

2017 Orthodontic Technique Lab Course Overview

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Purpose

The Orthodontic Technique Lab Course is the introductory level for the first year orthodontic resident. It is designed to develop technical skills necessary for clinical and laboratory procedures. Also, this course provides knowledge of laboratory devices that can be used in conjunction with fixed orthodontic mechanics.

Assignments & Goals

- **Introductory Session:** Designed to introduce first year residents to orthodontic appliances and tour a local commercial laboratory - Great Lakes Orthodontics, Ltd., 200 Cooper Avenue, Tonawanda, New York 14150.
Goals: Understand lab fabrication procedures and the importance of information sent for appliance construction.
- **Intraoral Scanning & Digital Models:** Students will learn to use intraoral scanning equipment to create digital files. The digital information will be saved, then manipulated to create physical casts for diagnostic and laboratory fabrication procedures.
Goal: Become familiar with the latest digital technology available in the orthodontic profession.
- **Diagnostic Setup Model:** Students are guided through the fabrication process to create a diagnostic setup, which can be used to predetermine final tooth alignment prior to orthodontic treatment. Possible tooth size discrepancies can be evaluated. This is a 'stepping stone' to understanding digital setup programs. Setups may also be used for tooth fabrication as well as to create a series of aligner trays.
Goal: Identify ideal tooth position from state-of-the-art orthodontic concepts.
- **Laboratory Wirebending Exercises:** Overview of wires and pliers used in the field will take place. Then, a series of drawn pattern designs to initially teach students proper wirebending techniques will be reviewed. Primarily three lab pliers are used; three prongs, #134 or Bird Beak, and Jarabak pliers. Students are required to recreate paper pattern forms that meet high standards of instructor.

The next exercise involves scalloping a 14" length of 0.028" diameter stainless steel wire along the facial gingival margins around half the dental arch of a model. Students are required to complete one scallop wire contour to high standards of the instructor.

Goals: Become familiar with instruments and materials, improve manual dexterity skills, and understand proper wirebending techniques using round wire.
- **Indirect Bonding Trays:** Students are instructed to place brackets on upper and lower casts. A dual Biostar tray system will be made over both arches. Clinical procedure involving the indirect bonding technique will be reviewed.
Goals: Learn array of bracket designs, bracket positioning for each tooth, fabrication of state-of-the-art transfer tray design, and discuss the clinical process of indirect bonding.
- **Bonded Lingual Retainer:** The bonded lingual retainer is one of the most popular, full time permanent retention devices used at the end of orthodontic treatment. Here, students will fabricate a 3x3 bonded lingual retainer using the indirect transfer tray method. This device will be made to meet the high standards set by the instructor.
Goals: Learn materials and method to create a permanent retention device.

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- **Retainers & Active Plates:** Detailed instruction of appliance designs, maintenance, and components will be reviewed. Hands-on guidance of wire clasps, labial bows, springs, screw placement, acrylic procedures, trimming and finishing will take place. All students will complete the following appliances:
 - Invisible Aligner with tooth resets
 - Wraparound Retainer with S/Z & Finger Springs, as well as Central Incisor Pontic
 - Cetlin Molar Distalizer Spring (1) & Sagittal Screw (1) with Arrow Clasps (2), & Adams Clasp (1)
 - Maxillary Schwarz Plate
 - Mandibular Schwarz Plate

Goals: Learn array of removable plate designs available, fabrication procedures, how they are adjusted, and treatment management of devices.
- **Orthodontic Soldering Exercises:** A review of soldering materials will occur. Then, students are required to complete a series of paper pattern exercises. Completion of all exercises is based on high quality standards of the instructor.

Goals: Become familiar with instruments, equipment and materials, improve manual dexterity skills, and understand proper soldering techniques.
- **Soldered/Fixed Appliances:** An array of fixed orthodontic lab appliances will be reviewed as well as required student hands-on fabrication of:
 - Removable Transpalatal Arch (TPA)
 - Quad Helix Expander
 - Molar Distalizing Appliance - ½ Pendulum, ½ Distal Jet
 - Haas RME
 - Hygienic RME (to be included with Cantilever Herbst)

Goals: Learn proper band placement techniques, become familiar with commonly used fixed lab appliances, and understand fabrication procedures.
- **Functional Jaw Orthopedic Devices:** Many lab appliances may be used to treat Class II and Class III malocclusions. These appliances will be discussed as well as hands-on fabrication of a Banded/Cantilever Herbst appliance to instructor's standards is required by students.

Goals: Become familiar with array of appliances used for treatment of these malocclusions, construction bite technique, and the fabrication process of a Cantilever Herbst appliance.
- **Tooth Positioners:** Tooth Positioners and Elastodontic appliances will be reviewed. Fabrication of a diagnostic setup will take place following gnathologic standards.

Goals: Understand state-of-the-art gnathologic tooth positioning concepts and diagnostic setup requirements for appliance fabrication. Also, students will learn the array of appliance designs.
- **Athletic Mouthguards:** Discussion of pressure laminated mouthguard designs will be reviewed. Students are required to fabricate dual laminate mouthguard over orthodontic brackets.

Goals: Learn variety of designs and fabrication procedures using pressure-molding machines.

Evaluation/Grading Process:

Projects are categorized by exercise type or appliance design (See [Orthodontic Lab Course - Assignment Grading Form](#)). The categorized projects are subdivided into parts that will be evaluated and graded by the instructor. The average of the graded parts will represent that project grade. The final grade is determined by the average of all projects. Grades are as follows for subdivided categories for each project: A = 4pts, B = 3pts, C = 2pts, D = 1pt, F = 0. Final grade point average is: A = 4.0-3.75, A- = <3.75-3.5, B+ = <3.5-3.15, B = <3.15-2.85, B- = <2.85-2.5, C+ = <2.5-2.15, C = <2.15-1.85, C- = <1.85-1.5, D = <1.5-0.75, F = <0.75-0.

Course Schedule: Refer to 2017 Course Schedule Pdf