



8625

DESIGN AND FABRICATION OF
REMOVABLE PROSTHESES (11B)

30S/30E/30M

A Dental Technology Course

8625: DESIGN AND FABRICATION OF REMOVABLE PROSTHESES (11B) 30S/30E/30M

Course Description

This course addresses the topics of safety, anatomy, physiology, and the design and fabrication of removable dental appliances, as well as the repair of these appliances. It includes the study of partial denture design and fabrication.

Goal 1: Describe and apply appropriate **health and safety** practices as they relate to dental technology.

GLO 1.1: Create and maintain a **safe working environment** in a dental laboratory.

- SLO 11B.1.1.1: Demonstrate safe work procedures related to equipment, tools, and materials associated with the fabrication of removable prostheses.
 - SLO 11B.1.1.2: Demonstrate the ability to identify and report potential hazards in the fabrication of removable prostheses.
 - SLO 11B.1.1.3: Demonstrate the appropriate use of personal protective equipment (PPE), such as goggles, face masks, vinyl gloves, and laboratory coats.
 - SLO 11B.1.1.4: Demonstrate the ability to identify worn, defective, and expired PPE and safety equipment.
 - SLO 11B.1.1.5: Describe knowledge of safety equipment, such as a fire extinguisher, a first aid kit, and an eyewash station.
 - SLO 11B.1.1.6: Demonstrate the safe use of rotary tools and lathes in the fabrication of removable dental appliances.
 - SLO 11B.1.1.7: Demonstrate the safe use of sharp tools, such as scalpels and carving instruments.
 - SLO 11B.1.1.8: Demonstrate and use infection-control techniques and apply universal safety precautions to prevent cross-contamination in a laboratory environment.
 - SLO 11B.1.1.9: Demonstrate the safe use of Bunsen burners and alcohol torches.
 - SLO 11B.1.1.10: Discuss workplace health and safety.
 - SLO 11B.1.1.11: Describe *The Workers Compensation Act*.
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Goal 2: Demonstrate the safe and appropriate **operation, cleaning, maintenance, management, handling, and storage** of **equipment, tools, and materials**.

GLO 2.1: Demonstrate the safe and appropriate **operation** of **equipment and tools**.

SLO 11B.2.1.1: Demonstrate safe work procedures and the appropriate operation of equipment and tools associated with the design and fabrication of removable prostheses.

GLO 2.2: Demonstrate the safe and appropriate **cleaning, maintenance, and management** of **equipment and tools**.

SLO 11B.2.2.1: Demonstrate the appropriate cleaning, maintenance, and management of equipment and tools associated with the design and fabrication of removable prostheses.

GLO 2.3: Demonstrate the safe and appropriate **handling and storage** of restorative dental **materials**.

SLO 11B.2.3.1: Demonstrate the appropriate handling and storage of restorative dental materials associated with the design and fabrication of removable prostheses.

Goal 3: Demonstrate an understanding of the **science and characteristics** of various **restorative dental materials**.

GLO 3.1: Demonstrate an understanding of the **science and characteristics** of various **restorative dental materials**.

SLO 11B.3.1.1: Demonstrate an understanding of the physical characteristics and appropriate use of various acrylic and gypsum materials associated with the design and fabrication of removable prostheses.

SLO 11B.3.1.2: Demonstrate an understanding of the chemical characteristics and appropriate use of various acrylic and gypsum materials associated with the design and fabrication of removable prostheses.

SLO 11B.3.1.3: Demonstrate an understanding of the mechanical characteristics and appropriate use of various acrylic and gypsum materials associated with the design and fabrication of removable prostheses.

GLO 3.2: Demonstrate an understanding of **metallurgy and the characteristics of acrylics** used in dental appliances.

- SLO 11B.3.2.1: Demonstrate the handling and manipulation of acrylics and alloys used in the design and fabrication of removable prostheses.
- SLO 11B.3.2.2: Demonstrate an understanding of heat treatment, annealing, deformation, the molecular and crystalline behaviour of metals, melting points, and the specific gravity of various alloys associated with removable prosthetic dentistry.
- SLO 11B.3.2.3: Demonstrate an understanding of organic and inorganic compounds, chemical change, and chemical reaction.
- SLO 11B.3.2.4: Demonstrate an understanding of tension and tensile strength, shear strength, yield strength, and chemical and mechanical cohesion.
- SLO 11B.3.2.5: Demonstrate and describe galvanic action and corrosion as they apply to removable prostheses.

Goal 4: Demonstrate the **functional design** of dental appliances.

GLO 4.1: Demonstrate the **functional design** of dental appliances.

- SLO 11B.4.1.1: Demonstrate an understanding of the application of functional designs and set-ups in the fabrication of removable prostheses.
- SLO 11B.4.1.2: Apply the principles of design through all stages of creating a removable prosthetic device, from concept to fabrication.

Goal 5: Demonstrate the **fabrication** of dental appliances.

GLO 5.1: Demonstrate the **fabrication of the components** used in dental appliances.

- SLO 11B.5.1.1: Demonstrate the articulation of removable appliances.
 - SLO 11B.5.1.2: Demonstrate the fabrication of a dental appliance set-up from prescription to completion.
 - SLO 11B.5.1.3: Demonstrate the design and application of clasps and major and minor connectors for a partial denture set-up.
 - SLO 11B.5.1.4: Demonstrate the articulation of fabricated occlusal rims on plain line articulators.
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GLO 5.2: Demonstrate the **fabrication** of dental appliances from their various components.

