

# Goodwin University

## Histologic Science Program

### ESSENTIAL FUNCTIONS: PHYSICAL AND COGNITIVE PERFORMANCE FACTORS

#### JOB DESCRIPTION:

The Histotechnician is responsible for the preparation of sectioning of tissue for light microscopic examination by a pathologist. Routine duties include the fixation, processing, embedding, sectioning, and staining of human tissue obtained from surgery or autopsy. The Histotechnician also participates in the use of bone decalcification techniques, preparation of cell blocks from body fluids; use of special staining techniques for specific disease diagnosis; preparation of chemical solutions used daily; immunohistochemical and electron microscopic techniques. Because the diagnosis of life-threatening diseases depends upon the results obtained by the technician, Histotechnicians must be precise, dependable, and responsible.

#### PREPARATION:

1 year to 2 years  
American Society of Clinical Pathology (ASCP) certification or eligible

#### GENERAL EDUCATIONAL DEVELOPMENT: (Educational abilities required to perform the job)

Reasoning (Grades 13-14)  
Mathematics (Grades 13-14)  
Language (Grades 13-14)

#### APTITUDE LEVELS BASED ON STANDARDS SCORES: LEVELS:

- I. The top 10% of the population. This segment of the population possesses an extremely high degree of aptitude.
- II. The highest third exclusive of top 10% of the population. This segment of the population possesses an above average or high degree of aptitude.
- III. The middle third of the population. This segment of the population possesses a medium degree of the aptitude ranging from slightly below to slightly above average.
- IV. The lowest third of the population exclusive of the bottom 10% of the population. This segment of the population possesses a below average or low degree of aptitude.
- V. The lowest 10% of the population. This segment of the population possesses a low degree of aptitude.

COGNITIVE — Level II – *Above Average aptitude*

PERCEPTUAL — Level II *Above Average aptitude*

## WORK SITUATIONS:

### ATTAINING PRECISE SET LIMITS, TOLERANCES & STANDARDS: Level II — Above Average Aptitude

Work situations that involve adhering to and achieving exact levels of performance, using precision measuring instruments, tools, and machines to attain precise dimensions. Complying with precise instruments and specifications for materials, methods, procedures, and technique to attain specified standards.

### REASONING DEVELOPMENT: Level II - Above Average aptitude

Apply principles of logical or scientific thinking to define problems, collect data, establish facts, and draw valid conclusions. Interpret an extensive variety of technical instructions in mathematical, oral, diagrammatic, or written form. Deal with several abstract and concrete variables.

### MATHEMATICAL DEVELOPMENT: Level II — Above Average Aptitude

#### ALGEBRA:

Real number systems; linear, quadratic, rational, exponential, logarithmic, angle and circular functions, and inverse functions; related algebraic solution of equations and inequalities; limits and continuity and probability and statistical inference.

#### GEOMETRY:

Deductive axiomatic geometry, plane and solid, and rectangular coordinates.

#### LAB MATH:

Practical application of fractions, percentages, ratio and proportion, measurement logarithms, practical algebra, geometric construction, and essentials of trigonometry.

### LANGUAGE DEVELOPMENT: Level II — Above Average Aptitude

#### READING:

Read newsletter, textbooks, scientific and technical journals, abstracts financial reports, and legal documents.

#### WRITING:

Write editorials, journals, speeches, manuals, evaluations, and directions.

#### CLERICAL:

Perceive details in verbal or tabular material. Ability to observe differences in copy, to proofread words and numbers, and to avoid perceptual errors and perform arithmetic operations quickly and accurately.

#### SPEAKING:

Conversant in the theory, principles and methods of effective and persuasive speaking, voice and diction, phonetics, and discussion and debate. Ability to understand meanings of words and to use them effectively; to comprehend language, understands relationships between words and to understand meanings of whole sentences and paragraphs.

**PROBLEM SOLVING:**

Work situations that involve solving problems, making evaluations, or reaching conclusions based on subjective or objective criteria, such as the five senses, knowledge, past experience, or quantifiable or factual data.

Modify technique and/or equipment to meet the patient's tissue specimen needs. Time management and prioritization skills.

