

The Hebrew University of Jerusalem

Syllabus

The Use of Dental Implants for Oral Rehabilitation - 97808

Last update 23-10-2021

HU Credits: 2

Degree/Cycle: 2nd degree (Master)

Responsible Department: Dental Medicine

Academic year: 0

Semester: 2nd Semester

Teaching Languages: Hebrew

Campus: Ein Karem

Course/Module Coordinator: Dr. Ben Gal

Coordinator Email: gilad.bengal@mail.huji.ac.il

*Coordinator Office Hours: Wednesday 12:00-12:45
thursday 9:15-10.00*

Teaching Staff:

Dr. Gilad Ben Gal,
Dr. Avital Houry,
Dr. Yaniv Skvirsky

Course/Module description:

This course is composed of 2 parts: surgical and prosthetic. The course includes frontal lectures and 4 hands-on sessions.

This course provides the student with the basic clinical knowledge in understanding the role of implants in oral rehabilitation. The surgical part of the course focuses on training the student in the surgical phase of implant therapy that is expected from a dental undergraduate student to be familiar with and perform upon graduation. This course focuses on understanding the physiology of osseointegration, surgical techniques of implant placement and restorative aspects of implant placement. Students are taught how to perform data collection and analysis prior to implant placement, which includes systemic, oral and dental anamnesis, anatomic limitations related to implant placement, infection control prior to surgery, implant placement protocol and implant exposure techniques as well as patient management before, during and after performing the surgical procedure. The courses' prosthetic section targets are: treatment planning, implant platform identification, impressions, abutment selection, occlusion, final delivery and maintenance.

The hands-on part of the course includes an overview of all the prosthetic parts, impressions of jaw models with implants, preparing a simple guiding stent, connection of full dentures to a model of an edentulous jaw with 2 implants.

Course/Module aims:

To expose the student to basic knowledge in dental implantology and provide him/her with basic clinical training in comprehensive simple implant placement into sites that do not require any additional surgical procedures to accommodate the implants.

The prosthetic part of the course aims at preparing the student to be capable of doing single or two-unit implant restoration and Implant retained Ball/Locator over-dentures.

Learning outcomes - On successful completion of this module, students should be able to:

- Describe the scientific foundation of implantology
- Explain the underlying physiology and biomechanics of implant dentistry
- Perform thorough patient anamnesis

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- *Recognize and differentiate simple and complex cases and make referrals*
 - *Recognize factors and conditions which may affect successful implant treatment*
 - *Assess treatment plans and provide clinical care for simple cases*
 - *Carry out patient assessment, produce case documentation, carry out simple implant treatment within treatment teams and refer patients who require more complex treatment*
 - *Place implants in the jaws (simple cases)*
 - *Explain the role of dental implants in restorative care*

Attendance requirements(%):

Mandatory throughout the specified time designated for implantology curriculum

Teaching arrangement and method of instruction: Lectures & Labs

Course/Module Content:

Surgical part

- *Historical and biological aspects of osseointegration including the scientific background;*
- *Soft tissue-implant/abutment interface;*
- *Morphology, histology and physiology of the alveolar bone;*
- *Classification of residual ridges;*
- *The various root form implant systems (shape, surface characteristics, int./ext. hex connection etc.);*
- *Anatomical limits for fixture placement (anterior/posterior maxilla, anterior/posterior mandible);*
- *Radiographic analysis prior to implant placement;*
- *Preparatory preoperative procedures: patient anamnesis, prosthetic stent fabrication, informed consent of patients, pre-medication, gowning procedures and patient covering;*
- *First stage surgical implant placement protocol: anesthesia, incisions, drilling, fixture placement, tissue covering and post operative instructions;*
- *Second stage surgical implant exposure protocol: implant exposure and soft tissue manipulation.*

Prosthetic part

- *Introduction and history of implant science and innovations;*
- *Restorative basic concepts and components;*
- *External Vs. internal connections;*
- *Platform concept;*
- *Interface diameter & implant diameter;*
- *Cover screw & Healing Abutment*
- *Abutment and abutment screw;*
- *Torque & torque drive;*

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- *Abutment screw & prosthetic screw;*
 - *Implant platform identification and abutment selection;*
 - *Single tooth restoration – cement retained abutment selection;*
 - *Single tooth restoration – screw retained abutment selection;*
 - *Treatment planning and case selection for implant rehabilitation;*
 - *Treatment options according to inter-arch relationships, occlusion, esthetics and crown to root ratios;*
 - *Biomechanical principles in implant restorative dentistry;*
 - *mechanical principles of screws;*
 - *Passive fit;*
 - *Loading and shear torques;*
 - *Forces on ext. and internal hex implants;*
 - *Multiple unit restorations – screw vs. cement retained restorations;*
 - *Impressions:*
 - o *Implant level impressions*
 - o *Abutment level impressions*
 - o *Closed tray vs. open tray*
 - *Emergence profile;*
 - *Principles of rehabilitation of the edentulous jaw;*
 - *Fixed retained restorations;*
 - *Removable implant retained restorations;*
 - *Bar vs. ball attachment;*
 - *Stud attachments: ball, spring ball, magnets, zest, etc.;*
 - *Locator attachment;*
 - *CT guided planning, surgical stents;*
 - *Principles of occlusion for implant retained restorations;*
 - *Principles of teeth and implant over-dentures;*

Lab training includes:

- *Getting acquainted with the surgical tray, the relevant surgical equipment and the implant to be used in our course.*
- *Impression taking and prosthetic guide fabrication before surgery (this part involves joint teaching of prosthetic and surgical instructors).*
- *First stage surgery: soft tissue incision and flap elevation, implant site preparation, fixture placement in four edentulous conditions: maxillary 1st pre-molar, mandibular 1st molar, two mandibular premolars and one 1st molar and a lower fully edentulous mandible to receive an over-denture.*
- *Second stage surgery of fixture placed during previous session.*

Required Reading:

1. *Michalakis K X et al. Cement-Retained Versus Screw-Retained Implant Restorations: A Critical Review. INT J ORAL MAXILLOFAC IMPLANTS 2003;18:719-728*
2. *Hebel K S et al. Cement-retained versus screw-retained implant restorations: Achieving optimal occlusion and esthetics in implant dentistry. J Prosthet Dent*

1997;77:28- 35

Additional Reading Material:

None

Course/Module evaluation:

End of year written/oral examination 92 %

Presentation 0 %

Participation in Tutorials 0 %

Project work 0 %

Assignments 6 %

Reports 0 %

Research project 0 %

Quizzes 2 %

Other 0 %

Additional information:

1. Michalakis K X et al. Cement-Retained Versus Screw-Retained Implant Restorations: A Critical Review. *INT J ORAL MAXILLOFAC IMPLANTS* 2003;18:719-728

2. Hebel K S et al. Cement-retained versus screw-retained implant restorations: Achieving optimal occlusion and esthetics in implant dentistry. *J Prosthet Dent* 1997;77:28- 35