

NRRPT

Exam Review Manual

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- Radiation Detection and Measurement, Knoll
- Contemporary Health Physics, Bevelacqua

Summarize what you have learned

You've been studying hard for the exam using the CBT program, reading references and reviewing your notes. Another handy technique is to try and summarize what you have learned. Put your books and notes away and pull out a clean sheet of paper. Select a topic you have been studying and write down every thing you know about it on the blank paper. When you have written every thing you can remember, pull out the books, notes and CD-ROM and check how accurate you were. You'll find that after a few of these "mind dumps" you will be able to recall a lot of the topic you have studied.

Review: next day, next week and next month

How often you review new material is very important in your ability to recall the information later. You've just completed the biological effects portion of the CBT and have written a number of index cards. At a minimum you should review your index cards and notes the next day. After a week you should review them again and a month later review your notes and the applicable CBT program section. All this review forges the pathways in your brain where the information is stored! The purpose is to make it a well-worn path. The information should be easy to remember for the exam and later on when it is needed on the job.

Good Luck!

pull out your cards and test your knowledge. The key is repetition. The more you see the facts the more you will remember the fact.

Read, read, read

After you complete a section of the program, go back and reread the section. Update your notes as you do. Remember the more you see, hear, and feel (write) the material, the more you will be able to recall later. Your short term goal is to recall the information for the exam. The long term goal should be to recall the information for years to come!

The CBT program suggests reading chapters in Daniel A. Gollnick's "Basic Radiation Protection Technology" 3rd edition. While an excellent reference, this should not be your only source of information. Besides the book and CBT you should read NRC documents: Code of Federal Regulations, Regulation Guides, and HP Position Papers. Most of these can be obtained at the NRC's web site on the Internet.

Your local college, town library or company library may also have a number of publications from the International Commission on Radiological Protection (ICRP) and the National Council on Radiation Protection and Measurements (NCRP). These are very good sources of information for the exam.

Your supervisors may have additional references that you can review as you prepare for the exam:

- Handbook of Health Physics and Radiological Health, Williams & Wilkins
- Chart of Nuclides, GE Nuclear Energy
- Operational Health Physics Training, National
- Introduction to Health Physics, Cember

Introduction to the NRRPT Review Course

About this Manual

This documentation provides instructions for the installation, operation, and customization of the NRRPT Review Course. It assumes that you have a basic knowledge of your operating system.

Documentation Conventions

The following conventions are used in this manual:

Bold text indicates the names of commands you should select and buttons you should click.

SMALL CAPS text indicates a button on your keyboard.

NRRPT Review Course Components

In addition to the NRRPT Review Course files, several different components are installed on your computer. The components work with the CBT program to deliver a user friendly environment.

Installing NRRPT Review Course

It is strongly recommended that you close all programs you may have open before starting the installation process.

Windows 95 and Windows NT

System and hardware requirements:

- Windows 95 or Windows NT 3.5.1 or later
- CPU: 486 DX / 66 MHZ minimum
- RAM requirements: at least 8 MB recommended
- Minimum of 40 MB of free hard-disk space
- CD-ROM drive
- Mouse

When you insert the NRRPT Review course CD-ROM into your CD-ROM drive, the installation program starts automatically.

The NRRPT Review course is installed in the C:\NRRPT folder, unless you specify otherwise. The installation also installs several system files into the C:\WINDOWS\ASYM folder of your hard drive. A folder and short cut are placed in the C:\WINDOWS\START MENU folder. No other files are installed in any other folder.

Using the NRRPT Review

Learning on a computer is a little different than learning from a book or attending a class. Computer-based training is a little of both. It allows you to learn at your own pace, provides you with interactive activities and addresses different learning styles.

To get the maximum benefit from this computer based training program there are several things you need to do:

Set aside time to learn:

Learning new material occurs best when you break up the material into small sections. It has been shown that adults master a subject quickly through repetition in small amounts. Try to set aside an hour to an hour and a half each day to study the material on the CD-ROM (with the exception of the timed exams). Pick the time of day when you are at your best. Don't try to study for the test or use this program if you are fatigued, sick or in a hurry.

Take notes on index cards

As you study using the CD-ROM program take notes of the topics, facts, and equations you want to commit to memory. There are a lot of equations and conversions you will have to know to successfully pass the exam. One method that is easy to produce and use is to take notes using index cards.

