POST GRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO, SRI LANKA

PROSPECTUS
FOR
DOCTOR OF MEDICINE (MD)
AND
BOARD CERTIFICATION IN ORTHODONTICS

2013
(WITH AMENDMENTS)

(The amendments are made in 'Red')

SPECIALTY BOARD IN ORTHODONTICS
BOARD OF STUDY IN DENTAL SURGERY

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This prospectus is made under the provisions of the Universities Act, the Postgraduate Institute of Medicine Ordinance, and the General By-Laws No. 1 of 2016 and By-Laws No. 2 of 2016 for Degree of Doctor of Medicine (MD) and Board Certification as a Specialist.

PROSPECTUS

DOCTOR OF MEDICINE (MD) AND BOARD CERTIFICATION IN ORTHODONTICS

1. Introduction

Orthodontics is a clinical specialty comprising of the knowledge and skills required for the management of malocclusions and associated facial deformities.

1.1 Expected Outcomes of the Training Programme

To produce clinically competent, ethical, compassionate and versatile practitioners in the art and science of Orthodontics. The programme shall also provide a basis for graduates to pursue an academic career.

On successful completion of the training and examinations, the trainee shall be awarded the post graduate degree - Doctor of Medicine in Orthodontics (MD Orthodontics) and board certification as a specialist in Orthodontics.

1.2 Course Objectives

The Specialist holding MD Orthodontics shall be able to:

1.2.1 Be competent in the diagnosis and management of diseases relevant to the field of Orthodontics

1.2.2 Participate in the multidisciplinary team management of patients with oro-facial deformities

1.2.3 Have a broad knowledge of the orthodontic literature

1.2.4 Possess applied research skills and contribute to scientific literature

2. Eligibility for the Selection Examination

To be eligible to sit for the Selection Examination and to be selected for admission, a candidate shall fulfill the following criteria:

- Hold a dental degree and registered with the Sri Lanka Medical Council (SLMC), to practice as a Dental Surgeon.

- Completion of at least 1 year in general dental practice in the government, university, armed forces or private sector at the time of closure of applications for the selection examination

3. Number to be admitted

The number to be admitted from the candidates who shall pass the Selection Examination shall depend on the requirements of the Ministry of Health and the training facilities available, as determined by the BOS. The number to be admitted each year shall be indicated in the circular/news paper advertisement calling for applications. The number may vary from year to year.

4. Selection Examination

To enter the training programme a candidate is required to pass the Selection Examination. The permitted number of attempts is unlimited.The examination aims to test the knowledge of the candidates in General and Applied Anatomy, Oral & Dental Anatomy and Oral Physiology, Applied Physiology and Biochemistry, General Pathology including Microbiology. The emphasis shall be on aspects related to the above subjects, which are of importance in clinical and practical applications in the practice of the specialty of Orthodontics.

The selected candidates are required to follow the entire duration of the MD Orthodontics course with minimum of 80% attendance in each component of the training. The Trainees who are unable to fulfil this requirement due to a valid reason shall be given a chance to repeat the required appointment/s by the Board of Study .However, the trainee shall not be able to sit for the MD Orthodontics examination at the end of three and a half years since the date of commencement of his / her training. He / she shall have to sit for the very first exam that will be held after repeating the necessary appointments. The same rule shall apply to the mid course assessment.

4.1. Selection Examination Curriculum

The examination questions shall be based on the curriculum in **Annex 1**

4.2. Components and Format of the Selection Examination The examination shall consist of two parts - A and B.

a. Part A

Part A shall consist of Two MCQ papers.

The **MCQ paper 1** shall consist of 40 questions

a) General Anatomy Questions -10 T/F questions
b) Dental Anatomy Questions - 10 T/F questions
c) Physiology Questions - 10 T/F questions
d) Pathology and Microbiology - 10 T/F questions

Duration 2 hours
Marks 200

The **MCQ Paper 11** shall consist of 60 questions

a) General Anatomy Questions - 15 SBA/SCA questions
b) Dental Anatomy Questions - 15 SBA /SCA questions
c) Physiology Questions - 15 SBA/SCA questions
d) Pathology and microbiology – 15 SBA/SCA questions)

Duration -2 hours
Marks - 180

Each correct answer of T/F question shall get 1 mark each (maximum of 5 marks per question) and SBA/SCA question shall have 3 marks per question. There shall be no negative marks for incorrect answers for the SBA/SCA questions. There shall be negative marks for T/F questions which will not be carried over to the next question. Candidate shall answer all questions.

Part A shall be held first. Only the candidates who obtain a minimum of 50% for the MCQ paper (50% both MCQ Papers- MCQ Paper 1 and MCQ paper 11) shall be permitted to proceed to the Part B of the examination . Part B shall be held in not less than three(3) weeks from the date of release of results of part A of the selection examination.

b. Part B

Part B shall consist of three components

1. Paper 11
2. Objective Structured Practical Examination (OSPE)
3. Structured Oral Examination (SOE).

1. Paper 11 - 8 Short answer questions/Structured essay questions (SAQ/SEQ)

Eight (8) SAQ/SEQs consisting 2 Anatomy, 2 Dental Anatomy, 2 Physiology & 2 Pathology questions.

Candidate shall answer all questions. Each question shall be corrected independently by two examiners and the average will be taken as the final mark for each question.

Paper 11 is of 2 hours duration and the marks allocated is 200

2. OSPE -12 stations

05 minutes for each station (one hour)
25 marks for each. Total of 300 marks.
(Anatomy-5, Dental Anatomy-5, and Histology-2)

Each station shall consist of 2 examiners and the marking shall be done independently. The average mark shall be the final mark for each station.

3. SOE – 4 viva boards

15 minutes each examiner on each subject
Marks 150 –per subject (A total of 600 marks)
(One board each in Anatomy, Dental Anatomy, Physiology, Patholology)

Viva Boards shall consist of two examiners, one (1) subject specialist and one (1) clinical specialist.

Marks shall be awarded independently by the examiners in each panel and the average shall be the final mark for each viva.

4.3. Requirements to pass the Selection Examination

1) A CANDIDATE SHOULD PASS ALL 4 SUBJECTS IN ONE SITTING.

2) IN ORDER TO PASS A SUBJECT, CANDIDATE SHOULD OBTAIN A MINIMUM OF 50% IN THE TOTAL MARK IN EACH OF ALL 4 COMPONENTS (PAPER 1, PAPER 11,OSPE & SOE)

	GENERAL ANATOMY	DENTAL ANATOMY & HISTOLOGY	PHYSIOLOGY	PATHOLOGY / MICROBIOLOGY	GRAND TOTAL for 4 SUBJECTS
PAPER 1 (MCQ)	40	40	40	40	
PAPER 11(SAQ/SEQ)	40	40	40	40	
OSPE	10	10	-	-	
SOE	10	10	20	20	
TOTAL MARKS	100	100	100	100	400
PASS MARKS	50	50	50	50	200

4.4. Examiners

Examiners shall be appointed by the Senate/Board of management on the recommendation of the Board of Study.

Examination panels shall consist of subject specialists as well as clinical specialists who are eligible to be examiners according to the criteria laid down by the Post Graduate Institute of Medicine. All components of the examination shall be marked out of 100.

The examiners shall submit model answers for each theory question at the scrutiny board.
If there is a discrepancy of more than 15 marks between the marks awarded by examiners of the same panel, the chief examiner shall have a discussion with the panel of examiners concerned and readjust the marks.

4.5. Allocation

The allocation Board meeting to be held at the PGIM will comprise of officials of the PGIM, nominees of the Board of Study in Dental Surgery and all eligible trainees. A list of available training slots in each centre shall be made available to trainees and allocation shall be based on merit.

5. Expected Competencies of the Training Program

The three essential competencies expected from newly qualified Orthodontists are

- Ability to do the right procedure (Technical Intelligences)

  Key Domains of the above competency shall be

  1. Clinical information gathering
  2. Treatment planning
  3. Treatment procedures

- Correct approach to clinical practice (Intellectual, emotional ,analytical and creative intelligences)

  Key Domains of the above competency shall be

  1. Application of basic clinical sciences
  2. Clinical reasoning and judgment
  3. Communication
  4. Health promotion
  5. Information handling

- Professionalism (Personal Intelligences)

  Key Domains of the above competency shall be

  1. Role of the Orthodontist within the health service
  2. Personal development

Expected learning outcomes are designed to achieve the above competencies in the key domains at the end of the MD Orthodontics training programme.

5.1. Curriculum - Learning out comes in Orthodontics - (Annex 2)

5.2. Curriculum - Learning out comes in General Dentistry subjects - (Annex 3-A)

5.3. Curriculum - Learning outcomes of Plastic Surgery and Paediatric Medicine - (Annex 3-B)

The trainee shall enroll full- time and is required to attend all supervised clinical sessions to establish proficiency in clinical orthodontics. The training program shall include clinical training consisting of diagnosis, treatment planning assessment of new and review patients as well as personal treatment of patients. Teaching and learning methods shall include lectures, tutorials, attending suitable courses, independent study, web based learning, assignments, case presentations, research, and journal clubs. A wide exposure to management of variety of Orthodontic problems including those which demand interdisciplinary management, preventive and interceptive management is expected.

5.4 Learning Approaches

- shall follow a systematic full time training program
- shall be practice based
- shall adopt Integrated theoretical and practical (clinical) approaches
- emphasis on self- learning
- shall focus from general to more specialized areas

The training program shall consist of

- Clinical training – Clinical training shall include; assessing new and review patients, examination, investigation, diagnosis and treatment planning, as well as personal treatment of patients, which itself would normally occupy 50% of a trainee's time
- In addition to work-based experiential learning, there shall be lectures, staff-led seminars, tutorials and research supervision.
- Training opportunities shall also include clinical meetings, student-led seminars (Journal clubs)

In addition, the trainee shall attend relevant national / international conferences workshops etc . Throughout the training period, the trainee shall be involved in independent study, including reading recommended texts, journals and using computer searches to access appropriate material on the internet.

6. Training Structure, Composition and Duration

The training program shall consist of five stages (Total 5 ½ years).

Stage I – MD Orthodontics selection examination

Stage II – Pre MD training period (3 ½ years)

Stage III – MD Examination

Stage IV – Post MD training – Local (1 year)

Overseas (1 year)

Stage V – Pre Board Certification Assessment

The total duration of the training programme shall be five and a half years (66 months) which includes four and a half years training in approved centers in Sri Lanka and one year at a recognized centre overseas. The MD Orthodontics examination shall be held at the end of three and a half years of local training. This shall be followed by a one year post MD training at the main training centre and another recognized local centre/centers and one year at a recognized centre overseas. After completion of all five stages of the training program, Pre Board Certification assessment shall be held.

A trainee who passes the Pre-Board Certification Assessment and fulfill other requirements of the PGIM shall be eligible to be recommended for the board certification as a Specialist in Orthodontics.

6.1. Structure of Pre MD Training

6.1.1. Stage 1

The Duration of stage 1 shall be 12 months.

The stage 1 of training program shall be carried out at an Orthodontic unit approved by the Board of Study in Dental Surgery which shall be considered as the **Main Training Center**. The Consultant Orthodontist In charge of the main training center shall be the **Educational Supervisor** for the trainee. The educational supervisor shall oversee all the academic activities and conduct of the trainee.

The final 13 weeks of stage 1 shall be spent at the faculty of Dental Sciences, University of Peradeniya following six appointments in General Dentistry-

Conservative Dentistry	3 weeks
Paedodontics	2 weeks
Periodontology	2 weeks
Prosthetic Dentistry	2 weeks
Dental Radiology	2 weeks
Oral Medicine	2 weeks

6.1.2. Stage 2

The **duration** of stage 2 shall be 12 months.

The stage 2 shall be spent at the main training center continuing the clinical training in Orthodontics. During stage 2 the educational supervisor shall direct the trainee to a recognized centre to complete a five week (25 sessions) appointment in Oral and maxillofacial Surgery and a two week appointment (14 session) in community dentistry at a suitable time. These appointments shall be completed on a part time basis and the time table should be drawn up by the Board of Study in Dental Surgery in consultation with the relevant supervisors.

6.1.3 Stage 3

The duration of stage3 shall be 18 months.
Stage 3 shall be spent at the main training centre continuing the clinical training in Orthodontics.

7. Supervision

There are four levels of training supervision:-

1. Trainer in the surgery directly supervising or demonstrating techniques
2. Trainer present in the clinic available to assist or advise
3. Trainer available within the hospital
4. Trainer available from outside the hospital, as for emergency on-call, academic activities

The trainer allocated to a particular clinic duty is responsible for decisions relating to the nature of supervision. If the trainer is not in the clinic, the trainee must know where to contact help. **Trainers should be away from the clinic only in exceptional circumstances.** Close supervision of the training program is essential.

Responsibilities of the Trainers

The educational supervisor is responsible for monitoring the trainee's progress and ensuring that any difficulties are identified and resolved as rapidly as possible. Clinical supervisors (The other consultant orthodontist and specialists of relevant field who work frequently with the trainees and closely involved in their training) will also monitor the trainee's progress during the short appointments.

Further details on Trainer responsibilities are given in Annex 4

8. Documents to be maintained by the trainee during PRE MD training

8.1 Pre MD Log Book summary – Minimum number of entries are specified.

Format of the Log Book- Annex 5

A printed log book is to be obtained from the PGIM at the commencement of the training.

8.2 Case Records of patients

Trainee shall keep records of the patients he/she has under treatment. Records shall include all patients who are under, or have completed, treatment. Each patient record shall contain data about:

- demographic information
- diagnosis
- Indices
- treatment
- adjunctive treatment from other disciplines
- outcome, including complications
- retention
- consultant responsible

While most of the record entries shall relate to cases requiring active orthodontic treatment, it shall also represent the full range of the trainee's clinical activity.

At the end of the pre MD training program five selected cases from this pool shall be fully documented and complied as a case book and submitted to the PGIM two months prior to the MD Orthodontics exam. Further details are given in Annex 10 (A). In addition, three fully documented case histories of rather complex orthodontic problems which demanded interdisciplinary management shall be included in the POST MD evidence portfolio. The trainee should have been actively involved in management of these three cases (at local / overseas training center). Further details given in- Annex 6

8.3. **Progress Report**

Progress reports at 6 monthly intervals shall be forwarded by the trainers to the Director/ Postgraduate Institute of Medicine during the entire training program.

Progress report - For pre MD training - **Annex 7**

For post MD training - **Annex 11**

8.4. **Peer Team Rating (PTR) forms (Annex 8)**

Satisfactory Peer Team Rating (PTR) forms shall be completed and return to the Director/ Postgraduate Institute of Medicine every six months as specified in the general rules of the Postgraduate Institute of Medicine.

9. Mid Course Formative Assessment

9.1. In the middle of the second stage the candidate shall be given an opportunity to critically analyze his or her work with an assessment consisting of:

- Two and a half hour fixed Orthodontic appliance practical
  The fixed appliance practical is designed to test the candidate's ability to design and fabricate a fixed appliance.
- Two hour Removable Orthodontic appliance practical
  The removable practical is to assess the candidate's ability to design and fabricate a removable appliance.
- 30 minutes viva based on each component shall be held.

9.2 Structure of the Mid Course Formative Assessment

This assessment shall be held after the first 18 months of the training is successfully completed. A date in the middle of the second year shall be scheduled by the board of study.

9.2.1. Fixed appliance Practical

A. Two and a half hour practical in fixed Orthodontic appliances. The fixed appliance practical is designed to test candidate's ability to design and fabricate a fixed appliance according to the given clinical details and chair-side management of a patient.

B. A 30 minutes viva based on the practical.

The candidate shall be given the opportunity to critically analyze his / her work.

9.2.2. Removable appliance Practical

A. Two hour practical on removable Orthodontic Appliances.
The Removable practical is to assess the candidate's ability to design and fabricate a removable appliance suitable to the given malocclusion.

B. A 30 minutes viva based on the practical
The candidate shall be given an opportunity to critically analyze his / her work.

9.3 Marking Scheme

Grade	Description	Detailed description
70-100	Good	Impressive candidate. Well-informed with good manual skills. Good decision making skills confident and good in chair side management of the patient (where applicable). Justifies approaches well.

50-69	Pass	Reassuringly sound performance. Able to justify only some approaches well, but most appear sensible and show adequate level of competency in chair side management of the patient(where applicable). Adequate manual skills.
30-49	Fail	Examiner is uncomfortable with candidate's adequacy. Not much justification of approaches. Not competent in chair side management of the patient (where applicable). Manual skills and other skills tested are, on balance, unacceptable.
0 -29	Poor	Questionable approaches, sometimes neither justifiable nor justified. Poor manual skills and poor chair side management of the patients(where applicable). Potentially risky in practice.

9.4 Examiners

A panel of two examiners for each component along with the educational consultant/s as observers shall be appointed by the PGIM.

9.5 Requirements to Pass the Mid Course Assessment

Marks shall be awarded out of 100 for each component.

Each examiner shall award marks independently and the average mark shall be considered as the final mark for each component.

The average of the total marks obtained for both components shall be the final mark for the mid course assessment.

A candidate should obtain minimum 50 marks for each component and an average of 60% or more as the final mark to pass the mid course assessment.

The marks of this examination shall not be carried forward to the MD Orthodontics examination. However, passing this assessment is an eligibility requirement for MD Orthodontics examination.

9.6 Unsuccessful Candidates

The candidate who fails this assignment shall be given two more attempts before the MD examination in Orthodontics. If the candidate is unable to fulfill this requirement he or she shall not be allowed to sit for the MD examination in Orthodontics at the end of the third stage. A candidate who fails this assessment can sit for this assessment within the following 18 months and if successful, shall be allowed to sit for the MD examination in Orthodontics at the end of the third stage.

10. Eligibility requirements to sit the MD Examination in Orthodontics

1. A trainee shall be eligible to sit for the MD examination in Orthodontics on the successful completion of 42 months of training described above.
2. A minimum **80% attendance in every component of training.**
3. Satisfactory pre-MD progress reports acceptable to the PGIM
4. Satisfactory PTR reports
5. A Copy of the completed Case Book acceptable to the Board of Study, PGIM
6. Passed the Mid Course Assessment held during the pre-MD training programme
7. Submission of the completed Log book along with the case book.

