



Clemson University - Center for Corporate Learning
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Education & Training Plan **Dialysis Technician Certificate Program**

Student Full Name: _____

Start Date: _____ End Date: _____

Mentor Supported

Dialysis Technician Certificate Program

Course Code: CLEM-DT 09

Program Duration: 4 Months

Contact Hours: 375

Student Tuition: \$3,000

The Dialysis Technician Profession

As kidney failure continues to be a growing national health problem, kidney disease is driving the growing demand for well-trained dialysis technicians. Dialysis technicians are employed in hospitals, outpatient clinics, and other medical facilities. The number of dialysis technician jobs has the potential to increase by more than 35% by 2018.

While most technician training has historically been done “on-the-job,” today’s healthcare employers are seeking well-trained technicians who possess the necessary knowledge and skills to fill this growing number of positions.

The Dialysis Technician Program

This Dialysis Technician Program provides students with the knowledge needed to perform as a dialysis technician. This program will review kidney dialysis machines, preparing dialyzer reprocessing and delivery systems, and review equipment maintenance. This Dialysis Technician Program provides students with the knowledge and skills needed to perform the duties required of dialysis technicians. This course covers the following key areas and topics:

- Specific procedures to operate kidney dialysis machines
- Preparation of the dialyzer, reprocessing and delivery systems
- Equipment maintenance
- Skills to monitor and record a patient’s vital signs
- The process for a dialysis teams’ administration of local anesthetics and drugs as needed
- Assessment of patients for any complications that occur during a procedure
- Patient training for at-home dialysis treatment and techniques to provide emotional support patients need for self-care

Education and Certifications

- Students should have or be pursuing a high school diploma or GED.
- There are no state approval and/or state requirements associated with this program.

Dialysis Technician Detailed Course Information:

- Knowledge and use of aseptic techniques and standard precautions
- Renal physiology and the pathology of renal failure
- How to perform and record physical measurements including weight and vital signs
- Principles of hemodialysis and hematological aspects
- Dialyzer reuse preparation, dialysate, and delivery systems
- Basic body chemistry including fluid and electrolyte balance
- Clinical manifestations of end-stage renal disease
- Routine aspects of hemodialysis
- Dietary regulation and medication problems relating to dialysis
- Acute renal failure and dialysis
- Kidney transplantation
- Peritoneal dialysis
- Diabetes and hemodialysis
- Pediatric hemodialysis
- End-stage renal disease in the elderly
- Composition of dialysate solution
- Anticoagulation and heparin administration
- Handling of hazardous materials

National Certification

This program is designed to cover the key objectives of the leading dialysis technician certification exams. Although some students do immediately pursue certain certifications, most national exams require job experience for formal dialysis technician certification. The BONENT Certified Hemodialysis Technologist/Technician examination requires one year of experience (12 months) in nephrology patient care, and current active participation in an End-Stage Renal Disease (ESRD) facility.

Clemson University contact: If students have any questions regarding this program including national certification and externships, **they should call Juanita Durham of Clemson University at 864.656.3984 or via email at jdrhm@clemsun.edu.**

Note: No refunds can be issued after the start date published in your Financial Award document.



About Clemson University!

Clemson Online, a unit reporting directly to the Provost, works closely with leadership teams across the University to develop, market, and deliver top-quality courses and programs in blended and online formats. The office provides vision, leadership, coordination, and expertise in support of faculty design, delivery, and evaluation of technology-enhanced, blended, and fully online courses and instructional materials. Dynamic, transformative, and unique eLearning opportunities characterize Clemson's approach to online teaching and learning.

Our Mission: Clemson Online provides strategic leadership for online education, emphasizing innovative teaching and superior learning outcomes to maximize student success in 21st-century academic and professional contexts.

Our Vision: Clemson Online will define the public web-grant university through measurable achievements in online education, research, and service.

The office is committed to pursuing strategic opportunities, providing supportive resources, promoting superior educational quality, and ensuring faculty involvement and responsibility in shaping Clemson's online future.



Clemson University and Pearson Education

Clemson University's eLearning programs were developed in partnership with Pearson Education to produce the highest quality, best-in-class content and delivery necessary to enhance the overall student learning experience, boost understanding and ensure retention. Pearson Education is the premier content and learning company in North America offering solutions to the higher education and career training divisions of colleges and universities across the country aimed at driving quality education programs to ensure student success. Please visit us at www.pearson.com.

About Pearson Education

Welcome to Pearson. We have a simple mission: to help people make more of their lives through learning. We are the world's leading learning company, with 40,000 employees in more than 80 countries helping people of all ages to make measurable progress in their lives. We provide a range of education products and services to institutions, governments and direct to individual learners, that help people everywhere aim higher and fulfil their true potential. Our commitment to them requires a holistic approach to education. It begins by using research to understand what sort of learning works best, it continues by bringing together people and organizations to develop ideas, and it comes back round by measuring the outcomes of our products.

Lesson Checklist

Each lesson has a prescribed, detailed checklist of activities for successful completion of the lesson. This includes lesson objectives, readings, and recommended assignments. Although assignments are optional, the instructor will grade and provide feedback on submitted assignments.

Course Materials

Review of Hemodialysis for Nurses and Dialysis Personnel

Module/Lesson Structure

The Dialysis Technician program is divided into five main content modules. Each module contains one or more lesson presentations to view. These lesson presentations are the “lectures” which, along with the textbook readings and resources, will help you learn the material. The lesson presentations address a variety of learning styles and preferences using text, audio, video, etc. Each lesson contains at least one *Check Your Understanding* interactive self-assessment that will help you gauge your comprehension of that lesson’s content. Many lessons include supplemental resources such as videos, and flashcards. Using these additional materials will deepen your understanding of the content.

