MODULE 1 BASIC BACKGROUND ON ORTHODONTIC PRACTICE

The following is a detailed outlined, description of activities, and hour breakdown for this facility's eighteen hours for sizing, fitting and cementing course.

ACTIVITY **COURSE CONTENT**

Didactic Session 8 Hours

1. Didactic and laboratory instruction will emphasize:
    a. Orthodontic treatment review
    b. Charting
    c. Patient education
    d. Developing the student's ability to perform (orthodontic) procedures within the assistant's scope of practice to an acceptable level of competence.
    e. Lecture on dental OAP duties.
2. Assignment of patients
    a. Two clinical practice patients
3. General orthodontic knowledge
    a) The orthodontic specialty practice
    b) The Orthodontic office
    c) The Orthodontic assistant
    d) Key Words And Concepts
4. Facial and Dental Discrepancies
    a) Eruption and exfoliation of teeth
    b) Classification of Malocclusions
5. Review the following normal tooth morphology and anatomy
    a) Identify tooth tissues
    c) Utilizing the universal numbering system, identify all primary and permanent teeth. (Orientation module).
    d) Explain the process of plaque formation and define the development of the pellicle.
    e) Explain the role of acquired pellicle in de-mineralization or re-mineralization of the enamel.
    f) Define the following anatomical structures related to the tooth and related structures: (Orientation module).
        1. Contact area
        2. Embrasures

3. Proximal Contact
4. Interproximal space
5. Anatomical & clinical crown
6. Free gingival line
7. Height of contour
8. Occlusal stops
9. Vestibule
10. Oral cavity proper

6. Review of oral anatomy
   a) Location of salivary glands and ducts
   b) Oral soft tissues
   c) Oral hard tissues
7. Treatment Sequencing
   a) Diagnostic records
   b) Preventative Treatment
   c) Interceptive Treatment
   d) Comprehensive Treatment

8. Role of the Auxiliary
   a) Role of the Auxiliary
   b) Patient treatment
   c) Patient education
   d) Appliance wear/care instruction

9. Dental Practice Act
   a) Scope of Practice
   b) Requirements for licensing
   c) DA, OAP Duties included and NOT included
10. Infection Control
   a) Basic Infection Control
   b) Cross contamination

MODULE 1: DIDACTIC ORTHODONTIC TREATMENT REVIEW GENERAL AND SPECIFIC INSTRUCTIONAL UNIT OBJECTIVES

Introduction- The completion of this course will educate the student on the general concepts of the orthodontic practice.

After completing the following areas of didactic study in orthodontic treatment, charting, oral anatomy, and patient education the students will be able to:

1) Demonstrate a basic understanding of orthodontic procedures including the necessary armamentarium and the role of the dental assistant.
2) Describe the role of the Auxiliary in patient treatment, and patient education
3) Demonstrate patient instruction in appliance wear/care
4) Describe the design of a typical orthodontic practice.
5) Define, spell and pronounce the Key Words and Concepts
6) Demonstrate general knowledge of eruption and exfoliation of teeth
7) Identify and classify the different types of malocclusion.
8) Describe a habit and it's effect on the dentition
9) Discuss the biggest differences between adult and adolescent treatment.
10) Differentiate between interceptive and corrective phases of orthodontic treatment.
11) Describe the types of diagnostic records used in orthodontic treatment planning.
12) Demonstrate knowledge of the OAP scope of practice guidelines within the California Dental Practice Act

Written Final Examination: 1 hour

A comprehensive written examination on all aspects of the course will be administered. Questions will appear on the exam in multiple choice, true/false or matching form. These questions will be chosen from a test bank. An item analysis will be conducted to determine question validity each time the examination is administered.

MODULE 2 SIZING, FITTING, AND CEMENTING ORTHODONTIC BANDS COURSE OUTLINE

The following is a detailed outlined, description of activities, and hour breakdown for this facility's eighteen hours for sizing, fitting and cementing course.

Didactic Session 2 Hours

A. Theory of band positioning and tooth movement.
B. Characteristics of band material including:
    1. Malleability
    2. Stiffness
    3. Ductility
    4. Work hardening
    5. Modern band features
        a. Fine medical grade stainless steel
        b. Anatomical form corresponds to the morphology of tooth
        c. Smooth surface, comfortable fit
        d. Permanent laser marking for size and tooth location
        e. Rough inner surface enhances bond strength as required
C. Techniques for orthodontic banding: sizing fitting, cementing and removal including:
    1. Armamentaria
    2. General principles of sizing, fitting, cementing, and removing bands.
    3. Normal placement of
        a. Brackets
        b. Tubes
        c. Lingual sheaths
        d. Lingual cleats
        e. Buttons onto bands.
D. Orthodontic cements and adhesive materials:
    1. Classifications
        a. Water-based
        b. Resin based
    2. Armamentaria
        a. Mixing slab or pad
        b. Mixing spatula
        c. Plastic instrument
    3. Mixing technique
        a. Dependent on classification of cement
E. Cementing bands:
    1. Armamentaria

a. Separating pliers
b. Band Pusher
c. Bite stick
d. Mechanical Band Seater (Thumper) and tip
e. Scaler and serrated plugger
f. Crown and bridge scissors
g. Howe pliers
h. Band Crimping Pliers

2. Mixing techniques
3. Band cementation procedures
    a. Remove the orthodontic separators
    b. Select and fit orthodontic bands
    c. Properly contour the orthodontic band
    d. Remove the band in preparation for cementation
    e. Rinse, dry, and load band with cement
    f. Isolate and dry quadrant
    g. Position and seat orthodontic band
    h. Remove excess cement
    i. Perform final curing

F. Procedure for removal of bands after cementation.

Module 2 Laboratory Session 1 2 Hours

During this session, students will practice sizing, fitting and cementing orthodontic bands on typodont teeth using plain bands and bands with attachments. Students will work with a partner during the process of these procedures the assisting student will observe each stage of the process for evaluation. The following is an approximate step-by-step description of the procedures that should be followed during the laboratory session.

1. Each student will set up his/her armamentaria for sizing, fitting and band cementation.
2. Student will be provided with a typodont, a bench mount and at least four posterior typodont teeth. In addition the student will be provided with individualized packets that will include:
    a. Description of packet
    b. Assortment of band sizes which range above and below those required to fit the typodont teeth.
    c. Armamentarium for band sizing, fitting, and cementation.
    d. Banding cement
3. Instructor will review procedures and present information on how to use worksheet for sizing, fitting, and cementing orthodontic bands.
4. Instructor will present criteria for ideal band fitting and cementation. Instructor will provide ideal examples that will be passed around for viewing.
5. Student will select band sizes, fit bands, contour, prepare for cementation, and cement orthodontic bands on **a minimum of two first molar typodont teeth,** partner observes, evaluates and records on worksheet. Student will also evaluate

him/herself on the procedure. Instructor evaluates the banding process. The entire process will continue to be evaluated on the worksheet by the student, partner/assistant and instructor.

6. Partners switch places, the operator becomes the assistant and the assistant becomes the operator, both student partners have completed at this point a minimum of 2 first molar typodont teeth.
7. Instructor will now present product evaluation form and how it is used to evaluate final sizing, fitting, and cementing orthodontic bands.
8. Using the product evaluation form, the student operator and the student assistant and instructor **grade one cemented first molar orthodontic band on typodont teeth for each other.**
9. Discussion on product evaluation is conducted in small groups

Module 2 Laboratory Session 2 2 Hours

Laboratory practice on typodont teeth continues but now for different quadrants of the mouth and different tooth types including molars, bicuspids, and anteriors. Students will become familiar with use of bite sticks in simulation, band pushers, mechanical band seaters, and pluggers used for contouring. Additional time should be spent using the mechanical band seaters, as typodonts will not provide adequate pressure to seat bands on typodonts. During laboratory session 2 students will fit **a minimum of two first molar bands on typodont teeth with the cementing and removal of one first molar band serving as a practical examination.**

Prior to Module 2 preclinical session 1
Student partners will place orthodontic separators mesial and distal of maxillary and one mandibular molar 3-4 days prior to the start of laboratory session 2.

Module 2 Preclinical Session 1: Assistants working on each other in simulation 4 hours

During this session, student partner's work on each other in simulation as described and demonstrated by instructor on day one. The following general procedures will occur:

Working with a partner, each student functions as the operator sizes, fits, and cements orthodontic bands. Student will then function as an assistant observe and evaluate placement with partner. Students will size, fit, and cement orthodontic bands to **four first molar teeth with the cementing and removal of two first molar bands serving as a practical examination.**

The following general procedures will occur for each patient:

1. Operatory will be set up following the infection control guidelines.
2. Medical history will be completed by student patient prior to seating.
3. Equipment and supplies will be checked by student.

4. Student/patient will be seated and prepared for treatment.
5. Student operator will review medical history and perform a patient assessment instructor will follow-up with same procedures.
6. Patient is given instructions/explanation of procedures
7. Student operator will perform the following according to the stated criteria
    a. Remove the orthodontic separators
    b. Select and fit orthodontic bands to a maxillary and mandibular first molar
    c. Properly contour the orthodontic band to the tooth
    d. Remove the band in preparation for cementation
    e. Rinse, dry, and load band with cement
    f. Isolate and dry quadrant in preparation for band cementation
    g. Position and seat orthodontic band
    h. Remove excess cement from band and tooth
    i. Request inspection by orthodontist for final positioning
    j. Perform final curing if light curing cement
    k. Evaluate product using ideal criteria
    l. Patient post-op instructions are given
    m. Dismiss patient
    n. Perform operatory clean up according to infection control guidelines.

During the procedure the following will take place:

1. The student/operator will evaluate his/her own work according to stated criteria using the worksheet and product evaluation forms.
5. The student/assistant will assist, observe and evaluate operator's performance according to criteria using the worksheet and product evaluation forms.
5. The instructor will evaluate both student's work/performance using stated criteria using the worksheet and product evaluation forms. Discussion on results will be conducted.
5. The instructor will demonstrate and explain clinical examination protocol. When student performs last procedure on student partner it will be termed "mock exam" in preparation for the final exam on a clinical patient.

Written Final Examination: 1 hour

A comprehensive written examination on all aspects of the course will be administered. Questions will appear on the exam in multiple choice, true/false or matching form. These questions will be chosen from a test bank. An item analysis will be conducted to determine question validity each time the examination is administered.

Module 2 Clinical Instruction 8 hours

During this session, the instructor will demonstrate the sequence for sizing, fitting, and cementing an orthodontic band on active patients.

The following procedures will be demonstrated:

1. Remove the orthodontic separators
2. Select and fit orthodontic bands to a maxillary and mandibular molar
3. Properly contour the orthodontic band to the tooth
4. Remove the band in preparation for cementation
5. Rinse, dry, and load band with cement
6. Isolate and dry quadrant in preparation for band cementation
7. Position and seat orthodontic band
8. Remove excess cement from band and tooth
   Request inspection by orthodontist for final positioning
9. Perform final curing if light curing cement
10. Evaluate product using ideal criteria
11. Patient post-op instructions are given
12. Dismiss patient
13. Perform operatory clean up according to infection control guidelines.

Student experience on active patients will include sizing, fitting, and cementing of orthodontic bands after inspection by the orthodontist on two- four posterior teeth depending on patient needs on a minimum of two patients, **with two of the cemented first molar bands used for a clinical exam.**

The following general procedures will occur for each patient:

1. Operatory will be set up following the infection control guidelines.
2. Medical history will be completed by the patient prior to seating.
3. Equipment and supplies will be checked by student/operator.
4. The patient will be seated and prepared for treatment.
5. Student operator will review medical history and perform a patient assessment, instructor will follow-up with same procedures.
6. Patient is given instructions/explanation of procedures
7. Student operator will perform the following according to the stated criteria
   a. Remove the orthodontic separators
   b. Select and fit orthodontic bands to a maxillary and mandibular molar
   c. Properly contour the orthodontic band to the tooth
   d. Remove the band in preparation for cementation
   e. Rinse, dry, and load band with cement
   f. Isolate and dry quadrant in preparation for band cementation
   g. Position and seat orthodontic band
   h. Remove excess cement from band and tooth
      Request inspection by orthodontist for final positioning
   i. Perform final curing if light curing cement
      Evaluate product using ideal criteria
   j. Patient post-op instructions are given

k. Dismiss patient
l. Perform operatory clean up according to infection control guidelines.

After the student operator completes the sequence of procedures, the student operator, the assistant and the instructor will evaluate the performance of the student operator using the worksheet and product evaluation

During this time period the following procedures will occur:
1. The student/operator will evaluate his/her own work according to stated criteria using the worksheet and product evaluation forms.
2. The student/assistant will assist, observe and evaluate operator's performance according to criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both students' work/performance using stated criteria using the worksheet and product evaluation forms. Discussion on results will be conducted.

Module 2 SIZING, FITTING, AND CEMENTING BANDS GENERAL AND SPECIFIC INSTUCTIONAL UNIT OBJECTIVES AND CRITERIA

A. Introduction
The completion of this course will educate the student on the concepts of effectively sizing, fitting and cementing bands to teeth. After completing a Board approved course for sizing, fitting and cementing orthodontic bands the student will be allowed to perform this function on the orthodontic patient.

B. General course objectives
After completing the following areas of didactic, laboratory, and clinical instruction in of sizing, fitting and cementing orthodontic bands the student will be able to:

1. Explain the concepts of sizing, fitting and cementing bands
2. Describe the key concepts of sizing, fitting and cementing bands.
3. Describe the different orthodontic bands used.
4. Explain the steps for sizing, fitting and cementing bands.
5. Describe the materials used for cementing orthodontic bands.
6. Describe the proper technique for placing cements in the bands.
7. Describe the armamentarium and steps involved in sizing, fitting and cementing bands.
8. Discuss the instrumentation and steps in cementing bands.
9. Student, partner and instructor will evaluate all procedures according to the stated criteria. Identify any techniques to improve and or modify faulty placement or removal process.
10. All procedures must be completed to 75% minimum competency level.
11. Maintain infection control protocol, to include operator protection, operatory, surface disinfection, or barrier placement and

instrument processing, sterilization related to sizing, fitting and cementing bands according to standards defined by OSHA and DBC.

C. Specific objectives

After completing this course, the student will be able to:

1. Identify who may legally size, fit and cement orthodontic bands.
2. Describe the criteria for sizing, fitting, and cementing orthodontic bands. Including indications and contraindications.
3. Identify and record appropriate health history.
4. Identify characteristics, composition, storage and handling protocol of cementing materials.
5. Explain basic concepts of cements.
6. Identify the problem solving techniques associated with the cements.
7. Explain the principles of proper moisture control protocol used for cementing orthodontic bands while practicing patient management and maintaining a dry field.
8. List and explain the function of each component of the armamentaria required for sizing, fitting and cementing orthodontic bands.
9. Define the proper sequential steps in the procedure of sizing, fitting, and cementing orthodontic bands.
10. Identify the steps for appropriate infection control protocol for the operator and the dental operatory. List the protocol for barrier placement, surface disinfection and sterilization as it relates to cementing orthodontic bands according to OSHA and DBC.
11. Identify which factors that may cause a health hazard to the operator by viewing a MSDS sheet and know preventive measures that should be employed.
12. List the major factors that are associated with cement failure and how to avoid them.

D. Psychomotor objectives

On typodont teeth and patients the student will be able to:

1. Assemble appropriate armamentaria for sizing, fitting and cementing orthodontic bands.
2. Select and fit orthodontic bands for a maxillary and mandibular molar.
3. Properly contour the orthodontic band to the tooth.
4. Remove the band in preparation of cementation.
5. Rinse, dry and load band with cement.
6. Isolate and dry quadrant in preparation for band cementation.
7. Position and seat orthodontic band.
8. Remove excess cement from tooth.
9. Perform final curing if using light cure cement.
10. Evaluate product using ideal criteria with 75% accuracy.
11. Provide appropriate patient education.
12. Maintain appropriate infection control throughout all procedures.
13. Protect her/him and the patient from any hazardous situations as defined in the MSDS forms for any cement materials used.

E. Criteria

1. Will set up the required armamentaria for sizing, fitting and cementing orthodontic bands.
2. Will place all protective barriers.
3. Prior to treating the patient, review the medical/dental health history, general assessment and oral inspection on performance of procedure.
4. Will use aseptic techniques according to OSHA and DBC throughout the procedures on all patients.
5. Will seat and position the patient.
6. Will evaluate the teeth to be banded.
7. Will explain to the patient the sizing, fitting and cementing procedure.
8. Will perform coronal polish (with completion of coronal polish course) on the appropriate tooth surfaces making sure they are completely cleaned.
9. Remove orthodontic separators
10. Select and fit orthodontic bands to maxillary and mandibular molars
11. Properly contour orthodontic band to the tooth
12. Remove the band in preparation for cementation
13. Rinse, dry and load band with cement
14. Will isolate and dry teeth to be prepared for banding.
15. Position and seat orthodontic band
16. Remove excess cement from tooth.
17. Will evaluate entire procedure according to the stated criteria; identify problem solving methods to improve or modify procedures.
18. Will provide relevant and individualized patient education and post op instructions.
19. Will provide follow up visit as prescribed in the orthodontic treatment plan.
20. Will meet ethical and legal requirements for this procedure.
21. Will provide accurate chart entries for this procedure.
22. Will at all times utilize OSHA and DBC guidelines to process instruments for sterilization; remove waste, disposing of in appropriate receptacles and clean/disinfect the treatment area.

Module 2 SIZING FITTING AND CEMENTING BANDS LABORATORY AND CLINICAL EVALUATION

GENERAL PROCEDURES USING LABORATORY AND CLINICAL PATIENT WORKSHEETS

An important part of the learning experience is the process of sizing, fitting, and cementing bands is the ability to identify technique errors, their causes, and find solutions. Equally important is to determine the degree of error and when it constitutes a need to redo an inadequately cemented band. The first step in this process is to identify the error(s). Using the Sizing, Fitting and Cementing Laboratory and Clinical Patient Worksheets does this. The **worksheets are not grade sheets** but are documents that are used to assist students in learning to identify common technique errors related to the procedures associated with the sizing, fitting and cementing orthodontic bands. The student uses this form in the following manner:

The worksheet consists of a column titled Procedure-Laboratory and Procedure-Clinical, which is the step-by-step description of the procedures associated with preparing teeth for bonding brackets. The procedures are subdivided into the following categories:

- Infection control/patient safety
- Assembles armamentaria
- Sizing
- Fitting
- Cementing
- Patient education
- Infection control/patient safety clean up

General Information on Worksheets

The student operator, student assistant, and instructor use these forms. Each of these individuals will watch the performance of the specified steps of the given procedure and then identify if any of these steps are not followed and/or inadequately performed by the student operator. During the learning process, errors can and will occur. Students and clinical instructors identify common errors encountered during each step of the entire procedure utilizing the worksheets. Worksheets are not grade sheets, but assist the student to identify his or her own errors during performance of these steps. They are used for measuring student's progress toward attainment of clinical proficiency.

How Worksheets Are Used by Student Operator and Student Assistant

1. When performing multiple procedures either in the laboratory or on clinical patients, all of the errors from these series are placed on one worksheet.
2. Each laboratory/clinical experience is graded in a different column.
3. When an error occurs in any of the individual steps described in the Procedure column, a check is placed in the box corresponding to the laboratory/clinical experience.

For example, on the clinical patient worksheet there would be a box for each step of the clinical practice patients. For the laboratory worksheet, there would be a box for the typodont teeth. With worksheet check-offs, the student can identify a clustering pattern of errors in any particular step. When an instructor evaluates the student's performance, he/she cannot only see how a student performs, but whether or not the student can identify errors that he/she makes.

How the Student Identifies Cause and the Correction of Errors
After the student identifies the error(s) performed, he/she will write the cause of the error and how it shall be rectified. The student then identifies whether the error is significant enough to require re sizing, refitting, re-cementing. During this process, the student will review the criteria for successful sizing, fitting and cementing orthodontic bands.

How the Instructor uses the Worksheets
The instructor watches the student operator during the entire process of sizing, fitting and cementing orthodontic bands. The instructor will check the appropriate box on the same worksheet used by the student operator and the student assistant. The instructor observes both students, and then evaluates the grading completed by both students for accuracy. The instructor reviews the worksheets for information related to: cause, solution and whether any part of the procedure requires additional steps. The instructor can provide additional assistance where needed. Through this process of identification of errors, causes and solutions will ensure the student will progress towards clinical competence and expected course objectives will be met. This process will continue throughout all laboratory and clinical requirements. When the clinical final exam is administered the student should be clinically competent in sizing, fitting and cementing orthodontic bands.

Satisfactory Performances of psychomotor skills
Students will practice psychomotor skills during the laboratory and preclinical sessions until they reach a competence level of 75% utilizing the sizing, fitting, cementing documented criteria evaluated using the behaviorally anchored rating scale. Students must achieve a passing score a minimum on a minimum of two typodont teeth or natural teeth before progressing on to successive laboratory, preclinical, and clinical sessions.

Module 2

ORTHODONTIC BAND SIZING, FITTING AND CEMENTING LABORATORY/ PRECLINICAL WORKSHEET

(Students will have completed a minimum of 8 first molars after completion of Laboratory sessions 1 and 2, and preclinical session 1)

Student/Operator Name_____ Date_____

Student/Assistant Name_____ Faculty Name_____

Teeth (8) first molars for band sizing, fitting, and cementing. _____

Option of additional anterior teeth for banding, sizing, and cementing _____

Cementing and removal of 2 first molar bands will be used as a practical examination during the laboratory sessions.

Cementing and removal of 2 first molar bands will be used as a practical examination during the preclinical session. _____

Use this worksheet to identify errors in procedures. Place a check mark in the box each time a step in the procedure is incorrectly performed or omitted. After each section the instructor will check before the student continues with the following section.

Infection Control/Armamentarium	**Operator Evaluator**	**Assistant Evaluator**	**Faculty Evaluator**
Infection Control/Patient Safety			
1. Barriers placed on chair, unit, air-water syringe, HVE, saliva ejector, SP hand piece, curing light			
2. PPE: mask, gloves, scrubs, gown, eye wear, patient safety glasses			
Assemble Armamentaria			
3. Basic set-up: mirror, explorer, cotton pliers			
4. Air-water syringe, syringe tip, HVE, saliva ejector, band removing pliers, band pusher, bite stick, mechanical band seater, scaler and serrated plugger, crown and bridge scissors, howe pliers, band, crimping pliers, curing light if applicable and cement product			
5. Isolation products-long and short cotton rolls, cheek retractors, tongue guard/ etc.			
6. Typodont with appropriate teeth and bench mount/pole			

STOP! Reminder Instructor checks prior to proceeding to next section.

Comments:

Sizing and fitting orthodontic bands	**Operator Evaluator**	**Assistant Evaluator**	**Faculty Evaluator**
7. Remove the orthodontic separators			
8.Select and fit orthodontic bands to a maxillary and mandibular first molar			
9. Properly contour the orthodontic band to the tooth			
10. Remove the band in preparation for cementation			
11.Rinse, dry and load band with cement			
12. Isolate and dry quadrant in preparation for band cementation			
Cementing Orthodontic band			
13. Position and seat the orthodontic band			
14. Remove excess cement from band and tooth			
15. Request inspection by orthodontist for final positioning			
16. Perform final curing if light curing cement			
17. Rinse and suction debris.			
18. Remove any remaining isolation materials and rinse well.			

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Patient Education	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
19.Give post-operative instructions to the patient or parent.			

20. Document procedure in patient chart to include: date, HH review or update, teeth where bands were cemented and products used, problems encountered, operator signature, and instructor or DDS signature.			
Infection Control/Patient Safety/Clean-Up			
21. Surface disinfect			
22. Prepare institute sterilization procedures			
23. Manage PPE: gloves, mask, gown, scrubs, eye wear and patient safety glasses			
24. Unit is checked for completion			

Module 2

ORTHODONTIC BAND SIZING, FITTING AND CEMENTING LABORATORY/PRECLINICAL WORKSHEET

Comments:

Student Operator to explain any check marks

Procedure #'s_____

Cause (s)_____

Solution(s)_____

Re-do? Yes No Tooth #'s_____

Module 2
SIZING, FITTING AND CEMENTING ORTHODONTIC BANDS
CLINICAL PATIENT WORKSHEET

Student/Operator Name_____ Date_____

Student/Assistant Name_____ Faculty Name_____

Use this worksheet to identify errors in procedures. Place a check mark in the box each time a step in the procedure is incorrectly performed or omitted. After each section the instructor will check before the student continues with the following section.

Infection Control/Armamentarium	**Operator Evaluator**	**Assistant Evaluator**	**Faculty Evaluator**
Infection Control/Patient Safety			
1. Barriers placed on chair, unit, air-water syringe, HVE, saliva ejector, SP hand piece, curing light			
2. PPE: mask, gloves, scrubs, gown, eye wear, patient safety glasses			
Assemble Armamentaria			
3. Basic set-up: mirror, explorer, cotton pliers			
4. Air-water syringe, syringe tip, HVE, saliva ejector, band removing pliers, band pusher, bite stick, mechanical band seater, scaler and serrated plugger, crown and bridge scissors, Howe pliers, band, crimping pliers, curing light if applicable and cement product			
5. Isolation products-long and short cotton rolls, cheek retractors, tongue guard/ etc.			
6. Typodont with appropriate teeth and bench mount/pole			

STOP! Reminder Instructor checks prior to proceeding to next section.

Comments:

Sizing and fitting orthodontic bands	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
7. Remove the orthodontic separators			
8.Select and fit orthodontic bands to a maxillary and mandibular molar			
9. Properly contour the orthodontic band to the tooth			
10. Remove the band in preparation for cementation			
11.Rinse, dry and load band with cement			
12. Isolate and dry quadrant in preparation for band cementation			
Cementing Orthodontic band			
13. Position and seat the orthodontic band			
14. Remove excess cement from band and tooth			
15. Request inspection by orthodontist for final positioning			
16. Perform final curing if light curing cement			
17. Rinse and suction debris.			
18. Remove any remaining isolation materials and rinse well.			

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Patient Education	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
19.Give post-operative instructions to the patient or parent.			
20. Document procedure in patient chart to include: date, HH review or update, teeth where bands were cemented and products used, problems encountered, operator signature, and instructor or DDS signature.			
Infection Control/Patient Safety/Clean-Up			
21. Surface disinfect			
22. Prepare institute sterilization procedures			
23. Manage PPE: gloves, mask, gown, scrubs, eye wear and patient safety glasses			
24. Unit is checked for completion			

Comments:

Student Operator to explain any check marks

Procedure #'s_____

Cause (s)_____

Solution(s)_____

Re-do? Yes No Tooth #'s_____

GENERAL PROCEDURES USING PRODUCT EVALUATION FORMS

Product Evaluation Forms for Sizing, Fitting and Cementing Orthodontic Bands
Product evaluation evaluates the end result of any performance, not the steps. This facility utilizes the behaviorally anchored rating scale (BARS) system. This 10-point system clusters the critical incidents into categories. The instructor can score objectively the end result of sizing, fitting and cementing orthodontic bands by choosing the criteria specified in each point level. Performance is assessed according to established criteria for each of these procedures. The points are then converted to a pass or fail grade.

How Instructor uses Product Evaluation Form
A product evaluation form will be used for each patient. In the "scores" area on the form you will note that an open box rather than specific grids occurs. This open box allows you to enter a score for each of the posterior first molars.

The student must maintain a minimum point value of 7.5 on all clustered critical incidences "per tooth". He/she must receive this minimum score for all four posterior first molars during preparation in order to pass this module. A grade of 7.5 represents a 75% passing score.

Product Evaluation Point Conversion

The student will receive points for a given level of achievement from the point scale utilized for product evaluation.

Conversion from a point system to a Pass/ Fail score

POINTS	GRADES
10	Pass-Excellent
7.5	Pass
5	Fail-Critical Error(s)
3	Fail-Critical Errors-no concept

Module 2
Practical Examination #1 Lab Session #1

FITTING, SIZING AND CEMENTING ORTHODONTIC BANDS PRODUCT EVALUATION

Student's Name_____ Patient's Name _typodont____

Minimum Satisfactory performances:

(1) First Molars fitted, sized, and cemented_____

PREPARING FOR ORTHODONTIC BANDING

Date: Grade Received: Pass Fail Faculty:

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Preparation of field (A) Assemble armamentarium (B) Remove separators (C) Pumice teeth **Sizing Bands** (A) Estimate size from study model		

FITTING ORTHODONTIC BAND

Date: Grade Received: Pass Fail Faculty:

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Fitting (A) Initial fitting (B) Final contouring (C) Remove band in preparation for cementation (D) Sand blast inside of band		

CEMENTING ORTHODONTIC BANDS

Date: **Grade Received:** **Pass** **Fail** **Faculty:**

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Cementing (A) Mixing, preparation, and loading of orthodontic cement (B) Rinse dry and load band with cement (C) Isolate and dry quadrant (D) Position and seat orthodontic band (E) Remove excess cement (F) Final contouring and burnishing (G) Perform final curing if using curing light		

Module 2
Practical Examination #1 Lab Session #1

FITTING, SIZING AND CEMENTING ORTHODONTIC BANDS PRODUCT EVALUATION

KEY

NUMERICAL SCORE	PERCENTAGE SCORE
10	Pass-Excellent
7,5	Pass
5	Fail-Critical Errors
3	Fail-Critical Errors No concept

Student Signature: _____

Instructor Signature: _____ **Date:**_____

Module 2
Practical Examination #2 Lab Session #2

FITTING, SIZING AND CEMENTING ORTHODONTIC BANDS PRODUCT EVALUATION

Student's Name_____ Patient's Name typodont_____

Minimum satisfactory performances:

(1) First Molars fitted, sized, and cemented _____

PREPARING FOR ORTHODONTIC BANDING

Date: Grade Received: Pass Fail Faculty:

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Preparation of field (D) Assemble armamentarium (E) Remove separators (F) Pumice teeth **Sizing Bands** (B) Estimate size from study model		

FITTING ORTHODONTIC BAND

Date: **Grade Received:** **Pass** **Fail** **Faculty:**

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Fitting (A) Initial fitting (B) Final contouring (C) Remove band in preparation for cementation (D) Sand blast inside of band		

CEMENTING ORTHODONTIC BANDS

Date: **Grade Received:** **Pass** **Fail** **Faculty:**

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Cementing (A) Mixing, preparation, and loading of orthodontic cement (B) Rinse dry and load band with cement (C) Isolate and dry quadrant (D) Position and seat orthodontic band (E) Remove excess cement (F) Final contouring and		

burnishing (G) Perform final curing if using curing light		

Module 2
Practical Examination #2 Lab Session #2

KEY

NUMERICAL SCORE	PERCENTAGE SCORE
10	Pass-Excellent
7,5	Pass
5	Fail-Critical Errors
3	Fail-Critical Errors No concept

Student Signature: _____
Instructor Signature: _____ Date:_____

Module 2
Practical Examination Preclinical Session #1

FITTING, SIZING AND CEMENTING ORTHODONTIC BANDS PRODUCT EVALUATION

Student's Name_____ Patient's Name_____

Minimum Satisfactory performances:

(2) First Molars fitted, sized, and cemented_____

PREPARING FOR ORTHODONTIC BANDING

Date: Grade Received: Pass Fail Faculty:

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Preparation of field (G) Assemble armamentarium (H) Remove separators (I) Pumice teeth **Sizing Bands** (C) Estimate size from study model		

FITTING ORTHODONTIC BAND

Date: Grade Received: Pass Fail Faculty:

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS

Fitting (A) Initial fitting (B) Final contouring (C) Remove band in preparation for cementation (D) Sand blast inside of band		

CEMENTING ORTHODONTIC BANDS

Date: **Grade Received:** **Pass** **Fail** **Faculty:**

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Cementing (A) Mixing, preparation, and loading of orthodontic cement (B) Rinse dry and load band with cement (C) Isolate and dry quadrant (D) Position and seat orthodontic band (E) Remove excess cement (F) Final contouring and burnishing (G) Perform final curing if using curing light		

Module 2
Practical Examination Preclinical Session #1

FITTING, SIZING AND CEMENTING ORTHODONTIC BANDS PRODUCT EVALUATION

KEY

NUMERICAL SCORE	PERCENTAGE SCORE
10	Pass-Excellent
7,5	Pass
5	Fail-Critical Errors
3	Fail-Critical Errors No concept

Student Signature: _____
Instructor Signature: _____ **Date:**_____

Module 2
Clinical Examination

FITTING, SIZING AND CEMENTING ORTHODONTIC BANDS PRODUCT EVALUATION

Student's Name_____ Patient's Name_____

(Circle one): Patient #1: Name_____Patient #2: Name_____

Minimum Satisfactory performances:

(2) First Molars fitted, sized, and cemented_____

PREPARING FOR ORTHODONTIC BANDING

Date: Grade Received: Pass Fail Faculty:

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Preparation of field (J) Assemble armamentarium (K) Remove separators (L) Pumice teeth **Sizing Bands** (D) Estimate size from study model		

FITTING ORTHODONTIC BAND

Date: Grade Received: Pass Fail Faculty:

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Fitting (A) Initial fitting (B) Final contouring (C) Remove band in preparation for cementation (D) Sand blast inside of band		

CEMENTING ORTHODONTIC BANDS

Date: **Grade Received:** **Pass** **Fail** **Faculty:**

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Cementing (A) Mixing, preparation, and loading of orthodontic cement (B) Rinse dry and load band with cement (C) Isolate and dry quadrant (D) Position and seat orthodontic band (E) Remove excess cement (F) Final contouring and burnishing (G) Perform final curing if using curing light		

Module 2
Clinical Examination

FITTING, SIZING AND CEMENTING ORTHODONTIC BANDS PRODUCT EVALUATION

KEY

NUMERICAL SCORE	PERCENTAGE SCORE
10	Pass-Excellent
7,5	Pass
5	Fail-Critical Errors
3	Fail-Critical Errors No concept

Student Signature: _____

Instructor Signature: _____ **Date:**_____

Module 2
SIZING, FITTING, AND CEMENTING
DOCUMENTED CRITERIA

Points	Description
10	*Sizing and fitting orthodontic band* Separators are removed without trauma to tissue. Teeth are clean and pumiced. Band fits well to anatomy and height of contour. Band seats by finger pressure to one third of the way to the final position. Field is totally isolated and maintained during procedure.
7.5	*Sizing and fitting orthodontic band* Separators are removed with small amount of tissue trauma. Teeth are relatively clean and pumiced. Band fits relatively well to anatomy and height of contour. Band seats by finger pressure to one third of the way to the final position. Field is adequately isolated and maintained during procedure.
5	*Sizing and fitting orthodontic band* Separators are removed with tissue trauma. Teeth are not cleaned. Band does not fit well to anatomy and height of contour. Band does not seat by finger pressure to one third of the way to the final position. Isolation is faulty and saliva penetrates area.
3	*Sizing and fitting orthodontic band* Separators are removed with gross tissue trauma. Teeth are not cleaned. Band does not fit to anatomy and height of contour. Band does not seat on tooth. Isolation is not attempted

Module 2
SIZING, FITTING, CEMENTING
DOCUMENTED CRITERIA

Points	Description
	Cementing orthodontic band Material is carefully prepared according to manufacturer's

10	directions. Material is evenly applied to inside of band without voids. Band does not interfere with occlusion. Cement is properly monitored and or cured appropriately. Excess cement is completely removed. Oral cavity is rinsed all debris is removed.
7.5	*Cementing orthodontic band* Material is prepared reasonably accurate to manufacturer's directions. Minor air bubbles in material inside of band. Band does not interfere with occlusion. Cement is adequately monitored and or cured appropriately. Excess cement is removed. Oral cavity is adequately rinsed with most debris removed.
5	*Cementing orthodontic band* Material is carelessly prepared. Material is either uneven, irregular or in excess. Band interferes with occlusion. Cement is not properly monitored and or cured appropriately. Excess cement inadequately removed. Oral cavity is inadequately rinsed with visible debris.
3	*Cementing orthodontic band* Material is crudely manipulated Material is applied with voids. Bands and excess cement interfere with occlusion. Cement is properly monitored and or cured appropriately. Excess cement is not removed. Oral cavity is not rinsed

Module 2 SIZING, FITTING AND CEMENTING BANDS COURSE REQUIREMENTS

The following is an overview of the course requirements and the protocol followed for laboratory and clinical practice, the written and clinical examination.

