

Dental Equipment and Procedures

PEIMS Code: N1302130

Abbreviation: DENTEP

Grade Level(s): 10-12

Award of Credit: 1.0

State Approved Innovative Course

- Districts must have local board approval to implement innovative courses.
- In accordance with Texas Administrative Code (TAC) §74.27, school districts must provide instruction in all essential knowledge and skills identified in this innovative course.
- Innovative courses may only satisfy elective credit toward graduation requirements.
- Please refer to [TAC §74.13](#) for guidance on endorsements.

Course Description:

This course provides the foundational content knowledge, skills, and hands-on practice of essential dental assisting skills and chairside dental assisting functions. Topics include examination and assessment procedures, equipment and materials, instrumentation techniques, and treatment procedures and skills performed by a clinical dental assistant during restorative procedures. The hands-on practice will prepare students for clinical experiences.

Essential Knowledge and Skills:

- (a) General Requirements. This course is recommended for students in grades 10-12. Recommended prerequisites: Introduction to Dental Science and Dental Anatomy and Physiology. Students shall be awarded one credit for successful completion of this course.
- (b) Introduction.
 - (1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
 - (2) The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.
 - (3) Dental Equipment and Procedures builds upon the exploration of concepts in Dental Anatomy and Physiology. This course provides the foundational content and hands-on practice of essential dental assisting skills and chairside dental assisting functions. Topics include examination and assessment procedures, equipment and materials, instrumentation techniques, and treatment procedures and skills performed by a clinical dental assistant during restorative procedures. The hands-on practice will prepare students for clinical externship experiences in the dental practicum course.

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- (4) To pursue a career in the health science industry, students should learn to reason, think critically, make decisions, solve problems, and communicate effectively. Students should recognize that quality health care depends on the ability to work well with others.
 - (5) The health science industry is comprised of diagnostic, therapeutic, health informatics, support services, and biotechnology research and development systems that function individually and collaboratively to provide comprehensive health care. Students should identify the employment opportunities, technology, and safety requirements of each system. Students are expected to learn the knowledge and skills necessary to pursue a health science career through further education and employment.
 - (6) Professional integrity in the health science industry is dependent on acceptance of ethical and legal responsibilities. Students are expected to employ ethical and legal responsibilities, recognize limitations, and understand the implications of their actions.
 - (7) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.
 - (8) Statements that contain the word “including” reference content that must be mastered, while those containing the phrase “such as” reference content that is intended as possible illustrative examples.
- (c) Knowledge and Skills.
- (1) The student demonstrates professional and ethical standards and employability skills as required by the healthcare industry. The student is expected to:
 - (A) demonstrate verbal and non-verbal communication in a clear, concise, and effective manner;
 - (B) cooperate, contribute, and collaborate as a member of a team;
 - (C) demonstrate professionalism, attention to detail, and problem-solving skills; and
 - (D) explain the importance of the Health Insurance Portability and Accountability Act (HIPAA) and patient privacy and confidentiality.
 - (2) The student analyzes and records patient chart information. The student is expected to:
 - (A) explain and demonstrate dental charting and the types of numbering systems used;
 - (B) identify the symbols and colors used to represent conditions present in the oral cavity;
 - (C) explain and demonstrate the methods of charting the permanent and deciduous teeth; and
 - (D) identify the different cavity classifications.
 - (3) The student demonstrates the sterilization of instruments using proper equipment for infection control. The student is expected to:
 - (A) explain and demonstrate the proper steps for cleaning, sterilizing and disinfecting instruments and equipment;

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- (B) explain and demonstrate the steps required for inspection of instruments and equipment;
 - (C) describe and demonstrate proper sterilization packaging and techniques;
 - (D) describe accepted storage of instruments and delivery protocols; and
 - (E) describe a quality assurance program.
- (4) The student assembles tray setups and materials for designated general and specialty procedures. The student is expected to:
- (A) explain and demonstrate the grasps, positions, and transfer of instruments for a given procedure with emphasis on asepsis;
 - (B) distinguish the parts of an instrument and describe how instruments are identified;
 - (C) identify the categories and functions of dental burs and diamonds;
 - (D) classify the types and functions of abrasives;
 - (E) determine the various types of handpieces and attachments; and
 - (F) explain the types of tray systems and color-coding systems.
- (5) The student constructs the process for the preparation of patient care. Students will be expected to:
- (A) assist the patient in completing the patient history;
 - (B) review and update the medical and dental history of the patient and identify conditions that may affect the patient's dental treatment;
 - (C) perform and assist the dentist in an intra and extra oral examination;
 - (D) measure and record vital signs of the patient, including temperature, pulse, respiration, and blood pressure;
 - (E) interpret vital signs to determine if the signs are abnormal according to the recommended guidelines set by the current standard of care; and
 - (F) document treatment rendered and planned on the patient chart.
- (6) The student demonstrates how to maintain a clear field of vision including isolation techniques. The student is expected to:
- (A) analyze a rationale for maintaining the operating field;
 - (B) explain and apply the steps in maintaining an operating field;
 - (C) explain and apply the steps in illuminating an operating field;
 - (D) explain and apply the steps in evacuating an operating field; and
 - (E) explain and apply the steps in optimizing the field of vision in a wet and dry field.
- (7) The student applies patient management skills required when providing patient care to all populations. The student is expected to:

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- (A) describe and apply appropriate verbal and non-verbal communication skills when providing patient care;
 - (B) demonstrate methods for calming a patient who shows signs of anxiety;
 - (G) demonstrate the “tell-show-do” approach and explain when this approach would be used;
 - (H) explain the adaptations needed to care for the various needs of patients such as patients who are children, older adults, pregnant, hearing-impaired, blind, and whose mobility is limited by a wheelchair or walker;
 - (I) describe the dental office design;
 - (J) identify equipment found in a dental operatory and explain and demonstrate how each piece of equipment functions;
 - (K) explain and demonstrate preventive maintenance of the operatory and equipment;
 - (L) explain and demonstrate the concepts of dental assisting with emphasis on the activity zones (clock position) and classifications of motions;
 - (M) explain and demonstrate the proper preparation of the treatment area;
 - (N) roleplay the seating and dismissal of the patient from the treatment area;
 - (O) explain the factors which must be considered when selecting operator, assistant, and patient positions; and
 - (P) roleplay the working positions of the dental health care team when using equipment during dental procedures.
- (6) The student demonstrates the use of dental regulatory specifications and dental safety. The student is expected to:
- (A) describe applications of OSHA and other regulatory agencies' standards and the roles, functions, and responsibilities of regulatory agencies, including Centers for Disease Control and Prevention (CDC), Occupational Safety and Health Administration (OSHA), and the Texas State Board of Dental Examiners (TSBDE);
 - (B) explain biohazard disposal;
 - (C) demonstrate safety protocols when using and disposing of sharps, such as scalpels, needles, scalers, and burs;
 - (D) recall and apply state requirements related to blood borne pathogen training stated in House Bill 300; and
 - (E) demonstrate the Occupational Safety and Health Administration (OSHA) requirements for radiation safety in the workplace.
- (7) The student demonstrates how diagnostic tools are used in the head and neck region. The student is expected to:
- (A) demonstrate and explain the mechanisms of the diagnostic tools used in the head and neck region, such as intraoral and extraoral radiographs, Cone Beam Computed Tomography (CBCT), Computed Tomography (CT), Magnetic Resonance Imaging (MRI), and biopsies;

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- (B) describe the steps to develop film radiographs;
 - (C) explain the use and benefits of digital imaging software and hardware;
 - (D) analyze radiographs for diagnostic quality; and
 - (E) position patient and equipment accurately to capture anatomical landmarks commonly found on diagnostic images.
- (8) The student identifies various types of dental materials and explains when they are used in the dental practice. The student is expected to:
- (A) identify and classify restorative materials such as composite, amalgam, and endodontic;
 - (B) identify and prepare materials used for impressions such as trays and alginate;
 - (C) identify and prepare prophylactic materials such as preventative medicaments; and
 - (D) identify and compare lab materials such as prosthetic, orthodontic, and cosmetic.

Recommended Resources and Materials:

Bartolomucci-Boyd, Linda R. 2012. *Dental Instruments a Pocket Guide*. Boston: Cengage Learning.

Dental Instruments a Pocket Guide. 2012. Boston: Cengage Learning.

Bird, Doni L., and Debbie Robinson. 2020. *Modern Dental Assisting*. St. Louis: Elsevier Saunders.

Dentsply Sirona. 2021. Accessed October 2022. <https://www.dentsplysirona.com/en-us>.

Iannucci, Haring, Laura Jansen Lind, and Joen Jansen Lind. 1993. *Radiographic Interpretation for the Dental Hygienist*. Philadelphia: Saunders.

Phinney, Donna J., and Judy H. Halstead. 2010. *Dental Assisting Coloring Book*. Boston: Cengage Learning.

Dental Assisting a Comprehensive Approach. 2018. Boston: Cengage.

Recommended Course Activities:

- prepare restorative and procedure trays
- prepare alginate for impression
- demonstrate exposure of radiographs
- demonstrate how to position a patient
- demonstrate passing instruments
- measure and record vital signs
- demonstrate correct dental charting techniques

Suggested methods for evaluating student outcomes:

- written tests and quizzes, including state requirement practice tests
- hands-on demonstration involving patient care, dental materials, and charting techniques
- lab exercises
- oral presentations demonstrating content knowledge using technology and employability skills
- projects

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Teacher qualifications:

An assignment for Dental Equipment and Procedures is allowed with one of the following certificates.

- Health Science: Grades 6-12
- Health Science Technology Education (Grades 8-12)
- Vocational Health Occupations
- Vocational Health Science Technology
- Recommended: United States Licensed Dentist, Dental Hygienist, Dental Assistant

American Heart Association CPR Life Support Training Course
Dental continuing education

Additional information: