

# **CAREER GUIDE FOR DENTAL LABORATORY TECHNICIAN**

SOC Code: 51-9081

Pay Band(s): 3 and 4 ([Salary Structure](#))

**Standard Occupational Description:** Construct and repair full or partial dentures or dental appliances.

**Dental Laboratory Technician positions in the Commonwealth are assigned to the following Roles in the [Direct Service Career Group](#):**

[Direct Service Associate III](#)

[Direct Service Associate IV](#)

While Dental Laboratory Technicians within the Commonwealth are all located within the Direct Service Career Group, individuals may want to pursue other opportunities within the Commonwealth depending upon individual training, education, knowledge, skills, abilities, and interests.

Other Career Group(s) that may be of interest are:

[Health Care Technology](#)  
[Laboratory and Research Services](#)

## **SKILLS, KNOWLEDGE, ABILITIES AND TASKS**

(Technical and Functional Expertise)

### **Skills**

**Note:** *The technical and functional skills listed below are based on general occupational qualifications for Dental Laboratory Technicians commonly recognized by most employers. Typically, you will not be required to have all of the skills listed to be a successful performer. Recruitment and selection standards for an individual state job must be based on the specific knowledge, skills, and abilities for that job as indicated in the job announcement and job description in the Employee Work Profile.*

1. Conducting tests and inspections of products, services, or processes to evaluate quality or performance.
2. Understanding written sentences and paragraphs in work related documents.
3. Using scientific rules and methods to solve problems.
4. Analyzing needs and product requirements to create a design.
5. Generating or adapting equipment and technology to serve user needs.
6. Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
7. Determining the kind of tools and equipment needed to do a job.
8. Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
9. Understanding the implications of new information for both current and future problem-solving and decision-making.
10. Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

## **Knowledge**

**Note:** The technical and functional knowledge statements listed below are based on general occupational qualifications for Dental Laboratory Technicians commonly recognized by most employers. Typically, you will not be required to have all of the knowledge listed to be a successful performer. Recruitment and selection standards for an individual state job must be based on the specific knowledge, skills, and abilities for that job as indicated in the job announcement and job description in the Employee Work Profile.

The **Knowledge** of:

Information and techniques needed to diagnose and treat human injuries, diseases, and deformities. This includes symptoms, treatment alternatives, drug properties and interactions, and preventive health-care measures.

## **Abilities**

**Note:** The technical and functional abilities listed below are based on general occupational qualifications for Dental Laboratory Technicians commonly recognized by most employers. Typically, you will not be required to have all of the abilities listed to be a successful performer. Recruitment and selection standards for an individual state job must be based on the specific knowledge, skills, and abilities for that job as indicated in the job announcement and job description in the Employee Work Profile.

The **Ability** to:

1. Keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
2. Make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.
3. Read and understand information and ideas presented in writing.
4. See details at close range (within a few feet of the observer).
5. Imagine how something will look after it is moved around or when its parts are moved or rearranged.
6. Make fast, simple, repeated movements of the fingers, hands, and wrists.
7. Quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
8. Arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
9. Quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
10. Match or detect differences between colors, including shades of color and brightness.

## **Tasks**

**Note:** The following is a list of sample tasks typically performed by Dental Laboratory Technicians. Employees in this occupation will not necessarily perform all of the tasks listed.

1. Apply porcelain paste or wax over prosthesis frameworks or setups, using brushes and spatulas.
2. Build and shape wax teeth, using small hand instruments and information from observations or dentists' specifications.
3. Fabricate, alter, and repair dental devices such as dentures, crowns, bridges, inlays, and appliances for straightening teeth.
4. Fill chipped or low spots in surfaces of devices, using acrylic resins.
5. Load newly constructed teeth into porcelain furnaces in order to bake the porcelain onto the metal framework.

6. Melt metals or mix plaster, porcelain, or acrylic pastes; and pour materials into molds or over frameworks in order to form dental prostheses or apparatus.
7. Mold wax over denture set-ups in order to form the full contours of artificial gums.
8. Place tooth models on apparatus that mimics bite and movement of patient's jaw to evaluate functionality of model.
9. Prepare metal surfaces for bonding with porcelain to create artificial teeth, using small hand tools.
10. Read prescriptions or specifications, and examine models and impressions, in order to determine the design of dental products to be constructed.