Minimum Number of Satisfactory Performances
All students will perform at a minimum, the following procedures in order to achieve minimum competence in the various protocols used in the sizing, fitting and cementing orthodontic bands.
On a typodont and patients, the student will perform the following under OSHA and DBC guidelines:

- On the typodont sizing, fitting and cementing orthodontic bands will be completed at the very least on four posterior first molar a minimum of two times, with two used for a practical exam according to the specified criteria.

- Identify teeth for sizing, fitting and cementing orthodontic bands using appropriate technique with the focus on safety and comfort of the patient. Sizing, fitting and cementing orthodontic bands on four posterior first molars on at least two patients according to the specified criteria with one of each of the four times used for a practical examination with 75% accuracy.

Students are required to meet the specified minimal number of satisfactory performances as indicated above. The student operator grades his/her own performance, the student assistant grades the performance of the student operator and the instructor will assess the student operator's performance and the grading method of both students.

When the student reaches the 75% minimum performance for sizing, fitting and cementing orthodontic bands and 100% performance on all infection control protocol, the instructor evaluates the procedure for the minimal number of satisfactory performances. If a student does not fulfill the minimum grade for the number of satisfactory performances additional laboratory and/or clinical practice procedures will be assigned.

Objective Evaluation Criteria
Objective evaluation criteria shall be provided to each student prior the performance of any procedure. The student will receive information provided by the instructor prior to performing any laboratory or clinical procedures. The instructor shall supply the student with general program, individualized cognitive and psychomotor objectives and criteria for evaluation. Objective criteria will be utilized in the performance of all laboratory and clinical requirements.

Preparation Prior to Sizing, Fitting, and Cementing Orthodontic Bands
1. Will review the medical/dental history, make a general assessment, and oral inspection on each patient prior to treatment, checking for information that may contraindicate the performance of the procedure.

2. Will set up the required armamentaria for band removal and cement removal with a hand instrument.
3. Will use aseptic techniques according to OSHA and DBC throughout performance on al patients.
4. Will place protective barriers, seat and position the patient.
5. Will evaluate the teeth scheduled for sizing, fitting and cementing orthodontic bands.
6. Will explain to patient the treatment planned for that day.
7. Will perform sizing, fitting and cementing orthodontic bands.
8. Will isolate four posterior first molars for sizing, fitting and cementing orthodontic bands on two patients.

Fitting and Sizing of Orthodontic Bands Criteria

1. Identify teeth for fitting and sizing.
2. Will fit and size orthodontic bands using appropriate armamentarium.
3. Will proceed safely and with the patient's comfort as a primary focus.
4. Will identify special circumstances that require adaptation to treatment to ensure no damage results to tissues or restorations.

Cement of Orthodontic Bands Criteria

1. Will isolate quadrant with dry angles, retractors and cotton rolls as needed.
2. Will rinse and dry and prepare to place bands
3. Will evenly place cement free of voids or excess inside of the orthodontic band.
4. Will seat band initially with finger pressure followed by full seating with band pushers and bite sticks.
5. Care will be taken when removing excess cement.
6. Will be meticulous in monitoring debris to prevent swallowing or aspirating residual cement.
7. Will take care not to injure soft or hard tissues.

General Criteria

1. Will provide pertinent and individualized patient education.
2. Will provide follow up appointment as identified in the treatment plan.
3. Will meet ethical and legal requirements for this procedure
4. Will provide accurate chart entries for this procedure.
5. Will utilize OSHA and DBC guidelines for instrument processing, removing waste and cleaning/disinfecting treatment area.

The above criteria will be used to evaluate and access appropriate fitting, sizing and cementing orthodontic bands with a minimum of 75% accuracy for laboratory and clinical patients.

General Clinical Practice Protocol

Clinical Practice
Students will complete two clinical patients. The following general procedures will occur:

Patient Selection Criteria:

The following criteria must apply for each patient:
1. Patient must be an active orthodontic patient
2. Patient must be in good health (medical history form will be completed prior to treatment, reviewed and approved by the instructor).
3. Each patient will have a minimum of two posterior first molars for fitting, sizing, and cementing orthodontic bands.

The student will function as an operator, an assistant and a patient. Working as partners (operator and assistant) an operator will perform the procedure, the assistant will observe, and evaluate each step of the procedure. When complete each student will do the procedure, observe and evaluate.

The following general procedures will occur for each of the patients:
1. Operatory will be set up following the infection control guidelines.
2. Medical history will be completed by the patient prior to seating.
3. Equipment and supplies will be checked by the student.
4. Patient will be seated and prepared for treatment.
5. Student operator will review the medical history and perform a visual exam, the instructor will review the medical history and perform a visual exam.
6. Instructor will accept the patient for fitting, sizing, and cementing orthodontic bands.
7. Student operator will perform the following according to the stated criteria:
    a. Identify teeth for sizing, fitting and cementing orthodontic bands.
    b. Remove separators.
    c. Pumice teeth prior to sizing, fitting and cementing orthodontic bands.
    d. Size, fit and cement orthodontic bands.
    e. Rinse and remove isolation products
    f. Evaluate the product
    g. Provide individualized patient education
    h. Dismiss the patient
    i. Make appropriate chart notes
    l. Perform operatory clean-up/instrument processing according to infection control guidelines.

After sizing fitting and cementing orthodontic bands procedure, the student operator, student assistant and the instructor complete evaluation using the worksheet and product evaluation form.

During this time period, the following will occur:

1. Student operator will evaluate his/her own work according to stated criteria using worksheet and product evaluation forms.
2. Student assistant will assist, observe, evaluate operator's performance according to stated criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both students' work according to stated criteria using the worksheet and product evaluation forms. Results will be discussed.

A 75% must be obtained for passage of sizing, fitting and cementing bands.

General Examination Protocol

Written Examination

A comprehensive written examination of 50 questions on the entire curriculum will be administered. ***The student must receive a minimum score of 75% on the examination to pass the class.***

Examination Time Frame

One hour has been reserved for the written examination.

Clinical Final Examination Time Frame

The clinical final examination occurs during the process of working on the two active orthodontic patients during the sizing, fitting and cementing of orthodontic bands on four posterior first molars. Within this time frame, the following activities will occur: operatory set-up, medical history completed, patient acceptance by the instructor, for sizing, fitting and cementing of orthodontic bands, complete worksheet and product evaluation by the student operator and the student assistant.

During the clinical final examination the following general procedures will occur:

Patient Selection Criteria:

The following criteria must apply for each patient:

1. Patient must be an active orthodontic patient
2. Patient must be in good health (medical history form will be completed prior to treatment, reviewed and approved by the instructor).
3. Each patient will have orthodontic bands sized, fit and cemented on a minimum of two first molars.

The following general procedures will occur for each of the patients:

1. Operatory will be set up following the infection control guidelines.
2. Medical history will be completed by the patient prior to seating.
3. Equipment and supplies will be checked by the student.
4. Patient will be seated and prepared for treatment.

5. Student operator will review the medical history and perform a visual exam. the instructor will review the medical history and perform a visual exam.
6. Instructor will accept the patient for the sizing, fitting and cementing orthodontic bands.
7. Student operator will perform the following according to the stated criteria:
    a. Identify teeth for sizing, fitting, and cementing orthodontic bands.
    b. Remove separators.
    c. Pumice teeth prior to sizing, fitting and cementing orthodontic bands.
    d. Size, fit and cement orthodontic bands.
    e. Rinse and remove isolation products
    f. Evaluate the product (grade)
    g. Provide individualized patient education
    h. Dismiss the patient
    i. Make appropriate chart notes
    j. Perform operatory clean-up/instrument processing according to infection control guidelines.

After band cementation, the student operator, student assistant and the instructor complete evaluation using the worksheet and product evaluation form.

During this time period, the following will occur:
1. Student operator will evaluate his/her own work according to stated criteria using worksheet and product evaluation forms.
2. Student assistant will assist, observe, evaluate operator's performance according to stated criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both students' work according to stated criteria using the worksheet and product evaluation forms. Results will be discussed.

A 75% must be obtained for passage on sizing, fitting and cementing four posterior first molar orthodontic bands on a minimum of two clinical patients

MODULE 3 REMOVAL OF ORTHODONTIC BANDS AND CEMENT REMOVAL WITH A HAND INSTRUMENT COURSE OUTLINE, ACTIVITIES AND HOUR BREAKDOWN

The following is a detailed outline, description of the activities and hour breakdown for this Facility for the twelve module/course in orthodontic band and cement removal with a hand instrument (required for the DA).

Module 3 Didactic Session 4 Hours
Lecture

1. Identifying teeth with orthodontic bands
   a. Teeth most likely to have bands
   b. Differentiating bands from other orthodontic appliances
   c. Components of an orthodontic band and attachments

2. Removal of orthodontic bands
   a. Instruments used (armamentarium)
   b. Technique for removal of bands

3. Patient safety and comfort during removal of bands
   a. Prevention of swallowing/aspiration
   b. Special care for soft and hard tissues

4. Special circumstances
   a. Crowns, fillings
   b. Inflamed tissue
   c. Patients with limited opening

5. Identifying residual cement
   a. Types of band cement
   b. Differentiating from stain/discoloration
   c. Factors influencing amount of residual cement (etched teeth, bands)
   d. Likely places to find residual cement (band space, etc)

6. Supragingival removal of residual cement with a hand instrument
   a. Instruments used (armamentarium)
   b. Technique for removal of residual cement

7. Patient safety and comfort during removal of cement
   a. Prevention of swallowing/aspiration (use of suction)
   b. Special care for soft and hard tissues

Module 3 Laboratory Session 1 2 Hours

During this session, students will practice the removal of orthodontic bands as well as the techniques for removal of cement with a hand instrument on a typodont. Students will work with a partner during the process of these procedures the assisting student will observe each stage of the process for evaluation. The following is an approximate step-by-step description of the procedures that should be followed during the laboratory session.

1. Each student will set up his/her armamentaria for removal of bands and residual cement.
2. Student will be provided with a typodont with banded posterior teeth (cemented) and a bench mount.
3. Instructor will review procedures for removal of bands and excess cement.
4. Instructor will provide ideal examples that will be passed around for viewing.
5. Student will remove the bands from the typodont tooth while partner observes, evaluates and records on worksheet. Student will also evaluate him/herself on the procedure. Instructor evaluates the removal of the bands as well as the cement removal.
6. The bands will be re-cemented for further practice as needed based on instructors evaluation.
7. The entire process will continue to be evaluated on the worksheet by the student, partner/assistant and instructor.
8. Students will complete a minimum of four band removals and cement removals with **one of the four times used for a practical examination.**
9. Partners switch places, the operator becomes the assistant and the assistant becomes the operator, both student partners have completed at this point four typodont teeth.
10. The worksheets and product evaluation forms are then evaluated by students and instructor.

Module 3 Preclinical Session 1 2 Hours

During this session, students will practice the removal of orthodontic bands as well as the techniques for removal of cement with a hand instrument on each other **after bands were cemented in the second module.** Students will work with a partner during the process of these procedures the assisting student will observe each stage of the process for evaluation. The following is an approximate step-by-step description of the procedures that should be followed during the laboratory session.

1. Each student will set up his/her armamentaria for removal of bands and residual cement.

2. Each student will serve as the patient with the previously cemented banded posterior teeth.
3. Instructor will review procedures for removal of bands and excess cement.
4. Instructor will provide ideal examples that will be passed around for viewing.
5. Student will remove the bands from the partner while the partner observes in a patient mirror, and evaluates and records on worksheet. Student will also evaluate him/herself on the procedure.
6. Instructor evaluates the removal of the bands as well as the cement removal.
7. The bands will be re-cemented for further practice as needed based on instructor's evaluation.
8. The entire process will continue to be evaluated on the worksheet by the student, partner/assistant and instructor.
9. Band removal and cement removal will be completed a minimum of four times with **one of the four times used for a practical examination.**
10. Partners switch places, the operator becomes the assistant and the assistant becomes the operator, both student partners have completed at this point four typodont teeth.
11. The worksheets and product evaluations will be evaluated by the students and instructor.

Written Final Examination: 1 hour

A comprehensive written examination on all aspects of the course will be administered. Questions will appear on the exam in multiple choice, true/false or matching form. These questions will be chosen from a test bank. An item analysis will be conducted to determine question validity each time the examination is administered

Module 3 Clinical Session 1 4 Hours

During this session, the students will participate in the removal of excess cement supra-gingivally from orthodontic bands with a hand instrument on at least two active patients.

1. Each student will set up his/her armamentaria for removal of bands and residual cement.
2. Student will be provided with two patients.
3. Instructor will review procedures for removal of bands and excess cement.
4. Student will remove the bands from the patients while partner observes, evaluates and records on worksheet.
5. Student will also evaluate him/herself on the procedure.

6. Instructor evaluates the removal of the bands as well as the cement removal. The entire process will continue to be evaluated on the worksheet by the student, partner/assistant and instructor.
7. Students will complete a minimum of four band removals and cement removals **with one of the four times used for a clinical examination.**
8. Partners switch places, the operator becomes the assistant and the assistant becomes the operator, both student partners have completed at this point four teeth on each patient.
9. The worksheets are then evaluated by the students and instructor.

REMOVAL OF ORTHODONTIC BANDS AND CEMENT REMOVAL WITH A HAND INSTRUMENT UNIT OBJECTIVES AND CRITERIA

A. Introduction

The completion of this course will educate the student on the concepts of effectively removing orthodontic bands and removing cement with a hand instrument. After completing a Board approved course for removing orthodontic bands and cement with a hand instrument the student will be allowed to perform this function on the orthodontic patient.

B. General Course objective

After completing the following areas of didactic, laboratory, and clinical instruction in removing orthodontic bands and removing cement with a hand instrument, the student will be able to:

1. Identify teeth with orthodontic bands
2. Remove orthodontic bands using appropriate armamentarium.
3. Describe steps for orthodontic band removal.
4. Describe steps for identifying residual cement.
5. Describe steps for supra-gingival cement removal.
6. Remove orthodontic bands from an orthodontically banded typodont and cement a minimum of four times with one of the four times used for a practical examination to a 75% minimum proficiency level.
7. Maintain patient safety and comfort during removal of bands and residual cement.
8. Remove orthodontic bands and residual cement on at least two patients to a 75% minimum proficiency level.
9. Student, partner and instructor will evaluate the process according to the stated criteria. Identify techniques to improve and or modify.
10. Maintain infection control to standards defined by OSHA and DBC.

C. Specific Objectives

After completing this course, the student will be able to:

1. Identify who may legally remove orthodontic bands.
2. Identify who may legally remove residual supragingival cement.

Identify teeth with orthodontic bands

a. Explain which teeth that are most likely to have bands
b. Describe how to differentiate bands from other orthodontic appliances
c. Explain components of an orthodontic band and attachments

Removal of orthodontic bands

a. List the armamentarium used in orthodontic band removal.
b. Describe techniques for orthodontic band removal

Patient safety and comfort during orthodontic band removal

a. Explain techniques to prevent swallowing or aspiration of band and or other related materials.
b. Describe the care that must be maintained to preserve hard and soft tissues.
c. Describe the sensitivity the patient exhibits following tooth movement.
d. Explain the condition of soft tissue following active orthodontic treatment when oral hygiene is fair or poor.

Special circumstances for band removal

a. Explain specific care that must be observed when removing bands from teeth with restorations.
b. Describe the additional steps required when removing bands from teeth where gingival tissues are inflamed.
c. Describe additional factors influencing band removal when a patient has limited opening.

Identifying residual cement

a. List the types of band cements used in orthodontics.
b. Describe the most commonly used cements
c. Explain how residual cement is identified.
d. Describe differentiation of tooth discoloration and or rough surfaces versus residual cement.
e. Describe factors influencing amount of residual cement.
f. List the most likely places residual cement is found

Supragingival removal of residual cement with a hand instrument

a. List the armamentarium used for residual cement removal
b. Describe the techniques for the removal of residual cement.
c. Explain the use of a finger rest/fulcrum when removing residual cement.
d. Explain how cement comes off the enamel and the use of the high volume evacuator tip.

Coronal polish teeth with a fluoride prophy paste

a. Explain proper technique for polishing enamel surfaces

Patient safety and comfort during removal of cement

a. Explain techniques used to preserve hard and soft tissue preservation during cement removal.
b. Explain techniques to prevent swallowing or aspiration of residual cement as it is removed.
c. Explain use of a handpiece by the orthodontist for cement removal (assistant cannot safely remove residual cement)
d. Describe techniques employed when access to teeth is difficult during residual cement removal.

3. Identify problem-solving techniques employed during band removal and residual cement removal with a hand instrument.
4. Describe the proper sequential steps for band removal and cement removal with a hand instrument.
5. Identify the steps appropriate for infection control during band removal and cement removal with a hand instrument according to OSHA and DBC.

D. Psychomotor Objectives

On typodont teeth and patients, the student will be able to:

1. Assemble appropriate armamentarium for orthodontic band removal and cement removal with a hand instrument.
2. Determine the teeth where bands will be removed.
3. Identify residual cement.
4. Remove bands from typodont teeth at least four times with one of the four times used for a practical examination according to specific criteria to a 75% level.
5. Remove residual cement supragingival from typodont teeth at least four times with one of the four times used for a practical examination according to specific criteria to a 75% level.
6. Evaluate and assess appropriate orthodontic band removal and cement removal with a hand instrument.
7. Provide appropriate patient education.
8. Maintain appropriate infection control during orthodontic band removal and cement removal with a hand instrument.

E. Criteria

1. Will provide a general oral inspection and the medical/dental history is reviewed prior to treating the patient.
2. All armamentarium is set up for band removal and cement removal with a hand instrument.
3. Aseptic techniques are employed during all procedures provided to patients according to OSHA and DBC.
4. Will place all protective barriers prior to patient treatment.
5. Will seat the patient and is then positioned for treatment
6. Treatment is explained to the patient.
7. Will identify the teeth for orthodontic band removal.
8. The orthodontic bands are removed ensuring safety and comfort of the patient.
9. Will identify residual cement.

9. Residual cement removal with a hand instrument is completed ensuring safety and comfort of the patient.
10. Coronal polish is performed after cement removal using a fluoride polishing paste (assistant has completed coronal polish course approved by DBC).
11. The oral cavity is rinsed well removing any remaining debris.
12. Will provide individualized patient education.
13. Will meet all legal requirements for the treatment provided to the patient.
14. Will accurately document the procedures provided to the patient.
15. Will at all times utilize OSHA and DBC guidelines when processing instruments, removing waste, cleaning and disinfecting the treatment area.

REMOVAL OF ORTHODONTIC BANDS AND CEMENT REMOVAL WITH A HAND INSTRUMENT GENERAL PROCEDURES USING LABORATORY AND CLINICAL PATIENT WORKSHEETS

An important part of the learning experience is the process of orthodontic band removal and the cement removal with a hand instrument is the ability to identify technique errors, their causes, and find solutions. Equally important is to determine the degree of error and when it constitutes a need to redo the process. The first step in this process is to identify the error(s). Using removal of orthodontic bands and cement removal Laboratory and Clinical Patient Worksheets does this. The **worksheets are not grade sheets** but are documents that are used to assist students in learning to identify common technique errors related to the procedures associated with orthodontic band removal and cement removal with a hand instrument. The student uses this form in the following manner:

The worksheet consists of a column titled Procedure-Laboratory and Procedure-Clinical, which is the step-by-step description of the procedures associated with orthodontic band removal and cement removal with a hand instrument. The procedures are subdivided into the following categories:

□

- Infection control/patient safety
- Assembles armamentaria
- Band and Cement Removal
- Identify residual cement
- Patient education
- Infection control/patient safety clean up

General Information on Worksheets

The student operator, student assistant, and instructor use these forms. Each of these individuals will watch the performance of the specified steps of the given procedure and then identify if any of these steps are not followed and/or inadequately performed by the student operator. During the learning process, errors can and will occur. Students and clinical instructors identify common errors encountered during each step of the entire

procedure utilizing the worksheets. Worksheets are not grade sheets, but assist the student to identify his or her own errors during performance of these steps. They are used for measuring student's progress toward attainment of clinical proficiency.

How Worksheets Are Used by Student Operator and Student Assistant

1. When performing multiple procedures either in the laboratory or on clinical patients, all of the errors from these series are placed on one worksheet.
2. Each laboratory/clinical experience is graded in a different column.
3. When an error occurs in any of the individual steps described in the Procedure column, a check is placed in the box corresponding to the laboratory/clinical experience.

For example, on the clinical patient worksheet there would be a box for each step of the clinical practice patients. For the laboratory worksheet, there would be a box for the typodont teeth. With worksheet check-offs, the student can identify a clustering pattern of errors in any particular step. When an instructor evaluates the student's performance, he/she cannot only see how a student performs, but whether or not the student can identify errors that he/she makes.

How the Student Identifies Cause and the Correction of Errors

After the student identifies the error(s) performed, he/she will write the cause of the error and how it shall be rectified. The student then identifies whether the error is significant enough to require additional practice in the process of band removal and cement removal with a hand instrument. During this process, the student will review the criteria for successful band removal and cement removal with a hand instrument.

How the Instructor uses the Worksheets

The instructor watches the student operator during the entire process of band removal and cement removal with a hand instrument. The instructor will check the appropriate box on the same worksheet used by the student operator and the student assistant. The instructor observes both students, and then evaluates the grading completed by both students for accuracy. The instructor reviews the worksheets for information related to: cause, solution and whether any part of the procedure requires additional steps. The instructor can provide additional assistance where needed. Through this process of identification of errors, causes and solutions will ensure the student will progress towards clinical competence and expected course objectives will be met. This process will continue throughout all laboratory and clinical requirements. When the clinical final exam is administered the student should be clinically competent in orthodontic band removal and cement removal with a hand instrument.

Module 3 LABORATORY AND CLINICAL EVALUATION

REMOVAL OF BANDS/CEMENT WITH HAND INSTRUMENT LABORATORY/CLINICAL WORKSHEET

Student/Operator Name_____ Date_____

Student/Assistant Name_____ Faculty Name_____

Use this worksheet to identify errors in procedures. Place a check mark in the box each time a step in the procedure is incorrectly performed or omitted. After each section the instructor will check before the student continues with the following section.

Infection Control/Armamentarium	**Operator Evaluator**	**Assistant Evaluator**	**Faculty Evaluator**
Infection Control/Patient Safety			
1. Barriers placed on chair, unit, air-water syringe, HVE, saliva ejector, SP hand piece, curing light			
2. PPE: mask, gloves, scrubs, gown, eye wear, patient safety glasses			
Assemble Armamentaria			
3. Basic set-up: mirror, explorer, cotton pliers			
4. Air-water syringe, syringe tip, HVE, saliva ejector			
5. Low-speed hand piece with disposable prophy angle			
6. Pumice/prophy paste with fluoride			
7. Isolation products-long and short cotton rolls, cheek retractors, tongue guard/ etc.			
8. Band Removing Pliers			
9. Sickle Scaler			
10. Typodont with appropriate teeth and bench mount/pole			
11. High speed hand piece/fluted bur/green stone (DDS use only)			

Comments:

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Band and Cement Removal	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
12. Verify teeth for band removal			
13. Use band-removing pliers to safely remove the band from the tooth with minimal pressure and discomfort to the patient.			
14. Primary focus is patient safety, prevention of swallowed or aspirated bands			
15. Teeth that have restorations takes special care when removing bands.			
16. Inflamed tissue bleeds easily; suction should be employed to remove blood and excess saliva.			
17. **Identify residual cement.**			
18. Use an instrument to "feel" for visual inspection may not be reliable.			
19. Use explorer to detect residual cement.			
20. Inspect the interproximal areas where residual cement may be hiding.			
21. Use modified pen grasp to remove residual cement using a sickle scaler while employing a secure fulcrum.			
22. The blade of the scaler is used to detect and dislodge cement. Apply blade at less than 90 degrees but no less than 45 degrees. Employ pull stroke.			
23. Suction small fragments as they are removed.			
24, If residual cement cannot be removed with a hand instrument the Orthodontist should use the high-speed hand piece and bur for final removal.			
25. Rinse and suction remaining debris.			
26. Polish using prophy paste with fluoride.			
27. Remove any remaining isolation materials and rinse well.			

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Patient Education	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
28. Give post-operative instructions to the patient or parent.			
29. Document procedure in patient chart to include: date, HH review or update, teeth where bands and or cement were removed, products used, problems encountered, operator signature, and instructor or DDS signature.			
Infection Control/Patient Safety/Clean-Up	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
28. Surface disinfect			
29. Prepare and institute sterilization procedures			
30. Manage PPE: gloves, mask, gown, scrubs, eye wear and patient safety glasses			
31. Unit is checked for completion			

STOP! Reminder Instructor checks prior to proceeding to next section.

Comments:

Student Operator to explain any check marks

Procedure #'s_____

Cause (s)_____

Solution(s)_____

Re-do? Yes No Tooth #'s_____

PATIENT WORKSHEET
REMOVAL OF BANDS/CEMENT WITH HAND INSTRUMENT

Student/Operator Name_____ Date_____

Student/Assistant Name_____ Faculty Name_____

(Circle one): Patient #1 Patient #2

Minimum Number of Satisfactory Performances:

Teeth (4) in anterior for band/cement removal _____

Teeth (4) in posterior for band/cement removal _____

Use this worksheet to identify errors in procedures. Place a check mark in the box each time a step in the procedure is incorrectly performed or omitted. After each section the instructor will check before the student continues with the following section.

Infection Control/Armamentarium	**Operator Evaluator**	**Assistant Evaluator**	**Faculty Evaluator**
Infection Control/Patient Safety			
1. Barriers placed on chair, unit, air-water syringe, HVE, saliva ejector, SP hand piece, curing light			
2. PPE: mask, gloves, scrubs, gown, eye wear, patient safety glasses			
Assemble Armamentaria			
3. Basic set-up: mirror, explorer, cotton pliers			
4. Air-water syringe, syringe tip, HVE, saliva ejector			
5. Low-speed hand piece with disposable prophy angle			
6. Pumice/prophy paste with fluoride			
7. Isolation products-long and short cotton rolls, cheek retractors, tongue guard/ etc.			
8. Band Removing Pliers			
9. Sickle Scaler			
10. High speed hand piece/fluted bur/green stone (DDS use only)			

Comments:
STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Band and Cement Removal	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
11. Verify teeth for band removal			
12. Use band-removing pliers to safely remove the band from the tooth with minimal pressure and discomfort to the patient.			
13. Primary focus is patient safety, prevention of swallowed or aspirated bands			
14. Teeth that have restorations takes special care when removing bands.			
15. Inflamed tissue bleeds easily, suction should be employed to remove blood and excess saliva.			
16. **Identify residual cement.**			
17. Use an instrument to "feel" for visual inspection may not be reliable.			
18. Use explorer to detect residual cement.			
19. Inspect the interproximal areas where residual cement may be hiding.			
20. Use modified pen grasp to remove residual cement using a sickle scaler while employing a secure fulcrum.			
21. The blade of the scaler is used to detect and dislodge cement. Apply blade at less than 90 degrees but no less than 45 degrees. Employ pull stroke.			
22. Suction small fragments as they are removed.			
23, If residual cement cannot be removed with a hand instrument the Orthodontist should use the high-speed hand piece and bur for final removal.			
24. Rinse and suction remaining debris.			
25. Polish using prophy paste with fluoride.			
26. Remove any remaining isolation materials and rinse well.			

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Patient Education	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
27.Give post-operative instructions to the patient or parent.			
28. Document procedure in patient chart to include: date, HH review or update, teeth where bands and or cement were removed, products used, problems encountered, operator signature, and instructor or DDS signature.			
Infection Control/Patient Safety/Clean-Up	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
29. Surface disinfect			
30. Prepare and institute sterilization procedures			
31. Manage PPE: gloves, mask, gown, scrubs, eye wear and patient safety glasses			
32. Unit is checked for completion			

STOP! Reminder Instructor checks prior to proceeding to next section.

Comments:

Student Operator to explain any check marks

Procedure #'s_____

Cause (s)_____

Solution(s)_____

Re-do? Yes No Tooth #'s_____

GENERAL PROCEDURES USING PRODUCT EVALUATION FORMS

Product Evaluation Forms for Orthodontic Band and Cement Removal with a Hand Instrument

Product evaluation evaluates the end result of any performance, not the steps. This facility utilizes the behaviorally anchored rating scale (BARS) system. This 10-point system clusters the critical incidents into categories. The instructor can score objectively the end result of band removal and cement removal with a hand instrument by choosing the criteria specified in each point level. Performance is assessed according to established criteria for each of these procedures. The points are then converted to a pass or fail grade.
□

How Instructor uses Product Evaluation Form

A product evaluation form will be used for each patient. In the "scores" area on the form you will note that an open box rather than specific grids occurs. This open box allows you to enter a score for each of the posterior first molars.

The student must maintain a minimum point value of 7.5 on all clustered critical incidences "per tooth". He/she must receive this minimum score for all four posterior first molars selected for orthodontic band removal and cement removal with a hand instrument in order to pass this course. A grade of 7.5 represents a 75% passing score.

Product Evaluation Point Conversion

The student will receive points for a given level of achievement from the point scale utilized for product evaluation.

