I. INTRODUCTION

A. Histotechnology is the study of the microscopic anatomy of cells and tissues of plants and animals. It is commonly performed by examining cells and tissues under a light microscope or electron microscope, which have been sectioned, stained and mounted on a microscope slide. Histological studies may be conducted using tissue culture, where live human or animal cells are isolated and maintained in an artificial environment for various research projects. The ability to visualize or differentially identify microscopic structures is frequently enhanced through the use of histological stains. Histology is an essential tool of biology and medicine. Histopathology, the microscopic study of diseased tissue, is an important tool in anatomical pathology, since accurate diagnosis of cancer and other diseases usually requires histopathological examination of samples.

B. The courses are designed to meet basic curriculum requirements for the Central Texas College Histology Laboratory Technician Program.

C. This course is occupationally related and provided didactic and practical knowledge required for entrance into the clinical portions of the Histology Laboratory Technology Program.

D. Prerequisite(s): Histotechnology I/II

II. LEARNING OUTCOMES

Upon successful completion of the course, Histotechnology III, the student will be able to:

A. Identify and understand basic anatomy and physiology of cells and tissues.

B. Understand and recognize the use of specialized staining techniques.

C. Understand histochemical methods to identify and localize enzymes in cells and tissues of muscles.

D. Learn how to use information gained from staining techniques to diagnose, treat, and understand prognosis of the patient.
E. Learn specialized techniques to perform microscopic structures of tissues and organs of the body by use of specialized microscopy; including light microscopes, electron microscopy both transmission and scanning scopes, atomic force microscopes, fluorescence scopes, as well as virtual microscopy to allow more detailed interpretation of microanatomy.

F. Be able to identify micro-organisms in tissues to be able to diagnose diseases.

G. Be able to understand the use of stains by examining pigments, minerals, and cytoplasmic granules.

H. Understand how immunohistochemistry techniques affect diagnosis and identification of tissues by use of monoclonal and polyclonal antibodies.

I. Utilize appropriate safety equipment and procedures according to established laboratory protocol.

J. Learn how to calculate and perform solution preparation by laboratory mathematics to be able to correctly make reagents for use in the differential staining techniques.

K. Exhibit the professional, legal, and ethical attributes required by the Histology Laboratory Technician, and understand how the above relates to communication.

L. Perform quality control (QC) procedures according to established protocol and evaluate the results.

M. At the conclusion of this lecture series, the student will have achieved the following:
   Achievement will be met when a minimum score of 75 percent is earned on the written examination covering the material.

III. INSTRUCTIONAL MATERIALS

The instructional materials identified for his course are viewable through www.ctcd.edu/books.

IV. COURSE REQUIREMENTS

A. To receive transferable credits for this course, you must earn a grade of 2.5 or better.

B. Class attendance is mandatory. A student who is late for 15 minutes or more will be marked absent. A student who is less than 15 minutes late will be marked tardy. 2 tardies will count as 1 absence. 3 absences result in the loss of a letter grade for the course. 4 absences will disqualify a student from the HT program, and the student will be required to meet with the program director for readmission.

C. Students with a grade of 2.4 or less should make an appointment with the instructor to discuss the reason for low performance. Any material not understood by the student can be discussed with the instructor privately during office hours. Office hours are posted; please try to schedule an appointment at your convenience.
D. Lecture examinations will be taken from class notes, assigned pages in your text, and any additional information such as computer assignments or videos.

E. Laboratory examinations will be taken from a combination of lecture and any laboratory information covered in any format. Often, theory of procedures is required to perform the procedure and evaluate your results.

V. EXAMINATIONS

A. Five lecture, three laboratory examinations, and a laboratory assessment will be given. A comprehensive final examination will be given.

B. Makeup examinations will not be given. If you must miss an exam, you can use your final exam grade to replace your missed exam grade. Any additional missed exams would result in a “0” and cannot be made up.

VI. SEMESTER GRADE COMPUTATION

<table>
<thead>
<tr>
<th>Lecture Examinations</th>
<th>Point Value</th>
<th>Laboratory Examinations</th>
<th>Point Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture 1</td>
<td>100</td>
<td>Laboratory 1</td>
<td>100</td>
</tr>
<tr>
<td>Lecture 2</td>
<td>100</td>
<td>Laboratory 2</td>
<td>100</td>
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<tr>
<td>Lecture 3</td>
<td>100</td>
<td>Laboratory 3</td>
<td>100</td>
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<tr>
<td>Lecture 4</td>
<td>100</td>
<td>Laboratory Assessment</td>
<td>100</td>
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<tr>
<td>Lecture 5</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Lecture Points Possible</td>
<td>500</td>
<td>Total Lab Points Possible</td>
<td>400</td>
</tr>
</tbody>
</table>

Homework 100
Final Examination 200

Total Lecture/Lab/Final Points Possible 1200
Number of Points Grade
1200 – 1080 A
1079 – 960 B
959 – 900 C
899 – 720 D
719 – Below F

NOTE: Plagiarism in any form will not be tolerated. A student who chooses to plagiarize will be given a zero on the assignment. A formal charge may be made to the College Disciplinary Board.

