



8626

INTRODUCTION TO  
ORTHODONTICS (11C)

30S/30E/30M

A Dental Technology Course



# 8626: INTRODUCTION TO ORTHODONTICS (11C) 30S/30E/30M

## Course Description

This course includes a review of safety and the science of dental procedures, while introducing the skills required for manipulating wires and acrylic to fabricate orthodontic appliances. The anatomical study helps students understand tooth repositioning and the appliances associated with orthodontics.

---

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

SLO 11C.1.1.12: Describe the Workplace Hazardous Materials Information System (WHMIS) as it pertains to dentistry within the laboratory environment.

SLO 11C.1.1.13: Describe the purpose of material safety data sheets (MSDS).

---

**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 11C.2.1.1: Demonstrate safe work procedures and the appropriate operation of equipment and tools associated with orthodontic appliances.

---

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

SLO 11C.2.2.1: Demonstrate the appropriate cleaning, maintenance, and management of equipment and tools associated with orthodontic appliances.

---

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

SLO 11C.2.3.1: Demonstrate the appropriate handling and storage of restorative dental materials associated with orthodontic appliances.

---

**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 11C.3.1.1: Demonstrate an understanding of the physical characteristics and appropriate use of various orthodontic wires and acrylic and gypsum materials associated with orthodontic appliances.

SLO 11C.3.1.2: Demonstrate an understanding of the chemical characteristics and appropriate use of various orthodontic wires and acrylic and gypsum materials associated with orthodontic appliances.

SLO 11C.3.1.3: Demonstrate an understanding of the mechanical characteristics and appropriate use of various orthodontic wires and acrylic and gypsum materials associated with orthodontic appliances.

---

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

SLO 11C.3.2.1: Demonstrate an understanding of and the manipulation of wires and acrylics used in the design and fabrication of orthodontic appliances.

SLO 11C.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 orthodontic prostheses.

SLO 11C.3.2.3: Demonstrate an understanding of organic and inorganic compounds, chemical change, and chemical reaction.

SLO 11C.3.2.4: Demonstrate an understanding of tension and tensile strength, shear strength, yield strength, and chemical and mechanical cohesion.

SLO 11C.3.2.5: Demonstrate and describe galvanic action and corrosion as they apply to orthodontics.

---

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

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

SLO 11C.4.1.1: Demonstrate an understanding of the importance of proper functional design of acrylics and the construction of various orthodontic clasps.

SLO 11C.4.1.2: Demonstrate an understanding of the importance of proper functional design in the fabrication of removable orthodontic appliances.

SLO 11C.4.1.3: Demonstrate an understanding of the importance and proper design of expansion appliances.

---

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

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

SLO 11C.5.1.1: Demonstrate the fabrication of pouring models required for the application of orthodontic cases or appliances.

SLO 11C.5.1.2: Demonstrate the preparation of models prior to clasp design and application.

SLO 11C.5.1.3: Demonstrate safe wire-bending practices using orthodontic pliers.

SLO 11C.5.1.4: Demonstrate the application of self-curing acrylic.

---

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

SLO 11C.5.2.1: Demonstrate the use of monomers and polymers in relation to orthodontic appliances.

SLO 11C.5.2.2: Demonstrate the trimming, pumicing, and polishing of acrylic.

SLO 11C.5.2.3: Demonstrate the fabrication of various Adams clasps used in orthodontic appliances.

SLO 11C.5.2.4: Demonstrate the fabrication of labial bows for maxillary and mandibular casework or projects.

SLO 11C.5.2.5: Demonstrate cold-cure procedures using a pressure pot.

---

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

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

SLO 11C.6.1.1: Demonstrate knowledge of limitations associated with dental appliances, including material limitations and durability.

---

**GLO 6.2: Repair** dental appliances.

SLO 11C.6.2.1: Demonstrate knowledge of repairing fractured orthodontic appliances.

SLO 11C.6.2.2: Demonstrate knowledge of preparing an orthodontic appliance for repair.

---

**GLO 6.3: Adjust** dental appliances.

No applicable SLOs.

---

---

**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 11C.7.1.1: Read, interpret, and communicate anatomy, physiology, and prescription terminology related to dental technology and orthodontics.

SLO 11C.7.1.2: Read, interpret, and demonstrate the application of information about elastomeric materials and composites associated with dental technology.

---

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

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

SLO 11C.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 11C.7.3.1: Locate, identify, and describe the anatomical landmarks and growth of permanent, deciduous (primary), and mixed dentition.

SLO 11C.7.3.2: Locate the temporomandibular joint, describe its function, and identify disorders associated with this area.

---

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

SLO 11C.7.4.1: Demonstrate an awareness of force and fulcrum principles in the process of shifting and repositioning teeth.

SLO 11C.7.4.2: Demonstrate knowledge of retention and fulcrum principles in the fabrication of orthodontic clasp 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 11C.7.5.1: Demonstrate an understanding of the psychological factors associated with bruxism (teeth clenching and grinding).

---

---

**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 11C.8.1.1: Demonstrate knowledge of and discuss the legislation that governs the professional aspects of the dental technology profession.

---

**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 11C.9.1.1: Discuss the positive influence of orthodontics 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 11C.9.2.1: Discuss the safe disposal of chemicals and excess materials used in orthodontics.

---

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

SLO 11C.9.3.1: Discuss new cosmetic products related to the orthodontic industry.

---

**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 11C.10.1.1: Discuss the ethical implications of displaying good work habits.

---

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

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

SLO 11C.11.1.1: Demonstrate the skills required to work as a member of a team.

---

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

SLO 11C.11.2.1: Discuss and demonstrate stock ordering, equipment maintenance, and business promotion to potential clients.

---

**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 11C.12.1.1: Discuss the evolution of orthodontics, including its technological progression and emerging trends.

---