A trainee who does not fulfill this requirement shall not be eligible to sit for the MD Orthodontics examination at the end of three and a half years.

Under such circumstances the Board of Study in Dental Surgery shall decide on how the trainee should repeat the necessary appointment /appointments before sitting for the MD Orthodontics examination at a future date. In case of unsatisfactory report/s from the trainer/s, the BOS/Dental Surgery shall take appropriate action according to the general rules and regulations of the PGIM.

11. MD Examination

11.1 Objective of the MD Orthodontics Examination

MD Orthodontics examination is designed to assess the candidate's knowledge and competency in Orthodontics and related subjects in order to practice as a Specialist Orthodontist.

The questions for all components of the examination shall be based on the blueprint.

Blueprint for the MD Orthodontics examination is given in **Annex 2-B**

11.2 Format of the examination.

The examination shall consist of 6 components carrying equal weighting .These components are divided into two main parts-Parts A and B

A. **Orthodontics**

B. **General Dentistry subjects:**

Oral and Maxillo-facial Surgery

Restorative Dentistry including Dental Material Sciences

Prosthetic Dentistry

Periodontology

Oral Medicine

Oral Radiology

Paedodontics

A. Orthodontics

The candidate's knowledge and skill in various aspects of Orthodontics as specified in the learning outcomes shall be assessed in this part. There are 4 components to this part.

C1. Written paper

The written examination shall be of three hours duration and consist of 20 multiple short answer (MSA) questions as specified in the learning outcomes.

All Questions shall carry equal marks.

C2. Clinical examination in Orthodontics

This shall comprise of a two-hour examination (on four patient histories and related diagnostic records). The Candidate shall be given fifteen minutes to study each patient history, followed by a fifteen minute structured oral examination on each history. The Candidate is expected to critically analyze diagnostic records including special investigation results and demonstrate an understanding of the principal features of the case and discuss an appropriate treatment plan.

Allocated time – A total of one hour for examination of records and one hour for discussion.

For practical purposes this examination shall be carried out in two sessions (one hour each).

C3. Assessment of Case Book

Five fully documented clinical case histories- each describing a patient personally treated by the candidate, shall be submitted by the candidate in duplicate two months prior to the scheduled date of the examination.

The Case book and the discussion based on the case book shall be marked separately out of 50 and a composite mark shall be given out of 100 at the end.

A one hour oral examination (a discussion based on the case book)) shall be conducted on all five cases submitted.

A detailed description on case book requirement is included in Annex 10

C4. Oral examination

A Structured Oral Examination where questions shall be asked on any aspect of Orthodontics as specified in the learning outcomes. Reference shall be made to illustrations, radiographs, study models, appliances and instruments relating to various aspects of clinical Orthodontics.

Allocated time - 30 minutes.

B. General Dentistry subjects

This part of the examination has two components(C5,C6).

Candidate's knowledge and skill in various fields in dentistry relevant to orthodontics shall be assessed in this section as specified in the learning outcomes.

Note - Prosthetic Dentistry and Oral Medicine shall only be assessed in the written Paper.
Oral Radiology shall be assessed only in the Clinical Examination.

C5. Written paper

The written examination shall be of three hours duration and shall consist of 20 multiple short answer questions.

	No. of questions	Weightage
Oral and Maxillofacial Surgery-	4	20%
Conservative Dentistry including		
Dental material science	4	20%
Paedodontics	3	15%
Periodontology	3	15%
Prosthetic Dentistry	3	15%
Oral Medicine	3	15%

(each question shall carry 5% of the total mark)

C6. Clinical examination in General Dentistry Subjects- Short Cases

A diagnostic examination of five sets of patient records related to treatment planning and patient care in Oral Radiology, Paedodontics, Oral and maxillofacial surgery and Conservative Dentistry and Peridontology.

Allocated time – 100 minutes (20 min for each component)

Time allocated for one case is 20 minutes. (10 minutes for the candidate to examine the records and 10 minutes for the oral exam based on the given set of records.)

11.3 Conduct of the examination

The chief examiner and the other local examiners for the MD Orthodontics examination shall be nominated by the Board of Study in Dental Surgery. The board of Study in Dental Surgery shall nominate an external examiner from a recognized overseas center. He / she shall be a qualified Orthodontist and also an examiner in Orthodontics in the respective local body responsible for post graduate Orthodontic education.

The venue shall also be decided by the Board of Study.

11.4 Marking Scheme: MD Orthodontics Examination

Marks shall be awarded out of 100.

The following grades and descriptors are used for all sections of the examination:

Grade	Description	Detailed description
70-100	Good	Impressive candidate. Well-informed, fairly critical. Good decision making skills. Justifies approaches well.
50-69	Pass	Reassuringly sound performance. Able to justify only some approaches well, but most appear sensible. Adequate decision making skills.
30-49	Fail	Examiner is uncomfortable with candidate's adequacy. Not much justification of approaches. Decision making and other skills tested are, on balance, unacceptable.

0 -29	Poor	Questionable approaches, sometimes neither justifiable nor justified. Poor decision making. Potentially risky in practice.

(i) Orthodontic part (Part A) and General Dentistry part (Part B) shall be assessed separately. To pass the examination, a candidate should obtain overall 60% or more for Orthodontics part(the average of the total marks for C1,C2,C3,C4) and overall 50% or more for the General Dentistry part (average of the total marks for C5,C6) .

(ii) If a candidate obtains the required overall aggregate and comes down marginally in one component i.e. If he / she is maximum two marks below the required pass mark only in one component he / she shall be considered to be awarded a pass with the consent of the examiners of that component.

Component	**Maximum Marks**
C1. Written Paper I (Orthodontics)	100
C2. Clinical Examination I (Orthodontics)	100
C3.Case book assessment	100
C4. Oral Examination – Orthodontics	100
C5. Written Paper 2 (General Dentistry)	100
C6. Clinical Examination 2 (General Dentistry)	100
Total	**600**

NOTE

- Paper I (C1-Orthodontics) shall consist of 20 multiple short answer questions .Four examiners (3 local and the external examiner) shall participate. Each examiner shall contribute five questions. Each question shall carry 20 marks. Each set of five questions shall be marked independently by two examiners i.e. The relevant local examiner and the external examiner and the average for each set of five questions shall be calculated. The total mark for Paper 1 shall be awarded out of 100.
- Paper II (C5-General Dentistry subjects) shall also consist of 20 multiple short answer questions. Each question shall carry 20 marks. Each question shall be marked by the local examiner

concerned and the external examiner independently and the average mark for each question shall be calculated.

The final mark for paper ll shall be awarded out of 100. Seven examiners- one each from the seven group II subjects shall participate. Number of questions from each subject shall be according to the weighting given in **11.2** - Section B

- Clinical Examination- Orthodontics

  Four sets of patient records shall be given.

  Four examiners (three local examiners and the external examiner) shall participate.

  Each case record examination shall carry 25 marks.

  For each case record examination two examiners shall participate.(One local examiner and the external examiner). The two examiners shall award marks independently and the average shall be the final mark for each case record examination.

  The final mark for the whole component shall be awarded out of 100.

- Clinical examination – General Dentistry subjects

  Five sets of patients' records shall be given.

  Each short case shall carry 20 marks.

  Each short case shall be marked by the local examiner concerned and the external examiner independently and average mark for each short case shall be calculated.

  The final mark for the whole component shall be awarded out of 100.

- Assessment of case book

  Each set of case histories included shall be assessed prior to the examination by a local examiner and the external examiner appointed by the Board of Study in Dental Surgery.

  The same two examiners shall conduct a discussion based on the case book with the candidate at the examination.

A one hour oral examination (case book discussion) shall be conducted on all five cases submitted.

The marks awarded shall relate to the quality and the accuracy of the records, variety of cases treated, the different techniques used, the outcome of treatment, and the objective assessment of the progress and prognosis of the case.

Case book and the case book discussion shall be marked separately out of 50.

The two examiners shall award the marks independently and the average shall be calculated for each section.

The final mark for the whole component shall be awarded out of 100.

A candidate who is unsuccessful at the MD Orthodontics examination but obtained a pass mark in the case book component shall be exempted from that component for the next two years. The mark obtained at the last attempt shall be carried forward to the next examination.

- Oral Examination - Orthodontics

  Oral Examination shall be on Orthodontics, and three examiners (Two local examiners and the external examiner) shall take part. A structured oral examination shall be held. The three examiners shall award the marks independently out of 100 and the average shall be taken as the final mark.

A quick reference for the examiners

Component	**Parts with weightage**	**maximum marks allowed for the component**
Written I(Orthodontic Theory)	Q1-Q20 Each shall carry 5 marks	100
written II (General Dentistry Theory)	Q 1-Q20 Each shall carry 5 marks	100
Clinical Examination Orthodontics	Case 1 = 25 marks Case 2 = 25 marks Case 3 = 25 marks Case 4 = 25 marks	100
Clinical Examination General Dentistry	Case 1 = 20 marks Case 2 = 20 marks Case 3 = 20 marks Case 4 = 20 marks Case 5 = 20 marks	100

Case book and discussion	Case book = 50 marks Discussion = 50 marks	100
Oral Examination In – Orthodontics	Marked as one component	100
Overall		50% in each component and Overall 60%or above as the total in the four Orthodontic components and 50% minimum total in the two General Dentistry components

- **For each component of the exam the appointed examiners should come to a prior agreement regarding what learning outcomes should be tested and the weighting given for each outcome.**
  Model answers for theory questions should be submitted at the scrutiny board.
- **The average of the marks awarded individually by the panel of examiners shall be the final mark for each component. However, if there is a discrepancy of more than 15 marks between two examiners in one panel, the chief examiner should have a discussion with the panel of examiners prior to the results board and adjust the final mark.**

11.5. Requirements to Pass the MD Examination in Orthodontics

- A minimum of 50 marks each for the C1 ,C2 C3, C4 components
- Minimum 60% average for Part A- (Orthodontics) i.e. The average of the total marks for C1 to C4 components should be either 60% or more.
- A minimum of 50 marks each for the C5 and C6 components
- Minimum 50% average for Part B-(General Dentistry) i.e. The average of the total marks for C5 and C6 should be either 50% or more.

11.6 Number of attempts

The maximum number of attempts allowed for the MD(Orthodontics) Part II Examination shall be **six (6) within a period of eight years from the first attempt**. After the fifth attempt the trainee shall have to complete one year compulsory training in a unit decided by the Board of Study in Dental Surgery before sitting the sixth attempt.

12. Post MD Training

Post MD training shall be carried out in two stages.

Stage One – Local

Stage Two – Overseas

These two stages are interchangeable with approval of the Board of Study. During the post MD period the evidence portfolio shall be maintained. A progress report shall be sent to the PGIM every six months by the trainer.

Post MD progress report- **Annex 11**

12.1 Post MD Local Training

After successful completion of the MD Orthodontic examination the trainee shall be based at the same main training centre to work in the capacity of a Senior Registrar under the same educational supervisor for a period of one year.

12.2 Objectives of the Post MD local training

1.To gain further competency in the management of patients requiring more complex multidisciplinary dental and medical specialty care such as cleft lip and palate, orthognathic problems , cranio- facial syndromes, medically compromised patients, adult orthodontics etc.

In order to achieve this objective the trainee can select another approved training centre/centers to attend on the basis of two days per week for a period of six months. In addition, trainees should complete two short appointments in plastic surgery and pediatrics (learning objects of these two appointments are given in **Annex 3-B**). Fourteen sessions in each of these two appointments should be completed on a rotation basis.

The Board of Study in Dental Surgery shall appoint the trainee to an appropriate centre/centers which will provide the additional training to handle more complex problems which are multidisciplinary in nature. The Board of Study shall consider the recommendations of the educational consultant when making this appointment.

The supervising consultant of the selected centre/centers shall liaise with the relevant consultants and arrange the trainee to attend appropriate joint clinics and surgical theater sessions.

Trainees are required to further develop the MD Portfolio during the post MD training.

The trainee should maintain the same Portfolio with new additions where possible during the post MD local and overseas training periods.

12.3 Post MD Training – Overseas

Trainees shall select an overseas centre approved by the PGIM to undergo full time training for a minimum period of one year. Trainees are advised to go through the following sections in PGIM General Regulations and Guidelines for Trainees 2016.

* Requirements before proceeding on overseas Post MD training
* Annexure III- Documents to be submitted when approval is sought for overseas training.

Regular feedbacks (in writing) should be submitted from the overseas supervising consultant(s) at six months intervals as per regulations of the Postgraduate Institute of Medicine.

Structure and the learning outcomes of the expected training are similar to that of the post MD local training.

Format for progress report for the post MD training periods both local and overseas is given in **Annex 11**

13. Pre Board Certification Assessments (PBCA)

13.1 PRE-BOARD CERTIFICATION ASSESSMENT

Guidelines

In 2009, the PGIM decided that prior to Board Certification as a Specialist, all trainees should go through a Pre-Board Certification Assessment (PBCA), which would be equivalent to the Specialty Certification Examinations in UK and other countries. This requirement was implemented in 2011 through PGIM Director's Memo No: AC/03/2011 dated 16.06.2011

After consideration of many prospectuses for speciality and sub-speciality training, which have been submitted for PGIM approval in the last few years, the AAAEDC recommends that the PGIM considers revision of the format of PBCA, based on adoption of the following broad outcomes for specialist training, across all specialities and sub-specialities:

1. Subject expertise
2. Teaching
3. Research and audit
4. Ethics and medico-legal issues
5. Information technology
6. Life-long learning

Assessment tool

The PBCA should be based on assessment of a portfolio maintained by the trainee during the period of post-MD training. The contents of the portfolio should encompass all of the above learning outcomes and contain evidence of achievement of these outcomes by the trainee. Although some of these may have been evaluated before the MD examination, the portfolio assessed at the PBCA should mainly contain evidence of achievements during post-MD training, either locally or overseas. All sections need not be of equal weight – for example, the section on Subject Expertise may be much more detailed than the others.

Contents of portfolio

The contents of the portfolio should be divided into sections according to the outcomes stated above, followed by a final section that contains evidence of reflective practice.

The following list sets out the type of evidence that may be relevant to each section. The details should be determined by each Board.

1. Subject expertise:
    - progress reports from supervisors (essential, should be according to prescribed format)
    - Supervisor feedback on communication skills
    - log of procedures carried out
    - results of any work-place assessments conducted
    - In the case of sub-specialities, this section must include evidence that the trainee has acquired the essential knowledge, skills and competencies related to the sub-speciality, identified by the Speciality Board, and monitored with regular assessments throughout the period of post-MD training, e.g. mini-CEX, Case-Based Discussions, Direct Observation of Practical Skills
2. Teaching
    - undergraduates
    - postgraduates
    - ancillary health staff
3. Research and Audit relevant to speciality or subspeciality
    - Dissertations / theses
    - Research papers published or accepted for publication
    - abstracts of presentations
    - Clinical audit
4. Ethics and Medico-legal Issues
    - Completed Professionalism Observation Forms (from integrated learning component of Professionalism Strand)
    - Completed PTR forms during post-MD training
5. Information Technology
    - Participation in training programmes / workshops
    - Evidence of searching for information and application of findings in practice

6. Life-long learning
    - Participation in conferences and meetings
7. Reflective practice
    - narration of at least one learning event experienced by the trainee, in relation to each of the above outcomes, with reflection on what and how the trainee learned from this experience

The precise details of what is expected by the Board should be made known to trainees at commencement of post-MD training.

Portfolio assessment

The portfolio should be reviewed at least every 6 months by the local supervisor(s), with regular feedback to the trainee on how the portfolio may be improved. When the trainee is eligible for PBCA, 3 copies of the completed portfolio should be submitted to the PGIM Examinations Branch. The PBCA should take the form of a final, summative assessment of the trainee's portfolio, carried out by 2 (or 3) independent examiners appointed by the relevant Board of Study or Speciality Board and approved by the Senate of the University of Colombo. The 3rd examiner should be from outside the discipline to improve objectivity.

The trainee should be called for an oral examination, during which he/she will be questioned on the portfolio. The trainee may be required to start with a presentation of 10 – 15 minutes, on the post-MD training if the Board deems it appropriate.

The overall assessment should be based on each of the main sections, which should be assessed as satisfactory or not on an overall basis. It is left to the Boards to decide whether to use a rating scale. If the examiners are of the view that the trainee's performance is unsatisfactory, and the trainee should not be given immediate Board Certification, the examiners must provide the trainee with written feedback on how the portfolio should be improved in order to reach the required standard. The trainee should then re-submit the portfolio within a specified period of time (up to 3 – 6 months), and face another oral examination based on the re-submitted portfolio. If the trainee is successful at this 2nd oral examination, the date of Board Certification should be backdated as done routinely. If unsuccessful again, the date of Board Certification will be the date of passing the subsequent PBCA following further training for a minimum period of six months in a unit selected by the Board of Study.

13.2 Post MD Evidence Portfolio of Achievements

Trainees are required to thoroughly document their entire Post MD training experience both local and abroad and to compile an Evidence Portfolio of Achievements according to the PGIM Guide Lines given above.

Minimum requirement under each category as decided by the BOS/DS

(a) Subject Expertise-Log of Procedures carried out

Three fully documented case histories of rather complex orthodontic problems which demanded interdisciplinary management where the trainee had an active role to play at some stage. (At local or overseas training center). Other procedures carried out should be presented as log entries. Minimum 10 log entries are expected.

(b) life- long learning

Evidence of Continuing Professional Development– Minimum number is 5

(c) Teaching

Summary of lectures and presentations delivered– Minimum number is 3

(d) Research and Audit relevant to the specialty

Other than the compulsory research project carried out during the training according to the guidelines provided by the PGIM, trainee may present any other research or audit in which the trainee is an author.

N.B.

The portfolio shall be maintained in separate sections to conform to the above format and in a loose detachable folder.

It is advisable to collect the entries in a polythene ring binder initially which allow easy insertion. Later, this shall be compiled into a comprehensive report with permanent binding .All entries in the portfolio shall be authorized or confirmed by the trainer or supervisor.

It is mandatory that in each sub-section, the entries are in chronological order. Separate page numbering shall be made in each sub-section. In Continuing Professional Development and other areas in which further developments have taken place, reference shall be made to earlier entries via provision of the relevant page numbers.

All documents in the portfolio shall be typewritten/computer printed or scanned images or photocopies of articles.

