Case Presentation

Submission and Defense of Dissertation

} **Must pass to graduate.**

6. TERMS FOR GRADUATION

A candidate will be awarded the Master of Oral and Maxillofacial Surgery degree by Universiti Sains Malaysia on fulfilling all terms for graduation as follows:

1. Pass the Basic Medical Sciences OR FRACDS Primary Examinations OR Approval of exemption from sitting the Primary Examinations by RACDS;
2. Pass the Third Year Examination OR FRACDS Final Examinations;
3. Pass the Final Year 4 Dissertation Viva and Final Case Presentation individually.
4. Complete the Programme within the maximum period of candidature (7 Years)

7. TERMINATION OF CANDIDATURE

A candidate may withdraw from the program by applying in writing to the Dean, School of Dental Sciences.

A candidate may be terminated from the program as recommended by the School Board in following cases:

- i. A candidate whose academic progress and assessment is deemed unsatisfactory by the program coordinator and endorsed by the Postgraduate Committee.
- ii. A candidate whose conduct and discipline is deemed improper as recommended by the academic supervisor in the supervisor's report and endorsed by the Postgraduate Committee.
- iii. A candidate who is found guilty of committing an offence against the university rules and regulations.
- iv. A candidate who is convicted of crime.
- v. A candidate who fails to register at the beginning of each semester without approval from the university.

POSTGRADUATE ORGANISATION

DEAN

Associate Professor Dr. Mohd Fadhli Khamis

DEPUTY DEAN (ACADEMIC, CAREER & INTERNATIONAL)

Associate Professor Dr Norkhafizah Saddki

POSTGRADUATE COORDINATOR - RESEARCH

Dr. Wan Nazatul Shima Shahidan

PROGRAM CHAIRPERSON –

MASTER OF RESTORATIVE DENTISTRY (CONSERVATIVE)

Dr. Rabihah Alawi

PROGRAM CHAIRPERSON –

MASTER OF RESTORATIVE DENTISTRY (PROSTHODONTICS)

Dr. Nor Aidaniza Muttlib

PROGRAM CHAIRPERSON –

MASTER OF RESTORATIVE DENTISTRY (PERIODONTICS)

Associate Professor Dr Erry Mochamad Arief

PROGRAM CHAIRPERSON –

MASTER OF ORAL AND MAXILLOFACIAL SURGERY

Dr. Marzuki Omar

PROGRAMME CHAIRPERSON –

MASTER/DOCTOR OF DENTAL PUBLIC HEALTH

Professor Dr Normastura Abd Rahman

POSTGRADUATE STUDIES UNIT

Assistant Registrar

Ms.Masdira Muhamad

Executive Officer

Ms. Sharifah Mastura Syed Mustafar

Administration Assistants

Coursework Mode Program

Ms. Wan Nor Azlin Wan Azlan

Dental Public Health Program

Ms. Normin Nordin

Research Mode Program

Ms. Marina Che Mat Nawi

RESEARCH PROPOSAL PRESENTATION FORMAT

THE RESEARCH PROPOSAL SHOULD BE DIVIDED INTO THE FOLLOWING SECTIONS :

Title of proposal

The title should be concise and informative not exceeding 150 characters with spaces.

Introduction

The introduction should clearly describe the background, objectives (both general and specific), hypothesis, conceptual framework, and rationale of the study.

Literature review

A literature review should describe the critical points of current knowledge on the reasearch topic. A good literature review is characterized by; a logical flow of ideas; current and relevant references with consistent, appropriate referencing style; proper use of terminology, and an unbiased and comprehensive view of the previous research on the topic.

Methodology

This section should describes what you will do and how you plan to do it. Essentially, the information here allows others to reproduce your work. It also allows readers to assess the credibility of your work. These include:

1. Study design
2. Study area
3. Study population – reference population, sampling frame
4. Sample size calculation
5. Selection of study subjects with inclusion & exclusion criteria
6. Sampling method(s) used
7. Research tools & data collection
8. Statistical analysis to be used
9. Requirement of informed consent from subjects
10. A flow chart is required to summarise the materials and methods.

Expected results

These should be presented in the forms of dummy tables or graphs.

Time Plan

A proposed schedule of research activities from start till finish should be presented in a Gantt chart.

