RESTORATIVE DENTAL TECHNOLOGY (RDT)

RDT 125A BEGINNING CROWN AND BRIDGE
4 unit
Corequisite(s): *RDT 130A, 135A, 140A, 145, and 150*

Theory, laboratory techniques and procedures for inlay, onlay and crown fabrication; model and die fabrication, mounting patient cases to a semi-adjustable articulator, wax design of fixed restorative prosthetics, direct spruing and investing, of single inlays, crowns and onlays dental restorations. Identification of the margin in dental impressions, on stone dies, and on computer rendered (CAD) images or designs generated from a digital impression scan. Esthetics, basic occlusal factors, tooth contour and anatomy of single tooth restorations as both a computer-aided-design (CAD) rendering and as a manual design. Total of 36 hours lecture and 108 hours laboratory. Formerly DLT 114A.
Grade Mode: *Letter Grade*

RDT 125B ADVANCED CROWN AND BRIDGE
5 unit
Prerequisite(s): *RDT 125A or the equivalent knowledge and experience*

Corequisite(s): *RDT 130B, 135B, 140B, 155, and 160*

Theory, techniques and laboratory procedures for advanced crown and bridge fabrication. Emphasis on principles of fixed partial denture (FPD)/ bridge design for esthetics, function, sanitation and comfort. Abutment theory, pontic designs and bridge retainer designs in both wax and by using computer-aided-design (CAD) software, laboratory procedures related to the lost wax process, casting, metal finishing and polishing for both single and multiple unit/tooth fixed restoration prosthetics. Laboratory projects include design and fabrication of a multiple unit/ tooth simulated patient case with an FPD with a semi-precision (broken-stress) attachment, post/core telescopic crown restoration mounted on a semi-adjustable articulator, dental alloy soldering procedures for bridge connectors and crown repairs. Reinforcement of techniques taught in the basic Crown and Bridge curriculum with emphasis on productivity, time management and quality requirements. Maximum credit for RDT 125B and DLT 114B is 5 units. Total of 36 hours lecture and 162 hours laboratory. Formerly DLT 114B.
Grade Mode: *Letter Grade*

RDT 130A BEGINNING COMPLETE DENTURES
4 unit
Corequisite(s): *RDT 125A, 135A, 140A, 145, and 150*

Infection control procedures as they pertain to removable prosthetics. Theory and related laboratory procedures for fabricating preliminary and master casts followed by custom edentulous impression trays, record bases, and occlusion rims. Will learn how to use the semi-adjustable articulator for mounting denture master casts following the arbitrary mount method and incorporating condylar guidance as well as anterior guidance. Denture tooth selection, esthetic arrangement and set up of a complete set of maxillary and mandibular denture teeth into bilateral balance functional occlusion followed by anatomic wax up of the gingival architecture. Total of 36 hours lecture and 108 hours laboratory. Formerly DLT 113A.
Grade Mode: *Letter Grade*

RDT 130B ADVANCED COMPLETE DENTURES
5 unit
Prerequisite(s): *130A or the equivalent knowledge and experience*

Corequisite(s): *RDT 125B, 135B, 140B, 155, and 160*

Theory and laboratory techniques for processing bilaterally balanced complete dentures to include: flasking (investing), boil-out, packing, compression and heat-curing techniques, denture recovery and occlusal adjustments, remounting procedures, selective grinding of opposing complete dentures to incorporate protrusive, bilateral balance, and correction of vertical errors, as well as finishing and polishing complete dentures to completion. Semi-adjustable articulators will be employed during these processing steps. Additional laboratory procedures include: characterizing denture base resins, repairing individual denture teeth and fractures in denture bases utilizing cold cure techniques, reline and rebase procedures for ill-fitting complete dentures, dentures opposing natural dentition, immediate dentures, cast metal denture bases, tooth-borne overdentures utilizing computer-aided-design (CAD) software, and techniques to duplicate dentures and fabricate a surgical template. Maximum credit for DLT 113B and RDT 130B is 5 units. Total of 36 hours lecture and 162 hours laboratory. Formerly DLT 113B.
Grade Mode: *Letter Grade*

RDT 135A BEGINNING DENTAL ANATOMY
2.5 unit
Corequisite(s): *RDT 125A, 130A, 140A, 145, and 150*

Introductory anatomy of the oral cavity to include: classifications of dentition, permanent and deciduous dentition, dental arch and quadrants, as well as names of teeth, three tooth numbering/notation systems and supporting structures of teeth: periodontium, alveolar process, and gingiva. Dental structures; crown and root, enamel and dentin, pulp and pulp cavity as well as dental nomenclature; terms for tooth surfaces, division of crowns and roots into horizontal and longitudinal thirds, combining terms of orientation, line and point angles for anterior and posterior teeth, distinctive crown convexities and elevations as well as distinctive crown concavities or depressions, geometric crown forms, contact areas and embrasures as well as individual tooth anatomy for maxillary and mandibular anterior teeth. Laboratory lectures and activities will include wax-carving exercises of anterior incisor teeth, intra-arch alignment, inter-arch relationships, facial and lingual contours, proximal surfaces, marginal ridges and interproximal contacts as well as centric (functional) and non-centric cusps, axial transitional lines and tooth designing activities using wax on mounted maxillary and mandibular models made of dental stone as well as designing activities using Computer-Aided-Design CAD software. Maximum credit for DLT 116A and RDT 135A is 2.5 units. Total of 27 hours lecture and 54 hours laboratory. Formerly DLT 116A.
Grade Mode: *Letter Grade*

RDT 135B INTERMEDIATE DENTAL ANATOMY
2.5 unit
Prerequisite(s): *RDT 135A or the equivalent knowledge and experience*

Corequisite(s): *RDT 125B, 130B, 140B,155, and 160*

Principles of posterior tooth anatomy, detailed sculpting and designing of selected posterior premolars and molars using wax carving blocks and computer-aided-design (CAD) software. Emphasis on the morphology of the five tooth surfaces, anatomy of the root, and detailed occlusal anatomy for all permanent posterior maxillary and mandibular premolar and molar teeth. To include dental anatomy nomenclature, development of the teeth, variations and anomalies, and fabrication methods for the interim or provisional fixed prosthesis as well as preparing and mounting dental casts to an articulator and anatomic tooth drawings of posterior teeth. Maximum credit for DLT 116B and RDT 135B is 2.5 units.Total of 27 hours lecture and 54 hours laboratory. Formerly DLT 116B.
Grade Mode: *Letter Grade*

RDT 140A BEGINNING DIGITAL DENTISTRY CAD CAM I
1.5 unit
Corequisite(s): *RDT 125A, 130A, 135A, 145, and 150*

Introduction to the concept of digital dentistry: its applications, advantages and limitations. Computer-aided-design (CAD) and computer-aided-manufacture (CAM) system components and how they are related. Laboratory projects include using case manager software to set up new patient cases, importing scanned STL digital data/files into 3-D design software, and using digital design tools and icons. Emphasis on step-by-step laboratory procedures associated with the digital design of fixed single tooth full crown dental prostheses using the laboratory scanner and computer-aided-design (CAD) software. For example, morphing tools, using the virtual articulator, digital manipulation, identifying margins on a 3-D rendering, rotation tool, path of insertion, tooth anatomy, calibration of the scanner and use of various milling materials. Students are expected to have a general understanding of Microsoft Windows, importing/exporting files and Microsoft Power Point. Required field trips. Total 9 hours lecture and 54 hours laboratory.
Grade Mode: *Letter Grade*

RDT 140B INTERMEDIATE DIGITAL DENTISTRY CAD CAM II
1.5 unit
Prerequisite(s): *RDT 140A or the equivalent knowledge and experience*