The trainee is expected to keep the portfolio updated regularly. It is not a task that could be hurriedly completed at the end of the training program. The trainers and supervisors shall use the portfolio to assess the progress of the trainee and to provide a feedback to the trainee at regular intervals during the training period. The trainers and supervisors are expected to assess the level of competencies in different areas of training and provide advice and assistance to the trainees to achieve the expected levels of skills empowerment.

It is the responsibility of the trainees, the trainers and the supervisors to ensure that the entries in the portfolio made regularly and are authentic. It is also essential to provide the trainee with accurate feedback on the trainer's view about his / her performance during the training period. The Board of Study in Dental Surgery expects the trainees and the trainers to make the very best use of the portfolio in order to achieve the objectives of the training program. The Portfolio shall be submitted with a soft copy to the PGIM 2 months prior to the date of Pre Board Certification Assessment.

Format of the Post MD Training Portfolio - Annex 6

Section A- Instructions to the trainees
Section B-Portfolio Template

13.3 Research project

Trainees shall apply basic research methodology and carry out a research project relevant to Orthodontics during the training program. This research project shall be assessed at the PBCA as a compulsory component of the POST MD Evidence Portfolio.

N.B It is advisable to start the research project during Pre MD training in order to meet PBCA requirements on time.

The research proposal must be submitted to the BOS for approval before commencing the study. **A generic format for such proposals as per PGIM guidelines is shown in Annex 9 – section A.**

The proposal should be evaluated by at least one reviewer (preferably two) nominated by the BOS. **A generic format for reviewers to report on research proposals as per PGIM guidelines is shown in Annex 9-section B**.

The proposal should have a reasonable timeline for completion. If the proposal is unsatisfactory, the reviewers may recommend modification of the proposal or submission of a different proposal. The trainee should commence the study only after obtaining approval of the BOS / Sp Bd and ethical clearance.

Relevant ethics clearance, and in the case of clinical trials, registration with a Clinical Trials Registry must be obtained prior to commencement of the study.

The trainee is required to nominate a primary supervisor for the project, usually the trainee's current trainer. **Generic guidance to supervisors as per PGIM guidelines is provided in Annex 9 section C.**

The trainee must submit 6 monthly progress reports through the primary supervisor to the BOS.**A generic format for progress reports as per PGIM guidelines is shown in Annex 9 section D.** Feedback would be provided to the candidate as to whether the project is progressing satisfactorily.

Acceptance of the research project by the BOS during PBCA may be based on fulfillment of either of the following:

1. Publication of the research findings as an **original full paper**(not case reports) in a **peer-reviewed journal** (preferably indexed) with the trainee as first author. No further evaluation is required on the premise that a paper which is already peer-reviewed.

2. Submission of a detailed project report to the BOS. **A generic format for such project reports is shown in Annex 9 section E.** This should be evaluated by 2 assessors nominated by the BOS, and marked as either satisfactory, or unsatisfactory.

    a. If the project is considered unsatisfactory by both assessors, the trainee will be requested to revise and resubmit, with written feedback on the required revisions. If the project report is still unsatisfactory, the trainee may, at the discretion of the BOS, be asked to extend the same research project or undertake a new research project which will have to go through the same procedure of approval as the initial project.

    b. If there is disagreement between the two assessors, with only one assessor's decision being 'unsatisfactory', the project report should be sent to a third assessor for a final decision.
    c. Presentation of the research findings at a recognized scientific congress, either local or international, as oral or poster presentation, with a published abstract, with the trainee as first author, should be given credit during the assessment process.

N.B Trainees are strongly advised to finish the research project well in advance - preferably during the local training as meeting either of the above mention requirements may take time . Any such delay can adversely affect the trainees' date of board certification.

13.4 - Pre board certification assessment

Within three months after completion of the post MD training in the prescribed manner trainees should submit all the relevant documents (as mentioned under section 14.1) to the PGIM and request a date for PBCA.

Date for Pre Board Certification Assessment for the trainees who completed the prescribed MD training programme shall be decided by the Board of Study in Dental Surgery .The PGIM will allow two months for the examiners to assess the material submitted by the candidates. The trainees shall be informed the date well in advance in order to be prepared for the assessment.

Date of board certification of the trainees who fail to request a date for PBCA within three months after completion of the post MD training period without a valid reason will be affected according to the length of the delay.

13.5 Eligibility Criteria

After the completion of the prescribed post MD training programme (Stages III and IV), to be eligible to sit the PBCA, the trainee should submit the following to the examination branch of the PGIM.

- Completed MD Portfolio – on both local and overseas work .This should be submitted in three copies.

- Evidence of publication of the research project in a peer reviewed journal. If the research is accepted and pending publication, the letter of acceptance and a copy of the manuscript sent for publication should be submitted. These documents should be included in the portfolio under the research section.
- If the research project has not been published or not accepted for future publication in a peer review journal evidence of submission of a detailed project report to the BOS for assessment and assessors' report should be available for PBCA.
- Progress reports for the local and overseas training components. PGIM shall provide these documents directly to the examiners. However the trainee **should** check with the PGIM and make necessary arrangements to ensure that progress reports are duly sent by the trainers.
- Certificate of good attendance.
- Proof for handing over the case book to the PGIM to be housed in the library within three months after passing the MD Orthodontic examination- (Board of
- study in Dental surgery shall certify the submission of the case book to the library).

Trainees are advise to refer to section 16.3 in "PGIM regulations and guidelines for trainees 2016" regarding more details on PBCA.

13. 6 Pre Board Certification Assessment

Portfolio Viva - Duration one hour

The portfolio should be reviewed at least every 6 months by the local supervisor(s), with regular feedback to the trainee on how the portfolio may be improved. When the trainee is eligible for PBCA, 3 copies of the completed portfolio should be submitted to the PGIM Examinations Branch.

The PBCA should take the form of a final, summative assessment of the trainee's portfolio, carried out by 3 independent examiners appointed by the Board of Study in Dental Surgery and approved by the Senate of the University of Colombo. The 3rd examiner should be from outside the discipline to improve objectivity.

The trainee should be called for an oral examination, during which he/she will be questioned on the portfolio. The trainee will be required to start with a presentation of 15 minutes, on the post-MD training experience and his or her vision for further development of the Orthodontic profession in Sri Lanka.

The overall assessment should be based on each of the main sections, which should be assessed as satisfactory or not on an overall basis.

13.7 Marking Grid for overall assessment

	Marks/100
Fail	<50
Pass	**50**
Good pass	**60**
Excellent	**70-100**

Total Mark of Examiner 1 (out of 100) =
Total Mark of Examiner 2 (out of 100) =
Total Mark of Examiner 3 (out of 100) =

Combined Aggregate Mark of all three examiners (out of 300) =
Percentage Mark (%) =

[Note: 'Satisfactory' level to consider for granting PBCA = 50%]

Signature of Examiner 1: .....

Signature of Examiner 2: .....

Signature of Examiner 3: .....

13.8 Requirements to pass the PBCA

It is mandatory to obtain a minimum 50 marks to pass the evaluation. A grading of pass or above is necessary for the trainee to be eligible to be considered for recommendation for Board Certification.

13.9 Failed candidate

If the examiners are of the view that the trainee's performance is unsatisfactory, and the trainee should not be given immediate Board Certification, the examiners must provide the trainee with written feedback on how the portfolio should be improved in order to reach the required standard.

The trainee should then re-submit the portfolio within 3 months and face another oral examination based on the re-submitted portfolio. If the trainee is successful at this 2nd oral examination, the date of Board Certification should be backdated as done routinely. If unsuccessful again, the date of Board Certification will be the date of passing the subsequent PBCA following further training for a minimum period of six months in a unit selected by the Board of Study.

14. Board Certification - Eligibility criteria for Board Certification in Orthodontics

A trainee who has fulfilled the following criteria shall be deemed to be eligible for Board Certification:

- Obtained a pass at the MD (Orthodontics) Examination.
- Satisfactory completion of one year local and one year overseas post MD training.
- Submitted satisfactory progress reports from the local supervisor appointed by the Board of Study.
- Submitted satisfactory progress reports from the overseas supervisor appointed by the Board of Study.
- Passed the Pre-Board Certification Assessment.

Please refer to section 16 and annexure iv of "PGIM general regulations and guidelines for trainees 2016" for more details.

15. Trainers

Specialists with at least three years experience after Board Certification in the field of Orthodontics shall be appointed as trainers by the Senate/BOM on the recommendation of Board of Study in Dental Surgery.

16. Training Units

The training shall be conducted in units accredited by the Board of Study in Dental Surgery /Board of Management. The units available at present are listed in **Annex 12.** New units shall be approved from time to time using PGIM criteria.

17. Management and Quality Assurance of Training Programme

17.1. Appointment of a Coordinator

A program coordinator shall be appointed by the Board of Study in Dental Surgery for this purpose.

17.2 Responsibilities of programme Coordinator

The program coordinator shall liaise with trainees, trainers and the Board of Study. He / she shall give recommendations to the Board of Study on matters pertaining to trainees and training. Any

correspondence by trainees to the Board of study regarding any matter shall be submitted through the program coordinator.

17.3 Support and counseling of Trainees

- Availability of support, counseling and career guidance shall be ensured.
- Training process shall be adequately monitored to identify areas that need support (personal health problems and any other special handicaps)

17.4 Evaluation of training program

17.5 Mechanism for program evaluation

- Reliable indicators to assess the training program shall be identified
- In the area of educational process- resources available, organization and learning environment have to be included.
- In program evaluation, description of the program and performance of the trainees shall be considered as key factors.
- Performance of the trainees after the training in the real world would be a true Indicator.

17.6 Feedback from trainers and trainees

- Systematic and regular feedback shall be obtained from the trainers as well as trainees through progress reports from the trainers and peer team form on a regular basis.
- Constructive feedback shall be provided to trainees
- Acceptable standty5jyj bnf y;.ards and criteria shall be explicitly stated and conveyed to trainers and trainees
- An appeal mechanism shall be established to identify trainee grievances. If necessary, supplementary training shall be arranged for weaker trainees who are unsuccessful in assessments and examinations.
- Trainee performance shall be assessed in terms of the expected outcomes from the program
- Areas such as, duration of the training, drop outs, pass and failures and delays shall be quantified.

Trainer's report – Annex 6

Peer team rating form - Annex10

Trainee Feedback - Annex 14

17.7. Quality review

The structure function and quality of the training shall be frequently reviewed.

The following areas have to be considered in quality assurance

- Adaptation of the mission and vision of the program in the training process
- Curriculum design, content and review
- Quality of trainees at the end of program
- Process of student feedback
- Efforts taken to introduce generic skills
- If the training program promotes independent learning and scientific thinking
- Mechanisms involved for peer observation
- How skills developments are ensured
- Facilities available for academic guidance and counseling

18. Recommended Books/Journals/Websites

The books, journals and websites recommended by the Board of Study in Dental Surgery are listed in **Annex 13.** This list may be modified as appropriate by the Board of Study in Dental Surgery.

19. Governance and Administration

19.1. Governance

- The training program shall be conducted and completed as prescribed in the prospectus.
- The relevant Certificate, Degree shall be conferred on successful completion of the program.
- Funding and resource allocation -There shall be a clear line of committed budgeting identified for the total program.
- The budget shall be managed to meet the expected outcomes of the course / program.

19.2. Administration

The program shall be administered by the PGIM Colombo.

19.3. Requirements and regulations

- Recognized National Bodies should spell out the number of specialists to be trained
- All relevant stakeholders shall be consulted in reviewing the number of trainees to be registered each year

Annex 1
Curriculum of the Selection Examination

The emphasis shall be on those aspects of the subjects that are of clinical and practical application in relation to Orthodontics and which demonstrate fundamental principles and process.

There shall be three major areas;

1. Anatomy
2. Dental Anatomy
3. Physiology

And two minor areas

1. Pathology
2. Microbiology and Biochemistry

1. ANATOMY

Head and Neck

Candidates are expected to have a detailed knowledge of the anatomy of the head and neck, including that of the osteology of jaw bones, skull and the vertebral column. Special emphasis will be placed on the anatomy of the oral cavity, the infra-temporal region, pharynx and larynx, paranasal sinuses, facial spaces, anatomy related to functions of the mandibular mechanism, swallowing, speech, neck movements and posture.

Neuro- anatomy

Candidates are expected to have a general knowledge of the morphology of the brain and spinal cord, and detailed knowledge of the functional components of the cranial nerves, their branches and the central connections of those components. Special attention shall be placed on the Trigeminal, Facial, Glossopharyngeal, Vagus and Hypoglossal nerves.

Thorax

Candidates are expected to have a general knowledge of the contents of the thoracic cavity together with general knowledge of the cardio-pulmonary circulation.

Embryology

Candidates are expected to have a general knowledge of the development of the embryo, facial development, and of the derivatives of pharyngeal arches and pouches and occurrence of developmental/congenital abnormalities of head and neck.

HISTOLOGY

Candidates are expected to have a general knowledge of the structure of the basic tissues at the level of light microscopy. The major effort should, however, be concentrated on the more specialized oral and dental tissues including oral mucosa, salivary glands, muscles, tongue, bone and cartilage and TMJ.

2. Dental Anatomy and Histology

Candidates should be able to demonstrate knowledge and detailed understanding on the following aspects of orofacial tissues.
Recognition of intra oral and extra oral anatomical landmarks, the crown and pulp morphology of all permanent and deciduous teeth, tooth development and eruption, development and structure of all oral tissues including enamel, dentin, cementum, pulp, periodontal ligament, alveolar bone, post natal growth of the skull and jaws, structure and function of mucosa, salivary glands, temporomandibular joint and occlusion in detail with their clinical relevance.

1. Tooth morphology of the permanent and deciduous dentition
2. Early tooth development
3. Amelogenesis, structure of enamel
4. Dentinogenesis, structure of dentine
5. Structure of dental pulp
6. Root formation and cementogenesis
7. Development, structure and functions of periodontium (PDL, cementum, Alveolar bone, Gingiva)
8. Development of the dentition (tooth eruption, mechanism of tooth eruption, development of occlusion and shedding of teeth)
9. Structure and functional adaptation of oral mucosa
10. Postnatal growth of skull (cranium, face, base of the skull, maxilla and mandible)
11. Structure and functions of salivary glands
12. Structure and function of TMJ
13. Age changes of teeth, supporting structures, and their clinical relevance

3. PHYSIOLOGY

Candidates are expected to have a general knowledge and understanding of human physiology with special emphasis on understanding the physiological concepts and principles that are relevant to dentistry. Candidates are expected to be able to relate the physiological mechanisms to clinical situations concerned with the care of patients in relation to basic diagnosis and treatment, and management of dental patients with pre-existing general medical conditions, or who experience medical problems while undergoing dental treatment.

Areas of special emphasis include:

a. Endocrine system including Calcium metabolism
b. Homeostasis, body fluid balance and the body's response to "stress"
c. Blood, haemostasis and common haematological disorders
d. Neurophysiology including common somato-sensory disorders
e. Physiology of pain
f. Movements of mandible and masticatory functions
g. Saliva and salivation
h. Respiratory physiology
i. Cardiovascular physiology including haemorrhage and shock
j. Speech and Swallowing
k. Gastric secretions and related disorders

3. PATHOLOGY

Candidates are expected to have a general knowledge and understanding of general pathology with special emphasis on understanding the pathological concepts and principles of the cellular response to injury, acute and chronic inflammation, wound healing including fracture healing, diseases of bone, immune response in disease, neoplasia, carcinogenesis, atherosclerosis, thrombosis &embolism

MICROBIOLOGY

Candidates are expected to have a general knowledge and understanding on general and oral microbiology with special emphasis on the range of microbiological investigations and their interpretation in diagnosis and management of patients, varying growth requirements of medically important microorganisms, principles of disease transmission, immune response to non-self agents (both humoral and cellular responses), principles and application of vaccination, basis for antimicrobial therapy and side effects of commonly prescribed antimicrobial agents, Sterilization and disinfection, biofilms including dental plaque, role of oral bacteria in systemic diseases such as infective endocarditis, clinical manifestations of infections of the oral cavity, oral lesions associated with immune suppressed states such as AIDS, infection control in dentistry and clinical follow up for post exposure management regarding blood-borne infections.

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Annex 2 A

Curriculum - Learning Outcomes in orthodontics

Expected outcomes for clinical information gathering

The trainee should be able to:

Take a history from patients. Parents or guardian	Take a relevant and complete patient history inclusive of past medical and dental history and the history of the presenting complaint
Undertake an intra and extra oral examination of the head and neck	Perform a thorough clinical examination of : • Anterior posterior, vertical and transverse facial proportions. • Soft tissue, dentition and supporting structures Perform intra and extra oral examinations comprising : - TMJ and muscles of mastication - Periodontium - Teeth - Soft tissues and lymph nodes - Oral cancer screening - Anterior posterior, vertical and transverse facial proportions. Skeletal patterns and occlusal relationships.
Examined the occlusion	Determine habitual occlusion, evaluate articulation and jaw relationships Take high quality impressions of dental arches with a maximal reproduction of adjacent structures. Be familiar with jaw registration using facebow recordings and mount casts on an articulator.
Obtain and interpret relevant	Take high quality extra oral and intra oral photographs.
Clinical, radiological and laboratory investigations	Understand the use of radiographic investigation and the appropriateness of each investigation to particular problems. Understand the importance and limitations of cephalometric analyses

	Be familiar with various forms of specialized imaging techniques. Use of specialized radiographic investigations. Isotope scans, and computerized tomography, MRI, video imaging and 3D imaging

Expected Outcomes for treatment Planning

The trainees should be able to:

General	Plan appropriate management of acute dental conditions. Develop a prioritized problem list. Find possible solutions and alternative treatment plans. Explain the treatment options, the risks and benefits and obtain informed consent for the agreed option. Draw an appropriate treatment plan. Refer patients when appropriate.
Craniofacial anomalies	Diagnose and classify common craniofacial disorders and know where to find information about the more unusual syndromes.
Cleft lip and palate	Understand the role of the orthodontist in the interdisciplinary care of patients with cleft lip and palate.
Integrating Restorative care	Understand the role of the orthodontist in restorative treatment planning Understand where orthodontic treatment is indicated for restorative problems. Understand the limitations and contra-indications in orthodontics in cases requiring inter – disciplinary restorative care. Understand the materials and techniques currently used in restorative dentistry and their indications. Provide appropriate orthodontic treatment

	for routine restorative problems where indicated. Provide risk/benefit advice on long term orthodontic restorative treatment.
Integrating Oral and maxillofacial Surgery	Diagnose skeletal disproportion of such extent that a joint approach of surgery and orthodontics is essential to achieve an acceptable result. Posses a good knowledge of orthognathic surgical techniques and be able to explain the risks and benefits.
Malocclusion and medical problems	Manage patients appropriately in the knowledge of underlying medical conditions Manage and advise patients who are physically or mentally challenged Understand possible effects of medical conditions which may affect general dental or orthodontic patients.

