CENTRE FOR ADVANCED DENTAL EDUCATION (CADE)  
FACULTY OF DENTISTRY  
NATIONAL UNIVERSITY OF SINGAPORE

Graduate Diploma in Dental Implantology Course Outline

Course Details

AIM

1. The Graduate Diploma in Dental Implantology is aimed at providing a sound scientific grounding and clinical training in implant dentistry. This course is designed mainly for practising general dental practitioners who are interested in the field of dental implantology. This course will be a part-time course to cater to the needs of dental practitioners who will usually only be able to embark on part-time programmes.

OBJECTIVES

2. On completion of the course the participant should be able to demonstrate the following competencies:

- Understand the science of implant dentistry and to apply the knowledge in clinical practice.
- Diagnosis and treatment planning in implant dentistry.
- Applying a multidisciplinary approach to the management of patients requiring implants.
- Skills in performing the surgical stages of implant dentistry.
- Skills in performing the restorative or rehabilitative phases in implant dentistry.

ACCREDITATION

3. The Graduate Diploma will be awarded to successful candidates who have met the didactic clinical requirements of the programme and have passed the necessary prescribed assessments. The programme has received professional accreditation from the Singapore Dental Council – as “additional qualification”.

DESCRIPTION OF COURSE

4. This will be a two-year (non-modular) part-time programme. The programme will be conducted through lectures, seminars, literature reviews, pre-clinical and clinical skills training. Candidates will attend some didactic sessions of the existing specialty programmes. Students will be expected to treat all patients in NUS under supervision. All clinical work will be tracked through a clinical log book. The programme will run for 40 weeks per year.
COURSE DURATION

5. The minimum and maximum candidature for the programme will be two years and five years respectively.

COURSE COMPONENTS

6. The course consists of five components:

6.1 Didactic (70 hours)
   - Lectures and seminars will be conducted over two years.

6.2 Preclinical (15 hours)
   This will be implant system specific.
   - Practical training on surgical and prosthetic procedures.

6.3 Clinical (680 hours)
   Candidates will spend at least one day per week in NUS. This will include various aspects of clinical training.
   - Case reports of ten completed patients with treatment details are to be submitted for final assessment.
   - During this period, candidate will undergo clinical training at the Faculty. They will assist in surgical procedures, do clinical discussion and treat their own patients under supervision at these sessions.
   - All patients treated under this programme will be informed that they are treated by dentists under supervision and this is part of the training programme. This will be included in the consent form.

6.4 Assignment (640 hours)
   - Including Literature reviews, seminar and presentations

6.5 Assessment/ Examination
   - Including Yearly Assessment and Final Examination

GRADUATION REQUIREMENTS

7. The graduate diploma will be awarded to successful candidates who have -
   - completed all didactic and clinical requirements of the programme, including the presentation and completion of ten cases
   - passed all the necessary prescribed assessments
   - passed the Final Examination

RESIDENCY REQUIREMENTS

8. The University has established a minimum residency requirement and maximum candidature for all NUS degrees. Residency, in this instance, is defined as payment of fees for the programme of study. All graduate coursework students are expected to meet 50% of the minimum residency requirements.
IMPLANT SYSTEMS

9. A number of established implant systems available in the market will be used for the purpose of teaching in the duration of this course.

SYLLABUS

10. Didactic Component (70 hours)

10.1 Introduction and Basic Sciences (6 hours)
Development and Evolution of Implants
Classification and Design
Material Science
Bone physiology and Healing
Surface Modifications
Success Criteria
Contemporary Implant Systems
Clinical Applications
Longitudinal case studies

10.2 Clinical Decisions (RTP – TP/TS) (10 hours)
Periodontal Disease – current concepts
Periodontal Disease – diagnosis and treatment planning
Endodontic Examination – clinical signs & symptoms
Endodontic Examination – diagnostic tests & diagnosis
Management of the Medically Compromised Patient
Occlusion

10.3 Patient Selection and Diagnosis and Treatment Planning (6 hours)
Objectives of Implant Procedures
Indications and Contra-indications
Medical and Psychological Evaluation
Extraoral and Intraoral examination
Bone Quality and Quantity
Multidisciplinary Approach to Treatment Planning
General Surgical, Prosthetic and Periodontal Considerations
Diagnostic Wax-up
Treatment of various edentulous situations
Sample Cases Discussions

10.4 Diagnostic Imaging (6 hours)
Anatomy and Physiology
Landmark References
Panoramic and Lateral Cephalograph
Periapical, Bitewing and Occlusal Film
Tomogram and Reformatted CT Scan
Precision and Resolution
Radiographic Interpretations
Images of implant Fixtures
Practical using implant models
Patient observation
10.5 Implant Practice Set-up, Ethics and Liability (6 hours)
Setting up an Implant Practice
Practice Management and Marketing
Clinical Records
Catalogue, Stock Control
Photographic Records
Informed Consent
Risk Management
Ethics and Liability
Referral to Specialists