Conversion from a point system to a Pass/ Fail score

POINTS	GRADES
10	Pass-Excellent
7.5	Pass
5	Fail-Critical Error(s)
3	Fail-Critical Errors-no concept

Module 3
Practical Examination Laboratory Session 1

REMOVAL OF BANDS AND CEMENT REMOVAL WITH A HAND INSTRUMENT PRODUCT EVALUATION

Student Name: _____Patient's Name_____

Minimum Satisfactory performances:

1 First Molar removed and cement removed with a hand instrument_____

BAND REMOVAL

Date: Grade Received: Pass Fail Faculty

AREAS	SCORES	COMMENTS
(A) Assemble armamentarium for orthodontic band and cement removal (B) Identify bands to be removed (C) Remove bands ensuring safely and comfort		

CEMENT REMOVAL

Date: Grade Received: Pass Fail Faculty

AREAS	SCORES	COMMENTS
Identify cement to be removed (A) Remove cement safely and comfortably (B) Removal of residual		

cement complete (C) Coronal polish (D) Provide individualized patient education		

Module 3
Practical Examination Laboratory Session 1

REMOVAL OF BANDS AND CEMENT REMOVAL WITH A HAND INSTRUMENT PRODUCT EVALUATION

KEY

NUMERICAL SCORE	PERCENTAGE SCORE
10	Pass-Excellent
7.5	Pass
5	Fail-Critical Errors
3	Fail-Critical Errors No concept

Student Signature: _____
Instructor Signature: _____ Date_____

Module 3
Practical Examination Preclinical Session 1

REMOVAL OF BANDS AND CEMENT REMOVAL WITH A HAND INSTRUMENT PRODUCT EVALUATION

Student Name: _____Patient's Name_____

Minimum Satisfactory performances:

1 First Molar bands removed and cement removed with a hand instrument_____

BAND REMOVAL

Date: Grade Received: Pass Fail Faculty

AREAS	SCORES	COMMENTS
(D) Assemble armamentarium for orthodontic band and cement removal (E) Identify bands to be removed (F) Remove bands ensuring safely and comfort		

CEMENT REMOVAL

Date: Grade Received: Pass Fail Faculty

AREAS	SCORES	COMMENTS
Identify cement to be removed (E) Remove cement safely and comfortably		

(F) Removal of residual cement complete (G) Coronal polish (H) Provide individualized patient education		

Module 3
Practical Examination Preclinical Session 1

REMOVAL OF BANDS AND CEMENT REMOVAL WITH A HAND INSTRUMENT PRODUCT EVALUATION

KEY

NUMERICAL SCORE	PERCENTAGE SCORE
10	Pass-Excellent
7.5	Pass
5	Fail-Critical Errors
3	Fail-Critical Errors No concept

Student Signature: _____
Instructor Signature: _____ Date_____

Module 3
Clinical Examination Clinical Session 1

REMOVAL OF BANDS AND CEMENT REMOVAL WITH A HAND INSTRUMENT PRODUCT EVALUATION

Student Name: _____Patient's Name_____

Minimum Satisfactory performances:

(1) First Molar removed and cement removed with a hand instrument_____

BAND REMOVAL

Date: Grade Received: Pass Fail Faculty

AREAS	SCORES	COMMENTS
(G) Assemble armamentarium for orthodontic band and cement removal (H) Identify bands to be removed (I) Remove bands ensuring safely and comfort		

CEMENT REMOVAL

Date: Grade Received: Pass Fail Faculty

AREAS	SCORES	COMMENTS
Identify cement to be removed (I) Remove cement safely and comfortably (J) Removal of residual		

cement complete (K) Coronal polish (L)Provide individualized patient education		

KEY

NUMERICAL SCORE	PERCENTAGE SCORE
10	Pass-Excellent
7.5	Pass
5	Fail-Critical Errors
3	Fail-Critical Errors No concept

Student Signature: _____
Instructor Signature: _____ Date_____

Module 3

REMOVAL OF BANDS AND CEMENT REMOVAL WITH A HAND INSTRUMENT PRODUCT EVALUATION

BAND REMOVAL AND CEMENT REMOVAL WITH A HAND INSTRUMENT DOCUMENTED CRITERIA

POINTS	DESCRIPTION
10	*Band Removal* Teeth identified correctly Band removing pliers used appropriately Band removed safely Care was taken for a banded tooth with special circumstances Patient's comfort was considered
7.5	*Band Removal* Teeth identified correctly Band removing pliers varies slightly from ideal Band removed safely Care was taken for a banded tooth with special circumstances Patient's comfort was considered
5	*Band Removal* Teeth identified incorrectly Band removing pliers used inappropriately Band removal varies from ideal Care was not taken for a banded tooth with special circumstances Patient's comfort was not considered
3	*Band Removal* Teeth identified incorrectly Band removing pliers used inappropriately Band removal varies more than slightly from ideal Care was not taken for a banded tooth with special circumstances Patient's comfort was not considered

BAND REMOVAL AND CEMENT REMOVAL WITH A HAND INSTRUMENT DOCUMENTED CRITERIA

POINTS	DESCRIPTION
10	*Cement Removal with a hand instrument* Cement identified using an explorer, buccal, lingual, and interproximally Cement is removed safely supra-gingivally with a scaler using a fulcrum Care was taken for a tooth with special circumstances Patient's comfort was considered and maintained Debris/cement is identified/removed completely Tooth coronally polished to restore luster (coronal polish class taken)
7.5	*Cement Removal* Cement identified using an explorer, buccal, lingual, and interproximally Cement is removed safely supra-gingivally with a scaler using a fulcrum Care was taken for a tooth with special circumstances Patient's comfort was considered and maintained Debris/cement is identified and removed completely Tooth coronally polished to restore luster (coronal polish class taken)
5	*Cement Removal* Difficulty identifying cement with explorer Removal of cement using an inadequate fulcrum making this step unsafe Patient is uncomfortable during cement removal Debris/cement is not identified or completely removed Tooth is polished but not well (coronal polish class taken)
3	*Cement Removal* Unable to identify residual cement with a scaler Uses explorer in an attempt to remove residual cement Patient is uncomfortable during cement removal Debris/cement is not identified or completely removed Tooth is polished but not well (coronal polish class taken)

REMOVAL OF BANDS AND CEMENT WITH A HAND INSTRUMENT COURSE REQUIREMENTS

The following is an overview of the course requirements and the protocol followed for laboratory and clinical practice, the written and clinical examination.

Minimum Number of Satisfactory Performances
All students will perform at a minimum, the following procedures in order to achieve minimum competence in the various protocols used in the removal of bands and cement removal with a hand instrument.
On a typodont and patients, the student will perform the following under OSHA and DBC guidelines:

- On the typodont band removal will be completed at the very least on four posterior first molar a minimum of two times, with one used for a practical exam according to the specified criteria.

- Identify teeth with bands that will be removed with band removal pliers using proper technique with the focus on safety and comfort of the patient. Removing four posterior first molar bands on at least two patients according to the specified criteria with one of each of the four times used for a practical examination with 75% accuracy.

Students are required to meet the specified minimal number of satisfactory performances as indicated above. The student operator grades his/her own performance, the student assistant grades the performance of the student operator and the instructor will assess the student operator's performance and the grading method of both students.

When the student reaches the 75% minimum performance for preparing the tooth for subsequent bracket bonding and 100% performance on all infection control protocol, the instructor evaluates the procedure for the minimal number of satisfactory performances. If a student does not fulfill the minimum grade for the number of satisfactory performances additional laboratory and/or clinical practice procedures will be assigned.

Objective Evaluation Criteria
Objective evaluation criteria shall be provided to each student prior the performance of any procedure. The student will receive information provided by the instructor prior to performing any laboratory or clinical procedures. The instructor shall supply the student with general program, individualized cognitive and psychomotor objectives and criteria for evaluation. Objective criteria will be utilized in the performance of all laboratory and clinical requirements.

Preparation Prior to Band Removal
1. Will review the medical/dental history, make a general assessment, and oral inspection on each patient prior to treatment, checking for information that may contraindicate the performance of the procedure.

2. Will set up the required armamentaria for band removal and cement removal with a hand instrument.
3. Will use aseptic techniques according to OSHA and DBC throughout performance on al patients.
4. Will place protective barriers, seat and position the patient.
5. Will evaluate the teeth scheduled to have band removal and cement removal with a hand instrument.
6. Will explain to patient the treatment planned for that day.
7. Will perform band removal and cement removal with a hand instrument.
8. Will isolate four posterior first molars in preparation for band removal and subsequent cement removal with a hand instrument on two patients.

Removal of Orthodontic Bands Criteria

1. Identify teeth with orthodontic bands.
2. Will remove the orthodontic bands using appropriate armamentarium.
3. Will proceed safely and with the patient's comfort as a primary focus.
4. Will identify special circumstances that require adaptation to treatment to ensure no damage results to tissues or restorations.

Removal of Cement With Hand Instrument Criteria

1. Will remove residual cement with a hand instrument following band removal.
2. Will explore areas where residual cement will be found (band space). These areas will be on the buccal, lingual and interproximal.
3. Will remove residual cement supra-gingivally with a hand instrument.
4. Care will be taken to use a stable fulcrum.
5. Care will be taken while using a pull stroke with the sickle scaler when removing residual cement.
6. Will be meticulous in monitoring debris to prevent swallowing or aspirating residual cement.
7. Will take care not to injure soft or hard tissues.

General Criteria

1. Will provide pertinent and individualized patient education.
2. Will provide follow up appointment as identified in the treatment plan.
3. Will meet ethical and legal requirements for this procedure
4. Will provide accurate chart entries for this procedure.
5. Will utilize OSHA and DBC guidelines for instrument processing, removing waste and cleaning/disinfecting treatment area.

The above criteria will be used to evaluate and access appropriate removal of bands with subsequent removal of residual cement with a hand instrument with a minimum of 75% accuracy for laboratory and clinical patients.

General Clinical Practice Protocol

Clinical Practice
Students will complete two clinical patients. The following general procedures will occur:

Patient Selection Criteria:

The following criteria must apply for each patient:
1. Patient must be an active orthodontic patient
2. Patient must be in good health (medical history form will be completed prior to treatment, reviewed and approved by the instructor).
3. Each patient will have a minimum of four posterior first molars with bands.

The student will function as an operator, an assistant and a patient. Working as partners (operator and assistant) an operator will perform the procedure, the assistant will observe, and evaluate each step of the procedure. When complete each student will do the procedure, observe and evaluate.

The following general procedures will occur for each of the patients:
1. Operatory will be set up following the infection control guidelines.
2. Medical history will be completed by the patient prior to seating.
3. Equipment and supplies will be checked by the student.
4. Patient will be seated and prepared for treatment.
5. Student operator will review the medical history and perform a visual exam the instructor will review the medical history and perform a visual exam.
6. Instructor will accept the patient for band removal and subsequent cement removal with a hand instrument.
7. Student operator will perform the following according to the stated criteria:
    a. Identify teeth with orthodontic bands.
    b. Remove orthodontic bands
    c. Remove residual cement with a hand instrument
    d. Coronal Polish (after coronal polish course)
    e. Rinse and remove isolation products
    f. Evaluate the product
    g. Provide individualized patient education
    h. Dismiss the patient
    i. Make appropriate chart notes
    l. Perform operatory clean-up/instrument processing according to infection control guidelines.

After band removal and subsequent removal of residual cement with a hand instrument procedures, the student operator, student assistant and the instructor complete evaluation using the worksheet and product evaluation form.

During this time period, the following will occur:

1. Student operator will evaluate his/her own work according to stated criteria using worksheet and product evaluation forms.
2. Student assistant will assist, observe, evaluate operator's performance according to stated criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both students' work according to stated criteria using the worksheet and product evaluation forms. Results will be discussed.

A 75% must be obtained for passage of removal of bands and removal of residual cement with a hand instrument.

General Examination Protocol

Written Examination

A comprehensive written examination of 50 questions on the entire curriculum will be administered.

The student must receive a minimum score of 75% on the examination to pass the class.

Examination Time Frame

One hour has been reserved for the written examination.

Clinical Final Examination Time Frame

The clinical final examination occurs during the process of working on the two active orthodontic patients during the removal of orthodontic bands for subsequent removal of residual cement with a hand instrument on four posterior first molars. Within this time frame, the following activities will occur: operatory set-up, medical history completed, patient acceptance by the instructor, band removal with subsequent removal of residual cement with a hand instrument, complete worksheet and product evaluation by the student operator and the student assistant.

During the clinical final examination the following general procedures will occur:

Patient Selection Criteria:

The following criteria must apply for each patient:

1. Patient must be an active orthodontic patient
2. Patient must be in good health (medical history form will be completed prior to treatment, reviewed and approved by the instructor).
3. Each patient will have a minimum of two posterior first molars with orthodontic bands.

The following general procedures will occur for each of the patients:

1. Operatory will be set up following the infection control guidelines.

2. Medical history will be completed by the patient prior to seating.
3. Equipment and supplies will be checked by the student.
4. Patient will be seated and prepared for treatment.
5. Student operator will review the medical history and perform a visual exam. the instructor will review the medical history and perform a visual exam.
6. Instructor will accept the patient for the preparation of teeth for band removal and removal of residual cement with a hand instrument.
7. Student operator will perform the following according to the stated criteria:
    a. Identify teeth with orthodontic bands.
    b. Remove orthodontic bands
    c. Remove residual cement with a hand instrument
    d. Coronal Polish (after coronal polish course)
    e. Rinse and remove isolation products
    f. Evaluate the product
    g. Provide individualized patient education
    h. Dismiss the patient
    i. Make appropriate chart notes
    j. Perform operatory clean-up/instrument processing according to infection control guidelines.

After band removal and subsequent removal of residual cement with a hand instrument procedures, the student operator, student assistant and the instructor complete evaluation using the worksheet and product evaluation form.

During this time period, the following will occur:
1. Student operator will evaluate his/her own work according to stated criteria using worksheet and product evaluation forms.
2. Student assistant will assist, observe, evaluate operator's performance according to stated criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both students' work according to stated criteria using the worksheet and product evaluation forms. Results will be discussed.

A 75% must be obtained for passage of removal of orthodontic bands and removal of residual cement with a hand instrument on a minimum of two clinical patients.

MODULE 4: PREPARING TEETH FOR BONDING

COURSE OUTLINE, ACTIVITIES AND HOUR BREAKDOWN

The following is a detailed outline, description of the activities, and hour breakdown for the twelve-hour preparing teeth for bonding course. This course will educate the student on the concepts to effectively prepare the tooth surface to adhere an orthodontic bracket to tooth enamel and other materials that are used to restore teeth. The student will understand and effectively demonstrate the sequence of steps, patient management, and the different materials used to effectively prepare teeth for bonding of brackets.

Module 4 Didactic Session- 4 hours

A. Infection control protocol and regulation **review**
    1. Dental Board infection control guidelines
        a. Unprofessional conduct regulations related to infection control
        b. Site and fines related to infection control regulations
    2. Universal (Standard) precautions guidelines-preparing teeth for bonding
        a. Training facility policies
        b. Hand-washing protocol
        c. Protocol prior to patient treatment
        d. Protocol during patient treatment
        e. Protocol after patient treatment
        f. Operatory disinfection and clean-up
        g. Sterilization protocol
        h. Trash and PPE management
        i. Disinfection
    3. Moisture control
        a. Characteristics of a dry field
        b. Cotton products isolation
        c. Evacuation system isolation
        d. Supplemental aids: dri-aids/angles, cotton roll holders, rolled gauze etc.

B. Bonding materials
    1. Characteristics of etchant materials
        a. Composition
        b. Process and effects
        c. Indications and contraindications
        d. Storage and handling protocol
    2. Characteristics of bonding agents
        a. Accepted materials-ADA Council on Scientific Affairs
        b. Composition
        c. General concepts of polymerization
        d. Storage and handling protocols
    3. Concepts of bonding

a. Mechanical versus chemical process
b. Requirements for adhesion
c. Strength and viscosity characteristics

4. Problem-solving
    a. Improperly etched surface
    b. Contamination of application site
    c. Non-adherence of composite material

C. MSDS Hazardous for etchant, primer and composite bonding materials
1. Composition
2. Specific hazard(s)
3. Exposure/treatment protocol
4. PPE Protection
5. Toxicity
6. Storage considerations
7. Accepted disposal protocol

D. Preparation of teeth for bonding
1. Areas indicated/patient assessment for bonding
2. Patient instruction/orientation
3. Assess tooth for appropriate materials
    a. Enamel (primary, permanent or hyper-mineralized teeth)
    b. Restorative material (gold, silver, porcelain, composite)
4. Tooth/teeth preparation prior to etching
    a. Techniques, indication, contraindications, methods
        (1) Pumice: coronal polish
        (2) Micro etching
        (3) Rotary instrument (bur) (DDS ONLY)
    b. Tooth/teeth isolation
    c. Air dried surface protocol
    d. Characteristics of a dry field
    e. Cotton products isolation
    f. Evacuation system isolation
    g. Supplemental aids: dri-aids/angles, cotton roll holders, rolled gauze etc.

E. Acid etching
1. Application areas
    a. Area larger than bracket base
2. Characteristics of application armamentaria
    a. Etchant material disposable syringe/bottle
    b. Brush/applicator
    c. Liquid wells
3. Application time
4. Etchant evaluation after prescribed time
    a. Coverage area
    b. Surface texture and color
5. Procedure
    a. Check teeth, isolation, and tooth preparation
    b. Drying protocol

c. Etchant application
d. Exposure time
e. Rinsing techniques
f. Drying techniques
g. Clinical evaluation of etched surface(s)
h. Repeat etching process if not properly conditioned

Module 4 Laboratory Session1 1 Hour

During this session, students will practice the preparation of teeth for bonding with the application of materials on typodont teeth using appropriate etchants, primers according to type of enamel or restorative material simulated to be bonded. **Students will practice procedures and product applications on a minimum of four typodont teeth for each assigned tooth material to include enamel, porcelain, and plastic tooth materials.** Students will work with a partner during the process of these procedures the assisting student will observe each stage of the process for evaluation. The following is an approximate step-by-step description of the procedures that should be followed during the laboratory session.

1. Each student will set up his/her armamentaria for etchant and bonding placement.
2. Student will be provided with a typodont, a bench mount and four anterior and four posterior typodont teeth. In addition the student will be provided with individualized packets that will include:
    a. Description of packet
    b. Etchant material in syringe.
    c. Brushes/applicators for etchant application
    d. Liquid wells or disposable sheets for dispensing materials
    e. Bonding agent/primer in bottle or disposable syringe
3. Instructor will review procedures and present information on how to use **Laboratory worksheet** for etchant and bonding placement.
4. Instructor will present criteria for ideal etchant, and bonding agent placement.
5. Instructor will provide ideal examples that will be passed around for viewing.
6. Student will place etchant on four typodont teeth, partner observes, evaluates and records on worksheet. Student will also evaluate him/herself on the procedure. Instructor evaluates the etching process.
7. The entire process will continue to be evaluated on the worksheet by the student, partner/assistant and instructor.
8. Partners switch places, the operator becomes the assistant and the assistant becomes the operator, both student partners have completed at this point **a minimum of three sets of four typodont teeth.**
9. **One of the etching and bonding procedures will serve as a practical examination demonstrating the entire process of application.**

10. Instructor will now present product evaluation form and how it is used to evaluate final etchant and bonding application.
11. Using the **Laboratory worksheet**, the student operator and the student assistant and instructor grade the final etchant, bonding process for each other.
12. Discussion on product evaluation is conducted in small groups

Module 4 Laboratory Session 2 1 hour

Laboratory practice on typodont teeth continues including specialized products used for bonding atypical enamel, porcelain, plastic, gold etc. and practice protocol for contaminated teeth and indirect bonding.

1. **Students will practice applications on a minimum of four typodont teeth for each assigned tooth material to include enamel, porcelain, and plastic tooth materials with one serving as a practical examination.**
2. Instructors will demonstrate and evaluate students for proper steps for application of products for each specified tooth surface.
3. At the end of session 2 students will have practiced bonding a minimum of two times for each tooth surface material utilizing products and processes specific to each surface.
4. **One of the etching and bonding procedures will serve as a practical examination demonstrating the entire process of application.**

Module 4 Preclinical Session 2 hours: Assistants working on each other in simulation

During this session, student partner's work on each other in simulation as described and demonstrated by instructor. The following general procedures will occur:

1. Working with a partner, each student functions as an operator and applies etchant (faux) and bonding materials **on four posterior and four anterior teeth with one procedure used as a practical examination.**
2. Student will then function as an assistant, observe and evaluate placement with partner.
3. The following general procedures will occur for each patient:
    1. Operatory will be set up following the infection control guidelines.
    2. Medical history will be completed by student patient prior to seating.
    3. Equipment and supplies will be checked by student.
    4. Student/patient will be seated and prepared for treatment.
    5. Student operator will review medical history and perform a patient assessment instructor will follow-up with same procedures.
    6. Patient is given instructions/explanation of procedures

7. Student operator will perform the following according to the stated criteria
    a. Perform coronal polish.
    b. Isolate one quadrant and dry
    c. Perform etchant (faux/simulated product) application procedures
    d. Suction of "etchant" from tooth
    e. Rinse and dry etched tooth/teeth.
    f. Apply primer/bonding material(s)
    g. Cure material (2 seconds only during simulation for easy removal)
    h. Evaluate procedures using ideal criteria
    k. Patient post-op instructions are reviewed
    l. Perform operatory clean-up according to infection control guidelines.

During the procedure the following will take place:

1. The student/operator will evaluate his/her own work according to stated criteria using the worksheet and product evaluation forms.
2. The student/assistant will assist, observe and evaluate operator's performance according to criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both student's work/performance using stated criteria using the worksheet and product evaluation forms.
4. Discussion on results will be conducted.
5. The instructor will demonstrate and explain clinical examination protocol.

Module 4 Written Final Examination: 1 hour

A comprehensive written examination on all aspects of the course will be administered. Questions will appear on the exam in multiple choice, true/false or matching form. These questions will be chosen from a test bank. An item analysis will be conducted to determine question validity each time the examination is administered.

Module 4 Clinical Instruction 4 hours

During this session, the instructor will demonstrate the sequence of tooth preparation for bonding on active patients.

The following procedures will be demonstrated:

a. Perform coronal polish.
b. Isolate one quadrant and dry
c. Perform etchant application procedures
d. Suction of etchant from tooth
e. Rinse and dry etched tooth/teeth.
f. Apply primer/bonding material(s)
g. Cure material

Student experience on active patients will include preparation for subsequent bracket **bonding on four anterior and four posterior teeth a minimum of four times each, with one of each of the four times used for a clinical examination.**

The following general procedures will occur for each patient:

1. Operatory will be set up following the infection control guidelines.
2. Medical history will be completed by the patient prior to seating.
3. Equipment and supplies will be checked by student/operator.
4. The patient will be seated and prepared for treatment.
5. Student operator will review medical history and perform a patient assessment, instructor will follow-up with same procedures.
6. Patient is given instructions/explanation of procedures
7. Student operator will perform the following according to the stated criteria
    a. Perform coronal polish.
    b. Isolate one quadrant and dry
    c. Perform etchant application procedures
    d. Suction of etchant from tooth
    e. Rinse and dry etched tooth/teeth.
    f. Apply primer/bonding material(s)
    g. Cure material
    j. Evaluate product using ideal criteria

After the student operator completes the sequence of procedures, the student operator, the assistant and the instructor will evaluate the performance of the student operator using the worksheet and product evaluation

During this time period the following procedures will occur:

1. The student/operator will evaluate his/her own work according to stated criteria using the worksheet and product evaluation forms.
2. The student/assistant will assist, observe and evaluate operator's performance according to criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both students' work/performance using stated criteria using the worksheet and product evaluation forms. Discussion on results will be conducted.

MODULE 4: PREPARING TEETH FOR BONDING

GENERAL AND SPECIFIC INSRUCTIONAL UNIT OBJECTIVES AND CRITERIA

C. Introduction

The completion of this course will educate the student on the concepts of effectively preparing the tooth surface to adhere an orthodontic bracket to tooth enamel and other materials. After completing a Board approved course for preparing the teeth for bonding the student will be allowed to perform this function on the orthodontic patient.

D. General Course objective

After completing the following areas of didactic, laboratory, and clinical instruction in preparing teeth for brackets, the student will be able to:

1. Identify basic key terms and terminology and concepts of etching and bonding dental materials.
2. Identify the characteristics of etching and bonding materials.
3. Identify the legal requirements associated with etching and bonding application
4. Describe the goals of preparing teeth for bonding of orthodontic brackets
5. Identify the precautions taken to protect the operator and patient related to the bonding materials.
6. Describe the role of the bonding materials in the orthodontic practice.
7. Identify the characteristics of etchant and bonding materials and the manipulation and storage.
8. Describe and identify the armamentaria used for preparation and placement of bonding materials.
9. Describe the steps involved in the appropriate preparation, acid etching, bonding four anterior and four posterior typodont teeth as well as a student partner according to the stated criteria.
10. Prepare, etch, apply bonding agents, and bond anterior and posterior teeth on a minimum of two clinical patients to a 75% minimum proficiency level.
11. Student, partner, and instructor will evaluate all etchant and bonding applications according to the stated criteria. Identify the techniques to improve and or modify faulty placement.
12. Maintain infection control protocol, to include operator protection, operatory, surface disinfection or barrier placement and instrument processing/sterilization related to tooth preparation according to standards defined by OSHA and DBC.
13. Identify the emergency procedures for the dental training facility, which includes the classroom, laboratory and clinical training areas.

C. Specific objectives

After the completion of this course, the student will be able to:

1. Identify who may legally diagnose and evaluate and who may legally place the bonded bracket.
2. *Review the following normal tooth morphology and anatomy*
   a. Identify tooth tissues
   b. Utilizing the universal numbering system, identify all primary and permanent teeth. (Orientation module).
   c. Explain the process of plaque formation and define the development of the pellicle and its role in the bonding of brackets.
   d. Explain the role of acquired pellicle in de-mineralization or re-mineralization of the enamel.
   e. Explain the patterns and ages of tooth eruption for the primary and permanent dentitions. (Orientation module).
   f. Define the following anatomical structures related to the tooth and related structures: (Orientation module).
      1. Contact area
      2. Embrasures
      3. Proximal Contact
      4. Interproximal space
      5. Anatomical & clinical crown
      6. Free gingival line
      7. Height of contour
      8. Occlusal stops
      9. Vestibule
      10. Oral cavity proper

3. *Review the following saliva and salivary gland structures and processes:*
   a. Identify the major and minor salivary glands and general serous and mucous qualities.
   b. Identify location of the major salivary gland ducts.
   c. Identify the most efficient methods of saliva control in all four quadrants of the mouth.

Review the abnormal anatomical and physiological conditions related to teeth and or restorative materials that require specialized bonding materials:

a. Define the following irregularities and or restorations on the tooth structure:
   1. Hyper-mineralized enamel
   2. Porcelain
   3. Gold
   4. Amalgam
   5. Plastic

6. Composite

b. Define the following theories related to abnormal occlusion.
   1. Edward Angle's classifications of malocclusion (Orientation Module)
      a. Class I
      b. Class II
      c. Class III
   2. Buccoversion, linguoversion, infraversion, torsoversion

2. Describe the criteria for preparing teeth for bonding brackets, including indications and contraindications.
3. Identify and record appropriate health history (Orientation module).
4. Identify the characteristics, composition, storage, and handling protocol of various types of etchants and bonding agents.
5. Explain the basic concepts of bonding.
6. Describe the concepts related to bonding to enamel as well as all the variations required for gold crowns, porcelain, crowns, resin or plastic materials utilized in dentistry.
7. Describe how the etchant prepares the surface of the tooth as it is related to adhesion and micro-mechanical bonding.
8. Identify the problem solving techniques associated with etchants, primers, bonding, resin materials.
10. Explain the principles of proper moisture control protocol used before etchant placement and after rinsing prior to bonding while practicing patient management and maintaining the operating field.
11. Characterize the principles of application of etchant, bonding material selection and care of the armamentarium, instrumentation techniques and precautions.
12. List and explain the function of each component of the armamentaria required for etching and bonding.
13. Define the proper sequential steps in the procedure of bonding brackets.
14. Identify the proper clinical appearance of the surface (tooth or restorative material) after etchant and bonding is placed.
15. Identify the steps for appropriate infection control protocol for the operator and the dental operatory. List the protocol for barrier placement, surface disinfection and sterilization as it relates to bonding brackets according to OSHA and DBC. (ORIENTATION).
16. Identify which factors that may cause a health hazard to the operator by viewing a MSDS sheet and know preventive measures that should be employed.

17. List the major factors that are associated with bonding failure and how to avoid them.

D. Psychomotor objectives

On typodont teeth and patients, the student will be able to:

1. Assemble appropriate armamentaria for preparing the tooth for bracket placement.
2. Perform coronal polish (with completion of coronal polish course) on the teeth that will be prepared for bracket placement.
3. Isolate and dry teeth in areas where teeth will be prepared for bracket placement.
4. Prepare etchant, bond, according to the manufacturer's recommendations.
5. Apply etchant, bonding agent to the four anterior and four posterior typodont teeth four times according to the specified criteria with 75% accuracy. (Preparing teeth for bonding and placement of brackets).
6. Apply etchant, bonding agents and composite material on brackets for two active orthodontic patients according to specified criteria with 75% accuracy.
7. Evaluate and assess appropriate etchant, bonding agent placement and bracket preparation and placement for laboratory and clinical patient experience with 75% accuracy.
8. Maintain appropriate infection control protocol throughout all procedures.
9. Protect him/herself and the patient from hazardous situations as defined in the MSDS sheets for etchant and primer.

E. Criteria

1. Will set up the required armamentaria for coronal polish, etchant, primer, bond, and composite material.
2. Will place all protective barriers.
3. Prior to treating the patient, review the medical/dental health history, general assessment and oral inspection on performance of procedure.
4. Will use aseptic techniques according to OSHA and DBC throughout the procedures on all patients.
5. Will seat and position the patient.
6. Will evaluate the teeth to be prepared for bonding brackets
7. Will explain to the patient the bonding procedure.
8. Will perform coronal polish (with completion of coronal polish course) on the appropriate tooth surfaces making sure they are completely cleaned.
9. Will isolate, thoroughly clean, and dry teeth to be prepared for bonding brackets.
10. Will apply etchant according to the manufacturer's directions on the dry tooth surface covering an area larger than the bracket base and in the area where the bracket will be placed. Etchant will remain in place 15-30 seconds.
11. Will use high speed/volume evacuation placing directly over the tooth/etchant and then moving suction back slightly and rinse thoroughly

the etched area for approximately 20-30 seconds with a steady stream of water and air or as recommended by the manufacturer.

12. Will inspect the oral cavity for any residual etchant. Rinse if necessary.
13. Will inspect for effective etch tooth should appear dull, matte, chalky and frosty white. If not re-etch for an additional 15-20 seconds.
14. If bonding to restorative materials the appropriate steps will be followed to complete the bonding of brackets.
15. Remove saturated cotton rolls and isolate.
16. Will dry with air making sure the line is clear of water, dry thoroughly for at least 20 seconds. Air dryers designed for orthodontics can efficiently dry the teeth.
17. If saliva contacts the etched tooth, it will require etching for an additional 10-15 seconds.
18. Will place bonding agent, air dried and cured per manufacturer's directions, with hold the light as close as possible without actually touching.
19. Will evaluate entire procedure according to the stated criteria; identify problem solving methods to improve or modify procedures
20. Will provide relevant and individualized patient education.
21. Will provide follow up visit as prescribed in the orthodontic treatment plan.
22. Will meet ethical and legal requirements for this procedure.
23. Will provide accurate chart entries for this procedure.
24. Will at all times utilize OSHA and DBC guidelines to process instruments for sterilization; remove waste, disposing of in appropriate receptacles and clean/disinfect the treatment area.

MODULE 4 and 5:

Product Evaluation Forms Preparing teeth for bonding and Bracket Prepositioning, Bond Curing and Removal of Orthodontic Brackets

Modules 4 and 5 have been combined on the laboratory and preclinical worksheets as these procedures would be combined in the educational setting and bracket bonding would be followed by bracket removal.

LABORATORY/PRECLINICAL WORKSHEET

Student/Operator Name_____ Date_____

Student/Assistant Name_____ Faculty Name_____

Use this worksheet to identify errors in procedures. Place a check mark in the box each time a step in the procedure is incorrectly performed or omitted.

Each student will complete the steps in etching, bonding and removal of orthodontic brackets on a minimum of four teeth in the anterior and posterior.

After each section the instructor will check before the student continues with the following section.