Corequisite(s): *RDT 125B, 130B, 135B, 155, and 160*

Course will explore various computer-aided-manufacture (CAM) milling machinery (wet and dry, various axes), milling materials, and their applications for the digital fabrication dental prostheses. Emphasis on learning to operate and maintain a milling unit, exporting .stl files to CAM software, using digital design software to generate digital designs of a fixed partial denture (FPD), interim FPD, FPD substrate and digital denture, and setting up patient cases in Dental Manager software. Students are expected to have a general understanding of Microsoft Windows, importing/exporting files and Microsoft Power Point. Required field trips. Total 9 hours lecture and 54 hours laboratory.
Grade Mode: *Letter Grade*

RDT 145 DENTAL MATERIALS
2 unit
Corequisite(s): *RDT 125A, 130A, 135A, 140A, and 150*

Overview of the history of dentistry: its milestone developments. The role of the American Dental Association (ADA) Council on Dental Materials and Devices, American National Standards Institute (ANSI), Food and Drug Administration (FDA) and U.S. Bureau of Standards as they relate to dental materials standards for manufacturing, patient safety, infection prevention and control as well as safe storage requirements. The composition, characteristics, chemical composition, physical and biological requirements, and uses of gypsum products, dental waxes, impression materials, denture base materials, metals used in dentistry, dental porcelains, separating materials, fluxes and antifluxes, alcohols and acids (pickling solutions), wax solvents, abrasive (polishing agents), laboratory gases and some miscellaneous materials as they apply to the fabrication of dental prostheses. Total of 36 hours lecture. Formerly DLT 109.
Grade Mode: *Letter Grade*

RDT 150 DENTAL COMMUNICATION AND WORKPLACE READINESS SKILLS
0.5 unit
Corequisite(s): *RDT 125A, 130A, 135A, 140A, and 145*

Emphasis on the traits expected of a dental/oral health care professional that constitute professionalism and workplace readiness needed for success in a dental setting with a focus on specific skills needed for working in fixed and removable restorative dental laboratories. Included are skills in communicating professionally with dental colleagues in a dental office or operatory or when in the presence of the dentist or a patient. Verbal and nonverbal communication skills, business telephone etiquette, written communication skills, and technology and voice mail etiquette will be studied. Job interview skills are included. Total of 9 hours of lecture.
Grade Mode: *Letter Grade*

RDT 155 ANATOMY OF ORAL AND FACIAL STRUCTURES
1 unit
Prerequisite(s): *RDT 145 and 150 or the equivalent knowledge and experience*

Corequisite(s): *RDT 125B, 130B, 135B, 140B, and 160*

Anatomical structures of the human head (skull) and face as well as intraoral anatomy in relation to the fabrication of fixed and removable restorative dental prostheses. Overview of human anatomy to include: body planes, bony elevations, bone depressions and channels, and joints. Detailed emphasis of the bony anatomy of the skull, muscles of mastication, depressor muscles of the mandible, muscles of facial expression, intraoral soft tissue anatomy, and structures of the temporomandibular joint. Maximum credit for DLT 115 and RDT 155 is 1 unit. Total of 18 hours lecture. Formerly DLT 115.
Grade Mode: *Letter Grade*

RDT 160 DENTAL CALCULATIONS, WEIGHTS AND MEASURES
0.5 unit
Prerequisite(s): *RDT 145 and 150 or the equivalent knowledge and experience*

Corequisite(s): *RDT 125B, 130B, 135B, 140B, and 155*

Various weight and measure systems commonly used in a fixed and removable restorative dental laboratory. Included are specific dental calculations, metal alloy formulations, use of instruments, conversions, gauges, and scales for restorative dental laboratory operations and procedures. Measures of temperature, length, liquid volume, and gauge thickness. Total 9 hours lecture.
Grade Mode: *Letter Grade*

RDT 225A BEGINNING REMOVABLE PARTIAL DENTURES (RPDs)
4 unit
Prerequisite(s): *RDT 125B, 130B, 135B, 140B, 145, 150, 155, and 160 or the equivalent knowledge and experience*