10.6 Surgical Procedures (6 hours)
Instrumentation
Step-by-step surgical Stage I procedures
Soft Tissue Management
Hard Tissue Management
Anatomic Limitations
Guided Tissue/Bone Regeneration
Basic Augmentation and Grafting
Bone Spreading
Prescriptions and Pharmacology
Immediate Implants
Stage II Surgery

10.7 Restorative Procedures (6 hours)
Healing and Progressive Loading
Provisional Prosthesis
Impression taking
Transfer pick-up and repositioning Technique
Abutment Selection
Screw or Cement Prosthesis
Single Tooth, Partial and Full Cases
Fixed and Removable Designs
Biologic Width and Periodontal Conditions
Occlusal and Loading Considerations
Laboratory Procedures
Immediate Loading

10.8 Management of Complications and Implant Maintenance (6 hours)
Surgical Complications
Delayed Surgical Complications
Prosthodontic Complications
Periodontal Considerations
Professional monitoring
Home Care and Hygiene
Removal of Implants

10.9 Management of the Deficient Alveolar Ridge (6 hours)
Atrophic Ridges
Height and Width Deficiencies
Sinus Lifting and Augmentation
Grafting Materials
Soft Tissue Management
Enhanced Healing
Distraction Osteogenesis
Recall Patients
Complications Management

10.10 **Hi-tech and Further Applications in Implant Dentistry (6 hours)**
  - Cerec ceramic Restorations
  - Procera system
  - CT Scan and Software Analysis
  - CAD/CAM applications
  - Computer Guided Implant Placement
  - Image Guided Implant Surgery
  - Stereo Modelling
  - Maxillofacial Prosthesis
  - Researches in Implantology

10.11 **Clinical Photography Course (elective) (6 hours)**
  - Clinical Photography – Conventional and Digital
  - Images Management
  - Preparations for presentation
  - Publication requirements

11. **Preclinical Component (15 hours)**
  - Concept of the Implant System of choice
  - Armamentarium and components
  - System specific Surgical Procedures
  - Surgical Hands-on Workshop with Jaw Models
  - System specific Prosthetic Procedures
  - Prosthetic hands-on workshop
  - Trouble shooting
  - Live Patient Surgical Stage I & II Demonstrations
  - Live Patient Prosthetic Stages Demonstrations
  - Team Work with Specialists and Other Members
  - Comparison between different implant systems

12. **Clinical Component (680 hours)**

12.1 **Patient Management**
  - Case Consultations and Discussions
  - Supervised Surgery to Case Completion
  - Chairside-assistant Training
  - Laboratory Technical Training
  - Completion of surgical and prosthetic phases
  - Course of Maintenance

12.2 **Clinical Conference**
  - Combined Sessions of Treatment Planning Discussions
  - Assignments, Tutorials and Presentations
  - Free-papers / Table clinics / Posters

12.3 **Attachment**
12.4 **Elective** (optional – at candidates’ own travel expenses)
Visits to other overseas recognised institutions and training centres
Attending implantology related conferences, symposia and lectures
Visit to manufacturer:
  - Manufacturing Process of Implants and Components
  - Quality Control Processes
  - Product Update
Visit to specialized Dental Laboratory:
  - Telescopic Designs
  - Precision Castings
  - Spark Erosion Technology
  - Laser Welding
Cadaver / animal practice (where available)

13. **Assignments**

13.1 **Documentation (400 hours)**
Clinical Assessment (Compilation of 10 documented, completed cases)
  - Single Tooth Replacement
  - Partial Edentulous, Bounded Saddle/Free-end
  - Edentulous Arch

13.2 **Literature Review Seminars (40 hours)**
20 Literature Review Seminars

13.3 **Self study (200 hours)**

14. **Assessment/ Examination**

14.1 **Yearly Assessment**
Progress of candidate will be assessed annually.

14.2 **Final Examination**
Candidate must fulfil all clinical requirements as specified by the curriculum as a pre-
requisite for consideration for Final Examination. The Final Examination consists of -
  - written paper,
  - presentation of completed case; and
  - an oral examination.

**TEACHING STAFF**

15. The following individuals will be involved in the teaching of the programme either in
clinical supervision* or lecturing for the didactic programme:

Prof (Dr) Chew Chong Lin
Assoc Prof (Dr) Chao Tong
Adj Assoc Prof (Dr) Ansgar Cheng
Adj Assoc Prof (Dr) Chung Kong Mun
Assoc Prof (Dr) Lim Lum Peng
Assoc Prof (Dr) Grace Ong
Assoc Prof (Dr) Varawan Sae-Lim
Assoc Prof (Dr) Keson Tan
*There will be 2 clinical sessions (half day) assigned for both the oral surgery and prosthodontic clinical procedures each, totalling 4 sessions (2 full days) per week.

**CHANGES / AMENDMENTS**

16. The Faculty of Dentistry reserves the right to vary, change and amend the modules’ content, entry requirements, course fees, curriculum, examination, rules and regulations, lecturers, lecture date, venue and other aspects of the course at any time prior to and during the running of the programme.

Feb 2008