* = Critical error

Infection Control/Armamentarium	**Operator Evaluator**	**Assistant Evaluator**	**Faculty Evaluator**
Infection Control/Patient Safety			
1. Barriers placed on chair, unit, air-water syringe, HVE, saliva ejector, SP hand piece, curing light			
2. PPE: mask, gloves, scrubs, gown, eye wear, patient safety glasses			
Assemble Armamentaria			
3. Basic set-up: mirror, explorer, cotton pliers			
4. Air-water syringe, syringe tip, HVE, saliva ejector			
5. Low-speed hand piece with disposable prophy angle			
6. Pumice/prophy paste without fluoride or oil			
7. Isolation products-long and short cotton rolls, dri-aids, dry angles, cheek retractors, tongue guard/ etc.			
8. Etchant, primer, bonding agent, materials required for bonding to dental restorations			
9. Curing light, tinted safety glasses or shield			

10. Typodont with appropriate teeth and bench mount/pole			
11. High speed hand piece for roughening surface of restoration			
12 Micro-etcher for roughening surface of restoration			

Comments:

Tooth Preparation	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
*13. Verify teeth to be prepared for bonding			
14. Remove plaque/pellicle from teeth with non-fluoridated/flavored prophy paste = orthodontic prophy paste			
15. Rinse and suction. Use explorer to check surface of the tooth to be sure there is no calculus or remaining pumice. Rinse again and dry.			
*16. Isolate with appropriate cotton rolls, holders etc.			
17. Completely dry teeth and maintain isolation			

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Etchant Placement	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
* 18. Place etchant onto surface to be sealed, covering an area larger than the bracket base, avoiding excessive amounts			
19. Allow etchant to remain on teeth 15-30 seconds or increase for highly mineralized enamel and or primary teeth			
20. Thoroughly rinse, removing etchant, while keeping teeth isolated. If teeth become contaminated, re-etch 10-15 seconds			
* 21. Thoroughly rinse surface for 20-30 seconds followed by drying for at least 20 seconds. Etch pattern should appear frosty or a matte finish for enamel. Etch pattern will not appear on typodont teeth			

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Bonding and Curing	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
*22. Apply thin layer of bonding agent to the prepared surface where the bracket will be placed. Apply light stream of air for 10 seconds.			
*23. Polymerize the bonding agent. Hold curing light as close to surface without actually touching material. Standard curing light 10 seconds, high-energy light-5 seconds.			
*24. Apply bracket cement to base working into bracket mesh.			
*25. Polymerize the composite resin material Standard curing light 20 seconds, high-energy light-10 seconds once position confirmed by orthodontist.			
* 26. Bracket is bonded to tooth as stated in bonding bracket module/section.			
*27. Check for voids in composite resin material and proper placement of bracket.			
28. Remove isolation materials, rinse and dry			
29. Patient education (not provided for typodont but student could practice dialogue that would be used during clinical experience).			

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Bracket Removal			
30. Prepare patient for bracket removal with instructions o what patient may experience during procedure			
31. Will remove brackets with bracket removing pliers.			
32. Will support tooth to minimize patient discomfort while applying pliers pressure and occlusal rotation to remove bracket.			

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Infection Control/Patient Safety/Clean-Up	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
33. Remove barriers from chair, light, air-water syringe, hoses, HVE, saliva ejector, handpiece			
34. Surface disinfect			
35. Prepare and institute sterilization procedures			
36. Manage PPE: gloves, mask, gown, scrubs, eye wear and patient safety glasses			
37. Unit is checked for completion			

Module 4 and 5

Product Evaluation Forms Preparing teeth for bonding and Bracket Prepositioning, Bond Curing and Removal of Orthodontic Brackets

CLINICAL PATIENT WORKSHEET

Student/Operator Name_____ Date_____

Student/Assistant Name_____ Faculty Name_____

(Circle one): Patient #1 Patient #2

Teeth (4) in anterior to be prepared & brackets bonded _____

Teeth (4) in posterior to be prepared & brackets bonded _____

Use this worksheet to identify errors in procedures. Place a check mark in the box each time a step in the procedure is incorrectly performed or omitted. After each section the instructor will check before the student continues with the following section.
* = Critical error

Infection Control/Armamentarium	**Operator Evaluator**	**Assistant Evaluator**	**Faculty Evaluator**
Infection Control/Patient Safety			
1. Barriers placed on chair, unit, air-water syringe, HVE, saliva ejector, SP hand piece, curing light			
2. PPE: mask, gloves, scrubs, gown, eye wear, patient safety glasses			
Assemble Armamentaria			
3. Basic set-up: mirror, explorer, cotton pliers			
4. Air-water syringe, syringe tip, HVE, saliva ejector			
5. Low-speed hand piece with disposable prophy angle			
6. Pumice/prophy paste without fluoride or oil			
7. Isolation products-long and short cotton rolls, dri-aids, dry angles, cheek retractors, tongue guard/ etc.			
8. Etchant, primer, bonding agent, materials required for bonding to dental restorations if appropriate			
9. Curing light, tinted safety glasses or shield			
10. High speed hand piece for roughening			

surface of restoration			
11. Micro-etcher for roughening surface of restoration if appropriate			

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Tooth Preparation	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
*12. Verify teeth to be prepared for bonding			
13. Remove plaque/pellicle from teeth with non-fluoridated/flavored prophy paste = orthodontic prophy paste			
14. Rinse and suction. Use explorer to check surface of the tooth to be sure there is no calculus or remaining pumice. Rinse again and dry.			
*15. Isolate with appropriate cotton rolls, holders etc.			
16. Completely dry teeth and maintain isolation.			

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Etchant Placement	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
* 17. Place etchant onto surface to be sealed, covering an area larger than the bracket base, avoiding excessive amounts.			
18. Allow etchant to remain on teeth 15-30 seconds or increase for highly mineralized enamel and or primary teeth.			
19. Thoroughly rinse, removing etchant, while keeping teeth isolated. If teeth become contaminated, re-etch 10-15 seconds.			
* 20. Thoroughly rinse surface for 20-30 seconds followed by drying for at least 20 seconds. Etch pattern should appear frosty or a matte finish for enamel. Etch pattern will not appear on typodont teeth.			

STOP! Reminder Instructor checks prior to proceeding to next section.

Comments:

Bonding and Curing	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
*21. Apply thin layer of bonding agent to the prepared surface where the bracket will be placed.			
*22. Polymerize the bonding agent. Hold curing light as close to surface without actually touching material. Standard curing light 10 seconds, high-energy light-5 seconds.			
*23. Apply composite to base of bracket working into mesh.			
*24. Polymerize the composite resin material Standard curing light 20 seconds, high-energy light-10 seconds once position confirmed by orthodontist.			
* 25. Bracket is bonded to tooth as stated in bonding bracket module/section.			
*26. Check for voids in composite resin material and proper placement of bracket.			
27. Remove isolation materials, rinse and dry			

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Patient Education	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
28.Give post-operative instructions to the patient or parent.			
29. Document procedure in patient chart to include: date, HH review or update, teeth that were bracketed, products used, problems encountered, operator signature, and instructor or DDS signature.			

Comments:

Bracket Removal			
30. Prepare patient for bracket removal with instructions o what patient may experience during procedure			
31. Will remove brackets with bracket			

removing pliers.			
32. Will support tooth to minimize patient discomfort while applying pliers pressure and occlusal rotation to remove bracket.			

Infection Control/Patient Safety/Clean-Up	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
33. Remove barriers from chair, light, air-water syringe, hoses, HVE, saliva ejector, handpiece			
34. Surface disinfect			
35. Prepare and institute sterilization procedures			
36. Manage PPE: gloves, mask, gown, scrubs, eye wear and patient safety glasses			
37. Unit is checked for completion referring to protocol.			

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Student Operator to explain any check marks

Procedure #'s_____

Cause (s)_____

Solution(s)_____

Re-do? Yes No Tooth #'s_____

GENERAL PROCEDURES USING PRODUCT EVALUATION FORMS

Product Evaluation Forms for Module 4 and Module 5 Preparing teeth for Bonding and Bracket Prepositioning, Bond Curing and Removal of Orthodontic Brackets

Product evaluation evaluates the end result of any performance, not the steps. This facility utilizes the behaviorally anchored rating scale (BARS) system. This 10-point system clusters the critical incidents into categories. The instructor can score objectively the end result of archwire placement and ligation by choosing the criteria specified in each point level. Performance is assessed according to established criteria for each of these procedures. The points are then converted to a pass or fail grade.

How Instructor uses Product Evaluation Form

A product evaluation form will be used for each patient. In the "scores" area on the form you will note that an open box rather than specific grids occurs. This open box allows you to enter a score for each of the posterior first molars.

The student must maintain a minimum point value of 7.5 on all clustered critical incidences "per tooth". He/she must receive this minimum score for all four posterior first molars during preparation of in order to pass this course. A grade of 7.5 represents a 75% passing score.

Product Evaluation Point Conversion

The student will receive points for a given level of achievement from the point scale utilized for product evaluation.

Conversion from a point system to a Pass/ Fail score

POINTS	GRADES
10	Pass-Excellent
7.5	Pass
5	Fail-Critical Error(s)
3	Fail-Critical Errors-no concept

Module 4 and 5 Preparing teeth for bonding and Bracket Prepositioning, Bond Curing and Removal of Orthodontic Brackets

Practical Examination Laboratory Session 1

PRODUCT EVALUATION

Student/Operator Name_____ Date_____

Student/Assistant Name_____ Faculty Name_____

Minimum Satisfactory performances:

Teeth (4) in anterior to be prepared for bonding brackets_____

Teeth (4) in posterior to be prepared for bonding brackets_____

PREPARATION AND ETCHANT: Indicate errors made by the student/operator

AREAS	*SCORES* enter a score for anterior/posterior	*KEY*
Preparation of Field (A) Teeth are free of stains/plaque (B) Coronal polish/teeth pre-cleaning (C) Isolation of selected area **Etching** (A) Etchant Application (B) Etchant removal		10 = Pass-Excellent 7.5 = Pass 5 = Fail-Critical Errors 3 = Fail–Critical Errors/No Concept **Circle one: Pass Fail**

Comments:

PLACEMENT OF MATERIALS
FOR BONDING BRACKETS: Indicate errors made by the student/operator

AREAS	*SCORES* enter a score for anterior/posterior	*KEY*
Bonding/Primer/ Composite Application (A). Assemble armamentarium (B) Identify and select bracket types for each tooth (B). Properly clean tooth surface (C) Avoid contamination of bracket bases (D) Apply bonding material to bracket base (E) Preposition brackets (F) Brackets cured after evaluation by instructor (G) Postoperative instructions reviewed.		10 = Pass-Excellent 7.5 = Pass 5 = Fail-Critical Errors 3 = Fail–Critical Errors/No Concept **Circle one: Pass Fail**

H. Prepare patient for bracket removal with instructions of what patient may experience during procedure I. Will remove brackets with bracket removing pliers. J. Will support tooth to minimize patient discomfort while applying pliers pressure and occlusal rotation to remove bracket.		

Comments:

Student Operator Signature: _____

Instructor Signature: _____ Instructor Name (print) _____

Module 4 and 5 Preparing teeth for bonding and Bracket Prepositioning, Bond Curing and Removal of Orthodontic Brackets

Practical Examination Laboratory Session 2

PRODUCT EVALUATION

Student/Operator Name_____ Date_____

Student/Assistant Name_____ Faculty Name_____

Minimum Satisfactory performances:

Teeth (4) in anterior to be prepared for bonding brackets_____

Teeth (4) in posterior to be prepared for bonding brackets_____

PREPARATION AND ETCHANT: Indicate errors made by the student/operator

AREAS	*SCORES* enter a score for anterior/posterior	*KEY*
Preparation of Field (A) Teeth are free of stains/plaque		10 = Pass-Excellent 7.5 = Pass 5 = Fail-Critical Errors

(B) Coronal polish/teeth pre-cleaning (C) Isolation of selected area **Etching** (A) Etchant Application (B) Etchant removal		3 = Fail–Critical Errors/No Concept **Circle one: Pass Fail**

Comments:

PLACEMENT OF MATERIALS
FOR BONDING BRACKETS: Indicate errors made by the student/operator

AREAS	*SCORES* enter a score for anterior/posterior	*KEY*
Bonding/Primer/ Composite Application (A). Assemble armamentarium (B) Identify and select bracket types for each tooth (B). Properly clean tooth surface (C) Avoid contamination of bracket bases (D) Apply bonding material to bracket base (E) Preposition brackets (F) Brackets cured after evaluation by instructor (G) Postoperative instructions reviewed.		10 = Pass-Excellent 7.5 = Pass 5 = Fail-Critical Errors 3 = Fail–Critical Errors/No Concept **Circle one: Pass Fail**

H. Prepare patient for bracket removal with instructions of what		

patient may experience during procedure I. Will remove brackets with bracket removing pliers. J. Will support tooth to minimize patient discomfort while applying pliers pressure and occlusal rotation to remove bracket.		

Comments:

Student Operator Signature: _____

Instructor Signature: _____ Instructor Name (print) _____

Module 4 and 5 **Preparing teeth for bonding and Bracket Prepositioning, Bond Curing and Removal of Orthodontic Brackets**

Practical Examination Preclinical Session 1

PRODUCT EVALUATION

Student/Operator Name_____ Date_____

Student/Assistant Name_____ Faculty Name_____

Patient #1: Name_____

Minimum Satisfactory performances:

Teeth (4) in anterior to be prepared for bonding brackets_____

Teeth (4) in posterior to be prepared for bonding brackets_____

PREPARATION AND ETCHANT: Indicate errors made by the student/operator

AREAS	*SCORES* enter a score for anterior/posterior	*KEY*
Preparation of Field (A) Teeth are free of stains/plaque (B) Coronal polish/teeth pre-cleaning (C) Isolation of selected area **Etching** (A) Etchant Application (B) Etchant removal		10 = Pass-Excellent 7.5 = Pass 5 = Fail-Critical Errors 3 = Fail–Critical Errors/No Concept **Circle one: Pass Fail**

Comments:

PLACEMENT OF MATERIALS
FOR BONDING BRACKETS: Indicate errors made by the student/operator

AREAS	*SCORES* enter a score for anterior/posterior	*KEY*
Bonding/Primer/ Composite Application (A). Assemble armamentarium (B) Identify and select bracket types for each tooth (B). Properly clean tooth surface (C) Avoid contamination of bracket bases (D) Apply bonding material to		10 = Pass-Excellent 7.5 = Pass 5 = Fail-Critical Errors 3 = Fail–Critical Errors/No Concept **Circle one: Pass Fail**

bracket base (E) Preposition brackets (F) Brackets cured after evaluation by instructor (G) Postoperative instructions reviewed.		

H. Prepare patient for bracket removal with instructions of what patient may experience during procedure I. Will remove brackets with bracket removing pliers. J. Will support tooth to minimize patient discomfort while applying pliers pressure and occlusal rotation to remove bracket.		

Comments:

Student Operator Signature: _____

Instructor Signature: _____ Instructor Name (print) _____

Module 4 and 5 Preparing teeth for bonding and Bracket Prepositioning, Bond Curing and Removal of Orthodontic Brackets

Practical Examination Clinical Session 1

PRODUCT EVALUATION

Student/Operator Name_____ Date_____

Student/Assistant Name_____ Faculty Name_____

Patient #1: Name_____

Minimum Satisfactory performances:

Teeth (4) in anterior to be prepared for bonding brackets_____

Teeth (4) in posterior to be prepared for bonding brackets_____

PREPARATION AND ETCHANT: Indicate errors made by the student/operator

AREAS	*SCORES* enter a score for anterior/posterior	*KEY*
Preparation of Field (A) Teeth are free of stains/plaque (B) Coronal polish/teeth pre-cleaning (C) Isolation of selected area **Etching** (A) Etchant Application (B) Etchant removal		10 = Pass-Excellent 7.5 = Pass 5 = Fail-Critical Errors 3 = Fail–Critical Errors/No Concept **Circle one: Pass Fail**

Comments:

PLACEMENT OF MATERIALS
FOR BONDING BRACKETS: Indicate errors made by the student/operator

AREAS	*SCORES* enter a score for anterior/posterior	*KEY*

Bonding/Primer/ Composite Application (A). Assemble armamentarium (B) Identify and select bracket types for each tooth (B). Properly clean tooth surface (C) Avoid contamination of bracket bases (D) Apply bonding material to bracket base (E) Preposition brackets (F) Brackets cured after evaluation by instructor (G) Postoperative instructions reviewed.		10 = Pass-Excellent 7.5 = Pass 5 = Fail-Critical Errors 3 = Fail–Critical Errors/No Concept **Circle one: Pass Fail**

H. Prepare patient for bracket removal with instructions of what patient may experience during procedure I. Will remove brackets with bracket removing pliers. J. Will support tooth to minimize patient discomfort while applying pliers pressure and occlusal rotation to remove bracket.		

Comments:

Student Operator Signature: _____

Instructor Signature: _____ Instructor Name (print) _____

Module 4 and 5 <u>Preparing teeth for bonding and Bracket Prepositioning, Bond Curing and Removal of Orthodontic Brackets</u>

Practical Examination Clinical Session 1

PRODUCT EVALUATION

Student/Operator Name_____ Date_____

Student/Assistant Name_____ Faculty Name_____

Patient #2: Name_____

Minimum Satisfactory performances:

Teeth (4) in anterior to be prepared for bonding brackets_____

Teeth (4) in posterior to be prepared for bonding brackets_____

PREPARATION AND ETCHANT: Indicate errors made by the student/operator

AREAS	*SCORES* enter a score for anterior/posterior	*KEY*
Preparation of Field (A) Teeth are free of stains/plaque (B) Coronal polish/teeth pre-cleaning (C) Isolation of selected area **Etching** (A) Etchant Application (B) Etchant removal		10 = Pass-Excellent 7.5 = Pass 5 = Fail-Critical Errors 3 = Fail–Critical Errors/No Concept **Circle one: Pass Fail**

Comments:

PLACEMENT OF MATERIALS
FOR BONDING BRACKETS: Indicate errors made by the student/operator

AREAS	*SCORES* enter a score for anterior/posterior	*KEY*
Bonding/Primer/ Composite Application (A). Assemble armamentarium (B) Identify and select bracket types for each tooth (B). Properly clean tooth surface (C) Avoid contamination of bracket bases (D) Apply bonding material to bracket base (E) Preposition brackets (F) Brackets cured after evaluation by instructor (G) Postoperative instructions reviewed.		10 = Pass-Excellent 7.5 = Pass 5 = Fail-Critical Errors 3 = Fail–Critical Errors/No Concept **Circle one: Pass Fail**

H. Prepare patient for bracket removal with instructions o what patient may experience during procedure I. Will remove brackets with bracket removing pliers. J. Will support tooth to minimize patient discomfort while applying pliers pressure and occlusal rotation to remove bracket.		

Comments:

Student Operator Signature: _____

Instructor Signature: _____ Instructor Name (print) _____

PREPARING TEETH FOR BONDING: DOCUMENTED CRITERIA

Points	***Description***
10	*Preparation and Etching* Teeth are clean and coronally polished Field is totally isolated and maintained dry throughout procedure. Etchant is carefully applied and time is precisely monitored. ☐ Etchant is carefully and completely rinsed. ☐ Enamel surface appears white, opaque, and frosty. ☐
7.5	*Preparation and Etching* Teeth are relatively clean and coronal polish is acceptable. Field is isolated and maintained dry during procedure. Etchant timing and placement vary slightly from ideal. Etchant removal is adequate. Enamel surface appears adequately white, opaque and frosty.
5	*Preparation and Etching* Teeth have not been cleaned. Isolation of tooth is faulty and saliva penetrates area. Etchant placement and timing are careless. Gingival areas are involved in etching process. Removal of etchant is careless and inadequate. Enamel surface appears either smooth or normal color. Gingival areas are involved in etching process.
3	*Preparation and Etching* Teeth have not been cleaned and stain remains. Debris and plaque are plainly visible. Saliva washes over field during etching. Isolation fails. No attempt is made to time etchant application. No attempt is made to confine etchant to application area. Removal of solution is very poor. Enamel surface appears grossly mottled, pitted, or irregular.

	Gingival areas are grossly affected by etching material.

PLACEMENT OF MATERIALS FOR BONDING BRACKETS DOCUMENTED CRITERIA

Points	***Description***
10	*Material Placement* Material is carefully prepared according to manufacturer's directions Contamination of bracket base avoided with careful technique Material is evenly applied well incorporated into bracket mesh Polymerization time is carefully monitored. Confinement of material within bracket base ideal.
7.5	*Material Placement* Material is prepared to manufacturer's directions reasonably accurately. Contamination of bracket base avoided Material is acceptably incorporated into bracket mesh Thickness may vary slightly from ideal. Polymerization time is adequate. Material placed within confines of bracket base with minor discrepancies
5	*Material Placement* Material is carelessly handled. Student touches bracket base contaminating surface Material is not well incorporated into bracket mesh Thickness is uneven, irregular, or in excess. Polymerization time is not monitored; composite not completely hardened.
	Material Placement Material is crudely manipulated and dispensed. Student touches bracket base contaminating surface Material placement in bracket mesh poor.

3	The coverage area is insufficient which will result in bracket failure. Material goes outside boundaries of bracket base. Poor attention to polymerization times.

Points	***Description***
10	*Bracket removal* Clear description for bracket removal given to prepare patient . Properly support tooth to minimize patient discomfort while applying pliers pressure and occlusal rotation to remove bracket.
7.5	*Bracket removal* Clear description for bracket removal given to prepare patient Adequately support teeth to minimize patient discomfort while applying pliers pressure and occlusal rotation to remove bracket.
5	*Bracket removal* Adequate description for bracket removal given to prepare patient Provided support to tooth though mild patient discomfort while applying pliers pressure and occlusal rotation to remove bracket.
3	*Bracket removal* Poor description for bracket removal given to prepare patient Tooth unsupported during bracket removal causing discomfort to patient with inadequate occlusal rotation to remove bracket.

Module 4 PREPARING TEETH FOR BONDING COURSE REQUIREMENTS

The following is an overview of the course requirements and the protocol followed for laboratory and clinical practice, the written and clinical examination.

Minimum Number of Satisfactory Performances
All students will perform at a minimum, the following procedures in order to achieve minimum competence in the various protocols used in the preparation of teeth for bonding brackets:
On a typodont and patients, the student will perform the following under OSHA and DBC guidelines:

- Apply etchant and other appropriate materials for subsequent bracket bonding on four anterior and four posterior typodont teeth a minimum of four times each, with one of each of the four times used for a practical exam according to the specified criteria

- Apply etchant in preparation for bracket bonding on four anterior and four posterior teeth a minimum of four times each on at least two patients according to the specified criteria with one of each of the four times used for a practical examination with 75% accuracy.

Students are required to meet the specified minimal number of satisfactory performances as indicated above. The student operator grades his/her own performance, the student assistant grades the performance of the student operator and the instructor will assess the student operator's performance and the grading method of both students.

When the student reaches the 75% minimum performance for preparing the tooth for subsequent bracket bonding and 100% performance on all infection control protocol, the instructor evaluates the procedure for the minimal number of satisfactory performances. If a student does not fulfill the minimum grade for the number of satisfactory performances additional laboratory and/or clinical practice procedures will be assigned.

Objective Evaluation Criteria
Objective evaluation criteria shall be provided to each student prior the performance of any procedure. The student will receive information provided by the instructor prior to performing any laboratory or clinical procedures. The instructor shall supply the student with general program, individualized cognitive and psychomotor objectives and criteria for evaluation. Objective criteria will be utilized in the performance of all laboratory and clinical requirements.

Preparation Prior to Etching

1. Will review the medical/dental history, make a general assessment, and oral inspection on each patient prior to treatment, checking for information that may contraindicate the performance of the procedure.
    a. Criteria for choosing specific materials for preparing surface for bonding brackets.
        i. Indications
            (a). Enamel
            (b). Gold
            (c). Porcelain
            (d). Amalgam
            (e). Plastic/composite
        ii. Contraindications
            (a). Tooth surface with caries
2. Will set up the required armamentaria for coronal polish, etchant and other bonding materials for subsequent bracket bonding.
3. Will use aseptic techniques according to OSHA and DBC throughout performance on al patients.
4. Will place protective barriers, seat and position the patient.
5. Will evaluate the teeth scheduled to be prepared for bonding for subsequent bonding of brackets.
6. Will explain to patient the treatment planned for that day.
7. Will perform coronal polish on the teeth, ensuring a completely cleaned surface.
8. Will isolate, thoroughly clean and dry teeth, four anteriors and four posteriors in prior to application of etchant and bonding materials for subsequent bonding brackets.

Etching Criteria

1. Will apply etchant material according to the manufacturer's directions covering the target area of the tooth while avoiding excess amounts over areas of the tooth where the bracket will not be bonded (interproximal). The etchant shall remain in place for 15-30 seconds (average).
2. Will rinse thoroughly etched area for 20-30 seconds with a steady stream of water.
3. Will dry thoroughly for at least 20 seconds
4. Will ensure that the etched surface appears dull, matte, chalky, frosty-white.

Placing Bonding Agents Criteria

1. Isolated and etched teeth will be rechecked prior **to** subsequent application of bonding agents.
2. Materials will be prepared/dispensed according to manufacturer's directions.
3. Overuse of all materials will be avoided
4. Care will be taken to use thin layer of bonding agents.
5. Holding the curing light as close as possible without touching the material expose the bond agent for polymerization as directed by manufacturer.
6. The isolation material will be removed.

10. If excess material is present, it will be removed with a hand instrument or an ultrasonic scaler.
11. Will evaluate etchant and preparation of teeth for bonding with subsequent bracket placement procedures, identify problem-solving methods to improve or modify procedures.

General Criteria

1. Will provide pertinent and individualized patient education.
2. Will provide follow up appointment to evaluate bracket retention.
3. Will meet ethical and legal requirements for this procedure
4. Will provide accurate chart entries for this procedure.
5. Will utilize OSHA and DBC guidelines for instrument processing, removing waste and cleaning/disinfecting treatment area.

The above criteria will be used to evaluate and assess appropriate use of materials with subsequent bracket placement with a minimum of 75% accuracy for laboratory and clinical patients.

General Clinical Practice Protocol

Clinical Practice

Students will have their first clinical practice by preparing four anterior and four posterior teeth a minimum of four times each, with one of each of the four times used for a clinical exam. They will also complete two clinical patients. The following general procedures will occur:

Patient Selection Criteria:

The following criteria must apply for each patient:

1. Patient must be an active orthodontic patient
2. Patient must be in good health (medical history form will be completed prior to treatment, reviewed and approved by the instructor).
3. Each patient will have a minimum of four anteriors and four posteriors per arch for tooth preparation with subsequent bonding of brackets.

The student will function as an operator, an assistant and a patient. Working as partners (operator and assistant) an operator will perform the procedure, the assistant will observe, and evaluate each step of the procedure. When complete each student will do the procedure, observe and evaluate.

The following general procedures will occur for each of the patients:

1. Operatory will be set up following the infection control guidelines.
2. Medical history will be completed by the patient prior to seating.
3. Equipment and supplies will be checked by the student.
4. Patient will be seated and prepared for treatment.
5. Student operator will review the medical history and perform a visual exam;

the instructor will review the medical history and perform a visual exam.

6. Instructor will accept the patient for the preparation of teeth for subsequent bonding.
7. Student operator will perform the following according to the stated criteria:
   a. Perform coronal polish
   b. Isolate and dry
   c. Perform etchant application procedure
   d. Rinse and dry etched tooth/teeth
   e. Employ additional bonding materials for specific needs
   f. Cure bonding resin for subsequent bracket placement
   g. Evaluate the product
   i. Provide individualized patient education
   j. Dismiss the patient
   k. Make appropriate chart notes
   l. Perform operatory clean-up/instrument processing according to infection control guidelines.

After etchant and bonding for subsequent bracket bonding procedures, the student operator, student assistant and the instructor complete evaluation using the worksheet and product evaluation form.

During this time period, the following will occur:

1. Student operator will evaluate his/her own work according to stated criteria using worksheet and product evaluation forms.
2. Student assistant will assist, observe, evaluate operator's performance according to stated criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both students' work according to stated criteria using the worksheet and product evaluation forms. Results will be discussed.

A 75% must be obtained for passage of preparing teeth for bonding brackets on a practice patient and a minimum of two clinical patients.

General Examination Protocol

Written Examination

A comprehensive written examination of 50 questions on the entire curriculum will be administered. ***The student must receive a minimum score of 75% on the examination to pass the class.***

Examination Time Frame

One hour has been reserved for the written examination.

Clinical Final Examination Time Frame

The clinical final examination occurs during the process of working on the two active orthodontic patient during the preparation for subsequent bonding on four anterior and

four posterior teeth a minimum of four times each with one of each of the four times. Within this time frame, the following activities will occur: operatory set-up, medical history completed, patient acceptance by the instructor, perform coronal polish, apply etchant, apply bonding agents, complete worksheet and product evaluation by the student operator and the student assistant.

During the clinical final examination the following general procedures will occur:

Patient Selection Criteria:

The following criteria must apply for each patient:

1. Patient must be an active orthodontic patient
2. Patient must be in good health (medical history form will be completed prior to treatment, reviewed and approved by the instructor).
3. Each patient will have a minimum of four anteriors and four posteriors per arch for tooth preparation with subsequent bonding of brackets and removal of brackets.

The following general procedures will occur for each of the patients:

1. Operatory will be set up following the infection control guidelines.
2. Medical history will be completed by the patient prior to seating.
3. Equipment and supplies will be checked by the student.
4. Patient will be seated and prepared for treatment.
5. Student operator will review the medical history and perform a visual exam; the instructor will review the medical history and perform a visual exam.
6. Instructor will accept the patient for the preparation of teeth for subsequent bonding.
7. Student operator will perform the following according to the stated criteria:
    a. Perform coronal polish
    b. Isolate and dry
    c. Perform etchant application procedure
    d. Rinse and dry etched tooth/teeth
    e. Employ additional bonding materials for specific needs
    f. Cure bonding resin for subsequent bracket placement/curing/removal
    g. Evaluate the product
    h. Provide individualized patient education
    i. Dismiss the patient
    J. Make appropriate chart notes
    k. Perform operatory clean-up/instrument processing according to infection control guidelines.

After etchant and bonding for subsequent bracket bonding procedures and bracket removal, the student operator, student assistant and the instructor complete evaluation using the worksheet and product evaluation form.

During this time period, the following will occur:

1. Student operator will evaluate his/her own work according to stated criteria using worksheet and product evaluation forms.
2. Student assistant will assist, observe, evaluate operator's performance according to stated criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both students' work according to stated criteria using the worksheet and product evaluation forms. Results will be discussed.

A 75% must be obtained for passage of preparing teeth for bonding brackets on a practice patient and a minimum of two clinical patients.

MODULE 5: Bracket Positioning, Bond Curing, and Removal of Orthodontic Brackets

COURSE OUTLINE, ACTIVITIES AND HOUR BREAKDOWN

The following is a detailed outline, description of the activities, and hour breakdown for the fourteen-hour bracket positioning, bond curing, and removal of orthodontic brackets. This course will educate the student on the concepts of orthodontic bracket positioning, bond curing, and the removal of orthodontic brackets. The student will understand and effectively demonstrate the sequence of steps, patient management, and the different bonding materials and techniques used to effectively bond and remove brackets.

Module 5 **Didactic Session- 4 hours**

A. Bracket Design and Bracket-Archwire interaction
    a. Metal bracket designs and features
    b. Ligating brackets
    c. Self ligating brackets
    d. Bracket Components
    e. Retention mesh
B. Bracket Placement criteria
    a. Orientation of bracket occlusal gingivally
    b. Orientation of bracket
    c. Bracket height measurements
    d. Influence of adjacent teeth and marginal ridges
    e. Considerations for occlusion and worn dentition
C. Bonding material characteristics, application techniques, and curing time factors.
    a. Resin bonding matrix
    b. Filler materials in composite bonding materials
    c. Self curing composites
        i. Catalyst paste and accelerators
        ii. Glass Ionomer cements
        iii. Polymerization reactions and curing times
    d. Light cure composites
        i. Polymerization reactions with photon energy
        ii. Light curing lights
        iii. Curing times
    e. Hybrid bonding cement
        i. Light cured Ionomer cements
        ii. Fluoride release of Ionomers
D. Procedures for direct bracket bonding with different materials.
    a. Managing light cure cements
    b. Managing self curing cements

c. Preliminary patient instructions
d. Armamentaria for bracket placement
e. Procedure set up for direct bonding
f. Steps for bracket placement after preparing teeth for bonding has been completed (module 4)
g. Techniques for cement application to bracket bases
h. Bracket prepositioning in preparation for final positioning by orthodontist
i. Procedures for serial bracket placement with orthodontist

E. Rationale for Indirect bracket bonding
   a. Advantages of indirect bonding
   b. Disadvantages of indirect bonding
   c. Armamentaria for indirect bracket placement
   d. Procedure for indirect bracket bonding.
   e. Preliminary patient instructions
   f. Armamentaria for indirect bracket placement
   g. Procedure set up for indirect bonding
   h. Steps for indirect bracket placement after preparing teeth for bonding has been completed (module 4)
   i. Laboratory procedures review for indirect bonding

F. Bracket removal considerations
   a. Goals of bracket removal
   b. Patient safety and comfort considerations

G. Armamentaria for bracket removal
   a. Typical materials and instruments

H. Procedures for bracket or tube removal.
   a. Preliminary patient instructions
   b. General techniques
   c. Cement removal with instruments
   d. Final removal considerations with hand piece by orthodontist only

I. MSDS Hazardous for composite bonding materials
   1. Composition
   2. Specific hazard(s)
   3. Exposure/treatment protocol
   4. PPE Protection
   5. Toxicity
   6. Storage considerations
   7. Accepted disposal protocol

Module 5 Laboratory Session 1 2 Hour

During this session, students will practice selection, preparation of brackets, etching, prepositioning, final positioning by orthodontist, and bracket removal on typodont teeth. Students will work with a partner during the process of these procedures the assisting

student will observe each stage of the process for evaluation. The following is an approximate step-by-step description of the procedures that should be followed during the laboratory session.