Corequisite(s): *RDT 230A, 235A, 240, 245, and 250*

Laboratory techniques and procedures required for the fabrication of chrome-cobalt removable partial denture (RPD) frameworks. Emphasis is on designing rationale and correct application of various RPD components (major and minor connectors as well as direct and indirect retentive clasp designs). Laboratory projects include; model preparation, fabrication of refractory casts, custom dentulous impression trays, principles of surveying and designing as well as the usage of the dental surveyor instrument, determination of the correct path of insertion for an RPD, as well as spruing, investing, burnout and induction casting procedures. Total of 36 hours lecture and 108 hours laboratory. Formerly DLT 119A.
Grade Mode: *Letter Grade*

RDT 225B ADVANCED REMOVABLE PARTIAL DENTURES (RPDs)
3 unit
Prerequisite(s): *RDT 225A, 240, 245, and 250 or the equivalent knowledge and experience*

Corequisite(s): *RDT 230B, 235B, 255, 260 and 265*

Laboratory procedures and theory for seating metal chrome-cobalt RPD castings to their respective master casts. Included are laboratory procedures for performing necessary adjustments to the occlusion, metal finishing and polishing, as well as artificial tooth arrangements and denture base waxing, flasking procedures, wax elimination (boil out) and processing. Laboratory projects include RPD denture base reline procedures, various repairs to tooth and denture base fractures as well as electric and torch soldering of metal fractures and warped areas, as well as design and fabrication of an injection molded flexible RPD.. Designing of a digital RPD using computer-aided-design (CAD) design software and overview of laboratory procedures for a fabricating a Swing-Lock RPD. Maximum credit for DLT 119B and RDT 225B is 3 units.Total of 18 hours lecture and 108 hours laboratory. Formerly DLT 119B.
Grade Mode: *Letter Grade*

RDT 230A BEGINNING DENTAL CERAMICS
5 unit
Prerequisite(s): *RDT 125B, 130B, 135B, 140B, 145, 150, 155, and 160 or the equivalent knowledge and experience*

Corequisite(s): *RDT 225A, 235A, 240, 245, and 250*

Complex model and die preparation and cast evaluation for metal-ceramic, pressed, and milled ceramic cases, physical characteristics of dental porcelain, metal-ceramic terminology, and components of the metal-ceramic restoration. Design and construction of single unit/tooth substructures (substrates) for metal-ceramic restorations as well as pressed and milled ceramic restorations utilizing computer-aided-design (CAD) and computer-aided-manufacture (CAM) technologies as well as traditional analog lost wax technology and analysis of bonding mechanisms at the interface between the metal substructure and porcelain as well as difference between pressable ceramic and conventional porcelain systems. Laboratory procedures include: fabrication of pressed ceramic restorations, designing both metal and milled substrates, metal finishing techniques for various metal substructures, oxidation and metal cleansing procedures, basic porcelain application techniques up through opaque application and firing procedures for opaque cycles. Maximum credit for DLT 118A and RDT 230A is 5 units.Total of 36 hours lecture and 162 hours laboratory. Formerly DLT 118A.
Grade Mode: *Letter Grade*

RDT 230B ADVANCED DENTAL CERAMICS
5 unit
Prerequisite(s): *RDT 230A, 240, 245, and 250 or the equivalent knowledge and experience*