**DEGREES OR CERTIFICATES REQUIRED:**

Histotechnician (HT) or eligible  
Histotechnologist (HLT) or eligible

The following scale indicates the frequency rate for each variable:

- Never
- Occasionally (0-2.5 Hrs/Day)
- Frequently (2.5 – 5.5 Hrs/Day)
- Constantly (5.5+ Hrs/Day)

**PSYCHOMOTOR: Level I – Extremely High Aptitude**

PHYSICAL DEMANDS OF THE JOB		FREQUENCY	COMMENTS
1.	Strength	Light Work	20 Lbs. Occasionally; 10 Lbs. Frequently; or negligible amount constantly
2.	Mobile	Frequently	Mobile throughout the day moving to various work benches
	Standing		
	Walking		
3.	Sitting	Occasionally	Climbing steps (ex. short ladder); Filing/pulling blocks and/or slides in tight places
	Climbing		
	Stairs		
4.	Ladders	Never	
	Balancing		
	Moving Surfaces		
5.	Narrow Surfaces	Frequently	Floors are slippery due to the use of paraffin
	Slippery Surfaces		
6.	Stooping	Occasionally	Filing/retrieving blocks and slides
7.	Kneeling	Occasionally	Filing/retrieving blocks and slides
8.	Crouching	Occasionally	Filing/retrieving blocks and slides
	Crawling	Never	

9.	Reaching	Above shoulder Chest to shoulder Below knees Waist to knee Waist to chest	Frequently	
10.	Handling	Wrist twisting Simple grasping Power grasping Pushing & pulling	Frequently	Extremely high aptitude needed to move hands easily and skillfully. The ability to work with hands in repetitive pacing and turning motions.
11.	Fingering	Fine manipulation	Frequently	Extremely high aptitude needed to move fingers and manipulate small objects with fingers rapidly and accurately.
12.	Feeling		Occasionally	
13.	Talking		Occasionally	
14.	Hearing		Frequently	Timers (Machines abnormalities, directions, etc.)
15.	Tasting/Smelling		Never	
16.	Near Acuity – 20 inches or less		Frequently	
17.	Far Acuity – 20+ feet		Never	
18.	Depth Perception		Frequently	
19.	Vision Accommodation (Adjust lens of eye)		Frequently	
20.	Color Vision		Frequently	Above average aptitude needed to match or discriminate between colors inters of hue, saturation, and brilliance; identify a particular color or color combination from memory and be able to perceive harmonious or contrasting color combinations.
21.	Peripheral		Occasionally	
22.	Twisting	Upper Trunk Lower Trunk	Occasionally	

<b>ENVIRONMENTAL CONDITIONS</b>	<b>FREQUENCY</b>	<b>COMMENTS</b>
1. Exposure to Weather	Never	
2. Extreme Cold	Never	
3. Extreme Heat	Never	
4. Wet and/or Humid	Never	
5. Noise	Occasionally	Fume hoods, tissue processors, timers
6. Vibrations	Never	
7. Atmospheric Conditions <ul style="list-style-type: none"> <li>• Fumes</li> <li>• Poor Ventilation</li> <li>• Mists</li> <li>• Dust</li> <li>• Odors</li> <li>• Gases</li> </ul>	Occasionally	
8. Moving Mechanical Parts	Occasionally	Microtome
9. Electrical Shock	Never	
10. High, Exposed Places	Never	
11. Radiation	Occasionally	Uranyl Nitrate
12. Explosives	Occasionally	Picric Acids, Silver Nitrate, etc.
13. Toxic/Caustic Chemicals	Frequently	Formaldehyde, Acids Schiff reagent, etc.
14. Other Hazards	Occasionally	

<b>OTHER REQUIREMENTS</b>	<b>FREQUENCY</b>	<b>COMMENTS</b>
1. Motor Vehicles Driven	Never	
2. Protective Clothing	Constantly	Universal Precautions: lab coat, disposable gloves, eye protection, closed-toe, rubber-soled shoes, socks, or stockings.

**METHODS, TECHNIQUES, OR PROCESSES INVOLVED:**

Microtomy, Embedding, Staining, Processing of Tissue, Coverslipping, Microscope Work

MACHINERY OR WORK EQUIPMENT USED:

Microtome, Microscope, Tissue Processors, Embedding Center, Pipets, Glassware, Timers, Hydrometers, Thermometers, Cryostat, Computers, Decalcifiers, Hoods, Automated Equipment (Stainers, Coverslippers, etc.)

GOODS PRODUCED, SERVICES RENDERED, OR MATERIALS USED:

Paraffin Blocks, Microscopic Tissue Slides, Paraffin, Biological Dyes, Oxidizers, Mordants, Acids, Fixatives, Alcohol, Clearing Agents, Chemicals, Sharp Instruments (i.e. Microtome blade)