1. Each student will set up his/her armamentaria for bracket bonding.
2. Student will be provided with a typodont, a bench mount and four anterior and four posterior typodont teeth. In addition the student will be provided with individualized packets that will include:
    a. Description of packet
    b. Bracket cements
    c. Bracket bonding instruments and supplies
3. Instructor will review procedures and present information on how to use **Laboratory worksheet** for selecting, etching, bracket positioning, bond curing, and bracket removal.
4. Instructor will present criteria for ideal bracket cement loading, application techniques, and removal of orthodontic brackets. Instructor will demonstrate application techniques and provide ideal examples that will be passed around for viewing.
5. Student will load brackets and position on a minimum of four anterior and four posterior typodont teeth one of each of the four times used for a practical exam, partner observes, evaluates and records on worksheet. Student will also evaluate him/herself on the procedure. Instructor evaluates the bracket bonding techniques. The entire process will continue to be evaluated on the worksheet by the student, partner/assistant and instructor.
6. Partners switch places, the operator becomes the assistant and the assistant becomes the operator, both student partners have completed at this point eight typodont teeth.
7. Instructor will now present product evaluation form and how it is used to evaluate final etchant and bonding application.
8. Using the **Laboratory worksheet** product evaluation form, the student operator and the student assistant and instructor grade the application of bonding materials, bracket placement techniques and the bonding process for each other.
9. Discussion on product evaluation is conducted in small groups

Module 5 Laboratory Session 2 2 hours

Laboratory practice on typodont teeth continues but now for specialized techniques for direct and indirect bonding with review of considerations for products used for bonding atypical enamel, porcelain, plastic, gold etc. and practice protocol for contaminated teeth.

The following general procedures will occur:

Working with a partner, each student functions as an operator and selects, etches, and places orthodontic brackets followed by inspection by the orthodontist and then bracket removal. Student will then function as an assistant and observe and evaluate placement with partner.

The following general procedures will occur for each patient:

1. Equipment and supplies will be checked by student.
2. Student operator will give instructions/explanation of procedures
3. Student operator will perform the following according to the stated criteria
    i. Select orthodontic brackets for each typodont tooth
    ii. Perform coronal polish
    iii. Isolate one quadrant
    iv. Etch and prepare teeth for orthodontic bonding
    v. Load orthodontic brackets with bonding cement
    vi. Preposition brackets on typodont teeth
    vii. Orthodontist to check final positions of brackets
    viii. Cure orthodontic brackets
    ix. Evaluate product using ideal criteria
    x. Perform bracket removal
    xi. Evaluate product using ideal criteria

During the procedure the following will take place:

1. The student/operator will evaluate his/her own work according to stated criteria using the worksheet and product evaluation forms.
5. The student/assistant will assist, observe and evaluate operator's performance according to criteria using the worksheet and product evaluation forms.
5. The instructor will evaluate both student's work/performance using stated criteria using the worksheet and product evaluation forms. Discussion on results will be conducted.
5. The instructor will demonstrate and explain clinical examination protocol. When student performs last procedure on student partner it will be termed "mock exam" in preparation for the final exam on a clinical patient.

Module 5 Written Final Examination: 1 hour

A comprehensive written examination on all aspects of the course will be administered. Questions will appear on the exam in multiple choice, true/false or matching form. These questions will be chosen from a test bank. An item analysis will be conducted to determine question validity each time the examination is administered.

Module 5 Clinical Instruction 4 hours

During this session, the instructor will demonstrate the sequence of bracket positioning, bond curing and bracket removal on select patients.

The following procedures will be demonstrated:

1. Perform coronal polish.
2. Isolate one quadrant and dry
3. Perform etchant application procedures
4. Suction of etchant from tooth
5. Rinse and dry etched tooth/teeth.
6. Apply primer/bonding material(s)
7. Cure bonding agents
8. Select brackets for specified teeth for bracket bonding
9. Load brackets with bonding cements
10. Preposition brackets on teeth
11. Cure brackets once position verified by orthodontist
12. Removal of brackets on selected patients

Student experience on active patients will include bracket bonding on four anterior and four posterior teeth a minimum of four times each, with one of each of the four times used for a practical exam. Bracket removal of brackets on four anterior and four posterior teeth a minimum of four times each, with one of each of the four times used for a practical exam.

The following general procedures will occur for each patient:

1. Operatory will be set up following the infection control guidelines.
2. Medical history will be completed by the patient prior to seating.
3. Equipment and supplies will be checked by student/operator.
4. The patient will be seated and prepared for treatment.
5. Student operator will review medical history and perform a patient assessment, instructor will follow-up with same procedures.
6. Patient is given instructions/explanation of procedures
7. Student operator will perform the following according to the stated criteria
    a. Perform coronal polish.
    b. Isolate one quadrant and dry
    c. Perform etchant application procedures
    d. Suction of etchant from tooth
    e. Rinse and dry etched tooth/teeth.
    f. Apply primer/bonding material(s)
    g. Cure bonding agents
    h. Select brackets for specified teeth for bracket bonding
    i. Load brackets with bonding cements
    j. Preposition brackets on teeth
    k. Cure brackets once position verified by orthodontist
    l. Removal of brackets will occur on patients selected by the orthodontist

After the student operator completes the sequence of procedures, the student operator, the assistant and the instructor will evaluate the performance of the student operator using the worksheet and product evaluation

During this time period the following procedures will occur:

1. The student/operator will evaluate his/her own work according to stated criteria using the worksheet and product evaluation forms.
2. The student/assistant will assist, observe and evaluate operator's performance according to criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both students' work/performance using stated criteria using the worksheet and product evaluation forms. Discussion on results will be conducted.

MODULE 5: BRACKET PLACEMENT, CURING & REMOVAL GENERAL AND SPECIFIC INSTRUCTIONAL UNIT OBJECTIVES AND CRITERIA

A. Introduction

The completion of this course will educate the student on the concepts of effective bracket placement, curing and bracket removal. After completing a Board approved course for the student will be allowed to perform this function on the orthodontic patient.

B. Specific objectives

After completing this course, the student will be able to:

1. Identify who may legally place brackets, cure and remove.
2. Describe the criteria for bracket placement curing and removal. Including indications and contraindications.
3. Identify and record appropriate health history.
4. Identify characteristics of brackets.
5. Explain basic concepts bracket placement, curing and removal.
6. Identify the problem solving techniques associated with the bracket placement, curing and removal.
7. List and explain the function of each component of the armamentaria required for bracket placement, curing and removal.
8. Define the proper sequential steps in the procedure of bracket placement, curing and removal.

9. Identify the steps for appropriate infection control protocol for the operator and the dental operatory. List the protocol for barrier placement, surface disinfection

and sterilization as it relates to bracket placement, curing and removal to OSHA and DBC.

10. List the major factors that are associated with bracket failure and how to avoid them.

D. Psychomotor objectives

On typodont teeth and patients the student will be able to:

1. Assemble appropriate armamentaria for bracket placement, curing and removal.
2. Confirm the type of bracket to be used
3. Verify teeth that will receive brackets.
4. The bracket base is not touched with hands or gloves to prevent contamination.
5. Identify the properly positioned bracket.
6. The bracket is orientated to four different dimensions: vertical, horizontal, tip, and torque.
7. Bonding material is chosen.
8. Application techniques and curing times are followed
9. The brackets are placed and cured by quadrant.
10. Evaluate product using ideal criteria with 75% accuracy.
11. Provide appropriate patient education.
12. Maintain appropriate infection control throughout all procedures.

E. Criteria

1. Will set up the required armamentaria for bracket placement, curing and removal.
2. Will place all protective barriers.
3. Prior to treating the patient, review the medical/dental health history, general assessment and oral inspection on performance of procedure.
4. Will use aseptic techniques according to OSHA and DBC throughout the procedures on all patients.
5. Will seat and position the patient.
6. Will explain to the patient the bracket placement, curing and removal.
7. Assemble appropriate armamentaria for bracket placement, curing and removal.
8. Confirm the type of bracket the patient will be receiving.
9. Verify teeth that will receive brackets
10. The bracket base is not touched with hands or gloves.
11. Procedures are followed for preparing teeth for bonding.
12. Brackets are placed by quadrant
13. Isolation is maintained to prevent contamination by saliva.
14. Bracket is picked up with bracket holding instrument.
15. A thin layer of adhesive is placed on the bracket base.
16. Specific sequence is followed.
17. Excess bonding material is removed
18. Curing process is completed.
19. The patient is instructed to bite down making sure there is no interference.
20. Additional curing time will occur if appropriate.
21. For bracket removal patient is checked by the doctor and it is confirmed that the patient is ready.

22. Bracket removing pliers are used starting with upper molars.
23. Wrist is moved in an occlusal direction.
24. The finger is placed on the lingual of the tooth where the bracket is being removed to minimize pressure on the tooth.
25. Will evaluate entire procedure according to the stated criteria; identify problem solving methods to improve or modify procedures.
26. Will provide relevant and individualized patient education and post op instructions.
27. Will provide follow up visit as prescribed in the orthodontic treatment plan.
28. Will meet ethical and legal requirements for this procedure.
29. Will provide accurate chart entries for this procedure.
30. Will at all times utilize OSHA and DBC guidelines to process instruments for sterilization; remove waste, disposing of in appropriate receptacles and clean/disinfect the treatment area.

Module 5 Bracket Positioning, Bond Curing, and Removal of Orthodontic Brackets Course Requirements

The following is an overview of the course requirements and the protocol followed for laboratory and clinical practice, the written and clinical examination.

Minimum Number of Satisfactory Performances
All students will perform at a minimum, the following procedures in order to achieve minimum competence in the various protocols used in the preparation of teeth for bonding brackets:
On a typodont and patients, the student will perform the following under OSHA and DBC guidelines:

- Apply etchant and other appropriate materials, preposition brackets, cure, and **remove brackets on four anterior and four posterior typodont teeth a minimum of four times each, with one of each of the four times used for a practical exam** according to the specified criteria

- Apply etchant and other appropriate materials, preposition brackets, cure, and **remove brackets on four anterior and four posterior teeth a minimum of four times each on at least two selected patients according to the specified criteria with one of each of the four times used for a practical examination** with 75% accuracy.

Students are required to meet the specified minimal number of satisfactory performances as indicated above. The student operator grades his/her own performance, the student

assistant grades the performance of the student operator and the instructor will assess the student operator's performance and the grading method of both students.

When the student reaches the 75% minimum performance for preparing the tooth for subsequent bracket bonding and 100% performance on all infection control protocol, the instructor evaluates the procedure for the minimal number of satisfactory performances. If a student does not fulfill the minimum grade for the number of satisfactory performances additional laboratory and/or clinical practice procedures will be assigned.

Objective Evaluation Criteria

Objective evaluation criteria shall be provided to each student prior the performance of any procedure. The student will receive information provided by the instructor prior to performing any laboratory or clinical procedures. The instructor shall supply the student with general program, individualized cognitive and psychomotor objectives and criteria for evaluation. Objective criteria will be utilized in the performance of all laboratory and clinical requirements.

Preparing and prepositioning brackets

1. Will review the medical/dental history, make a general assessment, and oral inspection on each patient prior to treatment, checking for information that may contraindicate the performance of the procedure.
    - b. Criteria for choosing specific materials for preparing surface for bonding brackets.
        - i. Indications
            - (a). Enamel
            - (b). Gold
            - (c). Porcelain
            - (d). Amalgam
            - (e). Plastic/composite
        - ii. Contraindications
            - (a). Tooth surface with caries
2. Will set up the required armamentaria for coronal polish, etchant and other bonding materials for subsequent bracket bonding.
3. Will use aseptic techniques according to OSHA and DBC throughout performance on al patients.
4. Will place protective barriers, seat and position the patient.
5. Will evaluate the teeth scheduled to for brackets
6. Will explain to patient the treatment planned for that day.
7. Will perform coronal polish on the teeth, ensuring a completely cleaned surface.
8. Will isolate, thoroughly clean and dry teeth, four anteriors and four posteriors prior to application of etchant and bonding agents for subsequent bonding brackets.
9. Will select brackets specific to teeth treatment planned for bracket bonding.
10. Will load bracket base with bonding cement in preparation for placement of brackets.

Bracket loading Criteria

1. Will apply bonding cement to mesh of brackets according to the manufacturer's directions covering the target area of the bracket, thoroughly working material into mesh, while avoiding excess amounts beyond areas of the bracket base.
2. Will load bracket onto a bracket holder in preparation for placement on tooth..

Prepositioning brackets on teeth with final position determined by orthodontist Criteria

1. Brackets will be placed by student on tooth in ideal vertical and horizontal position.
2. Orthodontist will finalize bracket position and remove excess cement.
3. Student will hold the curing light as close as possible without touching the bracket and will cure bracket form both mesial, distal, and occlusal for at least 20 seconds for a full cure.
4. Care will be taken to avoid contact with bracket and possible alteration of final bracket position prior to curing.
5. Student will vary curing times based on manufacturers recommendations for curing units and bonding cements to achieve complete polymerization.
6. The isolation material will be removed.
7. If excess material is present, it will be removed with a hand instrument or an ultrasonic scaler.
11. Will evaluate bracket placement, cement integrity, and identify problem-solving methods to improve or modify procedures.

Bracket Removal Criteria

1. Will prepare patient for bracket removal with instructions on what patient may experience during procedure.
2. Will remove brackets with bracket removing pliers.
3. Will support tooth to minimize patient discomfort while applying pliers pressure and occlusal rotation to remove bracket.

General Criteria

1. Will provide pertinent and individualized patient education.
2. Will provide follow up appointment to evaluate bracket retention.
3. Will meet ethical and legal requirements for this procedure
4. Will provide accurate chart entries for this procedure.
5. Will utilize OSHA and DBC guidelines for instrument processing, removing waste and cleaning/disinfecting treatment area.

The above criteria will be used to evaluate and access appropriate use of materials with subsequent bracket placement with a minimum of 75% accuracy for laboratory and clinical patients.

General Clinical Practice Protocol

Clinical Practice

Students will have their first clinical practice by preparing four anterior and four posterior teeth a minimum of four times each, with one of each of the four times

used for a practical exam. They will also complete two clinical patients. The following general procedures will occur:

Patient Selection Criteria:

The following criteria must apply for each patient:

1. Patient must be an active orthodontic patient
2. Patient must be in good health (medical history form will be completed prior to treatment, reviewed and approved by the instructor).
3. Each patient will have a minimum of four anteriors and four posteriors per arch for tooth preparation with subsequent bonding of brackets.
4. Criteria for selected patients will apply for removal of brackets as these will likely be different patients considering the process of bracket bonding and removal in orthodontic treatment practices.

The student will function as an operator, an assistant and a patient. Working as partners (operator and assistant) an operator will perform the procedure, the assistant will observe, and evaluate each step of the procedure. When complete each student will do the procedure, observe and evaluate.

The following general procedures will occur for each of the patients:

1. Operatory will be set up following the infection control guidelines.
2. Medical history will be completed by the patient prior to seating.
3. Equipment and supplies will be checked by the student.
4. Patient will be seated and prepared for treatment.
5. Student operator will review the medical history and perform a visual exam; the instructor will review the medical history and perform a visual exam.
6. Instructor will accept the patient for the preparation of teeth for subsequent bonding.
7. Student operator will perform the following according to the stated criteria:
    a. Perform coronal polish
    b. Isolate and dry
    c. Perform etchant application procedure
    d. Rinse and dry etched tooth/teeth
    e. Employ additional bonding materials for specific needs
    f. Cure bonding resin for subsequent bracket placement
    g. Load and preposition brackets with final position determined by the orthodontist
    h. Evaluate the product
    i. Provide individualized patient education
    j. Dismiss the patient
    k. Make appropriate chart notes
    l. Perform operatory clean-up/instrument processing according to infection control guidelines.

After etchant and bonding for subsequent bracket bonding procedures, the student operator, student assistant and the instructor complete evaluation using the worksheet and product evaluation form.

During this time period, the following will occur:

1. Student operator will evaluate his/her own work according to stated criteria using worksheet and product evaluation forms.
2. Student assistant will assist, observe, evaluate operator's performance according to stated criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both students' work according to stated criteria using the worksheet and product evaluation forms. Results will be discussed.

A 75% must be obtained for passage of preparing teeth for bonding brackets on a practice patient and a minimum of two clinical patients.

General Examination Protocol

Written Examination

A comprehensive written examination on the entire curriculum will be administered. ***The student must receive a minimum score of 75% on the examination to pass the class.***

Examination Time Frame

One hour has been reserved for the written examination.

Clinical Final Examination Time Frame

The clinical final examination occurs during the process of working on the two active orthodontic patient during the preparation for subsequent bonding of brackets on four anterior and four posterior teeth a minimum of four times each with one of each of the four times. Within this time frame, the following activities will occur: operatory set-up, medical history completed, patient acceptance by the instructor, perform coronal polish, apply etchant, apply bonding agents, load and place brackets, cure once final position has been verified by the orthodontist. Completion of worksheet and product evaluation by the student operator and the student assistant.

During the clinical final examination the following general procedures will occur:

Patient Selection Criteria:

The following criteria must apply for each patient:

1. Patient must be an active orthodontic patient
2. Patient must be in good health (medical history form will be completed prior to treatment, reviewed and approved by the instructor).

3. Each patient will have a minimum of four anteriors and four posteriors per arch for tooth preparation with subsequent bonding of brackets and removal of brackets.

The following general procedures will occur for each of the patients:

1. Operatory will be set up following the infection control guidelines.
2. Medical history will be completed by the patient prior to seating.
3. Equipment and supplies will be checked by the student.
4. Patient will be seated and prepared for treatment.
5. Student operator will review the medical history and perform a visual exam; the instructor will review the medical history and perform a visual exam.
6. Instructor will accept the patient for the preparation of teeth for subsequent bonding.
7. Student operator will perform the following according to the stated criteria:
   a. Perform coronal polish
   b. Isolate and dry
   c. Perform etchant application procedure
   d. Rinse and dry etched tooth/teeth
   e. Employ additional bonding materials for specific needs
   f. Cure bonding resin for subsequent bracket placement/curing/removal as determined for needs of patient
   g. Evaluate the product
   h. Provide individualized patient education
   i. Dismiss the patient
   J. Make appropriate chart notes
   k. Perform operatory clean-up/instrument processing according to infection control guidelines.

After etchant and bonding for subsequent bracket bonding procedures and bracket removal, the student operator, student assistant and the instructor complete evaluation using the worksheet and product evaluation form.

During this time period, the following will occur:

1. Student operator will evaluate his/her own work according to stated criteria using worksheet and product evaluation forms.
2. Student assistant will assist, observe, evaluate operator's performance according to stated criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both students' work according to stated criteria using the worksheet and product evaluation forms. Results will be discussed.

A 75% must be obtained for passage of preparing teeth for bonding brackets on a practice patient and a minimum of two clinical patients.

MODULE 6: ARCHWIRE PLACEMENT AND LIGATION CLASS SCHEDULE

ACTIVITY COURSE CONTENT

Module 6 Didactic 2 hours

Archwire Placement and Ligation

1. Archwire characteristics
2. Armamentaria
3. Procedures for placement of archwire previously adjusted by the dentist.
4. Ligature
    a. Systems
    b. Purposes
    c. Types
        i. Elastic
        ii. Wire
        iii. Self-ligating

Module 6 Laboratory Session 6 Hour s

1. Typodont experience
    a. Insertion of a preformed maxillary and mandibular archwire a minimum of four times per arch, **one of the four times used as a practical examination.**
    b. Ligation of maxillary and mandibular archwire using elastic or metal ligatures or self-ligating brackets a minimum of four times per arch, **one of four used as a practical examination.**

Module 6 : Clinical Session 8 Hour s

1. Insertion of a preformed maxillary and mandibular archwire on at least two patients.
2. Ligating both preformed maxillary and mandibular archwires using a combination of elastic and metal ligatures or self-ligating brackets on at least two patients for each **with one patient's maxillary and mandibular archwire placement used as a clinical exanimation.**

Module 6: ARCHWIRE PLACEMENT & LIGATION COURSE OUTLINE AND HOUR BREAKDOWN

The following is a detailed outline, description of the activities and hour breakdown for the fifteen-hour module/course in archwire placement and ligation. This course will educate the student on the concepts to effectively place and ligate an archwire. The student will understand and effectively demonstrate the sequence of steps, patient management and the different materials used to place and archwire and ligation (required for the DA).

Didactic Session 2 Hours

1. Archwire characteristics
   a. Alloy types
   b. Shapes
   c. Dimensions
   d. Forces

2. Armamentaria
   a. Mirror
   b. Weingart or utility pliers
   c. Distal cutters
   d. Mathieu pliers or hemostat

3. Procedures for placement
   a. Identify the midline of the arch wire
   b. Estimate the length of the wire
   c. Place the arch wire
   d. Confirm the midline
   e. Cut excess wire length
   f. Check for wires that extend past the appliance

4. Ligature systems
   a. Purpose
   b. Types
      (1) Elastics modules
      (2) Steel ligatures
      (3) Self-ligating

Module 6 Laboratory Session 1 6 Hours

During this session, students will practice archwire placement and ligation typodont teeth. Students will work with a partner during the process of these procedures the assisting student will observe each stage of the process for evaluation. The following is an approximate step-by-step description of the procedures that should be followed during the laboratory session.

1. Each student will set up his/her armamentaria for archwire placement and ligation on a typodont.
2. Student will be provided with a typodont and a bench mount. In addition the student will be provided with individualized packets that will include:
   a. Description of packet
   b. Assortment of archwires and ligating materials.
   c. All armamentarium for archwire placement and ligation.
3. Instructor will review procedures and present information on how to use worksheet for archwire placement and ligation.
4. Instructor will present criteria for ideal archwire placement and ligation. Instructor will provide ideal examples that will be passed around for viewing.
5. Student will place **maxillary and mandibular archwires and ligate on a typodont a minimum of four times with the fourth placements serving as a practical examination,** partner observes, evaluates and records on worksheet. Student will also evaluate him/herself on the procedure. Instructor evaluates the archwire placement and ligation. The entire process will continue to be evaluated on the worksheet by the student, partner/assistant and instructor.
6. Partners switch places, the operator becomes the assistant and the assistant becomes the operator, both student partners have completed at this point three archwire placements and ligation.
7. Instructor will now present product evaluation form and how it is used to evaluate **final** archwire placement and ligation.
8. Using the product evaluation form, the student operator and the student assistant and instructor grade the final archwire placement and ligation.
9. Discussion on product evaluation is conducted in small groups

Module 6 Final Written Examination 1 Hour

A comprehensive written examination on all aspects of the module/course will be administered. Questions will appear on the exam in multiple choice, true/false or matching form. These questions will be chosen from a test bank. An item analysis will be conducted to determine question validity each time the examination is administered.

Module 6 Clinical Session 8 Hours

1. Each student will set up his/her armamentaria for archwire placement and ligation.
2. Student will be provided with at least two patients.
3. Instructor will review procedures for archwire placement and ligation.
4. Student will place archwires and ligate on the patients while partner observes, evaluates and records on worksheet. Student will also evaluate him/herself on the procedure. Instructor evaluates the archwire placement and ligation. The entire process will continue to be evaluated on the worksheet by the student, partner/assistant and instructor. **Minimum of four times with one of the four times used for a practical examination.**
5. Partners switch places, the operator becomes the assistant and the assistant becomes the operator, both student partners have completed at this point placement of four archwires with ligation.

MODULE 6 ARCHWIRE PLACEMENTS & LIGATION GENERAL AND SPECIFIC INSTRUCTIONAL UNIT OBJECTIVES AND CRITERIA

A. Introduction

The completion of this course will educate the student on the concepts of effective placement of archwires and ligation. After completing a Board approved course for the student will be allowed to perform this function on the orthodontic patient.

B. General course objectives

After completing the following areas of didactic, laboratory, and clinical instruction in the placement of archwires and ligation the student will be able to:

1. Explain the concepts of archwire placement and ligation.
2. Describe the key concepts of archwire placement and ligation.
3. Describe the different alloy types, shapes, sizes and increasing levels, forces used with archwire progression.
4. Describe the different ligation systems.
5. Describe the proper techniques for archwire placement and ligation.
6. Describe the armamentarium and steps involved in archwire placement and ligation.
7. Student, partner and instructor will evaluate all procedures according

to the stated criteria. Identify any techniques to improve and or modify faulty placement or ligation.

8. All procedures must be completed to 75% minimum competency level.
9. Maintain infection control protocol, to include operator protection, operatory, surface disinfection, or barrier placement and instrument processing, sterilization related to archwire placement and ligation. according to standards defined by OSHA and DBC.

C. Specific objectives

After completing this course, the student will be able to:

1. Identify who may legally place archwires and ligate.
2. Describe the criteria for archwire placement and ligation. Including indications and contraindications.
3. Identify and record appropriate health history.
4. Identify characteristics, and composition, of archwires and ligation systems.
5. Explain basic concepts of archwires and ligation systems.
6. Identify the problem solving techniques associated with the placement of archwires and ligation.
7. List and explain the function of each component of the armamentaria required for archwire placement and ligation.
8. Define the proper sequential steps in the procedure of archwire placement and ligation
9. Identify the steps for appropriate infection control protocol for the operator and the dental operatory. List the protocol for barrier placement, surface disinfection and sterilization as it relates to archwire placement and ligation as it relates to OSHA and DBC.
10. List the common errors that are associated with archwire placement and ligation and how to avoid them.

D. Psychomotor objectives

On typodont teeth and patients the student will be able to:

1. Assemble appropriate armamentaria for archwire placement and ligation.
2. Identify the midline of the archwire
3. Mark the midline of the archwire
4. Estimate the length of the wire prior to placement in mouth
5. Allow wire to rest buccal to the terminal bracket in the arch
6. Use distal end cutter to remove gross excess
7. Place the archwire using utility plier in the 1st molar tube or second if applicable.
8. Confirm midline-ligate the wire to the brackets beginning from the tooth mesial to the first molar
9. Work around the arch until all teeth are secured.
10. Cut excess wire length.
11. Check archwire-should not be too long or too short
12. Evaluate product using ideal criteria with 75% accuracy.
13. Provide appropriate patient education.

14. Maintain appropriate infection control throughout all procedures.
15.

E. Criteria

1. Will set up the required armamentaria for archwire placement and ligation.
2. Will place all protective barriers.
3. Prior to treating the patient, review the medical/dental health history, general assessment and oral inspection on performance of procedure.
4. Will use aseptic techniques according to OSHA and DBC throughout the procedures on all patients.
5. Will seat and position the patient.
6. Will explain to the patient the archwire placement and ligation procedure.
7. Assemble appropriate armamentaria for archwire placement and ligation.
8. Identify the midline of the archwire.
9. Mark the midline of the archwire
10. Estimate the length of the wire prior to placement in the mouth.
11. Allow the wire to rest buccal to the terminal bracket in the arch
12. Use distal end cutter to remove gross excess.
13. Place the archwire using utility plier in the 1st molar tube or second molar if applicable.
14. Confirm midline-ligate the wire to the brackets beginning form the tooth mesial to the first molar
15. Work around the arch until all teeth are secured.
16. Cut the excess wire length.
17. Check archwire-confirm wire is not too short or too long.
18. Will evaluate entire procedure according to the stated criteria; identify problem solving methods to improve or modify procedures.
19. Will provide relevant and individualized patient education and post op instructions.
20. Will provide follow up visit as prescribed in the orthodontic treatment plan.
21. Will meet ethical and legal requirements for this procedure.
22. Will provide accurate chart entries for this procedure.
23. Will at all times utilize OSHA and DBC guidelines to process instruments for sterilization; remove waste, disposing of in appropriate receptacles and clean/disinfect the treatment area.

MODULE 6 ARCHWIRE PLACEMENT AND LIGATION

GENERAL PROCEDURES USING LABORATORY AND CLINICAL PATIENT WORKSHEETS

An important part of the learning experience is the process of archwire placement and ligation and the ability to identify technique errors, their causes, and find solutions. Equally important is to determine the degree of error and when it constitutes a need to

redo. The first step in this process is to identify the error(s). Using archwire placement and ligation Laboratory and Clinical Patient Worksheets does this. The **worksheets are not grade sheets** but are documents that are used to assist students in learning to identify common technique errors related to the procedures associated with archwire placement and ligation. The student uses this form in the following manner:

The worksheet consists of a column titled Procedure-Laboratory and Procedure-Clinical, which is the step-by-step description of the procedures associated archwire placement and ligation. The procedures are subdivided into the following categories:

- Infection control/patient safety
- Assembles armamentaria
- Fitting
- Trimming
- Ligating
- Patient education
- Infection control/patient safety clean up

General Information on Worksheets

The student operator, student assistant, and instructor use these forms. Each of these individuals will watch the performance of the specified steps of the given procedure and then identify if any of these steps are not followed and/or inadequately performed by the student operator. During the learning process, errors can and will occur. Students and clinical instructors identify common errors encountered during each step of the entire procedure utilizing the worksheets. Worksheets are not grade sheets, but assist the student to identify his or her own errors during performance of these steps. They are used for measuring student's progress toward attainment of clinical proficiency.

How Worksheets Are Used by Student Operator and Student Assistant

1. When performing multiple procedures either in the laboratory or on clinical patients, all of the errors from these series are placed on one worksheet.
2. Each laboratory/clinical experience is graded in a different column.
3. When an error occurs in any of the individual steps described in the Procedure column, a check is placed in the box corresponding to the laboratory/clinical experience.

For example, on the clinical patient worksheet there would be a box for each step of the clinical practice patients. For the laboratory worksheet, there would be a box for the typodont teeth. With worksheet check-offs, the student can identify a clustering pattern of errors in any particular step. When an instructor evaluates the student's performance, he/she cannot only see how a student performs, but whether or not the student can identify errors that he/she makes.

How the Student Identifies Cause and the Correction of Errors

After the student identifies the error(s) performed, he/she will write the cause of the error and how it shall be rectified. The student then identifies whether the error is significant

enough to require re fitting archwire and or re ligating. During this process, the student will review the criteria for successful archwire placement and ligation.

How the Instructor uses the Worksheets

The instructor watches the student operator during the entire process of archwire placement and ligation. The instructor will check the appropriate box on the same worksheet used by the student operator and the student assistant. The instructor observes both students, and then evaluates the grading completed by both students for accuracy. The instructor reviews the worksheets for information related to: cause, solution and whether any part of the procedure requires additional steps. The instructor can provide additional assistance where needed. Through this process of identification of errors, causes and solutions will ensure the student will progress towards clinical competence and expected course objectives will be met. This process will continue throughout all laboratory and clinical requirements. When the clinical final exam is administered the student should be clinically competent in archwire placement and ligation.

Module 6
ARCHWIRE PLACEMENT AND LIGATION
LABORATORY SESSION 1 WORKSHEET

Student/Operator Name_____ Date_____

Student/Assistant Name_____ Faculty Name_____

Minimum of 4 Maxillary archwires placed _____

Minimum of 4 Mandibular archwires placed _____

Use this worksheet to identify errors in procedures. Place a check mark in the box each time a step in the procedure is incorrectly performed or omitted. After each section the instructor will check before the student continues with the following section.

Critical Errors = *

Infection Control/Armamentarium	**Operator Evaluator**	**Assistant Evaluator**	**Faculty Evaluator**
Infection Control/Patient Safety			
1. Barriers placed on chair, unit, air-water syringe, HVE, saliva ejector, SP hand piece, curing light			
2. PPE: mask, gloves, scrubs, gown, eye wear, patient safety glasses			
Assemble Armamentaria			
3. Basic set-up: mirror, explorer, cotton pliers Weingart or utility pliers, distal cutters, and Mathieu pliers or hemostats			
4. Air-water syringe, syringe tip, HVE, saliva ejector			

Comments:

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Archwire Placement	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
*5. Identifies the midline of the archwire			
*6. Estimates the length of the wire prior to placing in the mouth			
*7. Allows the wire to rest buccal to the terminal bracket in the arch			
*8. Uses the distal end cutter to remove gross excess			
*9. Does not remove too much or too little			
*10. Final length is trimmed with wire placed and ligated in bracket slots			
*11. Uses utility plier to place arch wire in the 1st molar tube			
12. Slides wire through to the 2nd molar if applicable			
Ligate Archwire			
*13. Ligates the wire to brackets			
*14. Begins from the tooth mesial to the first molar			
*15. Works around the arch to the contralateral until all teeth secured			
**16. Severely misaligned tooth ligated first			
*17. Cuts excess wire length			
*18. Looks and feel for wires that extend past the appliance			

STOP! Reminder Instructor checks prior to proceeding to next section.

Comments:

Patient Education	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
19.Give post-operative instructions to the patient or parent.			
20. Document procedure in patient chart to			

include: date, HH review or update, materials used, operator signature, and instructor or DDS signature.			
Infection Control/Patient Safety/Clean-Up	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
21. Surface disinfect			
22. Prepare and institute sterilization procedures			
23. Manage PPE: gloves, mask, gown, scrubs, eye wear and patient safety glasses			
24. Unit is checked for completion			

STOP! Reminder Instructor checks prior to proceeding to next section.