Corequisite(s): *RDT 225B, 235B, 255, 260 and 265*

Theory and laboratory techniques for fabricating metal-ceramic crown and multi-unit fixed partial denture (FPD) restorations. Multi-unit substrate designs using traditional analog/manual wax design technique and also using computer-aided-design (CAD) software, application of discreet layers of opaque, dentin and enamel to substrates, various porcelain build-up or sculpting techniques, porcelain contouring, extrinsic staining, corrections and additions. Fabrication of porcelain shoulder or porcelain butt margins and porcelain laminate veneers. Pre-soldering procedures, various casting procedures, and metal finishing and preparation of multi-unit substrates for porcelain. Color science, shade verification, staining and glazing procedures. Metallurgy of base metal, noble metal, and high noble alloys. Porcelain chemistry and manufacture of metal-ceramic, all ceramic, milled and pressed porcelain systems as well as the coefficient of thermal expansion (CTE) and its limitations for each material. Firing procedures using the porcelain furnace and inputting firing parameters into the furnace. Maximum credit for DLT 118B and RDT 230B is 6 units. Total of 36 hours lecture and 162 hours laboratory. Formerly DLT 118B.
Grade Mode: *Letter Grade*

RDT 235A FUNCTIONAL OCCLUSION AND ARTICULATOR INSTRUMENTATION
2.5 unit
Prerequisite(s): *RDT 125B, 130B, 135B, 140B, 145, 150, 155, and 160 or the equivalent knowledge and experience*

Corequisite(s): *RDT 225A, 230A, 240, 245, and 250*

Course focuses on the physiology of functional mandibular movement and advanced articulator instrumentation. Topics include; basic terminology/nomenclature associated with the study of occlusion, cusp positions in Maximum Intercuspation (MI) including cusp-to-marginal ridge and cusp-to-fossa patterns of occlusion, mandibular movements, functional articulations, types of articulator instruments (hinge, semi-adjustable, and fully adjustable), and parts of a semi-adjustable articulator instrument. Laboratory projects include working with various jaw relationship records (checkbites) and the facebow transfer as well as how to use them to mount maxillary and mandibular casts to a semi-adjustable articulator and incorporating correct settings for condylar and anterior guidances. The fully adjustable articulator instrument and its associated occlusal records such as, pantographs, axiographs, and various facebows will also be introduced. Total of 27 hours lecture and 54 hours laboratory. Formerly DLT 116C.
Grade Mode: *Letter Grade*

RDT 235B ADVANCED FUNCTIONAL OCCLUSION AND BIOMECHANICS OF THE MASTICATORY SYSTEM
2.5 unit
Prerequisite(s): *RDT 235A, 240, 245, and 250 or the equivalent knowledge and experience*

Corequisite(s): *RDT 225B, 230B, 255, 260 and 265*

Course is an intense study of the components of the stomatognathic system and how each corresponds to functional occlusion. A detailed review of the functional components of anterior and posterior teeth, analysis of the difference between malocclusion, normal occlusion, and adaptive occlusion, and learning skills in eliminating centric and excursive interferences and learning the impact interferences have on functional occlusion. Occlusal disharmony including bruxing and its impact on functional occlusion, a thorough review of the vertical and horizontal determinants of occlusal morphology and how they guide design of an optimum functional occlusion. Nomenclature and precision waxing techniques will be practiced. Laboratory projects will involve learning to design and recognize various functional occlusion types: bilaterally balanced, unilaterally balanced, cusp-fossa and mutually protected occlusions. Total of 27 hours lecture and 54 hours laboratory. Formerly DLT 116D.
Grade Mode: *Letter Grade*

RDT 240 ADVANCED DIGITAL DENTISTRY CAD CAM III
1.5 unit
Prerequisite(s): *RDT 140B or the equivalent knowledge and experience*

Corequisite(s): *RDT 225A, 230A, 235A, 245, and 250*

Course focuses on rapid prototype 3-D printing; laser sintered technology and generative computer-aided-manufacturing (CAM) processes. Included are usage of 3-D software to create orthognathic study casts, 3-D fabrication of laboratory models and dies, operation and maintenance of the 3-D printer, and generating transferable files in .stl format that will be exported to the 3-D Printer. Laboratory projects include: introductory design processes for fabrication of a digital removable partial denture (RPD) using RPD Design software, using Real View Engine software to assist in viewing the patient's facial landmarks and smile design options, as well as a preview of Orthodontic Appliance Design software and Implant Studio software. Total of 9 hours lecture and 54 hours laboratory.
Grade Mode: *Letter Grade*