## **INTERESTED?**

Like people, occupations have traits or characteristics. These characteristics give important clues about the nature of the work and work environment, and give you an opportunity to match your own personal interests to a specific occupation. When you choose a job in an occupation that matches your own interests you have taken an important step in planning a successful and rewarding career.

The occupational characteristics for an occupation as a Dental Laboratory Technician follow:

**Realistic** — Realistic occupations frequently involve work activities that include practical, hands-on problems and solutions. They often deal with plants, animals, and real-world materials like wood, tools, and machinery. Many of the occupations require working outside, and do not involve a lot of paperwork or working closely with others.

**Investigative** — Investigative occupations frequently involve working with ideas, and require an extensive amount of thinking. These occupations can involve searching for facts and figuring out problems mentally.

## **LICENSURE, REGISTRATION, OR CERTIFICATION REQUIREMENTS**

Generally certification is not required for Dental Laboratory Technicians positions in state government. However, certification is encouraged for professional growth.

The National Board for Certification, an independent board established by the National Association of Dental Laboratories, offers certification in dental laboratory technology. Certification, which is voluntary, can be obtained in five specialty areas: Crowns and bridges, ceramics, partial dentures, complete dentures, and orthodontic appliances.

For information on requirements for certification, contact:

- National Board for Certification in Dental Technology, 1530 Metropolitan Blvd., Tallahassee, FL 32308. Internet: <http://www.nadl.org/html/certification.html>

## **EDUCATIONAL, TRAINING, AND LEARNING OPPORTUNITIES**

The Department of Labor, Bureau of Statistics provides the following information:

Dental laboratory technicians fill prescriptions from dentists for crowns, bridges, dentures, and other dental prosthetics. First, dentists send a specification of the item to be manufactured,

along with an impression (mold) of the patient's mouth or teeth. Then, dental laboratory technicians, also called dental technicians, create a model of the patient's mouth by pouring plaster into the impression and allowing it to set. Next, they place the model on an apparatus that mimics the bite and movement of the patient's jaw. The model serves as the basis of the prosthetic device. Technicians examine the model, noting the size and shape of the adjacent teeth, as well as gaps within the gumline. Based upon these observations and the dentist's specifications, technicians build and shape a wax tooth or teeth model, using small hand instruments called wax spatulas and wax carvers. They use this wax model to cast the metal framework for the prosthetic device.

After the wax tooth has been formed, dental technicians pour the cast and form the metal and, using small hand-held tools, prepare the surface to allow the metal and porcelain to bond. They then apply porcelain in layers, to arrive at the precise shape and color of a tooth. Technicians place the tooth in a porcelain furnace to bake the porcelain onto the metal framework, and then adjust the shape and color, with subsequent grinding and addition of porcelain to achieve a sealed finish. The final product is a nearly exact replica of the lost tooth or teeth.

In some laboratories, technicians perform all stages of the work, whereas, in other labs, each technician does only a few.

Dental laboratory technicians can specialize in 1 of 5 areas: Orthodontic appliances, crowns and bridges, complete dentures, partial dentures, or ceramics. Job titles can reflect specialization in these areas. For example, technicians who make porcelain and acrylic restorations are called *dental ceramists*.

Most dental laboratory technicians learn their craft on the job. They begin with simple tasks, such as pouring plaster into an impression, and progress to more complex procedures, such as making porcelain crowns and bridges. Becoming a fully trained technician requires an average of 3 to 4 years, depending upon the individual's aptitude and ambition, but it may take a few years more to become an accomplished technician.

Training in dental laboratory technology also is available through community and junior colleges, vocational-technical institutes, and the U.S. Armed Forces. Formal training programs vary greatly both in length and in the level of skill they impart.

Dental laboratory technology programs are approved (accredited) by the Commission on Dental Accreditation in conjunction with the American Dental Association (ADA). These programs provide classroom instruction in dental materials science, oral anatomy, fabrication procedures, ethics, and related subjects. In addition, each student is given supervised practical experience in a school or an associated dental laboratory. Accredited programs normally take 2 years to complete and lead to an associate degree. A few programs take about 4 years to complete and offer a bachelor's degree in dental technology.

Graduates of 2-year training programs need additional hands-on experience to become fully qualified. Each dental laboratory owner operates in a different way, and classroom instruction does not necessarily expose students to techniques and procedures favored by individual laboratory owners. Students who have taken enough courses to learn the basics of the craft usually are considered good candidates for training, regardless of whether they have completed a formal program. Many employers will train someone without any classroom experience.