Comments:

Student Operator to explain any check marks

Procedure #'s_____

Cause (s)_____

Solution(s)_____

Re-do? Yes No Tooth #'s_____

Module 6
ARCHWIRE PLACEMENT AND LIGATION
PATIENT WORKSHEET

Student/Operator Name_____ Date_____

Student/Assistant Name_____ Faculty Name_____

(Circle One) Patient #1Name:_____Patient #2 Name_____

Minimum of 2 Maxillary preformed archwires placed _____

Minimum of 2 Mandibular preformed archwire placed _____

Use this worksheet to identify errors in procedures. Place a check mark in the box each time a step in the procedure is incorrectly performed or omitted. After each section the instructor will check before the student continues with the following section.

Critical Errors = *

Infection Control/Armamentarium	**Operator Evaluator**	**Assistant Evaluator**	**Faculty Evaluator**
Infection Control/Patient Safety			
1. Barriers placed on chair, unit, air-water syringe, HVE, saliva ejector, SP hand piece, curing light			
2. PPE: mask, gloves, scrubs, gown, eye wear, patient safety glasses			
Assemble Armamentaria			
3. Basic set-up: mirror, explorer, cotton pliers Weingart or utility pliers, distal cutters, and Mathieu pliers or hemostats			
4. Air-water syringe, syringe tip, HVE, saliva ejector			

Comments:

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Archwire Placement	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
*5. Identifies the midline of the archwire			
*6. Estimates the length of the wire prior to placing in the mouth			
*7. Allows the wire to rest buccal to the terminal bracket in the arch			
*8. Uses the distal end cutter to remove gross excess			
*9. Does not remove too much or too little			
*10. Final length is trimmed with wire placed and ligated in bracket slots			
*11. Uses utility plier to place arch wire in the 1st molar tube			
*12. Slides wire through to the 2nd molar if applicable			
Ligates Archwire			
*13. Ligates the wire to brackets			
*14. Begins from the tooth mesial to the first molar			
*15. Works around the arch to the contralateral until all teeth secured			
*16. Severely misaligned tooth ligated first			
*17. Cuts excess wire length			
*18. Looks and feel for wires that extend past the appliance			

STOP! Reminder Instructor checks prior to proceeding to next section.

Comments:

Patient Education	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
19.Give post-operative instructions to the patient or parent.			

20. Document procedure in patient chart to include: date, HH review or update, materials used, operator signature, and instructor or DDS signature.			
Infection Control/Patient Safety/Clean-Up	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
21. Surface disinfect			
22. Prepare and institute sterilization procedures			
23. Manage PPE: gloves, mask, gown, scrubs, eye wear and patient safety glasses			
24. Unit is checked for completion			

STOP! Reminder Instructor checks prior to proceeding to next section.

Comments:

Student Operator to explain any check marks

Procedure #'s_____

Cause (s)_____

Solution(s)_____

Re-do? Yes No Tooth #'s_____

GENERAL PROCEDURES USING PRODUCT EVALUATION FORMS

Product Evaluation Forms for Archwire Placement and Ligation

Product evaluation evaluates the end result of any performance, not the steps. This facility utilizes the behaviorally anchored rating scale (BARS) system. This 10-point system clusters the critical incidents into categories. The instructor can score objectively the end result of archwire placement and ligation by choosing the criteria specified in each point level. Performance is assessed according to established criteria for each of these procedures. The points are then converted to a pass or fail grade.

How Instructor uses Product Evaluation Form

A product evaluation form will be used for each patient. In the "scores" area on the form you will note that an open box rather than specific grids occurs. This open box allows you to enter a score for each of the posterior first molars.

The student must maintain a minimum point value of 7.5 on all clustered critical incidences "per archwire placed". He/she must receive this minimum score for all four archwires placed in order to pass this module. A grade of 7.5 represents a 75% passing score.

Product Evaluation Point Conversion

The student will receive points for a given level of achievement from the point scale utilized for product evaluation.

Conversion from a point system to a Pass/ Fail score □

POINTS	GRADES
10	Pass-Excellent
7.5	Pass
5	Fail-Critical Error(s)
3	Fail-Critical Errors-no concept

MODULE 6: ARCHWIRE PLACEMENT AND LIGATION
Laboratory Session 1 Practical Examination
PRODUCT EVALUATION

Student's Name_____ Patient's Name_____

1 Maxillary preformed archwire placed _____

1 Mandibular preformed archwire placed _____

PLACEMENT OF ARCHWIRE

Date: **Grade Received:** **Pass** **Fail** **Faculty:**

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Fitting (A) Midline of archwire identified (B) Estimate length of wire (C) Final length is trimmed (D) Wire placed 1st molar tube (or 2nd) (E) Cut precisely		

LIGATION

Date: **Grade Received:** **Pass** **Fail** **Faculty:**

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Ligation (A) Ligate wire to brackets (B) Work around the arch-begin mesial to first molar (C) Works around arch until all brackets are ligated (D) Severely misaligned teeth are ligated first (E) Look and feel for wires that extend past the appliance		

KEY

NUMERICAL SCORE	PERCENTAGE SCORE
10	**Pass-Excellent**
7,5	**Pass**
5	**Fail-Critical Errors**
3	**Fail-Critical Errors** **No concept**

Student Signature: _____
Instructor Signature: _____ **Date:**_____

MODULE 6: ARCHWIRE PLACEMENT AND LIGATION PRODUCT EVALUATION
Clinical Examination

Student's Name_____ Patient's Name_____

Patient #1 Name_____

1 Maxillary preformed archwire placed _____

1 Mandibular preformed archwire placed _____

PLACEMENT OF ARCHWIRE

Date: **Grade Received:** **Pass** **Fail** **Faculty:**

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Fitting (A) Midline of archwire identified (B) Estimate length of wire (C) Final length is trimmed (D) Wire placed 1st molar tube (or 2nd) (E) Cut excess distal wire length		

LIGATION

Date: **Grade Received:** **Pass** **Fail** **Faculty:**

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Ligation (A) Ligate wire to brackets (B) Work around the arch-begin mesial to first molar (C) Works around arch until all brackets are ligated (D) Severely misaligned teeth are ligated first (E) Look and feel for wires that extend past the appliance		

KEY

NUMERICAL SCORE	PERCENTAGE SCORE
10	**Pass-Excellent**
7,5	**Pass**
5	**Fail-Critical Errors**
3	**Fail-Critical Errors** **No concept**

Student Signature: _____
Instructor Signature: _____ Date:_____

MODULE 6: ARCHWIRE PLACEMENT AND LIGATION
Clinical Examination

PRODUCT EVALUATION

Student's Name_____ Patient's Name_____

Patient #2 Name_____

1 Maxillary preformed archwire placed _____

1 Mandibular preformed archwire placed _____

PLACEMENT OF ARCHWIRE

Date: **Grade Received:** **Pass** **Fail** **Faculty:**

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Fitting (A) Midline of archwire identified (B) Estimate length of wire (C) Final length is trimmed (D) Wire placed 1st molar tube (or 2nd) (E) Cut excess distal wire length		

LIGATION

Date: **Grade Received:** **Pass** **Fail** **Faculty:**

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Ligation (A) Ligate wire to brackets (B) Work around the arch-begin mesial to first molar (C) Works around arch until all brackets are ligated (D) Severely misaligned teeth are ligated first (E) Look and feel for wires that extend past the appliance		

KEY

NUMERICAL SCORE	PERCENTAGE SCORE
10	**Pass-Excellent**
7,5	**Pass**
5	**Fail-Critical Errors**

3	Fail-Critical Errors No concept

Student Signature: _____
Instructor Signature: _____ Date:_____

Module 6

ARCHWIRE PLACEMENT AND LIGATION DOCUMENTED CRITERIA

Points	Description
10	*Archwire placement* Identifies the midline of the archwire Estimate the length of the wire prior to placing in the mouth Allows the wire to rest buccal to the terminal bracket in the arch Uses the distal end cutter to remove gross excess Does not remove too much or too little Final length is trimmed with wire placed and ligated in bracket slots Uses utility plier to place arch wire in the 1st molar tube Slides wire through to the 2nd molar if applicable
7.5	*Archwire placement* Adequately identifies the midline of the archwire Estimates the length of the wire adequately prior to placement Allows the wire to adequately rest buccal to the terminal bracket Uses the distal end cutter adequately to remove gross excess Adequately removes enough not too much Final length is trimmed with wire placed and ligated in bracket slots Uses utility plier adequately to place arch wire in the 1st molar tube Slides wire through to the 2nd molar if applicable
5	*Archwire placement* Does not identify the midline of the archwire Does not estimate the length of the wire prior to placement Does not allow the wire to rest buccal to the terminal bracket Uses the distal end cutter to remove gross excess Final length is trimmed but too short Does use utility pliers to place arch wire in the 1st molar tube

3	*Archwire placement* Does no identify the midline of the archwire Does not estimate the length of the wire prior to placement Does not allow the wire to rest buccal to the terminal bracket Does not use the distal end cutter to remove gross excess Final length is not trimmed with wire placed and ligated in bracket slots Does not use utility plier to place arch wire in the 1st molar tube

Points	Description
10	*Ligation* Ligates the wire to the brackets Begins from the tooth mesial to the first molar Works around the arch to the contralateral until all teeth secured Severely misaligned tooth ligated first Cuts excess wire length Looks and feel for wires that extend past the appliance
7.5	*Ligation* Adequately ligates the wire to the brackets Begins from the tooth mesial to the first molar but varies slightly Works around the arch to the contralateral until all teeth adequately secured Severely misaligned tooth ligated first Cuts excess wire length adequately Looks and feel for wires that extend past the appliance
5	*Ligation* Does not adequately ligate the wire to the brackets Does not begin from the tooth mesial to the first molar Works around the arch to the contralateral secures most teeth but does not secure all teeth Severely misaligned tooth is not ligated first Excess wire is trimmed too short Does not look and feel for wires that extend past the appliance
3	*Ligation* Does not adequately ligate the wire to the brackets Does not begin from the tooth mesial to the first molar Secures some teeth but does not secure all teeth Severely misaligned tooth is not ligated Excess wire is not trimmed Does not look and feel for wires that extend past the appliance

MODULE 6 ARCHWIRE PLACEMENT AND LIGATION COURSE REQUIREMENTS

The following is an overview of the course requirements and the protocol followed for laboratory and clinical practice, the written and clinical examination.

Minimum Number of Satisfactory Performances
All students will perform at a minimum, the following procedures in order to achieve minimum competence in the various protocols used in the archwire placement and ligation. ***On a typodont and patients, the student will perform the following under OSHA and DBC guidelines:***

- On the typodont placement of a preformed maxillary and mandibular archwire using elastic or metal ligatures or self-ligating brackets a minimum of four times per arch with one of each of the four times used for a practical exam according to the specified criteria.

- Insertion of a preformed maxillary and mandibular archwire on a least two patients. Ligating both preformed maxillary and mandibular archwires using a combination of elastic and metal ligatures or self-ligating brackets on at least tow patients for each according to the specified criteria with one of each of the four times used for a practical examination with 75% accuracy.

Students are required to meet the specified minimal number of satisfactory performances as indicated above. The student operator grades his/her own performance, the student assistant grades the performance of the student operator and the instructor will assess the student operator's performance and the grading method of both students.

When the student reaches the 75% minimum performance for archwire placement and ligation 100% performance on all infection control protocol, the instructor evaluates the procedure for the minimal number of satisfactory performances. If a student does not

fulfill the minimum grade for the number of satisfactory performances additional laboratory and/or clinical practice procedures will be assigned.

Objective Evaluation Criteria

Objective evaluation criteria shall be provided to each student prior the performance of any procedure. The student will receive information provided by the instructor prior to performing any laboratory or clinical procedures. The instructor shall supply the student with general program, individualized cognitive and psychomotor objectives and criteria for evaluation. Objective criteria will be utilized in the performance of all laboratory and clinical requirements.

Preparation for Archwire Placement and Ligation

1. Will review the medical/dental history, make a general assessment, and oral inspection on each patient prior to treatment, checking for information that may contraindicate the performance of the procedure.
2. Will set up the required armamentaria archwire placement and ligation
3. Will use aseptic techniques according to OSHA and DBC throughout performance on al patients.
4. Will place protective barriers, seat and position the patient.
5. Will evaluate the maxillary and mandibular arches for archwire placement and ligation.
6. Will explain to patient the treatment planned for that day.
7. Will perform archwire placement and ligation.
8. Will place archwires and ligate on at least two patients.

Archwire Placement Criteria

1. Identify the midline of the arch wire.
2. If a wire will be removed and replaced, it is important to mark the midline with a wax marker for easy replacement.
3. Estimate the length of the wire prior to placement in the mouth.
4. Allow the wire to rest buccal to the terminal bracket in the arch.
5. Use distal end cutter to remove gross excess.
6. The final length will be trimmed with the wire placed and ligated in the bracket slots.
7. Place the archwire using the utility plier place the arch wire in the 1st molar tube, slide through to 2nd molar tube if applicable.

Ligation Criteria

1. Confirm the midline and ligate archwire to the brackets.
2. Beginning from the tooth mesial to the first molar
3. Work around the arch to the contralateral or opposite side until all teeth are secured.
4. If there is a severely misaligned tooth ligate this tooth first.
5. Cut excess wire length.
6. Check (look and feel) for wires that extend past the appliance.

General Criteria

1. Will provide pertinent and individualized patient education.
2. Will provide follow up appointment as identified in the treatment plan.
3. Will meet ethical and legal requirements for this procedure
4. Will provide accurate chart entries for this procedure.
5. Will utilize OSHA and DBC guidelines for instrument processing, removing waste and cleaning/disinfecting treatment area.

The above criteria will be used to evaluate and access appropriate archwire placement and ligation at a minimum of 75% accuracy for laboratory and clinical patients.

General Clinical Practice Protocol

Clinical Practice

Students will complete two clinical patients. The following general procedures will occur:

Patient Selection Criteria:

The following criteria must apply for each patient:

1. Patient must be an active orthodontic patient
2. Patient must be in good health (medical history form will be completed prior to treatment, reviewed and approved by the instructor).
3. Each patient (2 total) will have a minimum insertion of a preformed maxillary and mandibular archwire and ligation using a combination of elastic and metal ligatures or self-ligating brackets

.

The student will function as an operator, and assistant. Working as partners (operator and assistant) an operator will perform the procedure, the assistant will observe, and evaluate each step of the procedure. When complete each student will do the procedure, observe and evaluate.

The following general procedures will occur for each of the patients:

1. Operatory will be set up following the infection control guidelines.
2. Medical history will be completed by the patient prior to seating.
3. Equipment and supplies will be checked by the student.
4. Patient will be seated and prepared for treatment.
5. Student operator will review the medical history and perform a visual exam, the instructor will review the medical history and perform a visual exam.
6. Instructor will accept the patient for archwire placement and ligation.
7. Student operator will perform the following according to the stated criteria:
    a. Identify midline of archwire.
    b. Estimate the length of the archwire.
    c. Use distal end cutter to remove gross excess
    d. Final length will be trimmed after ligation

e. Place the archwire using the utility plier placing into molar tube
f. Confirm midline and ligate
g. Ligate with a combination of elastic, metal or self-ligating brackets.
h. Evaluate the product
i. Provide individualized patient education
j. Dismiss the patient
k. Make appropriate chart notes
l. Perform operatory clean-up/instrument processing according to infection control guidelines.

After archwire placement and ligation procedures, the student operator, student assistant and the instructor complete evaluation using the worksheet and product evaluation form.

During this time period, the following will occur:

1. Student operator will evaluate his/her own work according to stated criteria using worksheet and product evaluation forms.
2. Student assistant will assist, observe, evaluate operator's performance according to stated criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both students' work according to stated criteria using the worksheet and product evaluation forms. Results will be discussed.

A 75% must be obtained for passage of archwire placement and ligation..

General Examination Protocol

Written Examination
A comprehensive written examination of 50 questions on the entire curriculum will be administered. ***The student must receive a minimum score of 75% on the examination to pass the class.***

Examination Time Frame
One hour has been reserved for the written examination.

Clinical Final Examination Time Frame

The clinical final examination occurs during the process of working on the two active orthodontic patients during archwire placement and ligation with insertion of a preformed maxillary and mandibular archwire ligating both using a combination of elastic and metal ligatures or self-ligating brackets on at least two patients for each. Within this time frame, the following activities will occur: operatory set-up, medical history completed, patient acceptance by the instructor, for archwire placement and ligation, complete worksheet and product evaluation by the student operator and the student assistant.

During the clinical final examination the following general procedures will occur:

Patient Selection Criteria:

The following criteria must apply for each patient:

1. Patient must be an active orthodontic patient
2. Patient must be in good health (medical history form will be completed prior to treatment, reviewed and approved by the instructor).
3. Each patient (2 total) will have a minimum insertion or a preformed maxillary and mandibular archwire and ligation using a combination of elastic and metal ligatures or self-ligating brackets.

The following general procedures will occur for each of the patients:

1. Operatory will be set up following the infection control guidelines.
2. Medical history will be completed by the patient prior to seating.
3. Equipment and supplies will be checked by the student.
4. Patient will be seated and prepared for treatment.
5. Student operator will review the medical history and perform a visual exam. the instructor will review the medical history and perform a visual exam.
6. Instructor will accept the patient for archwire placement and ligation.
7. Student operator will perform the following according to the stated criteria:
    a. Identify the midline of the archwire
    b. Estimate the length of the wire
    c. Place the archwire
    d. Ligate the archwire
    e. Cut excess wire length
    f. Look and feel for wires that extend past the appliances
    g. Evaluate the product
    h. Provide individualized patient education
    i. Dismiss the patient
    j. Make appropriate chart notes
    k. Perform operatory clean-up/instrument processing according to infection control guidelines.

After archwire placement and ligation procedures, the student operator, student assistant and the instructor complete evaluation using the worksheet and product evaluation form.

During this time period, the following will occur:

1. Student operator will evaluate his/her own work according to stated criteria using worksheet and product evaluation forms.
2. Student assistant will assist, observe, evaluate operator's performance according to stated criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both students' work according to stated criteria using the worksheet and product evaluation forms. Results will be discussed.

A 75% must be obtained for passage of archwire placement and ligation with insertion of a preformed maxillary and mandibular archwire and ligating using a combination of elastic and metal ligatures or self-ligating brackets on a minimum of two clinical patients.

MODULE 7: ULTRASONIC SCALING FOR CEMENT REMOVAL CLASS SCHEDULE

ACTIVITY COURSE CONTENT

Didactic 2 Hours

1. Description of course
2. Distribution of instructional syllabus
3. Review of DB infection control protocol and regulations
4. Review of laboratory and clinical training site emergency protocol
5. Patient requirements for clinical requirements at dental facility
6. Examination requirements.
7. Procedures for handling dental patients during clinical practice
8. Supplies and equipment use
9. Demonstration of equipment
10. Assignments of patients
11. Didactic and laboratory instruction will emphasize:
    a. Developing the student's ability to perform all the proper techniques for removal of excess cement from orthodontically banded teeth on a banded typodont with competence.
    b. Lecture on manipulation and care of ultrasonic scaler, indications versus contraindications, effects of ultrasonic scalers on hard and soft tissue including, root damage, enamel damage, thermal damage and soft tissue damage as well as safety in regards to patient with systemic medical complications and managing patients with pacemakers. In addition to ultrasonic basics criteria, use of instruments and fulcruming techniques, infection control protocols in relationship to removal of excess cement using an ultrasonic scaler, use of PPE, instrument processing.
    c. Audio-visual aids including typodont will be shown. Discussion will follow.

Pre-clinical **Laboratory 4 Hours**

1. Laboratory practice will emphasize:
    a. Practice the use of the ultrasonic for removal of orthodontic cement on a minimum of

four banded posterior first molars.

b. Instructor will describe and demonstrate the following: criteria for ideal use of the ultrasonic scaler with appropriate selection and adaptation of tips, use of a fulcrum, operator/patient positioning, worksheet, product evaluation forms. Student, partner and instructor will evaluate all laboratory practice using stated criteria, worksheet and product evaluation sheets.

Laboratory 4 Hours

1. Laboratory practice on banded typodont teeth
2. Continue laboratory practice described on day 1.

Clinical Practice

Clinical Practice on Patients 4 Hours

1. Working with a partner, each student functions as operator using an ultrasonic scaler to remove orthodontic cement from four posterior first molars on a minimum of two patients. Student will function as an assistant, and observe and evaluate ultrasonic use in removal of cement with a partner. During this time period:
   a. Student operator will evaluate his/her own work according to stated criteria using worksheet and product evaluation forms.
   b. Student will assist, observe and evaluate operator's performance according to stated criteria using worksheet and product evaluation forms.
   c. Instructor will evaluate both students' work according to stated criteria using worksheet and product evaluation forms. Discussion on results will be conducted.

Final Written Examination 1 Hour

1. Comprehensive Written Examination on all aspects of the course.

Clinical

Clinical Practice on Patient 4 Hours

1. Clinical practice continues as described.
2. Clinical final will take place during this time.

MODULE 7: CEMENT REMOVAL WITH AN ULTRASONIC SCALER COURSE OUTLINE, ACTIVITIES AND HOUR BREAKDOWN

The following is a detailed outline, description of the activities and hour breakdown for this Facility for the eighteen-hour module/course in orthodontic cement removal with an ultrasonic scaler.

Module 7: Lecture Session 2 Hours

1. Legal responsibility and scope of practice
2. Infection control and OSHA protocols
   a. Proper use of ultrasonic cleaning device
   b. Use of PPE
   c. Use of sterilization equipment
3. Patient considerations
   a. Infection control protocol
   b. Informed consent
   c. Health history review
   d. Indications and contraindications of scaling
4. Equipment care and usage
   a. Tip/device selection
   b. Water purge and set-up of sleeve attachment
5. Safety/care concerns
   a. Concerns for tooth structure-removal of mineralized tooth structure
   b. Maintain pulp and enamel health
   c. Care taken to avoid damage to band or bracket during cement removal
6. Techniques and use of equipment
   a. Use of fulcrum
   b. Adaptation of ultrasonic tip to contours of tooth surface (anatomy) while removing orthodontic cement
   c. Operator/patient positioning
7. Identifying residual cement
   a. Types of band cement
   b. Differentiating from stain/discoloration
   c. Factors influencing amount of residual cement (etched teeth, bands)
   d. Likely places to find residual cement
8. Supragingival removal of residual cement

9. Patient comfort and safety
   a. Prevention of swallowing/aspiration of cement and or water

Module 7: Laboratory Session 1 4 Hours

During this session, students will practice ultrasonic scaler use in the removal of orthodontic cement from around bands and or brackets on typodont teeth. Students will work with a partner during the process of these procedures the assisting student will observe each stage of the process for evaluation. The following is an approximate step-by-step description of the procedures that should be followed during the laboratory session.

1. Each student will set up his/her armamentaria for ultrasonic scaler use in the removal of orthodontic cement from around bands and or brackets on typodont teeth.
2. Student will be provided with a typodont, a bench mount and at least four posterior typodont teeth. In addition the student will be provided with individualized packets that will include:
3. Description of packet
4. Assortment of teeth/typodonts with bands or brackets with excess cement for removal using the ultrasonic scaler.
5. Armamentarium for cement removal with an orthodontic scaler.
6. Instructor will review procedures and present information on how to use worksheet for ultrasonic scaler use in the removal of orthodontic cement from around bands and or brackets on typodont teeth.
7. Instructor will present criteria for ideal cement removal with an ultrasonic scaler. Instructor will provide ideal examples that will be passed around for viewing.
8. Student will remove cement with an ultrasonic scaler from around brackets or bands on typodont teeth, partner observes, evaluates and records on worksheet. Student will also evaluate him/herself on the procedure.
9. Instructor evaluates the cement removal process. The entire process will continue to be evaluated on the worksheet by the student, partner/assistant and instructor.
10. Partners switch places, the operator becomes the assistant and the assistant becomes the operator, both student partners have completed at this point three typodont teeth.
11. Instructor will now present product evaluation form and how it is used to evaluate **final** cement removal with an ultrasonic scaler around orthodontic bands on typodont on 4 first molars with cemented bands.
12. Using the product evaluation form, the student operator and the student assistant and instructor grade the final cemented orthodontic bands for each other.

13. Discussion on product evaluation is conducted in small groups

Final Written Examination 1 Hour

A comprehensive written examination on all aspects of the module/course will be administered. Fifty questions will appear on the exam in multiple choice, true/false or matching form. These questions will be chosen from a test bank. An item analysis will be conducted to determine question validity each time the examination is administered.

Module 7: Clinical Session 1 4 Hours

During this session, students will practice ultrasonic scaler use in the removal of orthodontic cement from around bands on 2 active patients. Students will work with a partner during the process of these procedures the assisting student will observe each stage of the process for evaluation. The following is an approximate step-by-step description of the procedures that should be followed during the laboratory session.

1. Each student will set up his/her armamentaria for ultrasonic scaler use in the removal of orthodontic cement from around bands and or brackets on typodont teeth.
2. Operatory will be set up following the infection control guidelines.
3. Medical history will be completed by the patient prior to seating.
4. Equipment and supplies will be checked by the student.
5. Patient will be seated and prepared for treatment.
6. Student operator will review the medical history and perform a visual exam.
7. The instructor will review the medical history and perform a visual exam.
8. Instructor will accept the patient for the removal of residual cement around orthodontic bands with an ultrasonic unit.
9. Instructor will review procedures and present information on how to use worksheet for ultrasonic scaler use in the removal of orthodontic cement from around bands on typodont teeth.
10. Instructor will present criteria for ideal cement removal with an ultrasonic scaler.
11. Student will remove cement with an ultrasonic scaler from around brackets or bands on typodont teeth, partner observes, evaluates and records on worksheet. Student will also evaluate him/herself on the procedure.

12. Instructor evaluates the cement removal process. The entire process will continue to be evaluated on the worksheet by the student, partner/assistant and instructor.
13. Instructor evaluates the cement removal process. The entire process will continue to be evaluated on the worksheet by the student, partner/assistant and instructor.
14. Partners switch places, the operator becomes the assistant and the assistant becomes the operator, both student partners have completed at this point four banded teeth.
15. Instructor will now present product evaluation form and how it is used to evaluate **final** cement removal with an ultrasonic scaler around orthodontic bands on 4 first molars with cemented bands.
16. Using the product evaluation form, the student operator and the student assistant and instructor grade the final cemented orthodontic bands for each other.
17. Discussion on product evaluation is conducted in small groups

MODULE 7: ULTRASONIC SCALING FOR CEMENT REMOVAL GENERAL AND SPECIFIC INSTRUCTIONAL UNIT OBJECTIVES AND CRITERIA

A. Introduction

The completion of this course will educate the student on the concepts of effectively remove cement around brackets and bands with an ultrasonic scaler. After completing a Board approved course for removal of cement around brackets and bands with an ultrasonic scaler the student will be allowed to perform this function on the orthodontic patient.

B. General course objectives

After completing the following areas of didactic, laboratory, and clinical instruction in removal of cement around brackets and bands with an ultrasonic scaler the student will be able to:

1. Explain the concepts of removal of cement around brackets and bands with an ultrasonic scaler.
2. Describe the key concepts of removal of cement around brackets and bands with an ultrasonic scaler by the RDA.
3. Describe and identify characteristics, manipulation and care of ultrasonic scaler unit when removing excess cement from orthodontically banded teeth.
4. Explain the steps for ultrasonic scaling procedure.
5. Describe the equipment/supplies needed for cement removal with an ultrasonic scaler.

6. Describe the proper technique of adaptation of ultrasonic tip/insert supra-gingivally upon the tooth's surface.
7. Describe the armamentarium and steps involved in sizing, fitting
8. Discuss the instrumentation and steps in removal of cement.
9. Student, partner and instructor will evaluate all procedures according to the stated criteria. Identify any techniques to improve and or modify for ultrasonic usage in cement removal process.
10. All procedures must be completed to 75% minimum competency level.
11. Maintain infection control protocol, to include operator protection, operatory, surface disinfection, or barrier placement and instrument processing, sterilization related to bracket positioning, bond curing and orthodontic bracket removal according to standards defined by OSHA and DBC.

. Specific objectives

After completing this course, the student will be able to:

1. Identify who may legally remove cement around orthodontic bands with an ultrasonic scaler.
2. Describe the criteria for cement removal around orthodontic bands using the ultrasonic scaler. Including indications and contraindications.
3. Identify and record appropriate health history.
4. Identify characteristics, handling protocol of ultrasonic scaler.
5. Explain and understand tooth morphology in relationship to the removal of cement with an ultrasonic scaler.
6. Identify the problem solving techniques associated with the cement removal with an ultrasonic scaler.
7. Explain the principles of proper control of cement and water used during removal of cement with an ultrasonic scaler (prevention of water debris aspiration and or swallowing).
8. List and explain the function of each component of the armamentaria required for removal of cement around orthodontic bands with an ultrasonic scaler.
9. Define the proper sequential steps in the procedure of removal of cement around orthodontic bands with an ultrasonic scaler.
10. Identify the steps for appropriate infection control protocol for the operator and the dental operatory. List the protocol for barrier placement, surface disinfection and sterilization as it relates to cementing orthodontic bands according to OSHA and DBC.
11. Identify which factors that may cause a health hazard to the operator by viewing a MSDS sheet and know preventive measures that should be employed.

D. Psychomotor objectives

On typodont teeth and patients the student will be able to:

1. Assemble appropriate armamentaria for removal of cement around orthodontic bands with an ultrasonic scaler.
2. Remove cement around orthodontic band adapting tip/insert without causing damage to soft or hard tissue.

3. Patient comfort is maintained by evacuation and or isolation materials.
4. Evaluate product using ideal criteria with 75% accuracy.
5. Provide appropriate patient education.
6. Maintain appropriate infection control throughout all procedures.
7. Protect herself/himself and the patient from any hazardous situations as defined in the MSDS forms for any cement materials used.

E. Criteria

1. Will set up the required armamentaria for removing cement with an ultrasonic scaler.
2. Will place all protective barriers.
3. Prior to treating the patient, review the medical/dental health history, general assessment and oral inspection on performance of procedure.
4. Will use aseptic techniques according to OSHA and DBC throughout the procedures on all patients.
5. Will seat and position the patient.
6. Will evaluate the teeth that require removal of excess cement from around the orthodontic band with an ultrasonic scaler.
7. Will explain to the patient the cement removal procedure.
8. Will perform complete cement removal on the appropriate tooth surfaces making sure they are completely cleaned supra-gingivally and without injury to hard or soft tissues.
9. Will evaluate entire procedure according to the stated criteria; identify problem solving methods to improve or modify procedures.
10. Will provide relevant and individualized patient education and post op instructions.
11. Will provide follow up visit as prescribed in the orthodontic treatment plan.
12. Will meet ethical and legal requirements for this procedure.
13. Will provide accurate chart entries for this procedure.
14. Will at all times utilize OSHA and DBC guidelines to process instruments for sterilization; remove waste, disposing of in appropriate receptacles and clean/disinfect the treatment area.

MODULE 7:
CEMENT REMOVAL WITH AN ULTRASONIC SCALER LABORATORY

GENERAL PROCEDURES USING LABORATORY AND CLINICAL PATIENT WORKSHEETS

Laboratory/Clinical Patient Worksheets for Cement Removal With an Ultrasonic Scaler

An important part of the learning experience is the process of removing cement with an orthodontic scaler is the ability to identify technique errors, their causes, and find solutions. Equally important is to determine the degree of error and when it constitutes remedial assistance. The first step in this process is to identify the error(s). Using removal of cement with an ultrasonic scaler Laboratory and Clinical Patient Worksheets does this. The **worksheets are not grade sheets** but are documents that are used to assist students in learning to identify common technique errors related to the procedures associated with removal of cement with an ultrasonic scaler. The student uses this form in the following manner:

The worksheet consists of a column titled Procedure-Laboratory and Procedure-Clinical, which is the step-by-step description of the procedures associated with cement removal with an ultrasonic scaler. The procedures are subdivided into the following categories:
□

- Infection control/patient safety
- Assembles armamentaria
- Patient considerations
- Equipment care and usage
- Protecting/avoiding damage to components of tooth and or band/bracket
- Patient education
- Infection control/patient safety clean up

General Information on Worksheets
The student operator, student assistant, and instructor use these forms. Each of these individuals will watch the performance of the specified steps of the given procedure and then identify if any of these steps are not followed and/or inadequately performed by the student operator. During the learning process, errors can and will occur. Students and clinical instructors identify common errors encountered during each step of the entire procedure utilizing the worksheets. Worksheets are not grade sheets, but assist the student to identify his or her own errors during performance of these steps. They are used for measuring student's progress toward attainment of clinical proficiency.

How Worksheets Are Used by Student Operator and Student Assistant

1. When performing multiple procedures either in the laboratory or on clinical patients, all of the errors from these series are placed on one worksheet.
2. Each laboratory/clinical experience is graded in a different column.
3. When an error occurs in any of the individual steps described in the Procedure column, a check is placed in the box corresponding to the laboratory/clinical experience.

