

# Department of Restorative Dentistry

(formerly Dental Laboratory Technology)

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## PROGRAM:

Dental Laboratory Technology/AAS

## FACULTY:

Professor: Manos  
 Asst Profs: Russo, Sena, Smith  
 Sr CLT: Guidone

## Associate in Applied Science in DENTAL LABORATORY TECHNOLOGY

The dental laboratory technologist designs, constructs and repairs dental prosthetic appliances according to the dentist's prescription and provides an essential support service for the dental profession. The field requires a degree of manual dexterity, good artistic sense and the ability to understand and interpret the dental prescription.

The National Institute of Business Management identified Dental Technology as the third-fastest-growing profession in the United States; a *Newsday* survey placed it second in New York State, and the United States Occupational Handbook listed it as growing much faster than the national average.

The program in dental laboratory technology provides a balanced program of study which includes all phases of dental technology, related sciences (chemistry, metallurgy and non-metallic dental materials), dental anatomy, the legal and business aspects of dental laboratory operation and courses in general education, as required by the American Dental Association Commission on Dental Accreditation, the board which accredits the dental technology program. In addition to this accreditation, the department has been recognized as a certified dental laboratory by the National Association of Dental Laboratories. City Tech is the first and only college to achieve this certification in all five areas of restorative prosthetic fabrication - complete dentures, orthodontics, partial dentures, ceramics, and crown and bridge.

The graduate is prepared for employment in a commercial dental laboratory, in the laboratory of a V.A. hospital, dental school or in a dental office. Some graduates secure employment with dental manufacturers as research assistants or sales representatives. Among the employers of the graduates of this program are: Americus Dental Studio, Sloane-Kettering Hospital, Veterans Administration Hospital and Columbia Dental School. Over the years many graduates have gone on to dental school or to teaching

positions in dental technology schools. Many department alumni are the owners of dental laboratories in the New York area. City Tech alumni hold officer positions in every dental laboratory technology association in the surrounding areas.

At the end of the fourth semester, students who have completed all laboratory courses are permitted to take the Recognized Graduate Examination, administered by the National Board for Certification (NBC). Pass rates for our students over the past ten years has averaged 98%. This is the preliminary examination leading to certification (CDT). The final (or practical) portion of the certification examination may be taken in one of more of the specialties after gaining proficiency through experience in the field.

Graduates may pursue baccalaureate degrees at City Tech through the CUNY baccalaureate program, the occupational teacher education, technology teacher education or health services administration.

### Approximate Additional Costs

All dental technology students are required to purchase tools, uniforms and books, which are used during the four semesters.

#### 1st Semester

|                    |       |
|--------------------|-------|
| Uniform            | \$30  |
| Tools and Supplies | \$290 |
| Books              | \$150 |

#### 2nd Semester

|                    |       |
|--------------------|-------|
| Tools and Supplies | \$200 |
|--------------------|-------|

#### 3rd Semester

|                    |      |
|--------------------|------|
| Tools and Supplies | \$75 |
| Books              | \$50 |

#### 4th Semester

|                                 |       |
|---------------------------------|-------|
| Tools and Supplies <sup>1</sup> | \$75  |
| R.G. Examination <sup>2</sup>   | \$190 |

### Criteria for Admission into the program within the Dental Laboratory Technology Curriculum:

Students may apply for admission to the Dental Laboratory Technology program either as freshmen or through transfer from another curriculum.

Students will be given a non-binding manual dexterity test in DL 110L in order to determine their entry-level hand/eye coordination. The results will assist the student in developing these skills.

Students must achieve a minimum passing grade of "C" in all courses, which begin with the prefix DL. Students may repeat a course only once.

### Placement in the Dental Laboratory Technology Program

A high school diploma or a New York State equivalency diploma is required for admission to the college. However, in order to be registered for the full program of Dental Laboratory Technology courses, an applicant must be CUNY certified in reading, writing and math. All new students and transfer students who do not meet the above criteria will be classified as Dental Laboratory

Technology students taking introductory courses and will be considered to be members of the department of Dental Laboratory Technology. During this period students will be programmed for developmental skills or core courses as needed.