Budget proposal

An estimation of budget should be presented

References

References should list all sources cited in the proposal. Arrange the citations in alphabetical order by the last name of the first author without numbering in the text. Cite article as e.g. (Kannan et al., 2008) and (López-Jornet, 2006).

RESEARCH DISSERTATION FORMAT

THE DISSERTATION MUST ADHERE TO TECHNICAL REQUIREMENTS AS FOLLOWS:

The report must not exceed 15,000 words.

- Reports are to be typed or printed on one side of A4 white paper (80 g/m²).
- Double spacing is used in all parts of the report.
- Font type should be in Times New Roman or Arial & Font Size is 12
- There must be a space of at least 4 cm from the left-hand margin of the page and 2.5 to 4.0 cm from the other margins of the page.
- Pages should be numbered, placed at the right hand corner of the bottom of each page beginning with the title page.
- The dissertation be should be divided into the following sections:
- Title of report
- This page contains:
- Full title of the dissertation not exceeding 150 characters with spaces.
- Full name of candidate
- Name of program
- Academic year of submission
- Acknowledgements
- These are to recognize those who have provided assistance to the research and sponsors providing financial support.
- Table of contents
- A list of all contents included in the report with the correct page number(s).
- List of tables
- List of figures
- List of abbreviations
- Definition of terms

Abstract

An abstract of not more than 300 words of the research should be structured into

subheadings as follows; Background, Methodology, Results, Conclusions. Abstract should be prepared in both English and Bahasa Malaysia.

Introduction

The introduction should clearly describe the background, objectives (both general and specific), hypothesis, conceptual framework, and rationale of the study.

Literature review

A literature review should review the critical points of current knowledge on a particular topic. A good literature review is characterized by: a logical flow of ideas; current and relevant references with consistent, appropriate referencing style; proper use of terminology, and an unbiased and comprehensive view of the previous research on the topic.

Methodology

This describes what was done and how it was done. Essentially, the information here allows others to reproduce your work. It also allows readers to assess the credibility of your work. These include:

1. Study design,
2. Study area,
3. Study population – reference population, sampling frame
4. Sample size calculation,
5. Selection of study subjects with inclusion & exclusion criteria
6. Sampling method(s) used
7. Research tools & data collection
8. Statistical analysis used
9. Requirement of informed consent from subjects
10. A flow chart is required to summarise the methodology.

Results

Results should be presented in a logical sequence in text, tables and illustrations. Subheadings may be used to enhance clarity or to call attention to the most significant findings. Data appearing in tables or figures may be summarized but not duplicated in the text. Tables and figures should be numbered in the order in which they are described and cited in the text.

Discussion

This section should explain and interpret the results with a scientifically critical view of previously published works in the field. Repetition of the data already presented in the result section should be avoided. Limitations of the study should be included.

Conclusions and Recommendations

REFERENCES

References should list all sources cited in the paper. Arrange the citations in alphabetical order by the last name of the first author without numbering in the text. Reference section should also be typed in double spaces. Cite article as e.g. (Kannan et al., 2008) and (López-Jornet, 2006).

1. Standard journal article

References to journals should provide the name(s) of the author(s), year, title of the paper and journal, volume and issue number, and page numbers. The journal abbreviations applied in the PubMed/ MEDLINE should be used.

- Kannan TP, Azman BZ, Ahmad Tarmizi AB, Suhaida MA, Siti Mariam I, Ravindran A and Zilfalil BA (2008). Turner syndrome diagnosed in northeastern Malaysia. *Singapore Med J*, 49(5): 400-404.

2. Book

References to books/monographs should give the name(s) of the author(s), year, title of book, edition number, place of publication and publisher.

- Conn EE, Stumpf PK, Brueing G and Doi RH (1987). *Outlines of Biochemistry*, 3rd edn. New York: John Wiley & Sons.

3. Chapter in book

References to chapter in books/monographs should give the name(s) of the author(s), year, chapter title, editors, title of book, edition number, place of publication, publisher and page numbers.

- Fejerskov O, Nyvad B and Kidd EAM (2003). Clinical and histological manifestations of dental caries. In: Fejerskov O and Kidd EAM (eds.), *Dental Caries – The Disease and Its Clinical Management*. London: Blackwell Munksgaard, pp 71–97.

4. Internet resources

Apart from the online journals, references from the Internet are completely discouraged as they might not be accurate, current or complete. All authors are required to add as much electronic retrieval information as needed for others to locate the sources they have cited.

