BAKER COLLEGE
STUDENT LEARNING OUTCOMES

DHY1350 Dental Materials

2 Semester Hours

Student Learning Outcomes and Enabling Objectives

1. Identify the agencies responsible for the selection of dental materials.
2. Define force, stress, and strain and why it is important in the selection of dental materials.
3. Describe the effects of moisture and acidity on dental materials.
4. List the biological considerations in the choice and use of a material for dental restorations. (microleakage, temperature, galvanism, and toxic affects).
5. Discuss the property of retention and the influence on adhesion and bonding.
6. Define biocompatibility and discuss how materials may cause adverse reactions to living tissues.
7. Describe tooth color in terms of hue, value and chroma.
8. List the states of matter and the characteristics of each state.
9. Describe solids in the following terms (density, hardness, ultimate strength, elasticity, stiffness, modulus of elasticity, proportional limit, resilience, toughness, ductility, and malleability).
10. Describe liquids and explain its relation to the viscosity of a dental material.
11. Compare direct to indirect restorations.
12. Compare bonding to adhesion.
13. Describe how wetting influences retention of restorations.
14. Describe the process of percolation.

Sealants:

15. Discuss the effects of acid etching.
16. Compare and contrast the different types of sealants available.
17. Explain the purpose of placing sealants.
18. Identify indications and contra-indications for sealant placement.
19. Identify the materials and their considerations for application.
20. Demonstrate the technique for placement of light cured sealants.
21. Assess how the use of acid-etching creates micromechanical bonding.

Dental Dam:

22. Explain the indications for usage of the dental dam.
23. Demonstrate the technique for placement and removal of the rubber dam.

Impression Materials:

24. Define colloid, sol, and gel as it relates to hydrocolloid impression material.
25. Assess the properties, incorporating advantages and disadvantages, of reversible and irreversible impression materials.

26. Explain procedures for the usage of hydrocolloids and rubber impression materials.
27. Explain syneresis and imbibition as it relates to impression materials.
28. List the main ingredients of reversible and irreversible impression materials.
29. Explain the appropriateness of using custom vs. stock trays, utility rope, and metal vs. plastic trays.
30. Explain why a variety of viscosities are available for the taking of rubber impression materials.
31. Demonstrate taking, disinfecting, and pouring an irreversible hydrocolloid impression.

Model and Die Materials:

32. Compare and contrast study models, working casts, and dies.
33. Assess the types of gypsum, including manufacturing, structure, properties, and usage.
34. Explain factors the influence the setting reaction of gypsum.
35. Fabricate a study model.

Polymers for Prosthetics:

36. Explain the various types of polymerization and their properties.
37. Identify uses of polymers as acrylic resins, denture liners, teeth, etc.
38. Compare and contrast porcelain teeth to acrylic teeth used in dentures.
39. Explain how to repair a denture.
40. Explain how to care for a denture.

Esthetic Restorative Materials:

41. Assess self and light cured composite restorative materials.
42. Explain which composites are considered for direct placement.
43. Assess the composition of the composite restorative materials and the difference in wear and appearance according to particle size.
44. Assess the use of composite restorative materials for anterior and posterior teeth.
45. Evaluate the importance of using of acid etching to improve retention.
46. Assess veneers, including composition, usage, advantages and disadvantages, and cementation.
47. Assess the variety of porcelain crowns, including composition, usage, advantages and disadvantages, and cementation.

Cements, Bases, Liners:

48. Assess the usage of varnishes and cements.
49. Demonstrate the mixing of cements for usage as a base and for luting.
50. List the composition, properties, and advantages and disadvantages of using zinc phosphate, polycarboxylates, glass ionomers, hybrid ionomers, resin based cements, zinc oxide eugenol cements, and reinforced zinc oxide eugenol cements.
51. Compare and contrast high-strength and low-strength bases.
52. Compare and contrast the retention (adhesion and mechanical bonding) of cements.
53. Compare and contrast the types of cements used for temporary restorations, intermediate restorations, and final restorations.
54. Demonstrate mixing, placing and removing periodontal dressings on a typodont.

Temporaries:

55. Temporarily cement and remove temporary crowns or bands and removal of excess cement.

56. Place and remove intra-coronal temporary sedative dressings.

Whitening and Bleaching Teeth:

57. Assess the appropriateness of bleaching vital and devital teeth.
58. Apply or dispense bleaching products and fabricate whitening trays from alginate impressions.

Dental Amalgam:

59. Explain the controversy over amalgam and the ADA position on its usage as a restorative material.
60. Define amalgamation, trituration, and condensation.
61. Explain how proportions of copper, zinc, and silver affect the quality of amalgam alloys.
62. Identify the different phases involved in the setting reaction of dental amalgam.
63. Assess creep and the effect it has upon the amalgam restoration.
64. Assess variations of proportions of the mercury-alloy ratio.
65. Explain the results of over-triturated, under-triturated, and properly triturated masses of amalgam.
66. Explain how tarnish and corrosion influence the amalgam restoration.
67. Demonstrate the application and removal of a matrix retainer, band, and wedge.

Finishing and Polishing:

68. Assess the rationale for polishing a restoration
69. Assess when and why it is appropriate to use abrasive agents for finishing and polishing restorations.
70. Describe marginal irregularities of amalgam that impact the periodontium.
71. Explain how margination enhances the restoration.
72. Describe the difference between finishing and polishing restorations.
73. Demonstrate the technique used to polish amalgam restorations.

Miscellaneous Materials:

74. List with the types of waxes used in the dental profession.
75. Describe the properties of noble and base metals.
76. Prepare a research project in a group/team, utilizing the Internet and/or library, on a course related topic.

These SLOs are not approved for experiential credit.

Effective: Fall 2017