Expected Outcomes for treatment procedures

The trainee should be able to :

Removable appliances	Understand and explain the theory, indications, design and use of removable appliances. Understand and explain the possibilities and limitations of removable appliances. Appropriately evaluate the orthodontic laboratory work. Have sufficient skills and understanding of the process of fabrication so that they can adjust and repair removable appliances in the laboratory and at the chair side. Treat suitable patients with removable appliances effectively.

	Explain to patients and parents the benefits, possible outcome and problems associated with removable appliance therapy.
Functional appliances	Understand and explain the theory, indications, design and use of functional appliances. Understand and explain the possibilities and limitations of functional appliances including timing of treatment. Demonstrate practical and clinical skills, and a thorough knowledge of major types of functional appliances. Understand the fabrication of these appliances and be able to adjust them at the chair side. Explain to patients and parents the benefits, process, likely outcome and problems associated with functional appliance therapy.
Extra-oral appliances	Understand and explain the theory, indications, design, use and safety of extra oral appliances. Understand and explain the applications and limitations of extra oral appliances Select and, adjust extra oral appliances at the chair side. Treat patients with extra oral appliances and achieve a good standard of result. Explain to patients and parents the benefits mode of action, likely outcome and problems associated with extra oral appliance therapy.
Fixed appliances	Understand and explain the theory, indications, design and use of fixed orthodontic appliances Fabricate, adjust and repair fixed orthodontic appliances at the chairside and in the laboratory.

	Treat a wide range of suitable malocclusions with fixed orthodontic appliances and achieve a good standard of result. The trainee should have practical skills and clinical skills and a thorough knowledge of at least one major type of fixed orthodontic appliance system. Explain to patients and parents the benefits process likely outcome and problems associated with fixed orthodontic appliance therapy.
Retention appliances	Understand and explain the theory, indications design and use of orthodontic retainers. Understand and explain the applications and limitations of orthodontic retainers. Understand the fabrication. Carry out adjustment and repair of orthodontic retainers in the laboratory and the chairside. Explain to patients and parents the benefits, process, likely outcome and problems associated with the use of orthodontic retainers.

Expected outcomes for treatment procedures continued

The trainee should be able to :

Monitoring the developing occlusion	Demonstrate an understanding of the development of malocclusion. Describe appropriate interceptive measures to reduce the severity of the malocclusion when and where indicated. Be able to use growth charts and understand the limitations of facial growth prediction. Discuss current knowledge on growth and growth modification procedures.

Adult orthodontics	Demonstrate an understanding of the indications and limitations of adult orthodontic treatment. Describe the principles and biomechanics behind treatment in the non growing patients. Understand the role of interdisciplinary team management in appropriate cases. Provide risk/benefit advice for the adult patients and demonstrate an understanding of stability and retention of such cases.
Interface with oral and Maxillofacial Surgery	Diagnose dentoalveolar problems requiring surgery. Understand dentoalveolar surgical procedures and carry out associated orthodontic treatment. Carry out planning and orthodontic treatment of joint dentoalveloar surgical orthodontic cases at an advanced level. Have an understanding of the interface of orthodontics and oral and maxillofacial surgery. Understand the oral surgeon's viewpoint and the surgical limitations and complications. Understand fully the implications of the patients medical history in planning and executing oral surgical/ orthodontic treatment.
Interface with Restorative dentistry including implantology	Take into account the risk and benefits of such treatment. Understand the treatment approaches to periodontal disease and other restorative problems. Carry out orthodontic treatment in relation to the prevention and treatment of periodontal disease and be able to discuss the risk/benefit aspects of such treatment.

	Identify young patients for whom orthodontic treatment is indicated on periodontal grounds. Describe the role of the orthodontist in treatment planning where osseointergrated implants are used.
Interface with Pediatric Dentistry	Carry out orthodontic treatment in co-ordination with pediatric dental consultants. Demonstrate an understanding of the treatment approaches of dental disease in children.

Expected outcomes in basic clinical sciences

The trainee should be able to understand and apply basic clinical sciences to clinical practice.

General	Recognize normal and abnormal structure, function and behavior appropriate to the patient's age and general health. Apply knowledge of pathophysiology of common dental/oral health problems. Recognize the potential impact of medical history on dental treatment. Apply knowledge of pharmacology. Apply the principles of infection control to ensure safety of patients and dental staff.
Cell and molecular biology	Explain the cellular and biological mechanisms involved during orthodontic tooth movement, tooth eruption and dental orthopedics. Explain the cellular and biological basis of theories of root resorption.
Genetics	Describe in simple terms, how the relative positions of gene loci on chromosomes are determined. Outline the use of restriction enzymes in removing sections of the genome and describe the formation of recombinant DNA.

	Explain what is meant by a genetic disorder and how genetic screening is carried out. Explain the theoretical basis of genetic fingerprinting and outline how this is carried out. Understand how these techniques may be utilized in determining a genetic basis for malocclusions and craniofacial disorders. Use this knowledge to understand the genetic basis of craniofacial syndromes.
Craniofacial embryology	Describe normal embryological craniofacial development with a clear understanding of cellular and molecular mechanisms involved. Describe in anatomic terms the development of the orofacial complex and teeth. Understand the cellular and molecular mechanisms, which contribute to formation of these structures. Demonstrate how disruption of normal development can contribute to the major craniofacial disorders. Use the knowledge gained to have a fundamental understanding of clinical problems in craniofacial disorders.
Somatic and craniofacial growth	Demonstrate a clear understanding of normal body growth and its relevance to clinical orthodontics Demonstrate an understanding of the clinical implications of jaw growth in the child, adolescent and adult and limitations of the methods available for assessment of body growth. Use the knowledge gained to provide a rational basis for timing of orthodontic treatment
Physiology of breathing, swallowing, mastication and speech	Diagnose and discuss the role of respiration, deglutition and soft tissue patterns in the aetiology and treatment of malocclusion. Describe in detail the possible contribution of the occlusion to temporomandibular joint

	disorders, tooth wear and periodontal breakdown.
	Recognize abnormal speech patterns and get the speech therapist's input to set realistic treatment goals.
Psychology	Recognize patients who might benefit from psychological support before, during and after orthodontic, orthognathic or craniofacial treatment.
	Apply appropriate motivation strategies to orthodontic patients.

Expected Outcomes in Clinical reasoning and judgment

The trainee should be able to :

General	Assimilate and critically analyse history. Examination and investigation findings to formalize a problem list leading to diagnosis. Discuss the treatment options available and explain the rationale behind the selected option.
	Make decisions based on evidence based practice devise creative solutions to problems and restrictions encountered.
Growth and treatment analysis	Perform various cephalometric superimposition methods and discuss their possibilities and limitations
	Understand the limitations of analysis of growth and treatment change
	Understand the validity and limitations of the various methods of growth prediction including computerized prediction.
Long term effects of orthodontics treatment	Understand the long term effects of orthodontic treatment
	Describe a variety of retention methods and regimes based on current thinking
	Understand specific occlusal features that are more susceptible to relapse and discuss

	measures taken to minimize relapse
	Discuss the factors involved in root resorption and understand orthodontic mechanics aimed at minimizing resorption.
Iatrogenic effects of orthodontic treatment	Describe the process of enamel demineralization and possible contributory factors.
	Describe the long term effects of orthodontic treatment on periodontal structures in both healthy patients and those with periodontal problems.
	Explain the possible adverse effects on dento – facial appearance and aesthetics of alternative treatment plans.
	Discuss the effects of contact of various orthodontic materials on soft tissues.
	Discuss the possible influences on the temporomandibular joints of both orthodontically treated occlusions and untreated malocclusions.

Expected outcomes in Communications

The trainee should be able to :

	Demonstrate good listening skills
	Demonstrate appropriate communication skills with patients.
	Demonstrate appropriate communication skills (verbal and written) with other professional colleagues.
	Demonstrate appropriate communication skills with others in the dental team in order to ensure efficient and effective working.
	Demonstrate appropriate case presentation skills.

Expected outcomes in health promotion

The trainee should be able to ;

General	Take into consideration the impact of social cultural and behavioral factors on dental health.
	Keep up to date with strategies for prevention of disease in different settings e.g. primary prevention, screening, public awareness campaigns.
	Collaborate with other professionals in health promotion and disease prevention.
	Apply the knowledge principles and methods of health promotion so as to include an appropriate health promotion dimension to most clinical contacts.
Oral health	Discuss the relationship between oral health and malocclusion
	Describe and diagnose the aetiological features encountered in orthodontic practice with regard to development of dental caries and non carious tooth substance loss.
	Describe and diagnose the aetiological features encountered in orthodontic practice with regard to development of periodontal problems and soft tissue lesions.
	Carry out procedures to detect orthodontic patients with a high risk of developing periodontal problems.
	Prescribe methods of reducing the potential for iatrogenic damage during orthodontic treatment.
	Provide risk/benefit advice for the improvement of overall oral health with orthodontic treatment.

Health education	Describe methods of enhancing patient understanding of orthodontic treatment. Describe oral health programmes and patients motivation techniques for the individual patients. Describe methods of ensuring patients understanding of orthodontic treatment and that proposed for the individual patients.

Attitudes, ethical stance and legal responsibilities

The trainee should be able to :

General	Demonstrate an understanding of patient psychology in relation to health education. Demonstrate an ethical and moral approach (to patients, their relatives, colleagues and staff, and research undertaken). Demonstrate confidentiality, integrity, truthfulness and respect, without discrimination, towards patients and colleagues. Demonstrate an appropriate approach and response to complaints about performance. Recognize and respond to legal responsibilities.

Expected Outcomes in information handling

The trainee should be able to

General	Keep accurate and up to date patient records in relation to clinical and laboratory work. Conform to ethical and legal imperatives in respect to data.

	Use computers to access information from appropriate sources and use the information for effective practice.
	Demonstrate understanding and application of appropriate methodology when participating in audit activities.
	Demonstrate understanding of research methods and statistical evaluation and be able to critically assess published work.
Computer Based Technology	Have practical experience of software and hardware systems. Apply that knowledge and experience accurately to gather and process relevant information.
	Understand the medico legal obligations as they relate to the practice of orthodontics.
	Evaluate the scientific basis of existing and new clinical practices.

The expected role of the orthodontist within the health service

The trainee should demonstrate a good understanding of the Role of the Orthodontist within the Health Service

General	Have an acceptance of code of conduct and required personal attributes.
	Understand the role of the orthodontist in primary and secondary health care
	Work co-operatively in a team.
	Accept responsibility for teaching others.
	Recognize merits in colleagues in other disciplines, so that multi professional opportunities for patient care are enhanced.

Health and safety	Understand his/her responsibilities in relation to Health & safety.
Legislation and Ethics	Understand the legal and ethical responsibilities
Surgery management	Understand the concepts of good surgery design and stock control
	Ensure appropriate protocols are established for referral of patients
	Prioritize patients fairly
	Counsel and reconcile on matters of clinical dispute. Control standards of care
Personnel Management	Understand the problems and implications of staff management and the principles of equal opportunities and sex discrimination in the work place.
Finance	Understand the concepts relating to sound financial management
Audit	Run an audit cycle with set standards
Health service Structures	Understand the organization of health service structures nationally.
Personal developments	
General	Self awareness – reflect on own personal strengths and limitations
	Continuing professional development set clear learning goals, pursue them and apply the learning to the practice of dentistry
	Personal growth accepts and responds appropriately to constructive criticism

from patients, peers and supervisors.

Identify problems and issues in relation to own well being and their potential impact on practice

To be given the opportunity to develop additional experience in areas of practice in which the individual feels to be deficient or in which he or she wishes to develop a special interest.

Annex 2- B
Blue Print of the MD Examination

Background

This Blue Print of the examination for MD Orthodontics of Post Graduate Institute of Medicine is based on the competencies and outcomes outlined in Appendices 2 and 3.

Expected outcomes have been identified as essential (E) and Desirable (D)

- The competencies and outcomes are assessed at following stages

  1. Midcourse assessment
  2. MD Orthodontic examination – Written Papers 1 (Orthodontics)
     Written Paper 2(General Dentistry)
     Clinical examination 1 (in Orthodontics)
     Clinical examination 2 (in general dentistry)
     Case Book assessment
     Oral examination in Orthodontics
  3. Research Project Assessment and Pre Board Certification Assessment (PBCA)

  Each competency has been attributed one or more parts of the examination/ assessments

Study Area/Procedure	Outcomes for gathering clinical information	E	D	Mid Course Assess -ment	Written Papers	Clinic al Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
	The trainee should be able to									
Take a History from patients, relatives, and others	Take a relevant and complete (medical and dental) patient history and a history of the presenting complaint	√			√	√	√	√		
Undertake an intra and extra oral examination of the head and neck	Perform a thorough clinical examination of									
	* anterior posterior, vertical and transverse facial proportions	√			√	√	√	√		
	*Soft tissues, dentition, and supporting structures	√			√	√	√	√		
	Perform intra and extra oral examinations comprising									
	* TMJ and muscles of mastication	√			√	√	√	√		
	*Periodontium	√			√	√	√	√		

Study Area/Procedure	Outcomes for gathering clinical information	E	D	Mid Course Assess -ment	Written Papers	Clinic al Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
	*Teeth	√			√	√	√	√		
	*Soft tissues and lymph nodes	√			√	√	√	√		
	*Oral cancer screening	√			√	√	√	√		
	*Skeletal pattern and occlusal relationships	√			√	√	√	√		
Examine the occlusion	Determine habitual occlusion evaluate articulation, and jaw relationships	√			√	√		√		
	Evaluate functional components of soft tissue structures morphology and understand their influence.	√			√	√		√		
	Take impressions of dental arches for different orthodontic purpose	√		√				√		
	Be familiar with jaw registration using face bow recordings and mount casts on an articulator	√			√	√	√	√	√	
Obtain and interpret relevant clinical radiological and laboratory investigations	Take high quality extra oral and intra-oral photographs	√				√	√	√	√	
	Understand the use of radiographic Investigation and the appropriateness of each investigation to particular problems	√			√	√	√	√	√	
	Understand the importance and limitations of cephalometric analyses.	√			√			√	√	
	Describe various forms of specialized imaging techniques. Use of specialized radiographic investigations: isotope scans and computerized tomography MRI, video imaging and 3D imaging		√		√		√		√	
General	Plan appropriate management of acute dental conditions	√			√	√	√	√		
	Develop a prioritized problem list, identify possible solutions and alternative treatment plans	√				√	√	√	√	
Craniofacial Anomalies	Diagnose and classify common craniofacial disorders, and know where to find information about the more unusual syndrome	√			√	√	√		√	
Cleft lip and Palate	Understand the role of the orthodontist in the inter-disciplinary care of patients with cleft lip and palate.	√			√	√	√		√	
Integrating Restorative Care	Understand role of the orthodontist in restorative treatment planning	√			√	√	√	√	√	√

Study Area	Outcomes for treatment planning	E	D	Mid Course Assess-ment	Written Papers	Clinical Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
	Understand specific indications for orthodontic treatment for restorative problems	√			√	√	√	√	√	√
	Understand the materials and techniques currently used in specific restorative situations		√		√		√	√	√	
	Provide appropriate orthodontic treatment for routine restorative problems	√				√		√	√	√
	Provide risk/benefit advice on long term orthodontics restorative treatment	√			√		√		√	√
Integrating Oral and Maxillofacial Surgery	Diagnose skeletal disproportion of such severity a joint approach of surgery and orthodontics is essential to achieve an acceptable result	√			√	√		√	√	√
	Knowledge of orthodontic surgical techniques and be able to explain the risks and benefits	√			√	√	√	√	√	√
	Diagnose dento-alveolar problems requiring surgery. Understand dentoalveolar surgical procedures and carry out associated orthodontic treatment	√			√	√	√	√	√	√
	Knowledge of orthognathic surgical techniques and be able to explain the risks and benefits	√			√	√	√	√	√	√
	Diagnose dento-alveolar problems requiring surgery. Understand dentoalveolar surgical procedures and carry out associated orthodontic treatment	√			√	√	√	√	√	√

Study Area	Outcomes for treatment planning	E	D	Mid Course Assess -ment	Written Papers	Clinic al Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
	The trainee should be able to									
Malocclusion and medical problems	Manage patients appropriately in the knowledge of underlying medical conditions	√			√	√	√	√		√
	Manage and advise patients who are physically or mentally challenged	√			√	√	√		√	√
	Understand possible effects of medical conditions which may affect general dental or orthodontic patients	√			√	√	√		√	
Removable appliances	Understand and explain the theory indications. Design and use of removable appliances	√		√	√	√			√	√
	Appropriately evaluate orthodontic laboratory work	√		√		√			√	√
	Have sufficient understanding of the process of fabrication so that they can adjust and repair removable appliances in the laboratory and at the chairside	√		√	√	√			√	√
	Treat suitable patients with removable appliances effectively	√		√	√	√			√	
	Explain to patients and parents the benefits possible outcome and problems associated with removable appliance therapy	√				√				
Functional appliances	Understand and explain the theory indications design and use of functional appliances	√			√	√			√	√
	Understand and explain the possibilities and limitations of functional appliances including timing of treatment	√			√	√			√	
	Understand the fabrication of these appliances and able to adjust them at the chair side	√			√	√			√	
.	Explain to patients and parents the benefits, process, likely outcome and problems associated with functional appliance therapy	√								
Extra oral appliances	Understand and explain the theory indications, design and use of extra oral appliances	√			√	√				√
	Understand and explain the applications, limitation and associated safety issues of extra oral appliances	√			√	√			√	

Study Area	Outcomes for treatment planning	E	D	Mid Course Assess -ment	Written Papers	Clinic al Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
Extra – Oral appliances	Treat patients with extra oral appliances and achieve a good standard of result		√			√			√	
	Explain to patients and parents the benefits, mode of action, likely outcome and problems associated with extra oral appliance therapy	√			√	√				
Fixed appliances	Understand and explain the theory indications, design and use of fixed orthodontic appliances	√		√	√	√		√	√	
	Understand and explain the applications and limitations of fixed orthodontics appliances	√		√	√			√	√	√
	Fabricate, adjust and repair fixed orthodontic appliances at the chairside and in the laboratory	√		√		√		√		
	Treat a wide range of suitable malocclusions with fixed orthodontic appliances and achieve a good standard of result. The trainee should have practical skills and clinical skills and through knowledge of at least one major type of fixed orthodontic appliance system	√				√		√		
	Explain to patients and parents the benefits, process likely outcome and problems associated with fixed orthodontic appliance therapy.			√	√			√	√	√
Retention appliances	Understand and explain the theory indications, design and use of orthodontic retainers	√			√	√		√	√	√
	Understand and explain the application and limitations of orthodontic retainers	√			√	√		√		
	Understand the fabrication, carry out adjustment and repair orthodontics retainers in the laboratory and at the chairside	√			√			√		
	Fit retainers and supervise retention in suitable patients	√				√			√	√
	Explain to patients and parents the benefits, process, likely outcome and problems associated with the use of orthodontics retainers.									