After completion of all required remedial courses with a Satisfactory ("S") rating, the student will be admitted to Dental Laboratory Technology courses as space permits. Completion of the introductory portion of the curriculum does not guarantee progression into major courses. If the number of students meeting the stated criteria exceeds the available places, seats will be allocated on the basis of the highest cumulative academic average.

#### Transfer into the Dental Laboratory Curriculum

Students who wish to transfer into dental laboratory technology from another college curriculum must meet the following criteria:

- they must meet all prerequisite criteria;
- they must have a cumulative grade point average of 2.0 or better

<sup>1</sup> May vary according to specialization chosen in 4th semester.

<sup>2</sup> Recognized Graduate Examination National Board for Certification.

| REQUIRED COURSES IN THE MAJOR   |   | Credits   |
|---|---|-----------|
| DL 107  | Introduction to Non-metallic Dental Materials | 2         |
| DL 110  | Tooth Morphology                              | 3         |
| DL 111  | Complete Dentures I                           | 3         |
| DL 115  | Fixed Prosthodontics I                        | 3         |
| DL 211  | Complete Dentures II                          | 3         |
| DL 212  | Fixed Prosthodontics                          | 3         |
| DL 214  | Introduction to Restorative Ceramics          | 3         |
| DL 216  | Removable Partial Dentures I                  | 3         |
| DL 307  | Science of Dental Metallurgy                  | 1         |
| DL 310  | Principles of Occlusion                       | 2         |
| DL 311  | Complete Dentures III                         | 2         |
| DL 313  | Removable Partial Dentures II                 | 3         |
| DL 314  | Restorative Dental Ceramics II                | 3         |
| DL 409  | Laboratory Operation, Ethics & Jurisprudence  | 2         |
| DL 415  | Orthodontics                                  | 2         |
| <b>DL1</b>  |   |           |
| Select one of the following two courses for 3 credits:                |   |           |
| DL 411  | Complete Dentures and Maxillofacial Concepts  | 3         |
| DL 413  | Removable Partial Dentures Practicum          | 3         |
| <b>DL2</b>  |   |           |
| Select one of the following two courses for 3 credits:                |   |           |
| <i>If you took DL 411 for DL1, then you must take DL 412 for DL2.</i> |   |           |
| <i>If you took DL 413 for DL1, then you must take DL 414 for DL2.</i> |   |           |
| DL 412  | Fixed Prosthodontics Practicum                | 3         |
| DL 414  | Restorative Dental Ceramics Practicum         | 3         |
| <b>Subtotal</b>   |   | <b>44</b> |

#### OTHER REQUIRED COURSES

|                     |                                      |   |
|---------------------|--------------------------------------|---|
| CH 215              | Principles of Chemistry I            | 4 |
| EG 101              | English Composition I                | 3 |
| MA 180              | Mathematical Concepts & Applications | 4 |
| or                  |                                      |   |
| MA 275 <sup>2</sup> | Intro to Mathematical Analysis       | 4 |
| LAP <sup>1</sup>    | Literature/Aesthetics/Philosophy     | 3 |
| SS <sup>1</sup>     | Behavioral Science/Social Science    | 3 |

**Subtotal** **17**

#### REMAINING CORE DISTRIBUTION

|                   |                |   |
|-------------------|----------------|---|
| COMM <sup>1</sup> | Communications | 3 |
|-------------------|----------------|---|

**Subtotal** **9**

**TOTAL CREDITS REQUIRED FOR THE DEGREE** **64**

<sup>1</sup> See page 33 for detailed explanation of core required courses and categories.

<sup>2</sup> Students who select MA 275 instead of MA 180 will be required to take MA 175 as a prerequisite. In this case the number of credits required for the degree will increase by four.

