



8628

INTRODUCTION TO FIXED
PROSTHODONTICS: CROWN AND
BRIDGE TECHNOLOGY (12A)

40S/40E/40M

A Dental Technology Course

8628: INTRODUCTION TO FIXED PROSTHODONTICS: CROWN AND BRIDGE TECHNOLOGY (12A) 40S/40E/40M

Course Description

This course addresses the topics of safety, anatomy, physiology, the science of dental materials, and model preparation. The study of metallurgy and its function provides the foundation for crown and bridge construction.

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 12A.1.1.1: Demonstrate safe work procedures related to equipment, tools, and materials associated with fixed prostheses.
- SLO 12A.1.1.2: Demonstrate the ability to identify and report potential hazards associated with fixed prostheses.
- SLO 12A.1.1.3: Demonstrate the appropriate use of personal protective equipment (PPE), such as goggles, face masks, vinyl gloves, and laboratory coats.
- SLO 12A.1.1.4: Demonstrate the ability to identify worn, defective, and expired PPE and safety equipment.
- SLO 12A.1.1.5: Demonstrate knowledge of safety equipment, such as a fire extinguisher, a first aid kit, and an eyewash station.
- SLO 12A.1.1.6: Demonstrate the safe use of rotary tools and dental lathes.
- SLO 12A.1.1.7: Demonstrate the safe use of sharp tools, such as scalpels and carving instruments.
- SLO 12A.1.1.8: Demonstrate and use infection-control techniques and apply universal safety precautions to prevent cross-contamination.
- SLO 12A.1.1.9: Demonstrate the safe use of Bunsen burners and alcohol torches.
- SLO 12A.1.1.10: Discuss the role of workplace health and safety and the procedures to follow in case of an incident (e.g., slips and falls, improper lifting).
- SLO 12A.1.1.11: Describe how *The Workers Compensation Act* relates to the workplace.

SLO 12A.1.1.12: Demonstrate knowledge of safety regulations and of the Workplace Hazardous Materials Information System (WHMIS), and demonstrate the ability to access WHMIS information.

SLO 12A.1.1.13: Describe the purpose of material safety data sheets (MSDS).

SLO 12A.1.1.14: Describe the importance of emergency-planning procedures.

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 12A.2.1.1: Demonstrate safe work procedures and the appropriate operation of equipment and tools associated with fixed prosthodontics.

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

SLO 12A.2.2.1: Demonstrate the appropriate cleaning, maintenance, and management of equipment and tools associated with crown and bridge technology.

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

SLO 12A.2.3.1: Demonstrate the appropriate handling and storage of restorative dental materials associated with crown and bridge technology.

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 12A.3.1.1: Demonstrate an understanding of the physical characteristics and appropriate use of various restorative dental materials associated with crown and bridge technology.

SLO 12A.3.1.2: Demonstrate an understanding of the chemical characteristics and appropriate use of various restorative dental materials associated with crown and bridge technology.

SLO 12A.3.1.3: Demonstrate an understanding of the mechanical characteristics and appropriate use of various restorative dental materials associated with crown and bridge technology.

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

SLO 12A.3.2.1: Demonstrate an understanding of and the manipulation of alloys (noble and base) used in the design and fabrication of crowns, bridges, and substructures.

SLO 12A.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 fixed prosthetic dentistry.

SLO 12A.3.2.3: Demonstrate an understanding of organic and inorganic compounds, chemical change, and chemical reaction.

SLO 12A.3.2.4: Demonstrate an understanding of tension and tensile strength, shear strength, yield strength, and chemical and mechanical cohesion.

SLO 12A.3.2.5: Demonstrate and describe galvanic action and corrosion as they apply to crown and bridge technology.

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

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

SLO 12A.4.1.1: Demonstrate an understanding of the importance of proper functional and aesthetic design in full crown wax-ups.

SLO 12A.4.1.2: Demonstrate an understanding of shape and contour in single posterior full metal crowns.

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

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

SLO 12A.5.1.1: Demonstrate the fabrication of pouring models and the articulation required for crown and bridge restorations.

SLO 12A.5.1.2: Demonstrate an understanding of investing and casting full metal restorations.

GLO 5.2: Demonstrate the **fabrication** of dental appliances from their various components.

SLO 12A.5.2.1: Demonstrate the fabrication of a full gold maxillary molar aesthetic wax-up.

SLO 12A.5.2.2: Demonstrate the fabrication of a full gold mandibular molar aesthetic wax-up.

SLO 12A.5.2.3: Demonstrate the complete investing, burnout, and casting of molars, using induction casting techniques.

SLO 12A.5.2.4: Demonstrate the devesting, fitting, finishing, and polishing of cast crowns.

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

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

SLO 12A.6.1.1: Demonstrate knowledge of limitations associated with dental appliances, including material and structural limitations and durability.

GLO 6.2: Repair dental appliances.

SLO 12A.6.2.1: Demonstrate knowledge of soldering contacts to gold restorations.

GLO 6.3: Adjust dental appliances.

SLO 12A.6.3.1: Demonstrate knowledge of adjusting full metal structures.

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 12A.7.1.1: Read, interpret, and communicate information and terminology related to dental technology and fixed prosthodontics.

SLO 12A.7.1.2: Read, interpret, and demonstrate an understanding of information about dental metals associated with dental technology.

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

SLO 12A.7.2.1: Convert between imperial and metric systems of measurement.

SLO 12A.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 12A.7.3.1: Locate, identify, and describe anatomical landmarks of the occlusal structures.

SLO 12A.7.3.2: Locate, identify, and describe functional occlusal contact points.

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

SLO 12A.7.4.1: Demonstrate an awareness of functional and balanced occlusion related to fixed prosthetics.

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 12A.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 12A.8.1.1: Demonstrate knowledge of and discuss career opportunities within the scope of dental technology and associated fields.

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 12A.9.1.1: Discuss the positive influence of dental technology 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 12A.9.2.1: Discuss safe practices for handling dental impressions.

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

SLO 12A.9.3.1: Describe the management of a dental laboratory and the further training and continuing education available for dental technologists.

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 12A.10.1.1: Describe the code of conduct and the scope of practice of various dental technologists' associations.

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

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

SLO 12A.11.1.1: Demonstrate employability skills (e.g., being prepared for work on time, setting up workstations, staying on task, accepting responsibility for own actions).

SLO 12A.11.1.2: Demonstrate the ability to communicate with professionals, co-workers, and suppliers.

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

SLO 12A.11.2.1: Discuss and demonstrate an understanding of the business operation of a dental laboratory.

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 12A.12.1.1: Discuss the evolution of fixed prosthodontics, including its technological progression and emerging trends.