A high degree of manual dexterity, good vision, and the ability to recognize very fine color shadings and variations in shape are necessary. An artistic aptitude for detailed and precise work also is important. High school students interested in becoming dental laboratory technicians should take courses in art, metal and wood shop, drafting, and sciences. Courses in management and business may help those wishing to operate their own laboratories.

For a list of accredited programs in dental laboratory technology, contact:

- Commission on Dental Accreditation, American Dental Association, 211 E. Chicago Ave., Chicago, IL 60611. Internet: <http://www.ada.org>

According to the Virginia Area Health Education Centers Programs, J. Sargeant Reynolds Community College offers an educational program for dental laboratory technicians.

Also, dental laboratory technicians may go through a five-year apprenticeship program with most of the training acquired through on the job training.

## **COMMONWEALTH COMPETENCIES**

Competencies are a set of identified behaviors, knowledge, skills, and abilities that directly and positively impact the success of employees and the organization. Competencies can be observed and measured. When consistently demonstrated, competencies make employees particularly effective in their work. Competencies help lay out a road map to career success. You can use the Commonwealth Competencies to help improve your individual performance by adopting behaviors that make high performing employees successful in their jobs. In this way, you can use the Commonwealth Competencies for your further professional development.

### **The Commonwealth Competencies are:**

1. Technical and Functional Expertise
2. Understanding the Business
3. Achieving Results
4. Serving the Customer
5. Teamwork
6. Interpersonal and Communication Skills
7. Leadership and Personal Effectiveness

The above competencies may be applied to employees throughout the Commonwealth of Virginia. They can be rank-ordered by agencies and hiring managers to represent the needs of a specific job. The rank ordering will change depending upon the occupation, an organization's priorities, the actual job requirements, and the supervisor's preferences.

Career success is both about what you do (applying your technical knowledge, skills, and ability) and how you do it (the consistent behaviors you demonstrate and choose to use) while interacting and communicating with others. Hopefully, by studying the Commonwealth competencies, identifying your developmental opportunities, and working to refine your own competence, you can take charge of your career!

For additional information about the **Commonwealth Competencies** go to:

[http://jobs.state.va.us/cc\\_planningctr.htm](http://jobs.state.va.us/cc_planningctr.htm). For the competencies, we first list the competencies

and then define each. Finally, we list competency indicators; to describe what successful performance looks like.

## **COMMONWEALTH CAREER PATH**

Career opportunities in the Commonwealth are not limited to moving “up” to the next highest role and pay band, changing positions, or to becoming a supervisor. That’s because most roles describe a broad group of occupationally related positions that perform a range of work that requires increased knowledge and skills. For that reason, Commonwealth roles describe the career paths within the same or higher-level role for the same or different Career Group. The broad salary range and the Commonwealth’s pay practices provide flexibility in recognizing career development and advancement. ([Salary Structure](#))

For example: **Direct Service Associate IV**

PAY BAND	PRACTITIONER ROLES
3	Direct Service Associate III
4	Direct Service Associate IV

PAY BAND	Manager Roles

### **Sample Career Path**

#### **Direct Service Associate III**

The Direct Service Associate III role provides career tracks for health care support specialists (dental laboratory technicians) that are service delivery experts. As service delivery experts, employees provide or lead specialized services that support the work of interdisciplinary treatment teams, licensed clinical staff, and professional counselors.

#### **Direct Service Associate IV**

The Direct Service Associate IV role provides career tracks for dental laboratory technicians who perform duties ranging from advanced level to supervisory. The work requires specialized expertise in the fabrication and repair of a variety of dental applications used by dentists or dental students for their patients.

## **ADDITIONAL OCCUPATIONAL INFORMATION CAN BE FOUND AT:**

O\*NET (Occupational Information Network)

[http://online.onetcenter.org/gen\\_search\\_page](http://online.onetcenter.org/gen_search_page)

Virginia Employment Commission

<http://www.alex.vec.state.va.us/>

Career One Stop

<http://www.careeronestop.org/>

Virginia Career Resource Network <http://www.vacrn.net/>

**Professional Organization**

National Association of Dental Laboratories  
<http://www.nadl.org/>