- López-Jornet P (2006). Labial mucocele: a study of eighteen cases. *The Internet Journal of Dental Science*, 3(2). Retrieved 7 February 2007, from <http://www.ispub.com/ostia/index.php?xmlFilePath=journals/ijds/vol3n2/Appendices>

LIST OF TEXT BOOKS/ REFERENCES

PERIODONTICS

1. Newman MG, Takei H, Klokkevold PR (2018) Newman and Carranza's Clinical Periodontology. 13th ed., St. Louis, Mo.: Saunders Elsevier.
2. Lindhe J, Lang NP, Karring T (2015) Clinical periodontology and implant dentistry. 6th ed. Oxford: Blackwell Munksgaard
3. Manual Periodontics (2020) School of Dental Sciences, USM
4. FG Serio, CE Hawley (2007). *Manual of Clinical Periodontics*. 2nd ed., Lexi-Comp, Inc.
5. JD Manson (2000). BM Eley *Outline of Periodontics*. 4th ed, Wright.
6. JS Nield-Gehrig, DE Willmann (2003). *Periodontology: Foundations of Periodontics for the Dental Hygienist*. Lippincott Williams & Wilkins.
7. JS Nield-Gehrig (2013). *Periodontal Instrumentation*. Lippincott Williams & Wilkins.
8. LF Rose, BL Mealey, RJ Genco, DW Cohen (2004). *Periodontics: Medicine, Surgery and Implants*. Elsevier Mosby.
9. MA Weinberg, C Westphal, M Palat, MJ Froum (2006). *Comprehensive Periodontics for the Dental Hygienist*. 2nd ed, Prentice Hall.
10. WB Hall (1998). *Decision Making in Periodontology*. 3rd ed. Mosby.
11. WMM Jenkins (1999). Allan CJ. *Periodontics: A Synopsis*. Wright.
12. Dibart Serge. 1st ed. (2010). Practical periodontal diagnosis and treatment planning.

PROSTHODONTICS

1. DW Bartlett, NF Fisher (2004). Clinical Problem Solving in Prosthodontics. Churchill Livingstone, Edinburgh.
2. GA Zarb, CL Bolender, SE Eckert, AH Fenton (2004). *Prosthodontic Treatment for Edentulous Patient: Complete Dentures and Implant-Supported Prosthesis*. 12th ed. Mosby, St. Louis.
3. Heasman, Peter. Master dentistry Vol 2: restorative dentistry, paediatric dentistry and orthodontics (2008). 2nd ed.
4. HT Shillingburg, S Hobo, LD Whitsett. (1997). *Fundamentals of Fixed Prosthodontics*. 3rd ed., Quintessence Publishing Co.
5. J Schmidesser, KH Rateitschak, HF Wolf (2000). *Colour Atlas of Dental Medicine. Aesthetic Dentistry*. Thieme Stuttgart, Germany.
6. Carr, Alan B. (2010). [McCracken's removable partial prosthodontics](#)
7. M Haga, A Nakazawa (2000). *Technique for Porcelain Laminate Veneers. Dental Technique Series 1*. Ishiyaku Euro America Inc, St. Louis.
8. RM Basker, JC Davenport (2002). *Prosthetic Treatment for the Edentulous Patient*. 4th ed.. Blackwell Munksgaard.
9. SF Rosenstiel, MF Land, J Fujimoto (2006). *Contemporary Fixed Prosthodontics*. 4th ed. Mosby, Inc.
10. Fradeani, Mauro. (2008). Esthetic rehabilitation in Fixed Prosthodontics: Prosthetic Treatment, a Systematic Approach to Esthetic, Biologic, and Functional Integration, Vol. 2
11. George, Binu 1st ed. (2006). [Textbook of complete denture prosthodontics](#)
12. Weinberg, Lawrence A. 1st ed. (2003). [Atlas of tooth- and implant-supported prosthodontics](#)

13. Romano, Rafi. 1st ed. (2005). The art of the smile: integrating prosthodontics, orthodontics, periodontics, dental technology, and plastic surgery in esthetic dental treatment
14. Gladwin, Marcia A. 3rd ed. (2009). Clinical aspects of dental materials: theory, practice and cases.
15. Bedrossian, Edmond. 1st ed. (2011). Implant treatment planning for the edentulous patient : a graftless approach to immediate loading
16. Von Fraunhofer, J. A. 1st ed. (2010). Dental materials at a glance.