Study Area	Outcomes for treatment planning	E	D	Mid Course Assess -ment	Written Papers	Clinic al Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
Guiding the developing occlusion	Demonstrate an understanding of the development of malocclusion	√			√	√	√	√	√	√
	Describe appropriate interceptive measures to reduce the severity of the malocclusion when and where indicated	√			√	√	√	√	√	√
	Be able to use growth charts and understand the limitations of facial growth prediction	√			√	√	√	√	√	√
	Describe the limitation of interceptive procedures	√			√		√			
	Discuss current knowledge on growth and growth modification procedures	√			√	√		√	√	
Adult orthodontics	Demonstrate an understanding of the indications and limitations of adult orthodontic treatment	√			√	√		√	√	√
	Describe the principles behind treatment in the non – growing patient and appropriate bio mechanics	√			√	√		√	√	√
	Understand need for interdisciplinary team management in appropriate cases	√			√	√		√	√	√
	Provide risk/benefit advice for the adult and demonstrate an understanding of stability and retention of such cases	√				√				√

Study area	Outcomes for treatment procedures	E	D	Mid Course Assess -ment	Written Papers	Clinic al Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
Interface with oral and maxillofacial surgery	Diagnose dentoalveolar problems requiring surgery. Understand dentoalveolar surgical procedures and carry out associated orthodontic treatment	√			√	√		√	√	√
	Have an understanding of the interface of orthodontics and oral and maxillofacial surgery	√				√		√	√	√
	Understand the oral surgeons viewpoint and the surgical difficulties and complications	√				√		√	√	√
Interface with Oral and maxillofacial surgery	Understand fully the implications of the patients medical history in planning and executing oral surgical/orthodontics treatment	√				√	√		√	√
	Take into account the risks and benefits of such treatment	√				√	√		√	√
Interface with restorative dentistry including implantology	Understand the treatment approaches to periodontal disease and other restorative problems	√			√	√	√		√	
	Carry out orthodontic treatment in relation to the prevention and treatment of periodontal disease and able to discuss the risk/ benefit aspects of such treatment	√			√	√			√	
	Describe the involvement of the orthodontist in treatment planning where osseointgrated implants are used	√			√		√	√	√	
	Treat cases prior to and after the use of osseointegrated implants		√		√	√		√	√	
Interface with paediatric dentistry	Carry out orthodontic treatment in coordination with the paediatric dental consultant where appropriate Demonstrate an understanding of the treatment approaches to dental diseases in children	√			√	√	√		√	
	Outcomes for Application of basic clinical science	**E**	**D**	**Mid Course Assess -ment**	**Written Papers**	**Clinic al Exam 1**	**Clinical Exam 2**	**Case Book**	**Oral**	**Research Project Assessment & PBCA**
	Apply the principles of infection control to ensure safety of patients and dental staff	√			√	√	√	√	√	
	Explain the cellular and biological mechanisms involved during orthodontic tooth movement and tooth eruption	√			√				√	
Cell and Molecular biology	Explain the cellular and biological mechanisms involved in mechanical loading of tissues during facial " orthopaedics"	√			√				√	
	Explain the cellular and biological basis of theories of root resorption	√			√				√	

	Outcomes for Application of basic clinical science	E	D	Mid Course Assess -ment	Written Papers	Clinic al Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
	The trainee should be able to *understand and apply basic clinical sciences to their clinical practice he/she should be able to*									
	Use the knowledge gained in this section in other biological areas of orthodontics	√			√				√	
Genetics	Understand how DNA is transferred from parent to offspring in sexual reproduction. Understand the terms dominant an recessive and how sexual reproduction produces variation in offspring	√							√	
	Describe in simple terms, how the relative position of gene loci on chromosomes are genome and describe the formation of recombinant DNA									
	Explain what is meant by a genetic disorder and how genetic screening is carried out. Explain the theoretical basis of genetic fingerprinting and outline how this is carried out. Understand how these techniques may be utilized in determining a genetic basis for malocclusion and craniofacial disorders.	√							√	
	Use this knowledge to understand the genetic basics of craniofacial syndromes.	√			√		√		√	
Craniofacial embryology	Describe normal embryological craniofacial development with a clear understanding of cellular and molecular mechanisms involved.	√							√	
	Describe in anatomic terms the development of the orofacial complex and teeth. Understand the cellular and molecular mechanisms which contribute to formation of these structures.	√				√	√		√	
	Demonstrate how disruption of normal; development can contribute to the major craniofacial disorders	√			√		√		√	√
	Use the knowledge gained to have a fundamental understanding of clinical problems in craniofacial disorders	√			√		√		√	√
Somatic and craniofacial growth	Describe normal body growth and development from birth to adulthood. Demonstrate a clear understanding of the relevance to clinical orthodontics	√			√	√			√	√
	Describe methods available and limitations for studying physical growth of the body and jaws. Discuss the relevance to orthodontic practice	√			√	√			√	√
	Provide a critical appraisal of the theories of craniofacial growth	√			√	√			√	√
	Demostrate an understanding of the clinical implications of jaw growth in the child, adolescent and adult.	√			√	√		√	√	

Study area	Outcome for Application of basic clinical science	E	D	Mid Course Assess -ment	Written Papers	Clinic al Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
	The trainee should be able to *understand and apply basic clinical sciences to their clinical practice he/she should be able to*									
	Use the knowledge gained to provide a rational basis for the and timing of orthodontic treatment	√			√	√		√	√	
Physiology of breathing swallowing, mastication and speech	Diagnose and discuss the likely involvement of respiration, deglutition and soft tissue patterns in the aetiology and treatment of malocclusion	√			√	√			√	
	Describe in detail the contribution of the occlusion to temporomandibular joint disorders, tooth wear and periodontal breakdown	√			√					
	Recognize abnormal speech patterns and get the speech therapist's input to set realistic treatment goals	√				√			√	
Psychology	Recognize patients who might need psychological support before, during and after orthodontic, orthognathic or craniofacial treatment		√							√
	Apply appropriate motivation strategies to orthodontic patients		√							√

	Outcome for clinical reasoning and Judgment	E	D	Mid Course Assess -ment	Written Papers	Clinic al Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
	The trainee should be able to									
General	Assimilate and critically analyze history examination and investigation findings to formalize a diagnosis and identify potential solutions. Discuss the treatment options available and the rationale behind the selected option.	√			√	√			√	√
	Make decisions based on evidence based practice	√			√	√	√		√	√
	Devise creative solution to problems and restrictions encountered					√	√	√		
Growth and treatment analysis	Perform various cephalometric superimposition methods, and discuss their possibilities and limitations	√			√				√	
	Understand the validity and limitations of analysis of growth and treatment change	√			√			√	√	
	Understand the validity and limitations of the various methods of growth prediction including computerized prediction	√			√	√		√	√	
Long term effects of orthodontic Treatment	Understand the long term effects of orthodontic treatment in individual patients	√				√		√	√	
	Describe a variety of retention methods and regimes based on current thinking	√			√	√		√	√	
	Understand specific occlusal features that are more susceptible to relapse and discuss measures taken to minimize relapse.	√			√	√		√	√	
Iatrogenic effects of orthodontic treatment	Discuss the factors involved in root resorption and understand orthodontic mechanics aimed at minimizing resorption.	√			√	√		√	√	
	Describe the process of enamel demineralization and possible contributory factors	√			√	√		√		
	Describe the long term effects of orthodontic treatment on periodontal structures in both healthy patients and those with periodontal problems	√			√	√		√	√	
Iatrogenic effects of orthodontics treatment	Explain the possible adverse effects on dento-facial appearance and aesthetics of alternative treatment plans	√				√		√		
	Discuss the effects of contract of various orthodontic materials on soft tissues	√			√				√	
	Discuss the possible influence on the temporomandibular joint of both orthodontically treated and untreated malocclusions				√				√	

	Outcomes for Communication	E	D	Mid Course Assess -ment	Written Papers	Clinic al Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
	The trainee should be able to									
General	Demonstrate good listening skills	√							√	√
	Demonstrate appropriate communication skills with patients	√								√
	Demonstrate appropriate communication skills (verbal and written) with other professional colleagues	√				√	√		√	
	Demonstrate appropriate communication skills with others in the dental team to ensure efficient and effective working	√							√	√
	Demonstrate appropriate case presentation skills. Give appropriate advice and information to promote learning in others	√				√	√	√	√	√

	Outcomes for Health promotions	E	D	Mid Course Assess -ment	Written Papers	Clinic al Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
	The trainee should be able to									
General	Take into consideration the impact of social cultural and behavioral factors on dental health	√			√		√	√	√	
	Keep up to date with strategies for prevention of disease on different settings e.g. primary prevention screening public awareness campaigns	√			√		√			√
	Collaborate with other professionals in health promotion and disease prevention	√					√	√	√	√
	Apply the knowledge principles and methods of health promotion so as to include an appropriate health promotion dimension to most clinical contacts	√			√		√		√	√
Oral health	Discuss the relationship between oral health and malocclusion	√				√	√	√	√	
	Describe and diagnose the aetiological features encountered in orthodontic practice with regard to development of periodontal problems and soft tissue lesions	√			√	√	√	√	√	
	Carry out procedures to detect orthodontic patients with a high risk of developing periodontal problems	√			√		√	√	√	
	Prescribe methods of reducing the potential for iatrogenic damage during orthodontic treatment	√				√	√		√	
	Provide risk/benefit advice for the improvement of overall oral health with orthodontic treatment	√			√		√		√	
Health education	Describe methods of enhancing patient understanding of orthodontic treatment	√					√		√	
	Describe oral health programmes and patient motivation techniques for the individual patient	√			√		√	√		
	Describe methods of ensuring patient understanding of orthodontic treatment and what is proposed for the individual patient	√			√				√	

	Outcomes for Attitudes, Ethics and Legal responsibilities	E	D	Mid Course Assess -ment	Written Papers	Clinic al Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
General	Demonstrate an understanding of patient psychology in relation to health education	√								√
	Demonstrate an ethical and moral approach (to patients, their relatives colleagues and staff an research undertaken	√								√
	Demonstrate confidentially, integrity truthfulness and respect, without discrimination, towards patients and colleagues	√								√
	Demonstrate an appropriate approach and response to complaints about performance	√								√
	Recognize and respond to legal responsibilities	√								√

	Outcomes of information handling	E	D	Mid Course Assess -ment	Written Papers	Clinic al Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
General	Keep accurate and contemporaneous patient records in relation to clinical and laboratory work.	√							√	√
	Conform to ethical and legal imperatives in respect to data	√								√
	Use computers to access information from appropriate sources and use the information for effective practice	√								√
	Demonstrate understanding and application of appropriate methodology when participating in audit activities	√								√
	Demonstrate understanding of research methods and statistical evaluation and be able to critically assess published work	√								√
Computer Based technology	Have practical experience of computer technology relevant to orthodontics	√								√

Study Area	Role of the orthodontist within the health service	E	D	Mid Course Assess -ment	Written Papers	Clinic al Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
General	Have an acceptance of code of conduct and required personal attributes	√								√
	Understand the role of the orthodontist in primary and secondary heath care	√								√
	Appreciate the role of the orthodontist as a manager									√
	Work co-operatively in a team	√								√
	Accept responsibility for teaching others	√								√
	Recognize merits in colleagues in other disciplines so that multi professional opportunities for patient care are enhanced	√			√	√				√
	Appreciate the role of and undertake the process of clinical governance in order to maintain the highest standards of patient care									√
Health and safety	Understand their responsibilities in relation to Health & safety	√								√
	Understand their legal and ethical responsibilities	√								√
	Understand the concepts of good surgery design and stock control	√								√
	Ensure appropriate protocols are established for referral of patients	√								√
Legislation and Ethics	Priorities parents fairly	√				√				√
	Understand the medico legal obligations as the relate to the practice of orthodontics.	√								√
Surgery management	Counsel and reconcile on matters of clinical dispute	√								√
	Control standards of care	√								√
Personal management	Understand the problems and implications of staff management and the principles of equal opportunities and sex discrimination in the workplace	√								√
Finance	Understand the concepts relating to sound financial management	√								√
Audit	Run an audit cycle with set standards	√								√
Health Service structures	Understand the problems and implications of staff management and the principles of equal opportunities ad sex discrimination in the workplace									

The Specialist as a professional	Personal development	E	D	Mid Course Assess -ment	Written Papers	Clinic al Exam 1	Clinical Exam 2	Case Book	Oral	Research Project Assessment & PBCA
General	Self awareness – reflects on own personal strengths and limitations	√								√
	Continuing professional developments clear learning goals, pursues them and applies the learning to the practice of dentistry	√								√
	Personal growth accepts and responds appropriately to constructive criticism from patients peers and supervisors	√								√
	Self care identifies problems and issues in relation to own well being and their potential impact on practice	√								√
	Career development recognizes career alternatives in dentistry	√								√
	To be given the opportunity to develop additional experience in areas of practice or in which he or she wishes to develop a special interest	√								√

Annex 3-A
Curriculum - Learning objectives of group ll – General Dentistry subjects

Restorative Dentistry

1. Acquire knowledge in the aetiology, diagnosis, prevention and treatment of dental caries, tooth substance loss and developmental defects of teeth.

2. Understand the management of teeth with compromised pulps and its sequel.

3. Acquire knowledge in current dental restorative materials and bonding techniques.

4. To be familiar with aesthetic restorative procedures (direct and indirect).

5. Orthodontic/ Restorative interface – to have a good knowledge and understanding in –

    - Limitations of Restorative or Orthodontic treatment.
    - Involvement of Orthodontics in restorative treatment planning.
    - Limitations of Orthodontics in a restorative treatment plan.
    - Limitations of restorative procedures in an orthodontic treatment plan.
    - Post Orthodontic restorative treatment.
    - Assessment of risk/ benefit of joint orthodontic/ restorative treatment.

Pediatric Dentistry

1. Ability to carry out detail history, clinical examination, investigation and treatment planning for a child patient with regard to
    i. Dental caries,
    ii. Dental trauma
    iii. Developmental anomalies of teeth- eg.
        1. Hypodontia , Microdontia
        2. Amelogenesis Imperfecta

2. Ability to understand the limitations and precautions to be taken for children with dental caries, dental trauma, developmental defects and children with special needs seeking Orthodontic treatment.

3. To gain a thorough understanding of the preventive measures and the treatment approaches for the common dental diseases in children and be able to offer an informed perspective on these patients.

4. To understand the necessity to carry out Orthodontic treatment in coordination with Peadiatric Dentist in children with special conditions such as ;
    i. Impacted anterior teeth
    ii. Microdontia / Peg shaped teeth
    iii. Infraoccluded teeth

5. Ability to appreciate the necessity of multidisciplinary management of patients with special needs: eg cleft lip and palate patient .

6. Be able to calculate the age of child using clinical and radiological information.

Oral and Maxillofacial Surgery

Have and understanding of the interface of Orthodontics and Oral and Maxillo-facial surgery. Understand the Oral Surgeons view point and surgical difficulties and complications. Understand fully the implications of the patient's medical history in planning and executing Oral surgical/Orthodontic treatment.

1. Outcomes for Orthognathic Surgery
    - Ability to diagnose skeletal disproportions of such severity that routine Orthodontic procedures cannot achieve a result without a combination of Surgery and Orthodontics.
    - Knowledge in Orthognathic surgical techniques and be able to explain in general terms, the risks and benefits.

2. Outcomes for dento -alveolar problems.
    - Ability to diagnose dento- alveolar problems requiring surgery. Understand dento- alveolar surgical procedures and carry out associated Orthodontic treatment.

3. Outcomes for management of cleft lip and palate –
    - To have an understanding of the role of Orthodontist in the multi disciplinary care of patients with cleft lip and palate.
    - Neonatal or infant maxillary orthopaedics.
    - Have adequate knowledge in the management of feeding and nutrition of cleft babies.
    - Orthodontic considerations in the primary dentition.
    - Mixed dentition Orthodontics including pre and post surgical Orthodontics
    - Preparation of patients for alveolar bone grafting.
    - Combined Orthodontic and surgical approach to correct skeletal soft tissues and dental problems in cleft patients for optimal functional and aesthetic results.
    - Speech assessment, investigation and knowledge in speech improving
      appliances.
    - Knowledge in surgical techniques involved in cleft lip and palate
    - Indications and procedure for secondary repairs in cleft patient eg. Lip revision, Pharyngoplasty, Rhinoplasty.

Oral Medicine

1. Clinical examination of Oro – facial region.
    - Ability to explain the clinical examination findings in the process of diagnosis.
    - Ability to explain the systematic approach in oral cancer/ pre cancer screening.
    - Ability to explain the pathological basis of the clinical findings.

2. Temperomandibular disorders.
    - Ability to discuss the aetiological factors, and clinical features of common temperomandibular disorders.
    - Ability to discuss the differential diagnosis of temperomandibular disorders.
    - To understand the special investigations required in the diagnosis.
    - To understand the treatment modes available.
    - Ability to understand the Orthodontic implication of temperomandibular joint disorders.