#### COURSES:

##### DL 107

#### Introduction to Non-Metallic Dental Materials

2 cl hrs, 2 cr (fall only)

An introduction to non-metallic dental materials. A study of the inherent characteristics, uses and limitations of dental laboratory materials are demonstrated and students practice the proper techniques of manipulating the materials in uncomplicated exercises. Familiarization with dental materials facilitates the development of psychomotor skills for subsequent dental laboratory technology courses. Students receive extensive training in infection control which conforms to OSHA, NADL, and ADA guidelines.

*Prerequisites: CUNY certification in reading, writing and mathematics*

##### DL 110

#### Tooth Morphology

1 cl hr, 6 lab hrs, 3 cr (fall only)

A detailed study of tooth form, structure and function; drawings of 28 teeth, wax buildup and development of the anatomical crowns for maxillary and mandibular teeth.

*Prerequisite: CUNY certification in reading, writing and mathematics*

##### DL 111

#### Complete Dentures I

1 cl hr, 6 lab hrs, 3 cr (fall only)

Denture fabrication including the interpretation of work authorizations, evaluating casts, fabricating impression trays, constructing baseplates and wax occlusal rims, articulating casts, set-up, wax-ups and contouring of full dentures.

*Prerequisite: CUNY certification in reading, writing and mathematics*

##### DL 115

#### Fixed Prosthodontics I

1 cl hr, 6 lab hrs, 3 cr (fall only)

An introduction to the theory and practice of fabricating fixed prostheses, including: construction of casts and dies, identifying margins, trimming dies, use of self articulation, developing wax patterns for crowns and inlays. Investing, casting and finishing and polishing of single unit and provisional restorations.

*Prerequisite: CUNY certification in reading, writing and mathematics*

**DL 211  
Complete Dentures II**

*1 cl hr, 6 lab hrs, 3 cr (spring only)*  
Full denture construction, including postdams, insertion of reliefs, waxing and contouring for processing, flasking, wax elimination, processing, recovery, selective grinding, finishing and polishing of full dentures, relines and repairs.

*Prerequisite: DL 111*

**DL 212  
Fixed Prosthodontics II**

*1 cl hr, 6 lab hrs, 3 cr (spring only)*  
Knowledge and skills required to fabricate multi-unit fixed bridge restorations. The construction of full arch casts and dies, identifying margins, trimming dies, waxing and developing functional occlusion, investing, casting, pontic design, soldering precious or non-precious metals, seating and finishing of castings, processing composite to restoration frameworks, provisional restorations, and finishing and polishing are covered. The fixed portion of an overdenture is also fabricated.

*Prerequisite: DL 115*

**DL 214  
Introduction to  
Restorative Dental Ceramics  
(formerly Introduction to Ceramics)**

*1 cl hr, 6 lab hrs, 3 cr (spring only)*  
An introduction to the theory and techniques of ceramo-metal dental restorations including crowns and pressable all ceramic restorations. Students perform the techniques required to produce a suitable fixed dental prosthesis. Laboratory techniques introduced include metal substructure, design and fabrication, porcelain build-up, firing, contouring, finishing and polishing to accuracy.

*Prerequisites: DL 110, DL 115*

**DL 216  
Removable Partial  
Dentures I**

*1 cl hr, 6 lab hrs, 3 cr (spring only)*  
An introduction to the theory and practice of removable, partial denture construction. Surveying, designing, duplicating the master casts, wax-up and casting techniques are emphasized.

*Prerequisites: DL 110, DL 111*

**DL 307  
Science of Dental Metallurgy**

*1 cl hr, 1 cr (spring only)*  
The study of dental metallurgy, physical and mechanical properties of metals, their internal structure and types of precious and non-precious dental casting alloys and metals used in the laboratory. Soldering, welding and casting procedures and the associated types of investments and equipment used in these procedures. Polishing agents used for metals is also discussed. Proper handling and safety procedures are discussed.

*Prerequisite: DL 107*

**DL 310  
Principles of Occlusion**

*1 cl hr, 3 lab hrs, 2 cr (fall only)*  
An introduction to the principles of occlusion (gnathology), including the anatomical structures of the oral cavity, the determinants of occlusal morphology and the physiology of mandibular movements as they relate to the fabrication of dental restorations. Three laboratory exercises in cusp-to-marginal ridge and cusp-to-fossa waxing using semi-adjustable articulators are performed.