RDT 245 ORTHODONTICS AND PEDODONTICS
3 unit
Prerequisite(s): *RDT 125B, 130B, 135B, 140B, 145, 150, 155, and 160 or the equivalent knowledge and experience*

Corequisite(s): *RDT 225A, 230A, 235A, 240, and 250*

Basic principles and laboratory procedures for the fabrication of digital and stone orthognathic study casts (models) that meet with criteria as set forth by the American Board of Orthodontics (ABO). Design and fabrication of orthodontic and pedodontic fixed and removable appliances with emphasis on design and wire contouring of various types of arch wires, clasps and springs, working with auto-polymerizing acrylic resin, laser welding and torch soldering procedures, as well as minor repairs. Laboratory projects include active and passive removable appliances such as the Hawley retainer, fixed space maintainer, arch expanders, inclined plane, space-closing or space-regaining appliances with expansion screws, and tooth stabilization holding appliances. Included is fabrication of an interim removable partial denture (RPD) stay plate with wrought/stainless steel wire clasps. Maximum credit for DLT 117 and RDT 245 is 3 units. Total of 27 hours lecture and 81 hours laboratory. Formerly DLT 117.
Grade Mode: *Letter Grade*

RDT 250 LABORATORY BUS. MGMT/ ADMIN, LEGALITIES, ETHICS AND JURISPRUDENCE
1 unit
Prerequisite(s): *RDT 125B, 130B, 135B, 140B, 145, 150, 155, and 160 or the equivalent knowledge and experience*

Corequisite(s): *RDT 225A, 230A, 235A, 240, and 245*

Course emphasizes ethics, laws, federal and state regulations, and industry organizations governing the practice of restorative dental laboratory technology and the professional relationship of dentists and dental technologists. Introduction to managerial skills required for the operation of a dental laboratory business including development of the components of a business plan, marketing plan, business management/ organizational plan and human resource management system. Studies will include an introduction to the use of computerized dental laboratory business management software. State and national professional dental technology organizations, the Certified Dental Technician (CDT), Recognized Graduate (RG), and Certified Dental Laboratory application requirements and procedures, benefits, and continuing education requirements. Maximum credit for DLT 124 and RDT 250 is 2 units. Total of 18 hours lecture. Formerly DLT 124.
Grade Mode: *Letter Grade*

RDT 255 INTRODUCTION TO DENTAL IMPLANTS
2 unit
Enrollment Limitation: *Acceptance in the Restorative Dentistry program*

Introduction to dental implants, overview of the steps involved in implant surgery and laboratory procedures for fabricating single tooth fixed implant prosthetics. use of the articulator during fabrication of implant prostheses, and provisional or interim implant prostheses single-unit/ tooth screw-retained implant prostheses. Includes an overview of digital computer-aided-design (CAD) for implant prosthetics using Implant Studio software overdenture. Total of 18 hours lecture and 54 hours laboratory.
Grade Mode: *Letter Grade*

RDT 260 TRANSITION TO THE RESTORATIVE DENTAL TECHNOLOGY PROFESSION
1.5 unit
Enrollment Limitation: *Acceptance in the Restorative Dentistry program*

Preparation for written and practical components of the Certified Dental Technician Examination given by the National Bureau for Certification in Dental Technology. Course may also be taken for possible job advancement. Total of 9 hours lecture and 54 hours laboratory.
Grade Mode: *Letter Grade*

RDT 265 CLINICAL EXPERIENCE
3 unit
Enrollment Limitation: *Acceptance in the Restorative Dentistry program*

Emphasis on having the student demonstrate and practice. Includes participation in the fabrication of dental prostheses for patients currently under treatment or from actual casts or impressions. Completion of detailed Work Journals and signed Attendance Sheets at laboratories is required. It is expected that students shall provide their own private transportation to clinical laboratory sites. Total of 18 hours lecture and 108 hours laboratory.
Grade Mode: *Letter Grade*