3. Oral manifestation of systemic diseases.
    - Ability to describe oral manifestation of common systemic diseases.
    - Ability to understand the relevance of such disease in Orthodontic case management.
    - Ability to understand management modalities available for common systemic diseases.

4. Management of medically complex patient.
    - Ability to explain the methods of evaluation of a medically complex patient with relevance to orthodontic management.
    - Ability to assess the risks and benefits in providing Orthodontic care to such a patient.
    - Ability to understand pharmaco-kinetic and pharmaco-dynamics of common medications used in dentistry.
    - Ability to explain drug interactions and common side effects of drugs used in dentistry.

5. Oro -facial pain.
    - To obtain a broad knowledge in major diagnostic features and possible aetiological and pathophysiological aspects of oro- facial pain.
    - Ability to evaluate a patient with common oro- facial pain problems.
    - To understand the differential diagnosis and medical management of common oro- facial pain conditions.

Community Dentistry

A. Bio statistics

Aim is to ensure that students have an understanding of the principles of biostatistics, skills needed to apply basic statistical methods to oral health data and interpret statistical contents of research findings.

1. Ability to explain the following statistical concepts and methods
    - Variables
    - Describe scales of measurement
    - Methods of diagrammatically representing data
    - Measures of central tendency and dispersion

- Normal distribution
- Significance testing using T-test and Chi squared test
- Correlation and regression including multiple regression

2. Describe appropriate methods for depicting data with summary statistics or graphical techniques
3. Apply statistical techniques for comparison of groups of subjects including hypothesis testing, p values, confidence intervals
4. Interpret statistics commonly presented in medical/ dental literature

B. Research Methodology

Aim is to ensure that the students have an understanding of research methods commonly used in medical / dental research and skills needed to carry out a simple scientific investigation

1. Describe the general principles of research and their application to investigation of a health topic
2. Describe the various steps required in designing a research study
3. Design and conduct a simple scientific investigation in relation to a given problem
4. Collect data either by examination or using a questionnaire, analyze data and present findings in terms of a report

C. Computer Literacy

Aim is to ensure that the students acquire basic computer skills required in their professional life

Introduction to computers

1. Computer operating systems
2. Application of packages-word processing, spread sheets, presentation technology, databases
3. Introduction to statistical packages
4. Internet and e-mail – for professional communication and information retrieval

D. Medical ethics

1. Demonstrate to an appropriate standard an understanding of and the application of the principles of the SLMC document that provide guidance on professional and personal conduct.
2. Demonstrate to an appropriate standard, an understanding of and the application of the principles of ethical behavior relevant to clinical practice including honesty, confidentiality, personal and professional integrity and appropriate moral values.
3. Interacts with patients, staff peers and the general public without discrimination, and trainee's respect to these groups.
4. Demonstrate to an appropriate standard a professional approach and response to patient's complains and accept responsibility for his/her mistakes

Oral Pathology

1. To be able to explain
    - The pathogenesis of dental caries.
    - How the knowledge of aetiology of dental caries could be applied to understand the novel prevention/ treatment strategies of dental caries.
2. To be able to explain the pathogenesis of periodontal disease.
3. To gain understand the common mucosal and bone pathologies that predominantly affect in young adults and children which can compromise Orthodontic treatment.

Oral Prosthodontics

1. To be able to assess the occlusion and mandibular functions of the dentate patient.
    - Examination of masticatory system
    - Mandibular movement and its guidance system
    - Jaw relations
    - Occlusal records, face bow record
    - Articulators, their selection and uses
    - Mounting of study casts on simple adjustable articulator

2. To know the restorative treatment options in rehabilitation of partially dentate patient and able to describe the involvement of the Orthodontist in treatment planning of restoration of edentulous space with fixed and removable prostheses and implant supported prostheses.
    - Prosthodontic treatment options, their indications and contraindications
    - Abutment position and angulation, space evaluation and timing of prosthetic treatment
    - Osseointergration and implant supported prostheses

3. To know the role of Prosthodontists in multidisciplinary management of velopharyngeal defects.
    - Pharyngeal obturators (speech bulb)
    - Palatal lift prostheses

Oral and Maxillofacial Radiology

1. Proper understanding of basic radiation physics and available radiographic techniques.

2. Proper understanding of radiological anatomy.

3. To assess of preceding growth or estimation of direction and/ or magnitude of expected growth.

4. Compare the outcomes of different treatment methods at different maturational stages and with different facial types using different radiographs.

5. Distinguish effects of treatment from expected effects of unaltered growth

6. Assessment of pathology and any deviations from normal radiographic anatomy and differentiate them from artifacts.

Periodontology

1. Ability to appreciate the importance of periodontal health in an Orthodontic patient and the role played by an existing malocclusion towards periodontal ill health.

2. Carry out a periodontal screening using a simple/ basic screening index such as BPE.

3. Interpret the results obtained from a periodontal screening examination and explain the periodontal intervention/ treatment and care needs required in individual patients.

4. Be familiar with the periodontal diagnoses and specify on the nature of periodontal care required to such patients presented for orthodontic interventions.

5. Identify the level of total periodontal care (immediate and long term treatment as well as simple and advanced treatment) in individual patients and be able to arrange/ refer for advice for identified periodontal care accordingly.

6. Be familiar with all routine periodontal procedures, treatment methods (non-surgical, surgical) and other advanced periodontal regenerative treatment methods available in Sri Lanka.

7. Decide on the suitability for active Orthodontic treatment in adult patients with a compromised periodontium, considering the presence/ absence of active periodontal infections as well as periodontal risk involved.

8. Appreciate the importance of long-term periodontal maintenance care for an Orthodontic patient, and arrange such care for the

Annex 3B
Curriculum - Learning objectives of related subjects

Plastic Surgery

1. Surgical management of Cranio-facial defects including cleft lip and palate
2. Principals of management of cosmetic facial surgery including rhinoplasty, chelioplasty and blepheroplasty.
3. Post surgical assessment and management of cleft lip and palate
4. Pre surgical patient preparation for surgery
5. Post surgical management of patients
6. Principals of surgical techniques including suturing techniques

Peadiatric Medicine

1. Growth and growth charts of an infant
2. Feeding, feeding management and weaning
3. Identification of developmental problems
4. Vaccinations
5. Identification of illness and necessary referral
6. Syndromes of the head and neck
7. Handling of children with special needs and medically compromised patients

Annex 4
Roles and Responsibilities of a Trainer

The roles and responsibilities of a trainer are multiple:

A. MD trainer(Educational /Clinical Supervisor)
B. Supervisor of a research project
C. Reviewer/assessor of a research project
D. Supervisor of the Training Portfolio
E. Role model
F. Examiner

A. <u>As a MD trainer,</u> he/she should

1. Be involved in teaching and ensure trainees learn on the job.
2. Allocate time for trainees to discuss academic as well as personal issues.
3. In instances of unsatisfactory behavior, attitude or problems of the trainee if the trainer is not the educational supervisor first warn the trainee and if the situation persists, inform the educational supervisor of the trainee to sort out the problem at grass root level. As a last resort, inform the Director/Post Graduate Institute of Medicine and Board of Study in Dental Surgery so that remedial action can be taken. Communications on such issues should be copied to the trainee's educational supervisor.
4. Consult the Board of Study and inform the educational supervisor of the trainee, if a trainee is required to repeat any duration of a clinical appointment or any other appointment.
5. Send progress reports to the Board of Study in Dental Surgery, every six months.
6. Supervise the leave arrangements of trainees. (Warn the trainees if in excess and remind them that leave is not a right but a privilege, but give their due)
7. Encourage trainees to participate in continuing medical and professional development activities such as time to visit the library, participate in other clinical meetings, workshops, critical appraisal of journal articles etc.
8. Encourage presentations by the trainees in clinical meetings, CPD activities etc.
9. Conduct workplace based assessments –as indicated in the portfolio guidelines.
10. Inform the Board of Study in Dental Surgery if more than 2 weeks of leave is to be taken by you.
11. Arrange for cover up of leave for training purposes (since this may be different from work cover up)
12. Inform the Board of Study in Orthodontics and give adequate time for the Board to decide on an appropriate course of action if more than 1 month leave is to be taken,
13. Handover the required letters of release/ attest to the satisfactory completion of portfolio of the trainees on completion of an appointment by the trainee (it might be difficult for them to come later)

Annex 5
LOG BOOK

Log book in Orthodontics is a record of all practical procedures which a MD trainee should perform during the training period.
This record should be maintained and completed by the trainee under the supervision of the educational supervisor
Log book covers the following main areas.

A. Laboratory Work.

1. Impression taking, casting, trimming and finishing of models.
2. Construction of removable appliances.
3. Construction of relevant components of Fixed appliances

B. Wire bending Exercises for fixed appliances.

C. Gathering clinical information

D. Treatment planning and execution of treatment in100 cases- (25 removable appliances and 75 fixed appliances) Cases should show a wide range of malocclusions treated with different appliance systems with a minimum of 10 multidisciplinary cases.

FORMAT OF RECORDS(for sections A and B and C)

A. **Laboratory Work**

1. Impression taking-20 cases
2. Model casting, trimming and finishing-30 cases
3. Construction of removable appliances-50 appliances
   a) 5 different types of clasps
   b) 5 types of labial bows
   c) 5 types of retractors
   d) 5 screw plates
   e) 5 tongue guards
   f) 3 types of functional appliances
   g) 5 Quad helix appliances
   h) 5 RME
   i) 5 Palatal arch (Lingual arch / Nance)
   j) 5 Feeding plates

B. **Wire bending for fixed appliances**

C. Gathering clinical information

1. Digital photography skills & knowledge
2. Cephalometric analysis-75 cases
3. Model analysis-75 cases

Work Description	Date	Signature of the supervisor

C. **Treatment planning and execution of treatment of 100 cases.**

Fixed Appliances-75 cases, Removable Appliances +Functional appliances-25 cases

Format for records

Case No	Initials of the Patient	Reg: No	Diagnosis	Treat-ment plan	Date of commencement of treatment	Date of completion of treatment / current status	Signature of the supervisor
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Case No	Initials of the Patient	Reg: No	Diagnosis	Treatment plan	Date of commencement of treatment	Date of completion of treatment / current status	Signature of the supervisor
16							
17							
18							
19							
20							

Up to 100

Signature of the trainee: Date

Signature of the educational supervisor Date

Annex 6-section A

Post MD in Orthodontics Training Portfolio

Instructions to the trainees

Trainees are strongly advised to read the full 'Prospectus of the Doctor of Medicine(MD) and Board certification in Orthodontics' document and 'General Regulations and Guidelines of the PGIM' and Pre-board certification guidelines provided by the PGIM for better understanding of the MD training programme and maintaining the portfolio.

About Your Post MD Training Portfolio:

1) **What is Post MD training portfolio?**
   Systematic collection of the on-going, up-dated Record of all your training activities related to the Post MD training in Orthodontics for the entire duration of two years (24 months), from the first day of your Post MD training, until you complete the 'Portfolio Viva' at the Pre-Board Certification Assessment (PBCA).
   The portfolio is intended to help you understand how learning can be applied to a wide range of learning activities such as your clinical training, research, soft skills etc. It will specifically help you with continuing professional development, audit and personal development as well as improving on presentation, teaching and communication skills.

   About Reflective Portfolio….
   Currently, the importance of maintaining a **'REFLECTIVE PORTFOLIO'** has been emphasized world-wide, particularly in institutions where high quality programmes are offered. PGIM too expects high standards from the trainees and their training portfolios to be of reflective nature. Therefore, the trainees are encouraged to demonstrate '**REFLECTIVE PRACTICE'** as part of continuing professional development.
   A Reflective Portfolio is a collection of writings that summarizes the insights and experiences a student has gained from practical assignments. It is used to assess the student's engagement with their practical work, and their ability to use theoretical knowledge in a practical situation.
   Unlike traditional assignments, a reflective portfolio allows students to explore their own learning process, and it invites students to highlight their own personal perspectives/opinions. A reflective portfolio should provide an honest summary of the work undertaken and the skills that were developed. The key to success is demonstrating genuine engagement with the course of study rather than maintaining a mere record.

2) **How does a properly-maintained reflective portfolio help your training further?**
   The collection of your work record will help you to have self-reflection, self-evaluation and to judge the standards/quality of your own work. Reflective Portfolios are considered to be far more helpful to the academic development than traditional assignments. This is because it allows students to develop a critical

awareness of their own skill development, which helps them identify their own strengths and weaknesses. Thereby, it will be possible for them to improve work, both from quality and quantity-wise. The record will also represent your documentation capabilities and responsibilities. The Reflective Portfolios inculcate confidence in the students as they learn to apply their theoretical knowledge to practical situations. Through a portfolio, students reflect back on the thoughts, feelings and insights that they developed over the course, and this creates a more holistic educational experience.

3) **How to maintain your portfolio?**
It is essential that you **promptly** enter all your training activities, such as clinical/laboratory procedures and other post MD training activities within and outside the course. The expected details in each section should duly be completed and signed by the relevant supervisor on time. Since your Portfolio is the prime proof for your Post MD training activities, you need to take extreme care on your training portfolio. Therefore, it is recommended that you either maintain this in duplicate or to compile a photocopied back-up copy.

4) **How important is your portfolio?** It is MANDATORY that you produce the duly completed Post-MD training portfolio to the PGIM **prior to the PBCA**, without which you will not be eligible to apply for the Board Certification. (Please refer to the relevant sections in your prospectus for details).

Key points in writing a good reflective portfolio

[References: Southampton Solent University, 2013. Reflective Thinking and Learning. IVORYRESEARCH.COM 2015]

Be critical. Although the content of a portfolio will be more personalized than other assignments, you should use the same level of critical analysis as you do for any essay or exam.

Be comprehensive. Make sure that you include a good range of experiences that exemplify your work throughout the duration of your practical/clinical training. You might choose to emphasize one or two periods of your training, but these should be contextualized within your overall experience.

Don't be afraid to reveal your weaknesses. Writing about your professional insecurities and weaknesses shows examiners how much you have developed throughout your course. It also enables you to reflect on theories and methods that might benefit you in the future.

Devise a plan for development. Your Reflective Portfolio should testify to your development as a practitioner throughout the duration of your course. However, to write a really strong portfolio you should also demonstrate an action plan for future development. Think about what knowledge and skills might address the professional weaknesses that your reflections reveal, and indicate how you intend to develop these.

Mistakes in writing reflective portfolios

[References: Southampton Solent University, 2013. Reflective Thinking and Learning. IVORYRESEARCH.COM 2015]

The most common mistake in Reflective Writing is to be either too objective and scholarly, or too emotional and non-critical. Either mistake is equally wrong. Students should aim for a middle ground in their writing, in which they highlight their own personal feelings and reflections but analyze these with reference to the theoretical course material. Finally, be sure to keep

your portfolio well organized and professional-looking. Because reflective portfolios entail a less formal style of writing, it by no means allows you to have disorganized documentation with jumbled notes, illegible handwriting and poor grammar. Please remember that a portfolio is still an academic assignment.

5) What are the contents of your portfolio?

Post-MD Portfolio Contents: (Duration: 02 years – one year local & one year overseas)

Contents should be divided into sections according to the outcomes stated in the PBCA Guidelines. [Annex 6- Section A]

i) Subject expertise
ii) Teaching
iii) Research and audit
iv) Ethics and medico-legal issues
v) Information technology
vi) Life-long learning

Subject expertise:

- progress reports from supervisors (essential, should be according to prescribed format)
- Supervisor feedback on communication skills
- log of procedures carried out
- results of any work-place assessments conducted

Teaching

- undergraduates
- postgraduates
- ancillary health staff

Research and Audit relevant to speciality or subspeciality

- Dissertations / theses
- Research papers published or accepted for publication
- abstracts of presentations
- Clinical audit

Ethics and Medico-legal Issues

- Completed Professionalism Observation Forms (from integrated learning component of Professionalism Strand)
- Completed PTR forms during post-MD training

Information Technology

- Participation in training programmes / workshops
- Evidence of searching for information and application of findings in practice

Life-long learning

- Participation in conferences and meetings

Reflective practice

- narration of at least one learning event experienced by the trainee, in relation to each of the above outcomes, with reflection on what and how the trainee learned from this experience.

- *During the post-MD period of 24 months, the trainee has to continue to document the progress of his/her training and maintain a comprehensive record in the Training Portfolio. This shall enable you to reflect on your training experience, recognize and correct any weaknesses in the competencies expected of you at a post-MD level. This will also help you to analyze challenging clinical events experienced, so that appropriate changes in the management could be adopted in order to reduce the risks arising from such situations in the future.*

- *Your trainer needs to supervise and certify that the trainee has satisfactorily acquired the expected competencies. The Training Portfolio shall be used at the Pre Board Certification Assessment, to evaluate the trainee's competence to practice independently as a Specialist in Orthodontics.*

- *Trainees are kindly requested to remind the relevant supervisors to send the Progress Reports to the PGIM at the correct time.*

Annex 6 - section B

Template for post MD portfolio

POST-MD PORTFOLIO

MD in Orthodontics

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO
SRI LANKA

Name of the Trainee:

Dates of Commencement and Completion of Post-MD Training:

(From ……To……)

Post-MD Training: **Local ( )** **Overseas ( )**

Section-
1 - Subject expertise
(a) Log of Procedures

Training Records (Detailed Case Record Sheets)

Please record all clinical / laboratory procedures performed by you in this Case Record Sheet as well as on the Summary Sheets. These records should be maintained legibly and certified by the supervisor/trainer.

Case Record Sheet (to be replicated for each patient);

Patient's name: Age & Date of Birth: Record Number: Gender: (M/F)

…….. ……. ……

Post-MD Training Local ( ) Overseas ( )
Case Record Summary Sheet (to be replicated as required)

Details of the Patient (Hospital Record Number):	**Mention the relevant *Discipline/s (modules)**	**Summary of Clinical / Laboratory Procedures carried out**	**Dates of start & completion of the case**	**Signature /s of the supervisor/s**

***Disciplines/Modules:**
[E.g. Management of patients requiring more complex multidisciplinary dental and medical specialties care such as cleft lip and palate, orthognathic problems, cranio-facial syndromes, medically compromised patients, adult orthodontics etc.]

(b) – Trainer/supervisor feedback on communication skills

2- Teaching

[Presentations (Oral/ Poster/Invited Lectures) and engagement in teaching or training of undergraduates/ ancillary staff etc]

Date	Activity with Forum & Location

3- research and audit

Other than the compulsory research project trainees may submit evidence of Conduct of Research and Publications (if any): [Abstracts/ Extended-abstracts/ Journal articles / Chapters in Textbooks/clinical audits]

4- Life long learning

i) **Participation in Continuing Professional Development (CPD) Activities** (Attendance in national/ international conferences, Academic Sessions, Workshops, Journal Clubs, Courses and Other Study Programmes)

Date/s of Attendance	CPD Activity & Location

5 -Ethics and medico legal issues

(A)-Completed professionalism Observation forms
(B)-Completed PTR form during post MD training

6 -Information technology

A-Participation in trainng programmes and workshops

Date/s of Attendance	Activity & Location

B-Evidence of searching information and application in practice

Date	Activity and location	Application

7- Reflective practice

narration of at least one learning event experienced by the trainee, in relation to each of the above outcomes, with reflection on what and how the trainee learned from this experience

Supervisors : Please mention whether the trainee has fulfilled satisfactory attendance during the training programme . Please certify, only if there is valid proof for above academic activities.

Comments

……
.....

Supervisors' Name, Signature with official stamp & date

……

Post-MD Training: Local ( ) Overseas ( )

N.B Trainees are required to get the signatures of all the supervisors involved in different components and the signature of the educational supervisor as well.

Annex 7
MD Orthodontics Programme
Progress report – Pre MD stage (first three stages)

Name of Trainee:
Hospital : Trainer:
Period from : to

Performance: Above Average : A Adequate : B Poor : C

Clinical Skills

Clinical examination	
Diagnosis and treatment planning	
Patient management	
Laboratory skills	

Academic Skills

Theoretical knowledge	
Knowledge of current literature	
Participation in academic activities	

Communication Skills

Demonstrate appropriable communication skills with patients , parents and others	

General Conduct

Responsibility and conscientiousness	
Punctuality	

Comments on particular weaknesses and suggested remedies:

Date :
……..

Signature of Trainer

Annex 8
PEER TEAM RATING FOR ASSESSMENT OF REGISTRARS/ SENIOR REGISTRAR

LIST OF 'RATERS' INVITED TO PARTICIPATE IN PEER TEAM RATING (PTR)

PTR FORM A

DEAR TRAINEE/TRAINER,

Please identify at least five members of your team to assess the trainee using PTR form B as per the instructions in the relevant prospectus. Ensure that all categories of staff are included in the list below. (e.g. Consultants, Registrars, SHO's, Nursing officers, Medical students, Pupil Nurses,
Physiotherapists, Pharmacists, Theatre Staff, Labour Room Midwives, Technicians, etc.)

Please submit this form together with five assessments, using PTR form B from the raters listed below to Director, PGIM.

Please fill in this form before you distribute your PTR forms.

	Name of 'Rater'	**Profession/ Occupation**	**Hospital Department/ ward**
1			
2			
3			
4			
5			

Name of trainee : _____ PGIM Roll No: _____

Speciality : _____ Date : _____

Signature : _____

Name of trainer : _____

Signature : _____

Date : _____

PGIM PTR ASSESSMENT OF REGISTRARS/ SENIOR REGISTRARS

PTR FORM B

Confidential

Dear Colleague,

You have been your invited to participate in Peer Team Rating of this doctor. PTR is a tool for multi source feedback 360^0 assessment. We value your independent and honest rating of our trainees.

Please indicate your profession by filling in one of the following circles

O Consultant	O Registrar	O SHO or HO
O Allied Health Professional	O Senior Registrar	O Nurse
O Clerical or Secretarial Staff	O Other specify……..	

Your scoring should reflect the performance of this trainee against that which you would reasonably expect at his/her stage of training and level of experience. Please feel free to add any other relevant comments about this doctor's strengths and weaknesses.

Please place form in the attached self addressed envelope and return to the Trainer named on the envelope. DO NOT return to the trainee concerned.

THE PTR IS NOT AN ASSESSMENT OF KNOWLEDGE OR PRACTICAL SKILLS

Name of trainee: **Specialty:** **Date:**	**Strongly Disagree**				**Strongly Agree**
	1	**2**	**3**	**4**	**5**
1. Attitude to staff: Respects and values contributions of other members of the team	**1**	**2**	**3**	**4**	**5**
2. Attitude to patients: Respects the rights, choices, beliefs and confidentiality of patients	**1**	**2**	**3**	**4**	**5**
3. Reliable & punctual	**1**	**2**	**3**	**4**	**5**
4. Communication skills: communicates effectively with patients and staff	**1**	**2**	**3**	**4**	**5**
5. Team player skills: Approachable, Supportive and accepts appropriate responsibility	**1**	**2**	**3**	**4**	**5**
6.Leadership skills: Takes responsibility for own actions and actions of the Team	**1**	**2**	**3**	**4**	**5**
7. Honesty and Integrity: do you have any concerns?	Yes		No		

8. What is your overall rating of trainee's professionalism?

Very poor **Extremely good**

1 2 3 4 5 6 7 8 9 10

Comments

Name: Signature:

Date:

Peer Team Rating - Postgraduate Institute of Medicine

PTR FORM C

PTR SCORES

To be completed by Trainer and returned to Director/PGIM together with the completed PTR forms A & B

- Please transcribe the scores from each individual PTR form B onto the following table. Where scores have not been recorded leave boxes empty.
- Please use the scores as the basis for feedback to trainee in order to maintain the confidentiality of the raters.

Raters		1	2	3	4	5			Mean
Attitude to Staff									
Attitude to patients									
Reliability and punctuality									
Communication skills: patients and staff									
Team player skills									
Leadership skills									
Overall competence									
Honesty and integrity	Yes								
	No								
Areas of concern: Agreed remedial action:									
Name of Trainee: Signature :					Specialty : Date:				
Name of Trainer: Signature:					Specialty : Date:				

Annex 9 - section A

Generic format for writing a research proposal

The aim of the research component is to plan and complete a scientific research project, with due appreciation of the need for scientific validity and ethical principles, within organizational and financial constraints. The choice of the research project will be primarily that of the trainee, but this should be discussed with and approved by the supervisor. The trainee should prepare a research proposal which will be submitted to the BOS for approval prior to commencement of the study.

Time frame: the research proposal should be approved within the time period stipulated by the BOS.

Format:

In general, the research proposal should be limited to 3000 words. The following structure is suggested:

- Title of the study
- List of investigators
- Collaborating institutions
- Background/introduction: this should include an overview of the subject related to the research project, with a relevant review of the literature.
- Justification: This section should provide a brief justification of the importance and relevance of the study proposed, including the feasibility of the study.
- Objectives: general and specific objectives of the study should be clearly defined.
- Methods: The methodology to be adopted to achieve the listed objectives should be given in detail; the following sub-sections are suggested as a guide:
    - Study design
    - Study period
    - Study population
    - Sample size calculation
    - Sampling technique
    - Study instruments
    - Data collection
    - Proposed statistically analysis
    - Ethic clearance and consent, and confidentiality of data
    - Proposed methods for dissemination of findings
- Annexes: the following annexes should be provided:
    - Data proforma/s
    - Consent forms, where relevant in all three languages
    - Other relevant supporting documents

The trainees are advised to use Microsoft Word® for formatting documents. The software Endnote®, Reference Manager® or Mendelay® should be used, if possible, for citations. The reference format should follow the Vancouver® Style.

Both soft and hard copies of the documents should be submitted to the BoS, through the supervisor.

Annex 9 - Section B

Generic format for reviewers to report on research proposals

The reviewers of the research project should rate the research proposal as satisfactory or unsatisfactory. The main sections should be rated as satisfactory or unsatisfactory, and, if rated as unsatisfactory, specific comments should be provided. General statements should be avoided, and the reviewers should specifically what deficiencies are present and how they could be addressed.

Section	Satisfactory or Unsatisfactory	Remarks
Background		
Justification		
Objectives		
Methods		
Overall		

Recommendation: Accept as is / Revise and resubmit / reject

If a proposal is rejected altogether, the trainee will be expected to submit a new proposal.

Annex 9 - section C

Generic guidance to supervisors

1. The supervisor should guide the student in planning, carrying out research methodology and in presentation of the work, including the writing of the dissertation.

2. The supervisor should obtain recommendation of the research proposal from a reviewer.

3. The supervisor should forward progress report(s) in the prescribed form at the end of 3 months after the trainee commences work on the research project and 3 months after completing the project work.

4. The objective of the dissertation is to prove the trainee's capability to plan, carry out and present his/her own research. The purpose of this training is to ensure maturity, discipline and scholarship in research.

5. The dissertation should comprise the trainee's own account of his / her research.

6. It should be satisfactory as regards literary presentation.

7. The dissertation should be certified by the supervisor as suitable for submission.

8. General Comments on the contents: The objectives should be clearly stated and should be feasible to achieve within the time frame. Other published work relevant to the problem (both international and local) should be comprehensively covered and critically evaluated. The research methodology should achieve the objectives stated. The results should be presented effectively. The discussion should include comments on the significance of results, how they agree or differ from published work and theoretical / practical applications of the results, if any. The conclusions should be valid and be based on the results obtained on the study.

9. Ethics: The candidate should confirm and document that procedures followed were approved by the Ethical Committee of the institution where the work was carried out and ethical approval is obtained by a recognized Ethical Committee.

10. If at any time the supervisor is not satisfied with the work progress of the trainee, the trainee should be made aware of the deficiencies and corrective measures suggested. This should be conveyed in writing to the trainee with a copy to the BOS. In such instances, a follow-up report should be forwarded within three months or earlier if necessary to the BOS.

Annex 9 - section D

Generic format for progress reports

The progress reports should have the following components:

- By the trainee: Description of work carried out to date
- By the supervisor:
    - Whether the research project is progressing satisfactorily
    - Constraints
    - Whether the dissertation writing is on schedule
    - Whether overall progress is satisfactory

Annex 9 - section E

Generic format for project reports / dissertations

The following format should be adopted for project reports or dissertations

The preliminaries should precede the text. They should comprise the following:

1. *Title page*

<Title of dissertation>

<Author's name>

MD (subject)

Post Graduate Institute of Medicine

University of Colombo

<Year of submission>

2. *Statement of originality: This is a declaration that the work presented in the dissertation is the candidate's own, and that no part of the dissertation has been submitted earlier or concurrently for any other degree. The statement should be signed by the author, and countersigned by the supervisor.*

3. *Abstract: This should consist of a brief summary of not more than 350 words describing the objectives of the work, the materials and methods used, the results obtained, and the conclusions drawn. This may be in a structured format if helpful.*

4. *Table of contents: The table of contents immediately follows the abstract and lists in sequence, with page numbers, all relevant divisions of the dissertation, including the preliminary pages.*

5. *List of tables: This lists the tables in the order in which they occur in the text, with the page numbers.*

6. *List of figures: This lists all illustrative material (maps, figures, graphs, photographs etc) in the order in which they occur in the text, with the page numbers.*

7. *Acknowledgments*

Text

The dissertation should be divided into clearly defined sections. Sections may be subdivided.

Introduction: The aim of this section is to state briefly the current position and the reasons for carrying out the present work. Generally, only a few references should be cited here.

Literature Review: This section should be reasonably comprehensive, and most of the references to be quoted normally occur here. The relevant references dealing with the general problems should be reviewed first and this is followed by a detailed review of the specific problem. The review is in many cases approached as a historical record of the development of knowledge of the subject. This chapter should conclude with a brief statement of what you propose to find out.

Materials and Methods: These should be described so that a reader could repeat all the experiments. Where specific details are available in the literature, reference should be made to the original papers, and comments kept to a minimum. If modifications have been made to the published techniques, these should be described in full.

Results: Much of the data should be given in tables and figures and these should be inserted in the text at the appropriate place. The results must be fully described in the text. It is not sufficient to merely present the tables and figures without any comment. The tables and figures should be clear without references to the text, and this requires concise explanations in legends. Where possible, data presented in the text should have already been analyzed and the complete 'raw' figures should not be included in this section but should be contained in tables in the Appendix.

Only data from the present work should be included in this section and in particular no comparison should be made at this stage with results from other workers.

*Discussion: The discussion is the most difficult part of the dissertation to write because the author has to compare **critically** the present results with those of other workers and to draw valid conclusions from these studies. Descriptions of other workers findings which already appear in the Literature Review should not be repeated in the Discussion. Instead, refer to the Review.*

The limitations of the study and recommendations for future research on the subject should also be included in this chapter.

As your project proceeds, keep notes of your thoughts and discussions relevant to this section.

References

All references should be cited in the text. The Vancouver style should be used for references, and should be listed in the order of citation. Endnote ®, Reference Manager® or Mendelay® referencing software should be used for citations.

Annex 10

Case Book

The eligible candidates should submit five fully documented case histories managed by them under the supervision of the Consultant Orthodontist who is his or her educational supervisor.

Objective of the case book

This component of the examination is intended to illustrate the candidate's ability to treat a range of orthodontic problems to a high standard and to demonstrate an understanding of the principles underlying the treatment.

Guidelines and the format for the case book are given in

Annex 10 A

The case book should show:

1. A wide variation in case selection.
2. Application of different treatment approaches and techniques as far as possible.
3. If more than one multidisciplinary case is included they should involve different specialties
4. Declaration form **(Annex 10 -B)** must be completed for each case history presentation and inserted into the patient's folder. **This includes the statement - 'I confirm that I have not plagiarized from any source and all records are authentic'.** Candidates presenting for this examination will be subjected to the relevant plagiarism regulations of the PGIM
5. A consent form **(Annex 10 -C)** must be completed for each case history and inserted in the patient's folder

This case book should be submitted in duplicate to the PGIM with a soft copy, two months prior to the scheduled date of MD Orthodontics examination.

A candidate who is unsuccessful at the MD Orthodontics examination but obtained a pass mark in the case book component will be exempted from that component for the next two years. The mark obtained at the last attempt will be carried forward to the next examination.

Successful candidates should hand over one copy of the case book with necessary corrections (if any) to the PGIM within three months after passing the MD Orthodontics examination. This copy will be housed in the PGIM library. This will be considered as a prerequisite to apply for the Pre Board Certification Assessment.

Annex 10 - Section A
Guidelines and Format for the case book

The candidate's examination number and the patient's initials should be clearly shown on all the relevant material submitted which should be colour coded using adhesive labels as shown below. Each case history should be presented in a separate semi-stiff binder approximately 30x21cm (A4 size), i.e. large enough to accommodate cephalometric radiographs and tracings but not unnecessarily robust or unduly bulky. The cover should indicate the patient's initials and the type of case presented as follows:

Case histories ranked according to complexity*	Code on folder cover	Colour : adhesive labels on folder cover and study models
Case A (patient's initials)	A	Green
Case B (patient's initials)	B	Blue
Case C (patient's initials)	C	Red
Case D (patient's initials)	D	Yellow
Case E (patient's initials)	E	White

*Candidates should rank the five case histories according to complexity: Case A (Green) being the most complex, Case E (White) being the least complex.

The texts relating to each case must be neatly presented with adequate margins and spacing, and checked before submission for spelling and typographical errors.

The candidate's name and training centre must not be stated on any part of the material submitted, and the patient's address should not be referred to in the personal details.

The requirements for the individual clinical case histories are as follows:

Fully documented case history:

(i) the clinical case histories should take the form of comprehensive orthodontic assessments based on the clinical examination of the patients. Prints of radiographs or duplicate film radiographs relevant to the cases must be included. A clear understanding of the cephalometric analysis used should be evident from the text and the radiographs should be so arranged that they illustrate progress from one stage of treatment to the next. The candidate should also demonstrate responsibility for monitoring the general oral and dental health of each patient whilst undergoing orthodontic treatment;

(ii) The aims and objectives of treatment should be clearly stated together with the reasons for adopting the methods used;

(iii) Candidates must fully describe the features of the appliance components and give details relating to arch wires used;

(iv) The progress of the cases during treatment should be evident from the records presented, and the text should adequately explain the reasons for appliance adjustments together with the method of adjustment and the sequence of treatment changes;

(v) Problems encountered during treatment must be discussed and an objective commentary given on the results, including, if necessary, how these results might have differed by adopting alternative treatment plans;

(vi) The cases should be adequately illustrated by colour prints, showing extra-oral (full face, lateral and ¾ profile views) and intra-oral (anterior, lateral and occlusal views), before and after treatment. Additional intra-oral and extra oral photographs should be included to illustrate key stages in treatment;

(vii) Pre-treatment, mid-treatment (if applicable) and post-treatment study models must be submitted. These should be marked with the patients initials and colour coded with adhesive labels.

If a multidisciplinary case history is used:

The presentation of the clinical case history should broadly follow the details described for the fully documented case history, but this will depend on the nature of the clinical problem and whether or not the patient is being treated or kept under observation. Nonetheless, the candidate must clearly demonstrate his/her close involvement with the clinical management of the patient as well as a satisfactory understanding of the aetiology, diagnosis and possible methods of treatment. The text must incorporate a commentary relevant to all aspects of the patient's problems, including difficulties encountered in earlier management and those anticipated in the future. The candidate should also report on any of the original clinical records and/or specific investigations referred to in the case history. It should also be evident that the candidate has actively monitored the patient's oral and dental health during treatment and prescribed appropriate remedial action where necessary.

Format for Case Book

The five case presentations should be made separately according to the format given. Template for the case presentations can be obtained from the PGIM. They should be in A4 clear presentation folders. Cases should be colour coded.

Study models should be colour coded and kept in separate boxes and handed over with the case histories.

The five case records should be handed over to the PGIM two months prior to the date of the examination.

Three copies of each case are required. The internal and external examiners shall read the submitted copies.

After the examination all the copies of the case histories shall be handed over to the candidates. Successful candidates are expected to do necessary corrections (if any), and comply three separate case books. All three books should be bound in hard covers (black) with the author's name, degree , Training centre , supervisors name, and year printed in gold on the spine. The front cover should carry the title, author's name and year printed in gold. One copy shall be returned to the trainee, one retained by the supervisor, and the third housed in the PGIM library.