CONSERVATIVE DENTISTRY

- a. CM Sturdevant (2018). *The Art and Science of Operative Dentistry*. 7th ed. Mosby, St.Louis.
- b. GJ Mount, WR Hume, HC. Ngo, MS. Wolff (Editor) (2016). Preservation and Restoration of Tooth Structure. 3rd ed. Wiley Blackwell
- c. JB Summit, W Robbins, RS Schwartz (2006). *Fundamentals of Operative Dentistry: A contemporary approach*. 3rd ed. Quintessence Publishing Co., Chicago.
- d. KM Hargreaves, LH Berman(2020) Cohen's Pathways of the Pulp Expert Consult. 12th .ed. Mosby.
- e. R Beer, M Baumann(2011). *Colour Atlas of Dental Medicine: Endodontology*. Germany, Thieme.
- f. JS Rhodes, .(2006). Advanced endodontics: clinical retreatment and surgery. 1st ed. Taylor Francis Group
- g. Tronstad, Leif (2009) Clinical endodontics : a textbook.. 3rd ed. Thieme
- h. Van Noort, Richard. (2013). Introduction to dental materials. 4th ed. Mosby Ltd

PAEDIATRIC DENTISTRY

1. American Academy of Paediatric Dentistry Reference Manual, 2007-2008.
2. AC Cameron, RP Widmer (2008). *Handbook of Paediatric Dentistry*. 3rd ed. WB Saunders, Mosby, Inc.
3. SF Malamed (2007). *Medical emergencies in the dental office*. 6th ed. CV Mosby.
4. J Little, D Falace, CS Miler and NL Rhodus(2007). *Dental management of the medically compromised patient*. 7th ed. CV Mosby.
5. D Millet, RR Welbury (2005). *Clinical Problem Solving in Orthodontics and Paediatric Dentistry*. Elsevier.
6. RR Welbury (2005). *Paediatric Dentistry*. Oxford Publications.
7. JR Pinkham (2005). *Pediatric Dentistry – Infancy through Adolescence*. 4th ed. W.B. Saunders Company.
8. KL Jones (2005). *Smith's recognizable patterns of human malformation*. 6th ed. WB Saunders.
9. LB Kaban, MJ Troulis (2004). *Paediatric Oral and Maxillofacial Surgery*. Saunders.
10. RE McDonald, DR Avery (2004). *Dentistry for the Child and Adolescent*. Mosby, Inc.
11. S Tandon (2003). *Textbook of Paedodontics*. Paras Publishing.
12. MS Duggal, MEJ Curzon, SA Fayle, KJ Toumba, AJ Robertson (2002). *Restorative Techniques in Paediatric Dentistry*. Martin Dunitz Ltd.
13. RJ Andlaw, WP Rock (1998). *A Manual of Paediatric Dentistry*. Churchill Livingstone.
14. MEJ Curzon, JF Roberts, DB Kennedy (1996). *Kennedy's Paediatric Operative Dentistry*. Elsevier.
15. RJ Matheson, RE Primosch (1995). *Fundamentals of Paediatric Dentistry*. Quintessence.
16. L Shaw (1994). *Self Assessment Picture Tests in Paediatric Dentistry*, Mosby.

17. PN Baer, SD Benjamin (1974). *Periodontal Disease in Children and Adolescents*. JB Lippincott Company Philadelphia.

ORTHODONTICS

1. W Profitts and H Fields (2007). *Contemporary orthodontics*, 4th ed. St Louis, CV Mosby.
2. Mitchell L. (2007). *An Introduction to Orthodontics*. Third ed. Oxford.
3. Bishara S. (2001). *Textbook of Orthodontics*: Saunders.
4. Graber T, Vanarsdall R, Vig K (2005). *Orthodontics: Current Principles and Techniques*. Fourth ed. Mosby.
5. . Nanda, Ravindra. 1st ed. (2010). *Current therapy in orthodontics*
6. Rakosi, Thomas. 1st ed. (2009). *Orthodontic and dentofacial orthopedic treatment*
7. DH Enlow, MG Hans (1996). *Essential of facial growth*. Philadelphia, Saunders.

ORAL RADIOLOGY

1. White S, Pharoah M (2008). *Oral Radiology: Principles and Interpretation* Sixth ed. Mosby.
2. Whaites E (2007). *Essentials of Dental Radiography and Radiology*. Fourth ed. Churchill Livingstone.
3. Bengel W (2006). *Mastering Digital Dental Photography* Quintessence Publishing.
4. Iannucci J, Howerton L (2005). *Dental Radiography: Principles and Techniques*. Third ed. Saunders.
5. Ahmad I (2004). *Digital and Conventional Dental Photography: A Practical Clinical Manual* Quintessence Publishing.
6. Radiography and radiology for dental care professionals Mason R, Bourne S (1998). *A Guide to Dental Radiography*. Oxford University Press.

HEAD NECK AND DENTAL ANATOMY

1. Gray's Anatomy: *Anatomical Basis of Medicine and Surgery*. (2005). 39th ed., Churchill Livingstone.
2. McGeachie, J. (2005). *Lecture Notes in Anatomy*. Royal Australasian College of Dental Surgeons, Sydney.
3. TW Sadler (2004). *Langman's Medical Embryology*. 9th ed., Lippincott, Williams & Wilkins.
4. McMinn, RM Hutchins, RT Logan, B.M. (2004). *A Colour Atlas of Head & Neck Anatomy*. 3rd ed., Mosby Wolfe.
5. FH Netter (2003). *Atlas of Human Anatomy*. 3rd ed., ICoN Learning Systems.
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7. BKB Berkovitz, GR Hollond, BJ Maxham (2009). 4^{ed} *A Colour Atlas and Textbook of Oral Anatomy*. Wolfe Medical Publications, London.
8. CS Sinnatamby (1999). *Last's Anatomy, Regional and Applied Anatomy* 10th ed., Churchill Livingstone.
9. Fehrenbach, Margaret. 3rd ed. (2007). *Illustrated anatomy of the head and neck*.

DEVELOPMENTAL CRANIOFACIAL BIOLOGY

1. GH Sperber(1989). *Craniofacial Embrology Dental Practitioner Handbook*, Wright London.
2. HC Slavkin (1979). *Developmental Craniofacial Biology*, Lea and Febiger, Philadelphia.

GENETIC SYNDROMES AND DISEASES

1. MM Cohen, Levin, Durtin, RJ Gorlin and JJ Pinborg (1990).*Syndromes of the Head and Neck*. 3rd ed. McGraw Hill Book Co. New York.
2. RM Goodman and RJ Gorlin (1983). *The Malformed infant and Child*. Oxford University Press.
3. RE Stewart, GH Prescott (1976).*Oral Facial Genetic*. The CV Mosby Co. St. Louis.

NEUROANATOMY

1. JA Kiernan. *Barr's*(1998).- *The Human Nervous System - An Anatomical Viewpoint*. 7th ed., Lippincott, Williams & Wilkins.
2. S Goldberg (2002). *Clinical Neuroanatomy Made Ridiculously Simple*. 3rd ed., MedMaster Medical Book.

EMBRYOLOGY

1. L Cochard (2003). *Netter's Atlas of Human Embryology*. ICoN Learning Systems.
2. KL Moore (2003). TVN Persaud,. *Before We Are Born – Essentials of Embryology and Birth Defects*. 6th ed., Saunders.

HISTOLOGY

1. AR Ten Cate (2008). *Oral Histology. Development, Structure and Function*. 7th ed. C.V. Mosby.
2. BKB Berkovitz, GR Holland, BJ Moxham (2009). 4^{ed}. *A Colour Atlas and Text of Oral Anatomy, Histology and Embryology*. 3rd ed. Wolfe.
3. M Tennant (2003). *Lecture Notes in Histology*. The Royal Australasian College of Dental Surgeons, Sydney.

PHYSIOLOGY

1. AC Guyton, JE Hall (2005).*Textbook of Medical Physiology*. 11th ed., Philadelphia, Saunders/Elsevier.
2. L Sherwood (2001). *Human Physiology - from Cells to Systems*. 4th ed., Wadsworth.
3. SF Malamed, KS Robbins (1999).*Medical Emergencies in the Dental Office*. 5th ed. Year Book Medical Publishers.
4. TS Miles, B Nauntofte, P Svensson (2004). *Clinical Oral Physiology*. Copenhagen, Quintessence.

5. T Miles (2003). *Lecture Notes in Physiology*. The Royal Australasian College of Dental Surgeons, Sydney.

CELL-BIOLOGY AND BIOCHEMISTRY

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