*Prerequisite: Completion of all second level courses*

**DL 311  
Complete Dentures III**

*1 cl hr, 3 lab hrs, 2 cr (fall only)*  
Fabricating an immediate denture, set-up for an immediate full denture, restoring esthetics, fit and function. The procedures for rebases and surgical trays are also be stressed. Removable portion of over denture is designed, constructed and supported by a clip bar substructure.

*Prerequisite: Completion of all second level courses or approval of chair*

**DL 313  
Removable Partial  
Dentures II**

*1 cl hr, 6 lab hrs, 3 cr (fall only)*  
Finishing and polishing of metal frameworks, arranging teeth, waxing, flasking, packing, processing, finishing and polishing of acrylic attachments and various repair procedures.

*Prerequisite: Completion of all second level courses or approval of chair*

**DL 314  
Restorative Dental Ceramics II  
(formerly Ceramics)**

*1 cl hr, 6 lab hrs, 3 cr (fall only)*  
Design and construction of individual metal copings and the design and construction of multiple unit frameworks, investing and casting of non-precious metals, pre-soldering and post-soldering of non-precious metals, application and firing of opaques, contouring and firing of porcelains and glazing and staining of individual and multiple unit bridges and crowns. All ceramic restorations (laminates) will also be emphasized.

*Prerequisite: Completion of all second level courses or approval of chair*

**DL 409  
Laboratory Operation, Ethics  
& Jurisprudence**

*2 cl hrs, 2 cr (spring only)*  
Legal and ethical obligations of the dental technician under State Dental Practice Acts; the ethical responsibilities of the technician, the dental profession, the public and other dental technicians; and historical aspects of dentistry and dental technology. Fundamentals of laboratory operation and management.

*Prerequisite: Completion of all third level courses or approval of chair*

**DL 411  
Complete Dentures and  
Maxillofacial Concepts  
(formerly Complete Denture Practicum)**

*1 cl hr, 6 lab hrs, 3 cr (spring only)*  
A practical application of advanced level techniques, including flexible partial dentures and preliminary maxillofacial techniques, which includes the fabrication of an obturator denture.

*Prerequisite: Completion of all third level courses*

**DL 412  
Fixed Prosthodontics  
Practicum**

*1 cl hr, 6 lab hrs, 3 cr (spring only)*  
A practical application of the techniques and procedures learned in the basic or specialized courses previously studied. Computer aided design and computer aided manufacturing (CAD/CAM) of dental prosthetic restorations will be emphasized. Applications of semi-precision dental attachments for

specialized multi-unit bridgework combined with composite restorative materials are included. Actual impressions are used in all restorative dental cases in the classroom.

*Prerequisite: Completion of all third level courses*

**DL 413  
Removable Partial  
Dentures Practicum**

*1 cl hr, 6 lab hrs, 3 cr (spring only)*  
Practical application, at an advanced level, of the techniques and procedures learned in the basic or specialized courses previously studied. Actual impressions are used in all restorations.

*Prerequisite: Completion of all third level courses*

**DL 414  
Restorative Dental  
Ceramics Practicum  
(formerly Ceramic Practicum)**

*1 cl hr, 6 lab hrs, 3 cr (spring only)*  
A practical application, at an advanced level, of the techniques and procedures learned in the basic or specialized courses previously studied. Actual impressions are used in all restorations. The course also includes fabrication of CAD/CAM PROCERA restorations.

*Prerequisite: Completion of all third level courses*

**DL 415  
Orthodontics**

*1 cl hr, 3 lab hrs, 2 cr (spring only)*  
History of orthodontics, the types of normal occlusion and malocclusion, the varieties and types of appliances used to move teeth and the physiological actions that occur when teeth are moved through bone as a result of orthodontic treatment.

*Prerequisite: Completion of all third level courses*