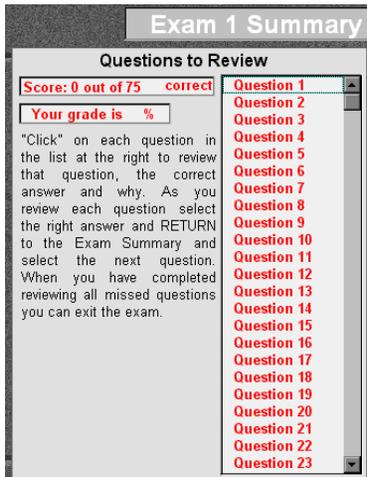
3" x 5" cards are the best since they fit into pockets and can be easily carried around. On one side of the card write down the fact or concept you want to remember. For example "1 curie is equal to 2.22 E12 dpm". On the other side phrase the question to which the answer is what you wrote on the other side. In our example, our question would be "One curie is equal to how many dpm?".

You can use your prepared index cards as flash cards. When you are waiting in line or have five minutes of spare time,

When you get to the last question in the test, you will see a button at the bottom of the screen. Make sure you have reviewed your work, once you click on the “Hand in Your Exam” button you cannot go back.

HAND IN YOUR EXAM

After you have turned in your exam, the program grades your test and generates a report showing the number of questions you got correct. It will also show you a list of the questions you responded to incorrectly. Review the questions you answered incorrectly by clicking on the question. This will bring up the question along with a box displaying the answer. Read the correct answer and then select the correct answer on the score sheet. Click the return button. This will return you to the exam review screen and will remove the question from the review list.



If the installation does not start automatically, perform the following steps:

To manually install the NRRPT Review course

1. Close any open applications or programs in Windows.
2. Insert CD-ROM into your CD-ROM drive.
3. Click **Run** on the Start menu.
4. Enter *CD Drive:\setup.exe* and click the **OK** button. (For example: *I:\Install.exe*). The NRRPT Review course installation begins. Follow the instructions in each of the screens that appear.

When the installation is complete an NRRPT Review course folder and icon is added to Start: Programs pop up menu.

Uninstalling the program

To delete this program from your computer simply remove the following folders and files:

1. Under the Windows folder (Windows 95/98) or the WNNT (Windows NT) delete the ASYM folder.
2. Delete the program folder (default is C:\NRRPT) or the folder you selected during installation of this program.
3. Delete the C:\Glossary.ini file.

Overview of NRRPT Review Course

Course Description - Overview

The NRRPT EXAM Review computer-based training program is an examination-based course designed to prepare the qualified candidate to pass the National Registry of Radiation Protection Technologists (NRRPT) examination. This course combines Instructional Systems Design (ISD) methodology with sample examinations to impart upon and refresh the candidate with “required knowledge” tested by the NRRPT. The course content is constructed based upon the Role Delineation constructed by the NRRPT Panel of Examiners in 1987 and reissued by the NRRPT Board of Directors in 1991.

The NRRPT administers the examination in May and November of each year on the first Saturday of the month. The examination consists of 150 multiple choice questions and must be completed within four hours. The NRRPT EXAM Review is in no way affiliated or officially endorsed by the NRRPT. For further information on the NRRPT, including eligibility and application, contact:

Executive Secretary
NRRPT
P. O. Box 6974
Kennewick, WA 99336-0602
(509) 736-5400

Additional preparation

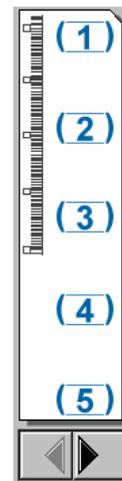
NRRPT EXAM Review will provide the participant with a means to identify areas for improvement within the NRRPT “required knowledge”. It remains the candidate’s responsibility to use this instrument to further prepare for the examination. Successful self-study using course material may include the use of note cards, review of course modules, and participation in study groups.



The exam menu bar contains a number of features to assist you in taking the exam. The question number is displayed along with the time remaining for the exam. Each exam is timed to develop your time management abilities.

Clicking on the “Find Question List” button will display a box containing the question list. You can go to any question on the test by selecting the question. This feature allows you to go back to questions you skipped, as long as you keep track of the question number. To close the box, click on “Hide Question List”.