VII. NOTES AND ADDITIONAL INSTRUCTIONS FROM THE INSTRUCTOR

A. Course Withdrawal: It is the student’s responsibility to officially withdraw from a class if circumstances prevent attendance. Any student who desires to, or must, officially withdraw from a course after the first scheduled class meeting must file a Central Texas College
Application for Withdrawal (CTC Form 59). The withdrawal form must be signed by the student.

CTC Form 59 will be accepted at any time prior to **Friday of the 12th week** of classes during the **16-week** fall and spring semesters. The deadline for sessions of other lengths is as follows:

- **10-week session** Friday of the 7th week
- **8-week session** Friday of the 6th week
- **5-week session** Friday of the 3rd week

The equivalent date (75% of the semester) will be used for other sessions of other lengths. The specific last day to withdrawal is published each semester in the Schedule Bulletin.

A student who officially withdraws will be awarded the grade of “W” provided the student’s attendance and academic performance are satisfactory at the time of official withdrawal. Students must file a withdrawal application with the college before they may be considered for withdrawal.

A student may not withdraw from a class for which the instructor has previously issued the student a grade of “F” or “FN” for nonattendance.

B. **Administrative Withdrawal:** An administrative withdrawal may be initiated when the student fails to meet College attendance requirements. The instructor will assign the appropriate grade on CTC Form 59 for submission to the registrar.

C. **Incomplete Grade:** The College catalog states, “An incomplete grade may be given in those cases where the student has completed the majority of the course work but, because of personal illness, death in the immediate family, or military orders, the student is unable to complete the requirements for a course…” Prior approval from the instructor is required before the grade of “I” for Incomplete is recorded. A student who merely fails to show for the final examination will receive a zero for the final and an “F” for the course.

D. **Cellular Phones and Beepers:** Student cellular phones and beepers will be turned off while the student is in the classroom or laboratory. Students choosing to disregard this policy will be asked to leave and will be recorded as absent. If a cell phone rings or is used during testing, the test will be taken and a grade of zero will be given.

E. **American’s with Disabilities Act (ADA):** Disability Support Services provide services to students who have appropriate documentation of a disability. Students requiring accommodations for class are responsible for contacting the Office of Disability Support Services (DSS) located on the central campus. This service is available to all students, regardless of location. Explore the website at [www.ctcd.edu/disability-support](http://www.ctcd.edu/disability-support) for further information. Reasonable accommodations will be given in accordance with the federal and
state laws through the DSS office.

F. **Instructor Discretion:** The instructor reserves the right or final decision in course requirements.

G. **Civility:** The collegiate expectation is that students will conduct themselves with civility at all times in classrooms. Minimal civility includes:

1. Being in class on time.
2. Staying in class for the entire class period.
3. Leaving early occurs only after informing the teacher, prior to class, of an unavoidable conflict requiring your early departure (if possible, position yourself close to the door for a minimum disruption of the class).
4. Avoiding such uncivil conduct as talking, sleeping, reading papers/magazines, or working on some other class homework assignment during class.
5. Using socially unacceptable language in classroom discussions. Failure to do so can result in disciplinary action up to and including expulsion.

VIII. **COURSE OUTLINE**

A. **Part 1: Histotechnology**

1. **Learning Outcomes:** Upon completion of this course, the student will be able to:

   a. Describe the role of the histology laboratory technician as a part of the health care team.
   b. Demonstrate knowledge of medical terminology.
   c. Identify the various parts of a binocular microscope and the types of microscopy.
   d. Explain the function of the various parts of the microscope, equipment, and reagents used with the microscope.
   e. Perform laboratory activities using safe laboratory behavior and regulatory compliance.
   f. List potential hazards in the clinical laboratory including biological, chemical, fire, electrical, mechanical, physical, and radiation hazards.
   g. Identify safety features in the student and clinical laboratory. Explain how safety practices are ensured.
   h. List the importance of quality assurance in the clinical laboratory.
   i. Perform metric measurements and conversions.
   j. Explain the importance of a QC program; including QC samples, range, and charts.
   k. Explain the need for standardization in lab practice.
   l. Demonstrate correct and safe use of lab equipment, microscope, and glassware. Demonstrate accurate measurement of liquids. Choose appropriate equipment for the measurement. Prepare dilutions. Define solute, solvent, solution, and dilution.
   m. Choose appropriate mode of transmission for laboratory activities.
   n. Classify correct phase of lab testing.
   o. Exhibit a sense of professionalism by demonstrating the following characteristics: attend class regularly and punctually, seek activities which further learning, admit mistakes and take steps to correct them, repeat procedures when test result is in doubt, cooperate with instructor, take pride in laboratory medicine, comply with
the stated dress code of the laboratory, and recognize the value of continuing education activities

p. At the conclusion of this lecture series, the student will have achieved the following: Achievement will be met when a minimum score of 75 percent is earned on the written examination covering the material.

2. **Learning Activities:** Methods of Teaching and Learning

Students will be taught using various learning methods and activities; which includes lectures, demonstrations including hands on with microscope preserved slides, practice sessions, case studies, projects, laboratory exercises, clinical experiences, internet exercises, quizzes, exams, and recordings. All material covered by these methods may be covered on Exams.