MD in Orthodontics Case History Template

1. The template for the case history presentation shall be used for each of the five case histories. Candidates shall follow the template carefully. The overall length of the template shall not be exceeded.

2. There shall be four sections including:

1) Pre-treatment Assessment
2) Treatment
3) Post-Treatment Assessment
4) Rationale for Treatment and Critical Appraisal

3. The amount of text shall be limited to the pages indicated (Arial font 11). Lists and bullet points may be used to highlight key features of the case and the treatment.

4. The remainder of the template includes space for photographs, radiographs, cephalometric tracings and superimpositions. Some of these pages may be omitted if they do not relate to the individual case.

Page 1

POST GRADUATE INSTITUE OF COLOMBO SRI LANKA
MD ORTHODONTICS

FULLY DOCUMENTED CASE PORTFOLIO

DATE OF EXAMINATION: [month, year of examination]
CANDIDATE NUMBER: [N]

CASE NUMBER : [N]
PATIENT'S INITIALS : [I.I]

COLOUR CODE :
[attach colour sticker here]

CASE SUMMARY
[A brief description of the case, maximum 100 words]

Page 2

SECTION 1. PRE-TREATMENT ASSESSMENT

PATIENT DETAILS

Initials:

Sex:

Date of birth:

Age at start of treatment:

PATIENTS COMPLAINTS

RELEVANT MEDICAL HISTORY

Page 3

CLINICAL EXAMINATION: EXTRA-ORAL FEATURES

Evaluation of Facial appearance and proportions:

Frontal examination of face: Symmetry
Proportions
Any other relevant finding

Profile examination of face:

Relationship of the Jaws in the anteroposterior plane of space

Lip Posture and Incisor Prominence

Vertical Facial proportions and Mandibular Palne Angle

Any other relevant finding

Smile Analysis

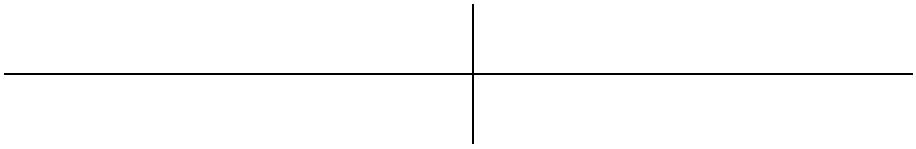
Any other relevant information

CLINICAL EXAMINATION: INTRA-ORAL FEATURES

Soft tissues:

Oral hygiene:

Erupted teeth present:



General dental condition:

CROWDING / SPACING

Maxillary arch:

Mandibular arch: Crowding/Spacing

OCCLUSAL FEATURES

Incisor relationship:

Overjet (mm):

Overbite:

Centrelines:

Left buccal segment relationship:

Right buccal segment relationship:

Crossbites:

Displacements:

Other occlusal features:

Page 4

PRE-TREATMENT PHOTOGRAPHS: EXTRA-ORAL

[Attach frontal profile and oblique profile photographs with to this page]

Page 5

PRE-TREATMENT PHOTOGRAPHS: INTRA-ORAL

[Attach anterior, left and right intraoral photographs to this page]

Page 6

PRE-TREATMENT PHOTOGRAPHS: OTHER RELEVANT VIEWS

[Attach other relevant views to this page]

Page 7

PHOTOGRAPHS OF PRE-TREATMENT STUDY MODELS

Page 8

GENERAL RADIOGRAPHIC EXAMINATION

Pre-treatment radiographs taken:

Unerupted teeth:

Teeth absent:

Teeth of poor prognosis:

Other relevant radiographic findings:

Page 9

PRE-TREATMENT RADIOGRAPHS

[Enclose the radiographs in this pouch]

Page 10

OTHER SPECIAL TESTS / ANALYSES

[This is optional. Present details and results of any other tests or measurements which are available and which contribute to the assessment of the case]

Page 11

CEPHALOMETRIC TRACING: PRE-TREATMENT

[Attach cephalometric tracing here]

Page 12

CEPHALOMETRIC ANALYSIS

VARIABLE	PRE TREATMENT	NORMAL
SNA		82° ± 3
SNB		79° ± 3
ANB		3° ± 1
Wits appraisal		0 mm
Upper incisor to maxillary plane angle		108° ± 5
Lower incisor to mandibular plane angle		92° ± 5
Inter incisal angle		133° ± 10
Maxillary mandibular planes angle		27° ± 5
Upper anterior face height		
Lower anterior face height		
Face height ratio		55%
Lower incisor to Apo line		0-2 mm
Lower lip to Ricketts E Plane		-2 mm

Sources of normal values: Jacobson (1975) Am J Orthod. 67:125-133.
Houston WJB, Stephens CD & Tulley WJ (1992)
A textbook of orthodontics. Wright, Oxford

Page 13

ADDITIONAL CEPHALOMETRIC ANALYSIS (OPTIONAL)

[Where an additional analysis is used, provide clear definitions of the measurements together with means and standard deviations]

INTERPRETATION

Page 14

DIAGNOSTIC SUMMARY

PROBLEM LIST

[Add as few or as many as are appropriate to the case]
1.

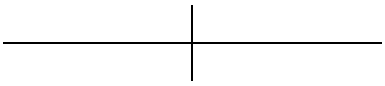
2.
3.

AIMS AND OBJECTIVES OF TREATMENT

[Add as few or as many as are appropriate to the case]

1.
2.
3.
4.
5.

TREATMENT PLAN
Extractions:



Appliances:
Special anchorage requirements:
Minor adjunctive surgery:

Major adjunctive surgery:

Additional dental treatment:

Proposed retention strategy:

Page 15

PREDICTIONS

[Where cases are presented which involve orthognathic surgery, planning may be included on these two pages]

Page 16

PREDICTIONS

[Where cases are presented which involve orthognathic surgery, planning may be included on these two pages]

Page 17
SECTION 2. TREATMENT

TREATMENT PROGRESS

Start of active treatment:

Age at start of active treatment:

End of active treatment:

Age at end of active treatment:

End of retention:

KEY STAGES IN TREATMENT PROGRESS
[Provide a brief summary of approximately 8 - 10 key stages in the treatment sequence]

DATE	STAGE
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

Page 18

KEY STAGES IN TREATMENT PROGRESS (CONTINUED)

Page 19

MID-TREATMENT PHOTOGRAPHS:
[Optional. Attach any relevant photographs which illustrate treatment mechanics to this page]

Page 20

SECTION 3. POST-TREATMENT ASSESSMENT

OCCLUSAL FEATURES

Incisor relationship:

Overjet (mm):

Overbite:

Centrelines:

Left buccal segment relationship:

Right buccal segment relationship:

Crossbites:

Displacements:

Functional occlusal Features

Other occlusal features:

COMPLICATIONS ENCOUNTERED DURING TREATMENT

Page 21

OCCLUSAL INDICES

[This section is optional]

INDEX	PARAMETER	VALUE
Index of Treatment Need		
Dental Health	Start	
Component		
	Finish	
Aesthetic Component	Start	
	Finish	
Peer Assessment Rating (PAR)	Start	
	Finish	
	Change	
	% Change	

RADIOGRAPHS TAKEN TOWARDS / AT END OF TREATMENT

Radiographs taken:

Relevant findings:

Page 22

POST-TREATMENT RADIOGRAPHS

[Enclose the radiographs in this pouch]

Page 23

CEPHALOMETRIC TRACING: POST-TREATMENT (Where appropriate)

[Attach cephalometric tracing]

Page 24

CEPHALOMETRIC ASSESSMENT (where appropriate)

VARIABLE	POSTTREATMENT	CHANGE
SNA		
SNB		
ANB		
Wits appraisal		
Upper incisor to maxillary plane angle		
Lower incisor to mandibular plane angle		
Interincisal angle		
MM angle		
Upper anterior face height		
Lower anterior face height		
Face height ratio		
Lower incisor to APO line		
Lower lip to Ricketts E Plane		

Page 25

ADDITIONAL ANALYSIS (OPTIONAL)

INTERPRETATION

Page 26

CEPHALOMETRIC SUPERIMPOSITION (where appropriate)

Overall superimposition, registered on Sella-Nasion line at Sella

Page 27

CEPHALOMETRIC SUPERIMPOSITION (where appropriate)

Maxillary and mandibular superimpositions.

[Please state registration landmarks]

Page 28

POST-TREATMENT PHOTOGRAPHS: EXTRA-ORAL

[Attach frontal and profile photographs to this page]

Page 29

POST-TREATMENT PHOTOGRAPHS: INTRA-ORAL

[Attach anterior, left and right intraoral photographs to this page]

Page 30

POST-TREATMENT PHOTOGRAPHS

[Attach any other relevant photographs to this page]

Page 31

POST-TREATMENT STUDY MODELS

Page 31

SECTION 4. CRITICAL APPRAISAL

[Not more than one page]

Annex 10 - section B

PRESENTATION OF CASE HISTORIES

MD IN ORTHODONTICS

Postgraduate Institute of Medicine Colombo

This form should be completed and placed in an envelope with all the other forms for the cases, and handed over to the examination branch along with the case book.

Date of examination:

Candidate's name:

Patient's initials:

Patient's date of birth:

I certify that the treatment for the named patient was carried out by the Candidate

Supervisor's name:

Supervisor's signature:

Date:

Departmental stamp:

I confirm that all records presented are authentic and I have not plagiarized from any source.

Candidate's name:

Candidate's signature: **Date:**

Annex 10 section C

Candidate and Patient Declaration

MD Orthodontic Examination

Postgraduate Institute Of medicine Colombo

A signed declaration must be submitted for each case presentation.

To be signed by the candidate:

I confirm that I have personally carried out the treatment for this patient under the supervision Dr…… .

Candidate Name: …… Candidate Signature:

…….

To be signed by the patient, parent or guardian:

I understand that orthodontic treatment documented is for use in the MD in Orthodontics Examination and I agree for this to be submitted to the Post Graduate Institute, University of Colombo. I understand that my / son's / daughter's* case history will be scrutinized by examiners but that this information will never be in the public domain. In the unlikely event that the Post Graduate Institute of Medicine needs to contact me regarding any particulars of my case I agree to the Institute contacting me directly and confidentially at the address below:*

Patient Name:…… Patient Signature:

…… Postal Address:

……

……

…… Email Address: ……..

***Patient contact details will be held securely by the PGIM until the examination has been completed and the candidate has received their result, after which the details will be confidentially destroyed.**

Annex 11

FORMAT FOR PROGRESS REPORT ON POST MD TRAINING (LOCAL & OVERSEAS)

MD (Orthodontics) , Postgraduate Institute of Medicine,

Colombo,Sri Lanka

Name of trainee:
Name of trainer:
Training centre:
Period of report:

Please use the following key to rate your trainee's performance during the period in question, with regard to each of the areas listed below

Outstanding	A
Above average	B
Adequate	C
Below expected	D

A. Examination and diagnostic skills	**Rating**	**Specific comments**
B. Practical Skills		
Efficiency and accuracy in carrying out a proposed treatment plan		
Hands-on work at chairside		
Hands on work at the laboratory		
C. Record keeping		

PROJECTS OR OTHER ACTIVITIES CARRIED OUT DURING THE PERIOD OF TRAINING:

INTERPERSONAL SKILLS	**Rating**	**Specific comments**
1. Communication & working with others in the Department		
2. Communication & working with persons of other disciplines		
3. Supervising & helping juniors and willingness to serve when required		
4.Following instructions of senior colleagues		
5.Power of expression (oral and written)		
6. Standard of punctuality, ethics, professional attitudes and reliability		
7. Teaching Dental students and juniors		
ACADEMIC SKILLS	**Rating**	**Specific comments**
1. Theoretical background and knowledge		
2. Reads widely in Dental/ medical literature		
3. Participates actively in academic discussions		
4. Thinks independently and rationally		

GENERAL COMMENTS

Particular strengths

Particular weaknesses

…… …… …. ……

Signature of trainer **Name** **Date**

Annex 12

Training Units

Training units recognized by the PGIM as per June 2016

1. Dental Institute, Colombo.

2. Lady Ridgeway Childrens Hospital, Colombo

3. General Hospital (Teaching), Kandy.

4. Sirimavo Bandaranayake Children's Hospital, Peradeniya.

5. Teaching Hospital ,Karapitiya, Galle.

6. Air Force Hospital , Colombo.

7. Army Hospital, Colombo.

Annex - 13

Reading List

Text Books

1. Alexander Jacobson, Richard L Jacobson, 2006, Radiographic Cephalometry from basics to 3-D Imaging 2nd Ed, Quintessence publishing co, Inc.

2 Arnett G.W, Mc Laughlin RP 2004, Facial and Dental Planning for ` ` Orthodontists and Surgeons. Mosby

3. Ashok Karad 2010, Clinical Orthodontics, current concepts, Goals and Mechanics 1st Ed, Reed Elsevier India Private Ltd.,

4. Declan Millett, Richard Welbury Clinical Problem Solving in Orthodontics and Pediatric Dentistry.

5. Gorlin RJ et al, 1990, Syndromes of Head and neck, 3rd Ed, Oxford University press, Oxford.

6. Houston WJB et al, 1993, A Text book of Orthodontics, 2nd Ed, Wright oxford.

7. Gurkeerat Singh 2004, Textbook of Orthodontics 2nd Ed, Jaypee brothers medical publishers(P) Ltd.,

8. Laura Mitchell and Nigele Cater 1996, An Introduction to Orthodontics 1st Ed, Oxford University press.

9. Lee W. Graber, Robert L Vanarsdall Katherine W.L Via, Orthodontics current Principles and Techniques.

10. Mc Laughlin RP, Bennett JC, Trevisi HJ. Systematized Orthodontic Treatment Mechanics. St. Louis: Mosby;2001

11. Profitt WR, 1999, Contemporary Orthodontics 3rd Ed, Mosby-year book, St Louis.
12. Ravindra Nanda, 1997, Biomechanics in Clinical Orthodontics, 1st Ed W.B. Saunders company.

13. Ravindra Nanda, Biomechanics and Esthetic Strategies in Clinical Orthodontics.

14. Ravindra Nanda 2009, Temporary Anchorage Devices in Orthodontics 1st Ed,Mosby, Inc.

15. Samir E. Bishara, Text Book of Orthodontics.2001:Saunders

16. Sarver DM. Esthetic Orthodontics and orthognathic surgery. St. Louis: Mosby;1998.

17. William R. Proffit, Raymond P.white, David M. Sarver. Contemporary Treatment of Dento Facial Deformity. Mosby:2003

Journals.

1.American Journal of Orthodontics and Dentofacial Orthopedics

2. Australian Orthodontic Journal

3 British Journal of Orthodontics

4 European Journal of Orthodontics

5. Journal of Clinical Orthodontics

6. Journal of Oro-facial Orthodontics

7. Journal of Orthodontics

8. Orthodontics and Craniofacial Research

9. Seminars in Orthodontics

10. The Angle Orthodontist

11. The cleft Palate –Craniofacial Journal

Annex 14
MD Orthodontics Course Evaluation Form
PGIM Colombo, Sri Lanka

Year.....

We value student's opinions on every aspect of the given course, including the effectiveness of teaching staff, course materials and facilities. We would appreciate it if you would respond honestly to the following statements and encourage you to give constructive comments in the last section.

All comments are anonymous and will be given serious consideration to improve the course contents and its delivery for following years.

Please fill in the circle fully that represents your views.

	Excellent	**Very good**	**Good**	**Fair**	**Poor**	**Very poor**
Overall ratings						
1. The overall quality of the course content was:	O	O	O	O	O	O
2. The aims and objectives of the degree programme were met:	O	O	O	O	O	O
3. The usefulness of the course handbook was:	O	O	O	O	O	O
4. The overall teaching of the course was:	O	O	O	O	O	O
5. The overall facilities of the Institute were:	O	O	O	O	O	O
Practical Sessions						
1. The case mix of patients was available :	O	O	O	O	O	O
2. The level of practical work was appropriate:	O	O	O	O	O	O
3. The volume of clinical work was appropriate:	O	O	O	O	O	O
4. Supervision during clinical sessions was:	O	O	O	O	O	O

	Excellent	Very good	Good	Fair	Poor	Very poor
5. Extra help provided when needed with difficult scenarios:	O	O	O	O	O	O
6. Evaluative and grading techniques were helpful:	O	O	O	O	O	O

Facilities

1. The computer facilities at the Institute were:	O	O	O	O	O	O
2. Access to the clinical facilities was:	O	O	O	O	O	O
3. Level of nursing support during clinical sessions was:	O	O	O	O	O	O
4. Access to papers and textbooks was:	O	O	O	O	O	O
5. Clinical skills laboratory was readily available for training purposes:	O	O	O	O	O	O
6. Laboratory technicians were available for advice and teaching:	O	O	O	O	O	O

Case Portfolios and research project

1. The support given to you in choosing your cases / topic was:	O	O	O	O	O	O
2. facilities for your clinical work was:	O	O	O	O	O	O
3. Adequate amount of case mix was available;	O	O	O	O	O	O
4. Overall, help and support provided by your supervisor was:	O	O	O	O	O	O
5. There was sufficient help in determining your plan for your research	O	O	O	O	O	O

6. Statistical advice was readily available and useful	O	O	O	O	O	O

General

1. You were made to feel welcome at the main centre:	O	O	O	O	O	O
2. The programme director was readily available:	O	O	O	O	O	O
3. The programme director's response to your problems :	O	O	O	O	O	O

Trainer .....

	Excellent	**Very good**	**Good**	**Fair**	**Poor**	**Very Poor**

Teaching

1. The trainer set out and met clear objectives for the course:	O	O	O	O	O	O
2. The trainer displayed a thorough knowledge of the course material:	O	O	O	O	O	O
3. The trainer explained concepts clearly:	O	O	O	O	O	O
4. Appropriate teaching methods were generally used:	O	O	O	O	O	O
5. You had high confidence in the trainer's knowledge:	O	O	O	O	O	O
6. Evaluative and grading techniques were helpful:	O	O	O	O	O	O
7. Motivation and moral support provided ;	O	O	O	O	O	O

Strengths and Weaknesses

Please write any comments you feel the course organizers should be aware of with regards to any aspect of the course content, delivery or facilities. We would appreciate it if you would be as frank as you can.