For example, on the clinical patient worksheet there would be a box for each step of the clinical practice patients. For the laboratory worksheet, there would be a box for the typodont teeth. With worksheet check-offs, the student can identify a clustering pattern of errors in any particular step. When an instructor evaluates the student's performance, he/she cannot only see how a student performs, but whether or not the student can identify errors that he/she makes.

How the Student Identifies Cause and the Correction of Errors

After the student identifies the error(s) performed, he/she will write the cause of the error and how it shall be rectified. The student then identifies whether the error is significant enough to require remedial assistance. During this process, the student will review the criteria for successful cement removal around orthodontic bands or brackets with an ultrasonic scaler.

How the Instructor uses the Worksheets

The instructor watches the student operator during the entire process of cement removal around orthodontic bands or brackets with an ultrasonic scaler. The instructor will check the appropriate box on the same worksheet used by the student operator and the student assistant. The instructor observes both students, and then evaluates the grading completed by both students for accuracy. The instructor reviews the worksheets for information related to: cause, solution and whether any part of the procedure requires additional steps. The instructor can provide additional assistance where needed. Through this process of identification of errors, causes and solutions will ensure the student will progress towards clinical competence and expected course objectives will be met. This process will continue throughout all laboratory and clinical requirements. When the clinical final exam is administered the student should be clinically competent in cement removal around orthodontic bands or brackets with an ultrasonic scaler.

MODULE 7: CEMENT REMOVAL WITH AN ULTRASONIC SCALER

LABORATORY SESSION 1 WORKSHEET

Student/Operator Name_____ Date_____

Student/Assistant Name_____ Faculty Name_____

Use this worksheet to identify errors in procedures. Place a check mark in the box each time a step in the procedure is incorrectly performed or omitted. After each section the instructor will check before the student continues with the following section.

Critical Errors = *

Infection Control/Armamentarium	**Operator Evaluator**	**Assistant Evaluator**	**Faculty Evaluator**
Infection Control/Patient Safety			
1. Barriers placed on chair, unit, air-water syringe, HVE, saliva ejector, ultrasonic scaler			
2. PPE: mask, gloves, scrubs, gown, eye wear, patient safety glasses			
Assemble Armamentaria			
3. Basic set-up: mirror, explorer, cotton pliers			
4. Air-water syringe, syringe tip, HVE, saliva ejector			
5. Ultrasonic scaler			

6. Ultrasonic scaler tip/insert			
7. Isolation products-long and short cotton rolls, cheek retractors, tongue guard/ etc.			
8. Typodont with appropriate teeth and bench mount/pole			

Comments:

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Verify Teeth for Cement Removal	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
*9. Verify teeth for cement removal			
*10. Use ultrasonic scaler/tip to safely remove the cement from the tooth with light sweeping movement to preserve integrity of hard and soft tissue.			
*11. Primary focus is patient safety; maintain integrity of hard and soft tissue and prevention of swallowed or aspirated cement and or water.			
*12. Teeth that have restorations takes special care when removing cement.			
Identify excess cement			
*13. Use an instrument to "feel" for visual inspection may not be reliable.			
*14. Use explorer to detect residual cement.			
*15. Inspect the interproximal areas where excess cement may be hiding.			
Remove excess cement			
*16. Use modified pen grasp to remove excess cement with a sweeping motion using an ultrasonic scaler while employing a secure fulcrum.			
*17. Suction small fragments as they			

are removed as well as remove water.			
*18. All excess cement is removed with out damage to hard or soft tissue around bands and brackets supra-gingivally.			
*19. Check for loose bands or brackets			
*20. Rinse and suction remaining debris.			
*21. Remove any remaining isolation materials and rinse well.			

STOP! Reminder Instructor checks prior to proceeding to next section.

Comments:

Patient Education	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
22. Give post-operative instructions to the patient or parent.			
23. Document procedure in patient chart to include: date, HH review or update, teeth where cement was removed, problems encountered, operator signature, and instructor or DDS signature.			
Infection Control/Patient Safety/Clean-Up	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
24. Surface disinfect			
25. Prepare and institute sterilization procedures			
26. Manage PPE: gloves, mask, gown, scrubs, eye wear and patient safety glasses			
27. Unit is checked for completion			

STOP! Reminder Instructor checks prior to proceeding to next section.

Comments:

Student Operator to explain any check marks

Procedure #'s_____

Cause (s)_____

Solution(s)_____

Re-do? Yes No Tooth #'s_____

REMOVAL OF CEMENT WITH AN ULTRASONIC SCALER
CLINICAL PATIENT WORKSHEET

Student/Operator Name_____ Date_____

Student/Assistant Name_____ Faculty Name_____

(Circle one):Patient #1 Name _____Patient #2 _____

Teeth (2) banded first molars for cement removal_____

Use this worksheet to identify errors in procedures. Place a check mark in the box each time a step in the procedure is incorrectly performed or omitted. After each section the instructor will check before the student continues with the following section.
Critical Error = *

Infection Control/Armamentarium	**Operator Evaluator**	**Assistant Evaluator**	**Faculty Evaluator**
Infection Control/Patient Safety			
1. Barriers placed on chair, unit, air-water syringe, HVE, saliva ejector, ultrasonic scaler			
2. PPE: mask, gloves, scrubs, gown, eye wear, patient safety glasses			
Assemble Armamentaria			
3. Basic set-up: mirror, explorer, cotton pliers			
4. Air-water syringe, syringe tip, HVE, saliva ejector			
5. Ultrasonic scaler			
6. Ultrasonic scaler tip/insert			
7. Isolation products-long and short cotton rolls, cheek retractors, tongue guard/ etc.			

Comments:

STOP! Reminder Instructor checks prior to proceeding to next section.
Comments:

Verify Teeth for Cement Removal	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
*8. Verify teeth for cement removal			
*9. Use ultrasonic scaler/tip to safely remove the cement from the tooth with light sweeping movement to preserve integrity of hard and soft tissue.			
*10. Primary focus is patient safety; maintain integrity of hard and soft tissue and prevention of swallowed or aspirated cement and or water.			
*11. Teeth that have restorations takes special care when removing cement.			
Identify excess cement			
*12. Use an instrument to "feel" for visual inspection may not be reliable.			
*13. Use explorer and floss to detect excess cement.			
*14. Inspect the interproximal areas where excess cement may be hiding.			
Remove excess cement			
*15. Use modified pen grasp to remove residual cement using an ultrasonic scaler with a sweeping motion while employing a secure fulcrum.			
*16. Suction small fragments as they are removed as well as remove water.			
*17. All excess cement is removed with out damage to hard or soft tissue around bands and brackets supra-gingivally.			
*18. Check for loose bands or brackets			
*19. Rinse and suction remaining debris.			
20. Remove any remaining isolation materials and rinse well.			

STOP! Reminder Instructor checks prior to proceeding to next section.

Comments:

Patient Education	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
21. Give post-operative instructions to the patient or parent.			
22. Document procedure in patient chart to include: date, HH review or update, teeth where cement was removed, problems encountered, operator signature, and instructor or DDS signature.			
Infection Control/Patient Safety/Clean-Up	Operator Evaluator	Assistant Evaluator	Faculty Evaluator
23. Surface disinfect			
24. Prepare and institute sterilization procedures			
25. Manage PPE: gloves, mask, gown, scrubs, eye wear and patient safety glasses			
26. Unit is checked for completion			

STOP! Reminder Instructor checks prior to proceeding to next section.

Comments:

Student Operator to explain any check marks

Procedure #'s_____

Cause (s)_____

Solution(s)_____

Re-do? Yes No Tooth #'s_____

GENERAL PROCEDURES USING PRODUCT EVALUATION FORMS

Product Evaluation Forms for Cement Removal with an Ultrasonic Scaler

Product evaluation evaluates the end result of any performance, not the steps. This facility utilizes the behaviorally anchored rating scale (BARS) system. This 10-point system clusters the critical incidents into categories. The instructor can score objectively the end result of cement removal with an ultrasonic scaler by choosing the criteria specified in each point level. Performance is assessed according to established criteria for each step of the procedures. The points are then converted to a pass or fail grade.

How Instructor uses Product Evaluation Form

A product evaluation form will be used for each patient. In the "scores" area on the form you will note that an open box rather than specific grids occurs. This open box allows you to enter a score for each of the four posterior first molars.

The student must maintain a minimum point value of 7.5 on all clustered critical incidences "per tooth". He/she must receive this minimum score for all four posterior first molars during cement removal with an ultrasonic scaler on patients in order to pass this course. A grade of 7.5 represents a 75% passing score.

Product Evaluation Point Conversion

The student will receive points for a given level of achievement from the point scale utilized for product evaluation.

Conversion from a point system to a Pass/ Fail score □

POINTS	GRADES
10	Pass-Excellent
7.5	Pass
5	Fail-Critical Error(s)
3	Fail-Critical Errors-no concept

Module 7
CEMENT REMOVAL WITH AN UNLTRASONIC SCALER
Practical Examination Laboratory Session 1

PRODUCT EVALUATION

Student/Operator Name: _____ Date _____

Student/Assistant Name: _____ Faculty Name: _____

(3) banded first molars for cement removal

_____

Crtical Errors = *

VERIFY TEETH/ IDENTIFY CEMENT FOR REMOVAL

Date: _____ Grade Received: _____ Pass Fail Faculty:_____

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Verification of teeth *(A) Excess cement verified *(B) Teeth identified		

REMOVAL OF EXCESS CEMENT

Date: _____ Grade Received: _____ Pass Fail Faculty:_____

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Cement Removal * (A) Excess removal was accomplished *(B) No evidence of damage to hard or soft tissue or to band or bracket		

Module 7

CEMENT REMOVAL WITH AN UNLTRASONIC SCALER

Practical Examination Laboratory Session 1

KEY

NUMERICAL SCORE	PERCENTAGE SCORE
10	Pass-Excellent
7.5	Pass
5	Fail-Critical Errors
3	Fail-Critical Errors No concept

Student Signature: _____

Instructor Signature: _____ Date_____

Module 7 CEMENT REMOVAL WITH AN UNLTRASONIC SCALER
Clinical Session 1 Examination

PRODUCT EVALUATION

Student/Operator Name: _____ Date _____

Student/Assistant Name: _____ Faculty Name: _____

Patient #1 Name _____

2 Banded first molars for cement removal _____

Critical Errors = *

VERIFY TEETH/ IDENTIFY CEMENT FOR REMOVAL

Date: _____ Grade Received: _____ Pass Fail Faculty:_____

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Verification of teeth *(A) Excess cement verified *(B) Teeth identified		

REMOVAL OF EXCESS CEMENT

Date: _____ Grade Received: _____ Pass Fail Faculty:_____

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Cement Removal *(A) Excess removal was accomplished *(B) No evidence of damage to hard or soft tissue or to band or bracket		

Module 7 CEMENT REMOVAL WITH AN UNLTRASONIC SCALER
Clinical Session 1 Examination

PRODUCT EVALUATION

KEY

NUMERICAL SCORE	PERCENTAGE SCORE
10	Pass-Excellent
7.5	Pass
5	Fail-Critical Errors
3	Fail-Critical Errors No concept

Student Signature: _____
Instructor Signature: _____ Date_____

Module 7 CEMENT REMOVAL WITH AN UNLTRASONIC SCALER

Clinical Session 2 Clinical Examination

PRODUCT EVALUATION

Student/Operator Name: _____ Date _____

Student/Assistant Name: _____ Faculty Name: _____

Patient # 2 Name _____

(2) Banded first molars for cement removal _____

VERIFY TEETH/ IDENTIFY CEMENT FOR REMOVAL

Date: _____ Grade Received: _____ Pass Fail Faculty:_____

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Verification of teeth (A) Excess cement verified (B) Teeth identified		

REMOVAL OF EXCESS CEMENT

Date: _____ Grade Received: _____ Pass Fail Faculty:_____

The following areas reflect the errors made that indicate a reduction in the grade.

AREAS	SCORES	COMMENTS
Cement Removal (A) Excess removal was accomplished (B) No evidence of damage to hard or soft tissue or to band or bracket		

Module 7 CEMENT REMOVAL WITH AN UNLTRASONIC SCALER

Clinical Session 2 Clinical Examination

PRODUCT EVALUATION

KEY

NUMERICAL SCORE	PERCENTAGE SCORE
10	Pass-Excellent
7.5	Pass
5	Fail-Critical Errors
3	Fail-Critical Errors No concept

Student Signature: _____
Instructor Signature: _____ Date_____

CEMENT REMOVAL WITH AN UNLTRASONIC SCALER DOCUMENTED CRITERIA

Points	Description
10	*Verify teeth and identify cement* All teeth are identified with excess cement All excess cement is identified Proper use of explorer and or floss used to identify Uses modified pen grasp Uses stable fulcrum
7.5	*Verify teeth and identify cement* All teeth are identified with excess cement Almost all excess cement is identified Proper use of explorer and or floss varies slightly from ideal Uses modified pen grasp quite well Uses stable fulcrum most of the time
5	*Verify teeth and identify cement* All teeth are not identified with excess cement All excess cement is not identified Proper use of explorer is not employed Uses modified pen grasp only part of the time Does not use stable fulcrum consistently
3	*Verify teeth and identify cement* All teeth are not identified with excess cement All excess cement is not identified Does not use explorer or floss for identification of cement Does not use modified pen grasp Does not use a fulcrum at any time

Points	Description
10	*Cement Removal* Uses a modified pen grasp in the use of the ultrasonic tip Uses a light sweeping motion while using the ultrasonic tip Remains supra-gingivally while using the ultrasonic tip Uses fulcrum Manages water flow Uses HVE to control debris and water in oral cavity No loose bands detected at the end of cement removal

7.5	*Cement Removal* Uses a modified pen grasp adequately Uses a light sweeping motion but varies slightly Remains supra-gingivally while using the ultrasonic tip Uses fulcrum adequately Manages water flow adequately Uses HVE to adequately control debris and water No loose bands detected at the end of cement removal
5	*Cement Removal* Does not use a modified pen grasp while using ultrasonic Does not use a light sweeping motion while using the ultrasonic Does not remain supra-gingivally while using the ultrasonic Does not use a fulcrum Does not manage water flow, too much water Does not use HVE well to control debris and water A few loose bands are detected
3	*Cement Removal* Does not use a modified pen grasp while using ultrasonic Does not use a light sweeping motion while using the ultrasonic Does not remain supra-gingivally while using the ultrasonic Does not use a fulcrum Does not manage water flow, too much water Does not use HVE well to control debris and water Loose bands are detected

CEMENT REMOVAL WITH AN ULTRASONIC SCALER

COURSE REQUIREMENTS

The following is an overview of the course requirements and the protocol followed for laboratory and clinical practice, the written and clinical examination.

Minimum Number of Satisfactory Performances

All students will perform at a minimum, the following procedures in order to achieve minimum competence in the various protocols used in the removal cement with an ultrasonic scaler:
On a typodont and patients, the student will perform the following under OSHA and DBC guidelines:

- On the typodont cement removal will be completed at the very least on four posterior first molar a minimum of two times, with one used for a practical exam according to the specified criteria.

- Identify teeth with excess cement that will be removed with an ultrasonic scaler using proper technique with the focus on safety and comfort of the patient, as well as staying supra-gingivally with no damage to hard or soft tissue. Removing excess cement on four posterior first molars on at least two patients according to the specified criteria with one of each of the four times used for a practical examination with 75% accuracy.

Students are required to meet the specified minimal number of satisfactory performances as indicated above. The student operator grades his/her own performance, the student assistant grades the performance of the student operator and the instructor will assess the student operator's performance and the grading method of both students.

When the student reaches the 75% minimum performance for cement removal with an ultrasonic scaler at 100% performance on all infection control protocol, the instructor evaluates the procedure for the minimal number of satisfactory performances. If a student does not fulfill the minimum grade for the number of satisfactory performances additional laboratory and/or clinical practice procedures will be assigned.

Objective Evaluation Criteria
Objective evaluation criteria shall be provided to each student prior the performance of any procedure. The student will receive information provided by the instructor prior to performing any laboratory or clinical procedures. The instructor shall supply the student with general program, individualized cognitive and psychomotor objectives and criteria for evaluation. Objective criteria will be utilized in the performance of all laboratory and clinical requirements.

Preparation Prior to Cement Removal with an Ultrasonic Scaler
1. Will review the medical/dental history, make a general assessment, and oral inspection on each patient prior to treatment, checking for information that may contraindicate the performance of the procedure.
2. Will set up the required armamentaria for removal of excess cement around bands or brackets with an ultrasonic scaler.
3. Will use aseptic techniques according to OSHA and DBC throughout performance on al patients.
4. Will place protective barriers, seat and position the patient.
5. Will evaluate the teeth for cement removal with an ultrasonic scaler.

6. Will explain to patient the treatment planned for that day.
7. Will perform cement removal with an ultrasonic scaler.
8. Will isolate four posterior first molars in preparation for cement removal with an ultrasonic scaler on two patients.

Verify Teeth with Excess Cement and Identify Cement Criteria

1. Verify teeth with excess cement and identify cement.
2. Will remove excess cement using appropriate armamentarium (ultrasonic scaler).
3. Will proceed safely and with the patient's comfort as a primary focus as well as preventing damage to hard and soft tissues while staying supra-gingivally.
4. Will identify special circumstances that require adaptation to treatment to ensure no damage results to tissues or restorations.

Removal of Cement With Ultrasonic Scaler Criteria

1. Will remove excess cement with an ultrasonic scaler around bands and brackets.
2. Will explore areas where excess cement will be found.
3. Will remove excess cement supra-gingivally with an ultrasonic scaler.
4. Care will be taken to use a stable fulcrum.
5. Care will be taken while using a light sweeping motion with the ultrasonic scaler when removing excess cement.
6. Will be meticulous in monitoring debris to prevent swallowing or aspirating residual cement.
7. Will take care not to injure soft or hard tissues.

General Criteria

1. Will provide pertinent and individualized patient education.
2. Will provide follow up appointment as identified in the treatment plan.
3. Will meet ethical and legal requirements for this procedure
4. Will provide accurate chart entries for this procedure.
5. Will utilize OSHA and DBC guidelines for instrument processing, removing waste and cleaning/disinfecting treatment area.

The above criteria will be used to evaluate and access appropriate removal of cement around orthodontic bands and brackets while using the ultrasonic scaler with a minimum of 75% accuracy for laboratory and clinical patients.

General Clinical Practice Protocol

Clinical Practice

Students will complete two clinical patients. The following general procedures will occur:

Patient Selection Criteria:

The following criteria must apply for each patient:

1. Patient must be an active orthodontic patient
2. Patient must be in good health (medical history form will be completed prior to treatment, reviewed and approved by the instructor).
3. Each patient will have a minimum of four posterior first molars with bands.

The student will function as an operator, an assistant and a patient. Working as partners (operator and assistant) an operator will perform the procedure, the assistant will observe, and evaluate each step of the procedure. When complete each student will do the procedure, observe and evaluate.

The following general procedures will occur for each of the patients:
1. Operatory will be set up following the infection control guidelines.
2. Medical history will be completed by the patient prior to seating.
3. Equipment and supplies will be checked by the student.
4. Patient will be seated and prepared for treatment.
5. Student operator will review the medical history and perform a visual exam the instructor will review the medical history and perform a visual exam.
6. Instructor will accept the patient for cement removal with an ultrasonic scaler.
7. Student operator will perform the following according to the stated criteria:
    a. Identify teeth with excess cement around orthodontic bands or brackets.
    b. Remove cement around orthodontic bands or brackets with an ultrasonic.
    c. Remove excess cement remaining supra-gingivally with no tissue damage.
    d. Rinse and remove isolation products
    e. Evaluate the product
    f. Provide individualized patient education
    g. Dismiss the patient
    h. Make appropriate chart notes
    i. Perform operatory clean-up/instrument processing according to infection control guidelines.

After removing excess cement with an ultrasonic scaler procedures, the student operator, student assistant and the instructor complete evaluation using the worksheet and product evaluation form.

During this time period, the following will occur:
1. Student operator will evaluate his/her own work according to stated criteria using worksheet and product evaluation forms.
2. Student assistant will assist, observe, evaluate operator's performance according to stated criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both students' work according to stated criteria using the worksheet and product evaluation forms. Results will be discussed.

A 75% must be obtained for passage of removal of cement around orthodontic bands or brackets with an ultrasonic scaler.

General Examination Protocol

Written Examination
A comprehensive written examination of 50 questions on the entire curriculum will be administered.

The student must receive a minimum score of 75% on the examination to pass the class.

Examination Time Frame
One hour has been reserved for the written examination.

Clinical Final Examination Time Frame

The clinical final examination occurs during the process of working on the two active orthodontic patients during the removal of excess cement with an ultrasonic scaler on four posterior first molars. Within this time frame, the following activities will occur: operatory set-up, medical history completed, patient acceptance by the instructor, excess cement removal with an ultrasonic scaler, complete worksheet and product evaluation by the student operator and the student assistant.

During the clinical final examination the following general procedures will occur:

Patient Selection Criteria:

The following criteria must apply for each patient:
1. Patient must be an active orthodontic patient
2. Patient must be in good health (medical history form will be completed prior to treatment, reviewed and approved by the instructor).
3. Each patient will have a minimum of four posterior first molars with orthodontic bands.

The following general procedures will occur for each of the patients:
1. Operatory will be set up following the infection control guidelines.
2. Medical history will be completed by the patient prior to seating.
3. Equipment and supplies will be checked by the student.
4. Patient will be seated and prepared for treatment.
5. Student operator will review the medical history and perform a visual exam. the instructor will review the medical history and perform a visual exam.
6. Instructor will accept the patient for the preparation of teeth for band removal and removal of residual cement with a hand instrument.
7. Student operator will perform the following according to the stated criteria:
    a. Identify teeth with excess cement around orthodontic bands or brackets.
    b. Remove cement around orthodontic bands or brackets with an ultrasonic.
    c. Remove excess cement remaining supra-gingivally with no tissue damage.
    d. Rinse and remove isolation products
    e. Evaluate the product

f. Provide individualized patient education
g. Dismiss the patient
h. Make appropriate chart notes
i. Perform operatory clean-up/instrument processing according to infection control guidelines.

After cement removal around orthodontic bands and brackets with an ultrasonic scaler procedures, the student operator, student assistant and the instructor complete evaluation using the worksheet and product evaluation form.

During this time period, the following will occur:

1. Student operator will evaluate his/her own work according to stated criteria using worksheet and product evaluation forms.
2. Student assistant will assist, observe, evaluate operator's performance according to stated criteria using the worksheet and product evaluation forms.
3. The instructor will evaluate both students' work according to stated criteria using the worksheet and product evaluation forms. Results will be discussed.

A 75% must be obtained for passage of removal of excess cement around orthodontic bands with an ultrasonic scaler on a minimum of two clinical patients.

MODULE 1: FINAL EXAMINATION TEST BANK

1. Orthodontics is the specialty of dentistry that involves
   a. Diagnosis
   b. Prevention
   c. Treatment of dental and facial irregularities
   d. A and b
   e. A, b and c
2. The orthodontist's primary role is the correction of malocclusion.

a. True
b. False

3. Horizontal overlap of the incisor teeth is referred to as:
   a. Deep overbite
   b. Over jet
   c. Overbite
4. Dr. Edward Angle in 1899 introduced a classification of malocclusion. It includes Class I, Class II Division III and Class III.
   a. Both statements are true
   b. The first statement is false and the second is true.
   c. Both statements are false
   d. The firs statement is true and the second is false
5. Dental irregularities found **within** a dental arch may include:
   a. Crowding
   b. Spacing
   c. Deep overbite
   d. A and C only
   e. A and b
6. Class III malocclusion is defined as retrognathic. The mandible has a mesial relationship with the maxilla.
   a. Both statements are true
   b. The first statement is false and the second is true.
   c. Both statements are false
   d. The firs statement is true and the second is false
7. The American Association of Orthodontists has recommended that a child's first visit to the orthodontist take place at _____ years of age.
   a. Five
   b. Six
   c. Seven
   d. Eight
   e. None of the above

8. Two major causes of malocclusion are genetic and environmental. The most common cause of malocclusion is heredity.
   a. Both statements are true
   b. Both statements are false
   c. The first statement is true the second is false
   d. The first statement is false and the second is true

9. Crossbite may occur on just one side or both sides of the mouth. It may involve one tooth or several teeth.
    a. The first statement is true and the second is false.
    b. The first statement is false and the second is true
    c. Both statements are false
    d. Both statements are true.

Match the following:

10. Interceptive treatment	A.	Occurs at various stages Of dentition development
11. Corrective treatment	B.	Heads off certain problems Before negative effects
12. Functional appliances	C.	The most common treatment Modality in adolescent group
13. Fixed appliance	D.	Removable device used during corrective treatment

14. Orthodontic Records include the following:
    a. Medical history and dental history
    b. Clinical examination and study models
    c. Panoramic and Cephalometric radiographs
    d. A and C
    e. A, B and C
15. High sugar foods do not need to be avoided during orthodontic treatment.
    a. True
    b. False
16. A space maintainer
    a. Is an example of corrective therapy
    b. Used when a primary tooth is lost prematurely
    c. Prevents drifting of adjacent teeth into an edentulous area
    d. B and c

17. Which of the following is not true regarding oral hygiene practices for the orthodontic patient?
    a. Plaque must be removed more frequently
    b. Brushing around bands and brackets requires additional time and specialized oral health aids
    c. A critical area to brush is between the bracket and gingival margin
    d. Flossing is not an important part of daily home care

18. Discrepancies of occlusion often affect the short-term health of the dentition and surrounding oral tissues. TMJ can result from untreated malocclusions due to stress on the jaw muscles and joints.
    a. Both statements are true
    b. Both statements are false
    c. The first statement is false the second is true
    d. The first statement is true and the second is false
19. Open bites never occur in the posterior region of the mouth
    a. True
    b. False
20. In general, most orthodontic problems are due to:
    a. Environmental influences
    b. Developmental influences
    c. Genetic influences
    d. All of the above
21. Developmental disturbances include:
    a. Congenitally missing teeth
    b. Supernumerary teeth
    c. Malformed teeth
    d. All of the above

Match the following:

22. Malocclusion	A.	Deviated from a ideal normal occlusion
23. Distoclusion	B.	Term used for Class III malocclusion
24. Mesiocclusion	C.	Term used for Class II malocclusion

25. The most common radiograph taken for the orthodontic patient is the:
    a. FMX
    b. Bitewing
    c. Cephalometric

26. The orthodontist works very closely with the:
    a. Periodontist
    b. General dentist
    c. The Pedodontist
    d. The Prosthodontist
    e. B and C
    f. All the Above

Match the following:

27. Anterior tongue thrust	A.	The tongue thrusts out at the occlusal surfaces
28. Lateral tongue thrust	B.	Pressure of tongue causes bite to open Prevents permanent teeth from erupting
29. Fan tongue thrust	C.	Tongue rests on lingual surfaces of Maxillary teeth. Pressure causes teeth to move forward

Match the following terms:

30. Band	A.	Pressure applied to the jaw causing a distortion
	B.	A small device bonded to teeth to hold the archwire To the teeth
31. Braces	C.	Stainless steel ring attached to teeth, holds archwire To teeth (molars and bicuspids)
32. Bracket	D.	Light wire used to hold the archwire to bracket
33. Headgear	E.	An appliance used to retain teeth in desired position
34. Ligature tie	F.	Another term for fixed orthodontic appliances
35. Retainer	G.	An external orthodontic appliance that is used to alter growth and tooth movement

36. Fetal Molding occurs after a baby is born. Fetal molding can alter the shape of the jaws.
    a. First statement is true, the second is true and the third is false.
    b. Both statements are true
    c. Both statements are false
    d. The first statement is false, the second statement is true.

37. Habits can contribute to malalignment. Contributing factors may include sucking the thumb, tongue, or lip. These habits have long-term effects beyond the mixed dentition.
    a. First statement is true, the second is true and the third is false.
    b. All three statements are true
    c. All three statements are false
    d. The first statement is false, the second is false and the third is true.
38. The permanent mandibular second molars are the key to Dr. Angle's classification system for occlusion and malocclusion
    a. True
    b. False
39. The tooth numbering system used most often in dentistry in the United States is:
    a. Palmer notation system
    b. Universal numbering system
    c. Federation Dentaire Internationale system
40. In the universal numbering system the teeth are numbered 1 to 32 starting at the lower right quadrant.
    a. True
    b. False
41. Diseases can be transmitted in the dental office in a variety of ways
    a. Patient to patient
    b. Patient to dental team member
    c. Dental team to patient
    d. All of the above
42. CDC and OSHA are federal agencies that play a very important role in infection control for dental offices. CDC issues specific recommendations and OSHA is a regulatory agency that issues specific standards to protect the health of employees in the United States. The dental assistant should follow all of the guidelines and recommendations.
    a. The statements above are all true
    b. The statements above are all false
    c. The first and second statements are true the third is false
    d. The first two statements are false and the third is true.

43. The agency responsible for issuing guidelines for infection control in dental health care settings is:
    a. OSHA
    b. CDC
    c. Health and Human Services
44. The agency responsible for Bloodborne Pathogens Standard is
    a. CDC

b. Health and Human Services
c. OSHA

45. The concept that all human blood and body fluids, saliva included are to be treated as if they are known to be infectious is termed:
    a. Normal precautions
    b. Universal precautions
    c. Standard precautions
    d. Usual precautions
46. Dental personnel should wash their hands
    a. Before and after each patient
    b. Before placing latex gloves
    c. After removal of latex gloves
    d. If the integrity of the gloves are in question during a procedure, gloves are removed, hands are washed and new gloves are placed
    e. All of the above
47. Infection control measures that can prevent disease transmission include
    a. Instrument sterilization
    b. Surface barriers
    c. Hand washing
    d. Use of gloves, masks, glasses and immunization
    e. Pre-procedural mouth rinses for patients
    f. All of the above
48. Dental impressions should be disinfected as soon as possible upon removal from the patent's mouth.
    a. True
    b. False
49. Contaminated waste that has had contact with blood or other body fluids is disposed of in the general waste.
    a. True
    b. False
50. Infectious waste is contaminated waste that is capable of transmitting disease that includes sharps, blood and blood soaked materials.
    a. True
    b. False

MODULE 1: TEST BANK KEY

1. E
2. A
3. B
4. D
5. E
26. F
27. C
28. B
29. A
30. C

6. B
7. C
8. A
9. D
10. B
11. A
12. D
13. C
14. E
15. B
16. D
17. D
18. C
19. B
20. D
21. D
22. A
23. C
24. B
25. C
31. F
32. B
33. G
34. D
35. E
36. D
37. C
38. B
39. B
40. B
41. D
42. A
43. B
44. C
45. B
46. E
47. F
48. A
49. B
50. A

MODULE 2: TEST BANK

1. Modern orthodontic band features include
    a. Fine medical grade stainless steel
    b. Smooth surface and comfortable fit
    c. Permanent laser marking for size and tooth location
    d. Anatomical form corresponds to the morphology of tooth
    e. A and B

f. B and D
g. A, b, c, and d

2. The band is first seated on the _____aspect when being sized for mandibular premolars and molars.
   a. Buccal
   b. Lingual
   c. Mesial
   d. Distal

Match the following:

3. Separating pliers	A. High impact plastic with varied tip design preferred method for band seating
4. Band removing pliers	B. Sometimes used for holding a band and bracket combination, seating and assisting with crimping the band
5. Band pusher	C. Specialized plier to hold and place separators
6. Mechanical band seater	D. Specialize plier for crimping gingival aspect of band to improve fit
7. Bite stick	E. Hollow hexagonal handled instrument with solid serrated tip to push bands into place and assist in gross contouring
8. Howe pliers	F. Hammer device similar to band pusher
9. Band crimping pliers	G. Pliers with specialized tips with one tip with a plastic stop placed on occlusal cusp of tooth for leverage

10. Classifications of cements used for orthodontic band cementation are:
    a. Water based
    b. Resin-modified glass ionomer
    c. Resin based
    d. A and c
    e. A, b and c
11. Cementation armamentarium includes a mixing slab or pad, mixing spatula and a plastic instrument.
    a. True

b. False

12. Mixing orthodontic band cements varies considerably with the type of luting cement mixed. To increase mixing time a warm glass slab should be used.
    a. The first statement is false and the second is true
    b. The first statement is true and the second is false
    c. Both statements are true
    d. Both statements are false
13. Zinc phosphate is a water-based cement that is used for orthodontic band cementation. Since zinc phosphate is water-soluble and susceptible to dissolving it can lead to loss of cement and possible decalcification of enamel.
    a. The first statement is false and the second is true
    b. The first statement is true and the second is false
    c. Both statements are true
    d. Both statements are false
14. Documentation in the chart regarding size used for each banded tooth is not necessary when cementing bands.
    a. True
    b. False
15. The assistant should arrange all bands in order of cementation according to the orthodontist's preference. Each band is placed on a square of masking tape with the gingival side down.
    a. The first statement is false and the second is true
    b. The first statement is true and the second is false
    c. Both statements are true
    d. Both statements are false
16. During isolation for band cementation the assistant should place cotton rolls and dry the teeth using an air syringe.
    a. True
    b. False

17. With the advent of brackets the use of orthodontic bands has decreased. Despite the broad use of bonded brackets, there are a number of circumstances where bands remain a preferred option.
    a. The first statement is false and the second is true
    b. The first statement is true and the second is false
    c. Both statements are true
    d. Both statements are false

18. Orthodontic bands provide:
    a. Foundation for supporting passive appliances in the mixed dentition.
    b. A platform to solder appliances for arch expansion
    c. A only
    d. A and B
19. Orthodontic bands must fit the tooth and offer resistance to:
    a. Bite sticks
    b. Chewing forces
    c. Corrosion
    d. A, b and c
20. Today most orthodontic bands are fabricated using:
    a. Precious metal alloys
    b. Stainless steel
    c. Gold alloy
    d. A and B
    e. A, b and c
21. Bands must possess reduced sensitivity or allergy in the majority of patients.
    a. True
    b. False

Match the following terms:

22. Malleability	A. Material property that resists deforming with mastication, seating bands & tooth movement
23. Ductility	B. A materials ability to be compressed into a thin sheet by hammering or rolling without forming or fractures
24. Stiffness	C. Describes the property by which a metal or alloy fractures when continually bent.
25. Work hardening	D. Typically have the property of being able to be drawn or stretched without breakage to form thin wires and sheets.