- SLO 11B.5.2.1: Demonstrate the selection, application, and placement of anterior and posterior teeth, as well as tissue carving on maxillary and mandibular rims.
- SLO 11B.5.2.2: Demonstrate the flasking and acrylizing stages of the denture-fabrication process.
- SLO 11B.5.2.3: Demonstrate the deflasking, trimming, and polishing of an acrylic removable appliance.
- SLO 11B.5.2.4: Demonstrate the use of burs and stones for trimming an acrylic appliance.
- SLO 11B.5.2.5: Demonstrate a bilateral balanced functional set-up of a removable appliance.
- SLO 11B.5.2.6: Demonstrate a partial denture wax-up based on the Kennedy classification.

Goal 6: Demonstrate the **repair and adjustment** of dental appliances.

GLO 6.1: Demonstrate an awareness of **problems** associated with dental appliances.

- SLO 11B.6.1.1: Demonstrate knowledge of oral health, age, and illness, and of how to accommodate these aspects in making adjustments to dental appliances.

GLO 6.2: Repair dental appliances.

- SLO 11B.6.2.1: Demonstrate repairing a denture, a fracture, and a tooth replacement.
- SLO 11B.6.2.2: Demonstrate the relining and rebasing of dentures.

GLO 6.3: Adjust dental appliances.

- SLO 11B.6.3.1: Demonstrate the adjustment and spot grinding of occlusal contacts to create a balanced functional occlusion.
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Goal 7: Describe and demonstrate transferable **cross-curricular knowledge and skills** as they relate to dental technology.

GLO 7.1: Read, interpret, and communicate information related to dental technology.

SLO 11B.7.1.1: Read, interpret, and communicate anatomy, physiology, and prescription terminology related to dental technology.

SLO 11B.7.1.2: Read, interpret, and demonstrate the application of information about reversible and irreversible hydrocolloids associated with dental technology.

GLO 7.2: Apply knowledge and skills related to dental technology from **mathematics**.

SLO 11B.7.2.1: Convert between imperial and metric systems of measurement.

SLO 11B.7.2.2: Calculate and apply volume, weights, measurements, temperatures, and ratios.

GLO 7.3: Apply knowledge and skills related to dental technology from **anatomy and physiology**.

SLO 11B.7.3.1: Locate, identify, and describe anatomical landmarks of the edentulous oral cavity and cranial anatomy.

SLO 11B.7.3.2: Locate, identify, and describe head and neck skeletal structures and musculature, such as the muscles of facial expression and the muscles of mastication.

SLO 11B.7.3.3: Demonstrate and explore the function of the circulatory system, such as veins, arteries, and capillaries, and the function of the lymphatic system.

GLO 7.4: Apply knowledge and skills related to dental technology from **physics**.

SLO 11B.7.4.1: Apply and demonstrate bilateral balance principles in the construction of removable dental appliances and excursive pathways.

SLO 11B.7.4.2: Demonstrate knowledge of retention and bracing principles in the fabrication of partial denture designs.

GLO 7.5: Apply knowledge and skills related to dental technology from **other subject areas** (art, physical education/health education, information and communication technology, social studies).

SLO 11B.7.5.1: Demonstrate an understanding of tooth loss due to improper hygiene, disease, nutrition, decay, and accident.

Goal 8: Demonstrate an understanding of **career opportunities** in dental technology.

GLO 8.1: Describe **education and career opportunities** and **professional organizations** in dental technology and associated fields.

SLO 11B.8.1.1: Demonstrate knowledge of and discuss the various provincial guidelines, regulations, and acts pertaining to labour mobility in the dental technology industry.

Goal 9: Demonstrate an awareness of **sustainability** as it pertains to dental technology.

GLO 9.1: Describe the impact of **sustainability** on the **health and well-being** of dental technologists and their clients.

SLO 11B.9.1.1: Discuss the positive influence of removable prostheses on people's sense of well-being, health, and enjoyment of quality of life.

GLO 9.2: Describe the dental technology industry's **sustainability practices** and their impact on the **environment**.

SLO 11B.9.2.1: Discuss recycling within the laboratory environment.

GLO 9.3: Describe **sustainable business practices** within dental technology.

SLO 11B.9.3.1: Discuss the cost of various dental materials.

Goal 10: Demonstrate an awareness of **ethical and legal standards** as they pertain to dental technology.

GLO 10.1: Practise **ethical and legal standards** as they pertain to dental technology.

SLO 11B.10.1.1: Discuss the ethical implications of using approved, quality dental materials.

Goal 11: Demonstrate **employability skills** related to dental technology.

GLO 11.1: Demonstrate **fundamental employability skills**.

SLO 11B.11.1.1: Demonstrate an understanding of the importance of a professional dress code.

SLO 11B.11.1.2: Demonstrate the ability to communicate effectively with supervisors/teachers, co-workers, and customers.

GLO 11.2: Demonstrate an understanding of the **business operation** of a dental laboratory.

No applicable SLOs.

Goal 12: Demonstrate an understanding of the **evolution** of dental technology, including its **progression** and **emerging trends**.

GLO 12.1: Describe the **evolution** of dental technology, including its **progression** and **emerging trends**.

SLO 11B.12.1.1: Demonstrate an understanding of historical and cultural perspectives of removable dental appliances.