Course Overview

Module 1 – Dialysis and Renal Disease

- Lesson 1 – The Dialysis Team and History of Dialysis
 - Reading Assignment: Chapter 1: pp. 1-11 and Chapter 2: pp. 12-16
- Lesson 2 – Basic Chemistry of Body Fluids and Electrolytes
 - Reading Assignment: Chapter 3: pp. 17-29
- Lesson 3 – Renal Physiology and the Pathology of Renal Failure
 - Reading Assignment: Chapter 4: pp. 30-43
- Lesson 4 – Clinical Manifestations of End-Stage Renal Disease
 - Reading Assignment: Chapter 5: pp. 44-57

Module 2 – Principles of Hemodialysis

- Lesson 5 – The Dialysate
 - Reading Assignment: Chapter 6: pp. 65-68
- Lesson 6 – The Dialyzer
 - Reading Assignment: Chapter 6: pp. 58-65, Chapter 9: pp. 108-114
- Lesson 7 – The Delivery System
 - Reading Assignment: Chapter 6: pp. 68-71
- Lesson 8 – Principles of Hemodialysis
 - Reading Assignment: Chapter 7: pp. 79-89
- Lesson 9 – Water Treatment
 - Reading Assignment: Chapter 8: pp. 90-107
- Lesson 10 – Infection Control
 - Reading Assignment: Chapter 10: pp. 115-132

Module 3 – Needs of the Dialysis Patient

- Lesson 11 – Anticoagulation and Heparin Administration
 - Reading Assignment: Chapter 11: pp. 133-140
- Lesson 12 – Access to the Bloodstream
 - Reading Assignment: Chapter 12: pp. 141-163
- Lesson 13 – Patient and Machine Monitoring and Assessment
 - Reading Assignment: Chapter 13: pp. 164-184
- Lesson 14 – Nutrition Management
 - Reading Assignment: Chapter 14: pp. 185-200
- Lesson 15 – Laboratory Data: Analysis and Interpretation

- Reading Assignment: Chapter 15: pp. 201-209

Module 4 – Dialysis Complications and Related Procedures

- Lesson 16 – Diabetes and Hemodialysis
 - Reading Assignment: Chapter 16: pp. 210-219
- Lesson 17 – Medication Problems and Dialysis
 - Reading Assignment: Chapter 17: pp. 220-245
- Lesson 18 – Acute Kidney Injury and Dialysis
 - Reading Assignment: Chapter 18: pp. 246-269
- Lesson 19 – Peritoneal Dialysis and Home Dialysis Therapies
 - Reading Assignment: Chapter 19: pp. 270-293
- Lesson 20 – Kidney Transplants
 - Reading Assignment: Chapter 20: pp. 294-310

Module 5 – Special Dialysis Populations

- Lesson 21 – Pediatric Hemodialysis
 - Reading Assignment: Chapter 21: pp. 311-322
- Lesson 22 – Chronic Kidney Disease in the Elderly
 - Reading Assignment: Chapter 22: pp. 323-328
- Lesson 23 – Psychosocial Effects of Dialysis Therapy
 - Reading Assignment: Chapter 23: pp. 329-339
- Lesson 24 – Management of Quality in Dialysis Care
 - Reading Assignment: Chapter 24: pp. 340-356

Note: This program can be completed in 4 months. However, students will have online access to this program for a 24-month period.

MICROSOFT OFFICE Module

- Use an integrated software package, specifically the applications included in the Microsoft Office suite
- Demonstrate marketable skills for enhanced employment opportunities
- Describe proper computer techniques for designing and producing various types of documents
- Demonstrate the common commands & techniques used in Windows desktop
- List the meaning of basic PC acronyms like MHz, MB, KB, HD and RAM
- Use WordPad and MSWord to create various types of documents
- Create headings and titles with Word Art
- Create and format spreadsheets, including the use of mathematical formulas
- Demonstrate a working knowledge of computer database functions, including putting, processing, querying and outputting data
- Define computer terminology in definition matching quizzes
- Use the Windows Paint program to alter graphics
- Use a presentation application to create a presentation with both text and graphics
- Copy data from one MS Office application to another application in the suite
- Use e-mail and the Internet to send Word and Excel file attachments
- Demonstrate how to use the Windows Taskbar and Windows Tooltips
- Explain how copyright laws pertain to data and graphics posted on the Internet
- Take the college computer competency test after course completion
- Follow oral and written directions and complete assignments when working under time limitations

Note: Although the Microsoft Office Module is not required to successfully complete this program, students interested in pursuing free Microsoft MOS certification may want to consider completing this Microsoft Office Module at no additional cost.

System Requirements:

Windows Users:

- Windows 8, 7, XP or Vista
- 56K modem or higher
- Soundcard & Speakers
- Firefox, Chrome or Microsoft Internet Explorer

Mac OS User:

- Mac OS X or higher (in classic mode)
- 56K modem or higher
- Soundcard & Speakers
- Apple Safari

iPad Users:

- Due to Flash limitations, eLearning programs are NOT compatible with iPads

Screen Resolution:

- We recommend setting your screen resolution to 1024 x 768 pixels.

Browser Requirements:

- System will support the two latest releases of each browser. When using older versions of a browser, users risk running into problems with the course software.
- Windows Users: Mozilla Firefox, Google Chrome, Microsoft Internet Explorer
- Mac OS Users: Apple Safari, Google Chrome Mozilla Firefox

Suggested Plug-ins:

- Flash Player
- Real Player
- Adobe Reader
- Java