26. Stainless steel orthodontic bands are:
    a. .005-.007 inches thick
    b. 1/2 inches tall
    c. A and b
27. Manufacturers offer preformed bands in progressive sizes. They are designed to fit both anterior and posterior maxillary and mandibular teeth.
    a. The first statement is true the second is false
    b. Both statements are true

c. Both statements are false
d. The first statement is false and the second is true

28. A well-fitted band encompasses the height of contour of the tooth with the occlusal aspects of the band located at the height of the marginal ridges both mesial and distal.
    a. True
    b. False
29. You should be able to remove the band easily with fingers prior to cementing.
    a. True
    b. False
30. Fitting the band also includes adapting the occlusal and gingival margin of the band.
    a. True
    b. False
31. Loose bands will lead to:
    a. Thick cement lines reducing retention
    b. Cement washout
    c. A only
    d. A and b
32. Initial sizing of bands is always done in the patient's mouth. The initial sizing of bands can occur utilizing the study model.
    a. The first statement is true and the second is false
    b. The first statement is false and the second is true
    c. Both statements are true
    d. Both statements are false
33. Bands not selected for use but have been placed in the mouth are sterilized and placed back into inventory.
    a. True
    b. False
34. When fitting bands the tendency is to select a final band, which is too small. This is common when the separation is insufficient and the band is forced through the contact
    a. The first statement is true and the second is false
    b. The first statement is false and the second is true
    c. Both statements are true
    d. Both statements are false

35. The orthodontic band is merely the foundation for a large number of different attachments or accessories. Orthodontists order bands with specific attachments or plain bands depending on the application required.
    a. The first statement is true and the second is false
    b. The first statement is false and the second is true
    c. Both statements are false
    d. Both statements are true

Match the following attachments that are available preassembled on the orthodontic band

36. Brackets	A. These attachments have pads that can be welded to individual bands in the office using an orthodontic spot welder
37. Lingual sheaths	B. Include single, double and triple tube configurations, headgear tube and rectangular slot combinations.
38. Cleats or seating lugs	C. Are welded to the lingual aspect of maxillary and mandibular molars
39. Buttons and hooks	D. Provide a positive seat for bite sticks

40. Water-based cements used for cementing orthodontic bands include:
    a. Zinc Phosphate
    b. Zinc polycarboxylate
    c. Glass Ionomer
    d. Resin-modified Glass Ionomer Cement
    e. All of the above
    f. A, b and c
41. _____ was developed in 1972 and releases fluoride.
    a. Zinc Phosphate
    b. Zinc polycarboxylate
    c. Glass Ionomer

42. Dental cements are:
    a. Hard
    b. Brittle
    c. Some are viscous materials that harden by light-curing
    d. All of the above

MODULE 2: TEST BANK ANSWER KEY

1. G
2. B
3. C
4. G
5. E
6. F
7. A
8. B
9. D
10. E
11. A
12. B

13. C
14. B
15. B
16. A
17. C
18. D
19. D
20. B
21. A
22. B
23. D
24. A
25. C
26. A
27. B
28. A
29. B
30. A
31. D
32. B
33. A
34. B
35. D
36. B
37. C
38. D
39. A
40. F
41. C
42. D

Module 3 Removal of Orthodontic Bands and Cement Removal with a Hand Instrument Final Exam

1. An orthodontic band is:
    a. A fixed appliance
    b. Stainless steel
    c. Used only on anterior teeth
    d. Generally used on posterior teeth

e. A, b and d
f. A, b and c

2. Orthodontic bands attach to the teeth circumferentially like a "ring" around the tooth. Seeing a band going around the tooth especially on the lingual aspect confirms it is a bracket and not a band.
   a. The first statement is false and the second is true
   b. The first statement is true and the second is false
   c. Both statements are true
   d. Both statements are false

3. Orthodontic bands can have a variety of components and attachments. Which of the following are an attachment or component of orthodontic bands?
   a. Bracket or tube that is welded to the band on the buccal
   b. Welded lingual attachments
   c. Rapid palatal expander that is directly welded to the lingual
   d. All of the above

4. Orthodontic brackets are made of stainless steel, translucent ceramic or acrylic.
   a. True
   b. False

5. The primary instrument used in the removal of orthodontic bands is the band removing plier.
   a. True
   b. False

6. The band-removing plier is designed to safely remove the band from the tooth with minimal pressure and discomfort to the patient.
   a. True
   b. False

7. The band-removing plier has a soft, padded portion that is designed to go on the occlusal aspect of the tooth. The other side has a sharp edge that is designed to grab the gingival edge of the band.
   a. The first statement is false and the second is true
   b. The first statement is true and the second is false
   c. Both statements are true
   d. Both statements are false

8. During band removal teeth are often sensitive and may be slightly mobile. In addition the soft tissue may be inflamed
    a. The first statement is false and the second is true
    b. The first statement is true and the second is false
    c. Both statements are true
    d. Both statements are false

9. Special care does not have to be taken when removing bands from teeth when they have restorations.
    a. True
    b. False

10. Patients with limited opening can make the use of band removing instruments more difficult because the access to the band is more limited.
    a. True
    b. False

11. Cements used to cement orthodontic bands include glass ionomer that releases fluoride to prevent caries around the band.
    a. True
    b. False

12. The cements used resemble the natural color of tooth structure making it more difficult to identify residual cement. The assistant should use an instrument to feel for residual cement since visual inspection may not be reliable.
    a. The first statement is false and the second is true
    b. The first statement is true and the second is false
    c. Both statements are true
    d. Both statements are false

13. The easiest surface to inspect is usually the lingual surface
    a. True
    b. False

14. Residual cement may be hidden. If it is not removed it could lead to periodontal problems.
    a. The first statement is false and the second is true
    b. The first statement is true and the second is false
    c. Both statements are true
    d. Both statements are false

15. Following band removal the residual subgingival cement is removed with a scaler.

a. True
b. False

16. Scalers generally have dull tips. Finger rests (fulcrums) are not necessary while removing residual cement.
    a. The first statement is false and the second is true
    b. The first statement is true and the second is false
    c. Both statements are true
    d. Both statements are false

17. Most cements will come off the enamel in large pieces.
    a. True
    b. False

18. Patients should wear safety glasses during cement removal to protect their eyes.
    a. True
    b. False

19. Our primary focus during band removal and residual cement removal is the patient's comfort and safety
    a. True
    b. False

20. If cement cannot be removed with a scaler the assistant may use the high speed handpiece with a bur.
    a. True
    b. False

MODULE 3: TEST BANK ANSWER KEY

1. E
2. B
3. D
4. A
5. A

6. A
7. C
8. C
9. B
10. A
11. A
12. C
13. B
14. C
15. A
16. D
17. A
18. A
19. A
20. B

Module 4 WRITTEN EXAMINATION

Please select the best answer for each of the following questions.

1. A patient history is always necessary before coronal polishing because patients might have or be:
    a. Immunosuppressed
    b. Respiratory or pulmonary diseases
    c. Allergies
    d. All of the above

2. The following ingredient should not be included in polishing paste when performing a coronal polish prior to placing etchant:
    a. Fluoride
    b. Silicon dioxide
    c. Glycerin
    d. Pumice

3. Successful bonding technique is an absolute necessity in orthodontics.
    a. True
    b. False

4. The goal is to create a thin surface layer of bonded resin on the tooth that is tightly bound and sealed.
    a. True
    b. False

5. No option that has yet been tested is as efficient and as effective as phosphoric acid for etching tooth structure.
    a. True
    b. False

6. The phosphoric acid strength commonly used in orthodontics is 50%.
    a. True
    b. False

7. Prophylaxis of the enamel surfaces removes plaque, food particles and surface minerals.
    a. True
    b. False

8. The Wharton's duct opens adjacent to the maxillary second molars.
    a. True
    b. False

9. The Stenson's duct opens under the tongue adjacent to the lower anterior teeth:
    a. True
    b. False

10. The following are major salivary glands found in the oral cavity *except* the:
    a. Sublingual gland
    b. Parotid gland
    c. Lachrymal gland
    d. Submandibular gland

11. The vestibule lies between the tongue and the mandible:

a. True
b. False

12. The parotid gland is more of an isolation concern when preparing teeth for bracket placement on tooth number 3 and 14. If a dri-aid or dry angle is used it should not be an issue.
    a. Both statements are true
    b. Both statements are false
    c. The first statement is true the second is false
    d. The first statement is false the second is true

13. Bond failures are directly related to:
    a. Bond strengths
    b. When any of the steps are missed or inadequately followed
    c. Brackets dislodging prematurely
    d. All of the above

14. After tooth surfaces are polished plaque forms within minutes.
    a. True
    b. False

15. Buonocore observed adhesion to metal surfaces by paints improved when acids were used to etch thus increasing strength of bond in:
    a. 1940
    b. 1945
    c. 1950
    d. 1955

16. When using acid etch the operator should wear safety glasses and gloves. The patient should wear safety glasses and be allowed to lick the etchant.
    a. Both statements are true
    b. Both statements are false
    c. The first statement is true and the second is false
    d. The first statement is false and the second is true.

17. Important factors related to effective bonding of brackets include understanding processes and ability to maintain good isolation. The patient's cooperation and good access into the mouth also determines success of bonding brackets.
    a. Both statements are false

b. The first statement is true the second is false.
c. The first statement is false the second is true.
d. Both statements are true.

18. Methods of isolation prior to bracket placement include:
    a. Cheek retractors and cotton rolls
    b. Tongue guards and saliva ejectors
    c. Dry angles
    d. All of the above
    e. A and B only
19. During the etching process the etchant comes in contact with the eyes, the first aid measures should include rinsing with copious amounts of water for:
    a. Five minutes
    b. Ten minutes
    c. Fifteen minutes
    d. Twenty minutes

20. The etchant used for etching enamel in orthodontics include all of the following except:
    1. 50% Phosphoric Acid
    2. 10% Phosphoric Acid
    3. 37% Phosphoric Acid
    4. 10% Hydrofluoric Acid
    5. Plastic conditioner
        a. Only number 4
        b. 1, 2, and 3
        c. 2, 3, and 4
        d. 1, 2, 3, 4, and 5
        e. 1, 2, 4, and 5

21. You have just bonded a bracket on tooth number 30 and when checked you determine the bracket is easily dislodged from the tooth. Which of the following are likely causes:
    1. Saliva contamination occurred following the etching procedure
    2. The pumice used to clean the tooth surface contained fluoride
    3. The pumice you used contained glycerin liquid
    4. The light-curing unit was not producing enough light
        a. 1, 2, 3 and 4
        b. 1, 2, and 4
        c. 2, 3, and 4
        d. 3 and 4

e. 1, 3 and 4

22. If a tooth becomes contaminated after etchant removal, but before bonding you would proceed with bonding a little saliva should not be a problem.
    a. True
    b. False

23. After acid etching the tooth an appropriate amount of time the tooth surface should appear:
    1. Chalky
    2. Glossy
    3. Dull
    4. Frosty-white
    5. Matte
        a. 1 only
        b. 1, 2 and 3
        c. 1, 3, 4, and 5
        d. 2, 4, and 5

24. For optimal cured bonded brackets the curing-light tip is placed:
    a. Should contact the band/bonding material
    b. Should contact the bonding material
    c. 3-5 mm from the bonding material
    d. 1-2 mm from the bonding material

25. The curing light/shield characteristics include which of the following?
    1. Shield is surface disinfected after use
    2. Used to harden or cure dental materials
    3. Hardened material can remain on the tip with no adverse effects
    4. Hardened material must be removed from tip regularly
    5. During use the curing light should be protected with a plastic barrier
        a. 1, 2, and 4
        b. 1, 2, 4 and 5
        c. 1, 2, 3, and 4

26. Universal precautions must be used in all patient care, including the bonding of brackets. Under universal precautions, saliva of all patients is considered potentially infectious for:
    1. HIV
    2. HBV
    3. Other blood-borne pathogens
        a. 1 only
        b. 1 and 2
        c. 1, 2, and 3
        d. None of the above

27. One guideline for the use of protective masks include that they should be changed every third patient. Additionally the mask should contact the mouth when worn.
    a. Both statements are false
    b. Both statements are true
    c. The first statement is true the second is false
    d. The first statement is false and the second is true.

28. Face shields provide adequate eye protection. They also provide enough protection so that a mask need not be worn.
    a. The first statement is true the second is false
    b. The first statement is false and the second is true.
    c. Both statements are false
    d. Both statements are true

29. When bonding material is placed it should be:
    1. Handled carefully and prepared according to manufacturer's directions
    2. Material is evenly applied without air bubbles/voids
    3. Polymerization time is carefully monitored.
    4. Confined to the entire facial/buccal surface of the tooth
        a. 1, 2, and 4
        b. 1, 2, and 3
        c. 1, 2, 3 and 4
        d. 1, 3, and 4
        e. 2, 3, and 4

30. What type of gloves should be worn when opening drawers during dental procedures?
    a. Sterile gloves
    b. Utility gloves
    c. Over-gloves
    d. Powder-free latex gloves

31. An example of PPE is:
    a. Dental dam
    b. Gloves
    c. Suction tip
    d. Patient bib

32. When bonding brackets to porcelain the surface is prepared in the following way:
    1. Removal of glaze
    2. Pumice surface
    3. Use of 10% Hydrofluoric acid

4. Micro-etch
5. Porcelain primer
   a. 1, 2, 3 and 5
   b. 1, 2, and 3
   c. 1, 3, and 4
   d. 1, 3, and 5

33. Self-etching primers are designed to streamline the bonding steps. Self-etching primers combine the etching and bonding materials in a single solution.
   a. The first statement is true the second is false
   b. The first statement is false and the second is true.
   c. Both statements are false
   d. Both statements are true

34. Contaminated waste is waste that has been in contact with blood or other body fluids:
   a. Appropriate PPE should be worn while handling
   b. Includes used barriers and patient napkins
   c. A and B
   d. B only

35. When should utility gloves be worn?
   a. While taking out the trash
   b. While disinfecting the treatment area
   c. While preparing instruments for sterilization
   d. B and C

36. Gold Crowns require special preparation to bond brackets to them. First the surface must be prepared by the orthodontic assistant with a carbide or diamond bur or micro-etcher.
   a. The first statement is true the second is false
   b. The first statement is false and the second is true.
   c. Both statements are false
   d. Both statements are true

37. The appropriate steps in order for gold crown preparation include:
   a. Pumice, bur prep, metal primer, bonding paste
   b. Micro-etch or bur prep, metal primer, bonding agent, bonding paste
   c. Micro-etch or bur prep, bonding paste

38. Hyper-mineralized teeth have an excessive layer on the enamel due to:
   1. Tooth is located near the salivary gland ducts
   2. Etching time remains the same
   3. Using hydrofluoric acid etching time must be increased
   4. Using phosphoric acid etching time should be at least 60 seconds

a. 1 and 4
b. 1 and 2
c. 1 and 3

39. For patient protection during the etching process the location of the etchant should be monitored at all times. If the etchant comes in contact with oral soft tissue it can cause injury.
    a. The first statement is false and the second is true
    b. Both statements are false
    c. Both statements are true
    d. The first statement is true and the second is false

40. If the etchant comes in contact with the oral soft tissue the tissue should be rinsed for:
    a. 1-2 minutes
    b. 5 minutes
    c. 10 minutes
    d. 15 minutes

41. Additional measures for the patient's protection includes the use of safety glasses to avoid eye exposure.
    a. True
    b. False
    c. Patient doesn't need to wear glasses but should know where the eye wash station is located and know how to operate it.

42. Isolation should include all of the following except:
    1. Protection of soft and hard tissues.
    2. Prevention of moisture contamination.
    3. Cotton rolls should be effective for all patients in the retraction of cheeks and lips.
    4. Select the cotton role lengths that will best fit and remain in the vestibule.
    5. Dry angles/dri-aids can assist with moisture control from Wharton's ducts.
        a. 5, 3 and 2
        b. 5 and 3
        c. 5, 4, 3 and 2

d. 5, 3 and 1

43. Cheek retractors are available to aid in retraction of the cheeks and lips. Tongue guards and saliva ejectors also provide additional moisture control.
    a. The first statement is true the second is false
    b. The first statement is false and the second is true.
    c. Both statements are false
    d. Both statements are true

44. Occasionally despite following procedures an etched and dried enamel surface may become contaminated by saliva prior to placement of the bonding agent. If this occurs the next step would be:
    a. Bond and continue with procedure
    b. Etch the surface again. Etching for 30 seconds.
    c. Contamination must be corrected, etch for 10-15 seconds
    d. Clean the enamel surface with pumice, etch for 15 seconds and continue with procedure.

45. OSHA is the federal regulatory agency that ensures the safety and health of America's workers.
    a. True
    b. False

46. Hazardous chemical is defined as any chemical that can cause a physical or a health hazard.
    a. True
    b. False

47. Primary enamel structure is organized, as is the enamel of the permanent adult tooth. The primary enamel requires the same amount of time for etching to provide adequate bond strength.
    a. The first statement is true the second is false
    b. The first statement is false and the second is true.
    c. Both statements are false
    d. Both statements are true

48. At the end of the rinse cycle (after etching) before air-drying the teeth and the oral cavity should be inspected for residual etchant material. Removing the etchant at this time can eliminate prolonged contact and subsequent chemical irritation.
    a. Both statements are false
    b. Both statements are true
    c. The first statement is true the second is false
    d. The first statement is false and the second is true.

49. The following is/are true regarding hand washing:
    1. Hands are washed prior to glove placement
    2. Hands are washed immediately after glove removal
    3. Liquid soap should be used
    4. Bar soap may be used
    5. Hands should be completely dry before placement of gloves
        a. 1, 2, 3, 4 and 5
        b. 1, 2, and 5
        c. 1, 2, 3 and 5
        d. 1, 2, 4, and 5

50. Etchant material has potential health effects to the skin, upon ingestion or inhalation. Repeated contact to the skin may lead to burns and rashes.
    a. Both statements are false
    b. Both statements are true
    c. The first statement is true the second is false
    d. The first statement is false and the second is true.

MODULE 4: TEST BANK ANSWER KEY

1. D
2. A
3. A
4. A
5. B
6. A
7. B
8. B

9. B
10. C
11.B
12.A
13.D
14. B
15. D
16. C
17.D
18.D
19.C
20. E
21. B
22. C
23. C
24. D
25. B

26. C
27.A
28.A
29.B
30.C
31.B
32.D
33.D
34.C

35.D
36.A
37.B
38.A
39.C
40.D
41.A
42.B
43.D
44.C
45.A
46.A
47.D
48.B
49.C
50.B

Module 5 Written Examination

1) Brackets can be manufactured using composites, titanium, and stainless steel.
    a. T
    b. F
2) Bracket Cements are composed of
    a. Resin binding agents
    b. Water
    c. Inorganic fillers
    d. Tar

e. A and b
f. B and c
g. A and C
h. All of the above

3) Bracket cements polymerization is initiated with:
   a. A catalyst and accelerators
   b. Photons of light
   c. Heat
   d. Cold
   e. A and b
   f. B and c
   g. A,b,c,
   h. A,b,c,d
4) Light curing composites require the use of a curing unit that uses heat to polymerize the bonding cement.
   a. T
   b. F
5) Self cured composites cure by initiation of a chemical reaction. This reaction hardens the material in minutes with up to 90% of the strength in the first 2 minutes.
   a. Both statements are false
   b. First statement is true and the second statement is false
   c. The first statement is false the second statement is true
   d. Both statements are true
6) Brackets consist of the following components:
   a. Bracket base
   b. Retention mesh
   c. Band
   d. Bracket Slot
   e. Tie wings
   f. A,b,c
   g. B,c,d
   h. A,b,d,e
7) The bracket slot is where the archwire is placed.
   a. T
   b. F
8) Bonding cements can be placed on a mixing pad and left uncovered as these materials are only sensitive to high intensity lights.
   a. T

b. F

9) Indirect bracket bonding is a technique used by al orthodontists. This method requires more time to place brackets then direct bonding.
   a. Both statements are false
   b. First statement is true and the second statement is false
   c. The first statement is false the second statement is true
   d. Both statements are true

10) Indirect bonding has the following advantages;
   a. Reduced chairside time for the doctor
   b. Less laboratory time
   c. Shortened appointment for patient for initial bonding
   d. Potentially more accurate bracket positioning.
   e. A,b,c
   f. A,c,d
   g. A,b,c,d

11) Indirect bonding has some disadvantages:
   a. More laboratory time with multiple steps to prepare bonding trays
   b. More Chairside time for the doctor
   c. Distortions in the model may introduce bracket bonding failures
   d. A and b
   e. A and c
   f. A,b,c

12) Brackets are designed with a mesh material on the base. This material provides chemical retention of the bracket cement to the bracket.
   a. Both statements are false
   b. First statement is true and the second statement is false
   c. The first statement is false the second statement is true
   d. Both statements are true

13) The dental practice act allows dental assistants to utilize high speed burs and hand pieces to remove bracket cement.
   a. T
   b. F

14) The following instruments are routinely used for removal of orthodontic brackets:

a. Pin cutters
b. Bracket removing pliers
c. Distal end cutters
d. Band removing pliers
e. A and b
f. A and c
g. C and d

15) When removing a full set of brackets, the archwires are always removed first.
a. T
b. F

16) Light cured bracket cements require 5 seconds for a full cure when using a conventional halogen curing light.
a. T
b. F

17) Ceramic brackets typically require longer curing times.
a. T
b. F

18) Brackets placement on the tooth is not critical as the wires are usually bent to place the tooth in the correct positions.
a. T
b. F

19) Self ligating brackets were designed with a door or other mechanism to hold the archwire. Though these mechanisms are convenient for the assistant to close the components are susceptible to plaque buildup when compared to ligated brackets.
a. Both statements are false
b. First statement is true and the second statement is false
c. The first statement is false the second statement is true
d. Both statements are true

20) Brackets provide the force in orthodontics that moves the teeth.
a. T
b. F

Module 5 Written Examination Key

1. T
2. G
3. G
4. B
5. D
6. H
7. A
8. B

9. A
10. F
11. E
12. B
13. B
14. E
15. B
16. B
17. B
18. B
19. B
20. B

MODULE 6 ARCHWIRE PLACEMENT AND LIGATION TEST BANK

1. Orthodontic archwires serve as the main force system and work in concert with orthodontic brackets.
    a. True
    b. False
2. The archwire discussion can be a complex issue because of:
    1. Alloy types
    2. Shapes
    3. Sizes
    4. Forces
        a. 1 and 2
        b. 2 and 3
        c. 1, 3 and 4
        d. 3 and 4

e. 1, 2, 3 and 4

3. An ideal arch wire would have
   1. High strength
   2. Low strength
   3. Low stiffness
   4. High stiffness
   5. A long range of action
   6. High formability
   7. Low formability
      a. 2, 3, 5 and 7
      b. 1, 4, 5 and 6
      c. 1, 3, 5, and 6
      d. 2, 4, 5 and 7
4. There is no ideal archwire. For this reason there are different sizes and wire materials that are used for different purposes.
   a. Both statements are false
   b. Both statements are true
   c. The first statement is true the second is false
   d. The first statement is false and the second is true
5. The original archwire was composed of precious metal alloys including gold until the 1960s when stainless was introduced.
   a. True
   b. False

6. Common archwires may be comprised of
   1. Stainless steel
   2. Cobalt chromium
   3. Nickel titanium
   4. Beta titanium
      a. 1, 2, 3, and 4
      b. 1, 2, and 3
7. Introduction of newer wires has allowed significant clinical changes in orthodontic archwire progression and use. Newer wires are left in the mouth for shorter periods of time for the desired effect.
   a. Both statements are false
   b. Both statements are true
   c. The first statement is true the second is false
   d. The first statement is false and the second is true

Match the following stage of treatment with the type of archwire used during this stage:

8. Initial Stages B A. Stainless steel, beta titanium or large dimension nickel titanium
9. Intermediate stages A B. Small diameter nickel titanium, multi-strand Stainless steel or multi-looped stainless steel
10. Finishing stages C C. Sectioning the stainless steel or titanium molybdenum alloys and light wires and multi-strand Stainless steel

Match the following stages with desired treatment

11. Initial stages B A. Inter-arch corrections while providing stability to the arch form
12. Intermediate stages A B. Leveling and alignment
13. Finishing stages C C. Settling of occlusion following space closure
14. Archwires may be:
    a. Round
    b. Triangular
    c. Rectangular
    d. Square
    e. All of the above
    f. A, c and d

Match the following

15. Stainless steel round wire B A. 0.016 x 0 .022ss
16. Stainless steel square wire C B. 0.016ss
17. Stainless steel rectangular wire A C. 0.016 x 0.016ss
18. Armamentarium for placement of the archwire includes:
    1. Mouth mirror
    2. Weingart or utility pliers
    3. Distal end cutters
    4. Mathieu pliers or hemostat
        a. 2, 3 and 4
        b. 1, 2 and 3
        c. 1, 2 3 and 4

19. Ligation is the process of securing the wire to the orthodontic fixed appliance. There are several systems/methods.

a. Both statements are false
b. Both statements are true
c. The first statement is true the second is false
d. The first statement is false and the second is true

20. The most common methods of ligation are:
    a. Elastic modules
    b. Steel ligatures
    c. Self-ligating bands
    d. A and b
    e. A, b, and c
21. Elastic modules stretch thereby applying less force than wire ties and are less likely to debond brackets. The elastic modules do not attract more plaque and are changed less frequently than steel ligature ties.
    a. Both statements are false
    b. Both statements are true
    c. The first statement is true the second is false
    d. The first statement is false and the second is true
22. The elastic modules come in a variety of colors and appeal to the younger patients. They also deteriorate under intraoral conditions thus shorter periods of continuous force.
    a. Both statements are false
    b. Both statements are true
    c. The first statement is true the second is false
    d. The first statement is false and the second is true
23. Several types of ligature-less, self-ligation, high friction brackets have become available in recent years.
    a. True
    b. False

24. The self-ligating brackets are increasing in popularity
    a. True
    b. False
25. Self-ligating brackets may off advantages of
    a. Saving time
    b. Reducing friction
    c. Increasing friction
    d. Probability of increasing patient comfort
    e. Probability of decreasing patient comfort
    f. A, b and c
    g. A, b and d

Module 6 Written Examination Key

1. A
2. E
3. C
4. B
5. B
6. A
7. C
8. A
9. A

10.C
11.B
12.A
13.C
14.F
15.B
16.C
17.A
18.C
19.B
20.E
21.C
22.B
23.B
24.A
25.G

ULTRASONIC SCALING FOR CEMENT REMOVAL FINAL EXAMINATION

1. Which of the following would be considered a contraindication of using an ultrasonic scaler?
   a. Pregnancy
   b. Vitamin deficiency
   c. Headache
   d. Pacemaker

2. Which of the following would be considered the best position of utilizing a fulcrum during ultrasonic scaling?
   a. The tongue
   b. The lip
   c. The vestibule

d. The adjacent tooth

3. Which is the most commonly used and preferred ultrasonic tip to use for orthodontic cement removal?
   a. Chisel
   b. Perio
   c. Beavertail
   d. None of the above

4. At what angle range should the operator use for tip placement in scaling off cement?
   a. 18 – 25 degrees
   b. 20 – 30 degrees
   c. 10 – 30 degrees
   d. 15 – 30 degrees

5. Which stroke pattern is to be used with the ultrasonic tip in removing cement?
   a. Up and down
   b. Side to side

6. Which term best describes the amount of water to be used as a coolant for the ultrasonic handpiece?
   a. Stream
   b. Halo
   c. Flood
   d. Maximum

7. When removing orthodontic cement, the ultrasonic tip should be placed where?
   a. On the enamel of the tooth
   b. On the band
   c. On the bracket
   d. On the cement

8. The tip of the ultrasonic scaler is always to reach under the sulcus.
   a. True
   b. False

9. The area most missed by the use of an ultrasonic scaler for cement removal is where?
   a. The distobuccal and distolingual surfaces of posterior teeth
   b. The distobuccal and distolingual surfaces of anterior teeth
   c. The mesiobuccal and mesiolingual surfaces of posterior teeth
   d. None of the above

10. What device will provide the maximum control /prevention measure during the spread of contaminated mist when using the ultrasonic handpiece?

a. Saliva ejector
b. Rubber dam
c. HVE
d. Patient bib

11. Using correct water flow and speed settings will _____ the potential for trauma during ultrasonic cement removal.
    a. Increase
    b. Decrease
    c. Not change

12. The use of _____ during scaling procedures will help reduce the level of bacterial contamination in the operatory?
    a. Surface barriers
    b. Alcohol
    c. Piezoelectric scalers
    d. None of the above

13. Which scaling device is made up of rods of ferromagnetic material which when magnetized create an elliptical motion of the tip?
    a. Magnetostrictive
    b. Piezoelectric

14. Which scaling device alternates electrical currents resulting in a linear or straight line motion of the tip?
    a. Magnetostrictive
    b. Piezoelectric

15. Demineralized areas of the teeth may lose areas of remineralization due to _____of the ultrasonic?
    a. Vibration
    b. Water
    c. Pressure
    d. Air

16. Under what level of supervision may a dental assistant perform ultrasonic scaling for cement removal?
    a. Direct
    b. General
    c. None of the above

17. Which edge of the ultrasonic tip should the operator use?
    a. Dull or flat
    b. Sharp or point

c. None of the above

18. The correct operator zone for a right-handed operator would be:
    a. 6:00 – 10:00
    b. 7:00 – 12:00
    c. 12:00 – 5:00
    d. 12:00 – 4:00

19. The operator should always use _____ vision when using an ultrasonic scaler?
    a. Indirect
    b. Direct

20. Placing the patient in the _____ position will increase operator fatigue?
    a. Supine
    b. Sub-supine
    c. Semi- supine

Module 7 Written Examination Key

1. D
2. D
3. C
4. C
5. B
6. B
7. D

8. B
9. A
10. C
11. B
12. A
13. A
14. B
15. A
16. C
17. A
18. B
19. B
20. C

Course Grade Form

Students must achieve a minimum of 75% for any practical or clinical examination.

Students must achieve a minimum of 75% on the written examination to pass the course.

Students will receive an average score derived from the practical and clinical examinations.

The final course grade is derived from adding the written examination percentage and the practical/clinical examinations to determine the final score.

Module 2	**Score**
Laboratory Session 1 Practical examination	
Laboratory Session 2 Practical examination	
Preclinical Session 1 Clinical examination	
Clinical Session 1 Clinical examination	
Module 3	
Laboratory Session 1 Practical examination	
Preclinical session 1 Practical examination	
Clinical Session 1 Clinical examination	
Module 4	
Laboratory Session 1 Practical examination	
Laboratory Session 2 Practical examination	
Preclinical Session 1 Practical examination	
Clinical Session 1 Clinical examination	

Module 5	**Score**
Laboratory Session 1 Practical examination	
Laboratory Session 2 Practical examination	
Preclinical Session 1 Clinical examination	
Clinical Session 1 Clinical examination	
Module 6	
Laboratory Session 1 Practical examination	
Clinical Session 1 Clinical examination	
Module 7	
Laboratory Session 1 Practical examination	
Clinical Session 1 Clinical examination	
Clinical Session 2 Clinical examination	

Clinical and Practical Examination Average Score: _____

Clinical and Practical Examination Average Score: _____
Written Examination Final Score: _____
Written and Clinical/Practical Average: _____

California Association of Orthodontists
Orthodontic Assistant Permit Course

Final Grade Key

90%-100%	A	Pass	Excellent
85%-89%	B	Pass	Good
75%-84%	C	Pass	Acceptable
0%- 74%		Fail	

Final Score _____
Final Grade _____

Student Signature: _____ Date _____
Instructor Signature: _____ Date _____