The “Show Notes” button allows you to take notes while taking the exam. Clicking on this button opens a text box in which you can type notes. This could be used to record the questions you want to review before turning in your exam or the questions you skipped and want to come back to later. Click on the “Hide Notes” button to return to the exam question.



The exam interface resembles the typical Scantron™ test sheet. After reading the question, move the cursor over to the score sheet and it will change to a O. Click on your choice and watch it change to a penciled mark! You may change your answer at any time before you hand in your exam by clicking on another choice. After making your choice click on the forward arrow to go to the next question.

To go to the next or previous question click on the right or left arrow.



Leave the section and go to the Main Menu



Advance to the next screen. This will turn a brighter shade of yellow when you have reached the end of the section prompting you to go to the next screen



Leave the NRRPT Review program

Some topics will contain words in red. These are either Glossary words or Pop Ups. Click on the red word to learn more about the topic.

Pop ups

When activated a pop up will stop the narration if it is playing. The pop ups contain text, graphics and animations to provide additional information on a specific topic. Exit the pop up by selecting the close button.

NOTE: Be sure to pass your mouse over graphic areas of the pop up. When the pointer changes to a hand, click on the graphic to reveal additional information.

Exams

When you click on one of the exam buttons on the Main Menu, a dialog box will open asking for your name. The name you enter is used to update the performance chart of your progress so be sure to use the same name throughout the series of exams. Click “OK” and enter the exam area.

The exam section contains a number of unique features. While taking the exam, you will be unable to switch to another Windows application. This is done to allow you to concentrate on the exam. If you need to exit the exam before completing the exam, click on the “Exit” button on the menu bar. If you exit the exam this way, your progress will not be saved.

A good rule of thumb is ten additional hours of study for each increment of 10 percent below a perfect score on Exam 3 of the course.

Prerequisites for the exam

At the time of this CBT release, to sit for the NRRPT exam, a Radiation Technologist had to meet the following conditions:

Education

The applicant shall have a high school diploma or equivalent. In addition, the applicant must submit to the Board evidence of operational abilities as a Radiation Protection Technologist.

Age

The applicant shall be at least 21 years old at the time of application.

Experience

An applicant must have a minimum of five years experience. Training may be substituted for experience if the applicant will submit to the Board information about the program and proof of completion. This information should include curriculum, typical examinations, and passing requirements for radiation related subjects.

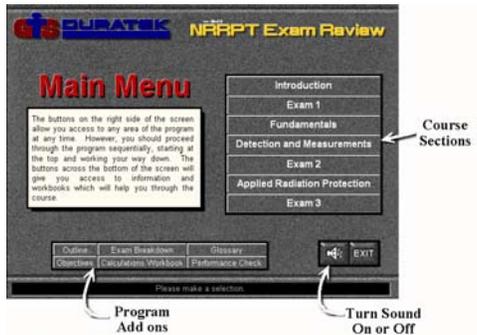
Experience credit allowed for formal education, company training programs and applicable military training is cumulative up to a maximum of two years. Note that an applicant may not claim work experience while in formal classroom study.

Program Introduction

When the program first starts, an introduction screen appears. The program explains the basic controls to navigate the program and provides a guided tour of the different features of the program.

The program will automatically advance to the Main Menu when the guided tour is complete. You can advance to the Main Menu by clicking on the **Continue** button.

The Main Menu



The Main Menu allows you to access various portions of the program at your own pace. The program is presented in the same format as the successful GTS Duratek five day study course. You should progress through the course starting with the **Introduction** section at the top and ending with **Exam 3** on the bottom.

Start with the **Introduction** section to become familiar with using the examination performance chart. This course is designed to assist you in studying for the NRRPT exam. The examinations contained in this course are tied to the 25 objectives the NRRPT exam encompasses. As you take the exams in this course, the performance chart can be used to track your progress and identify areas you are weak in. This will help you in focusing your study time and effort.

Since you will be taking a multiple choice examination, the **Introduction** section provides valuable tips and instructions for taking multiple choice examinations. You may want to return to this section and review these strategies as you progress through the course.

Pictures and animations appear on the right, left and behind the text box. If you have a sound card and speakers, the narration will start. The text and graphics are tied to the narration. No need to scroll to follow the narration!

If you don't have sound or if you turn the sound off, you can scroll the text in the text box by using the slider arrows.



The bar shown above can be found at the bottom of the screen when you are in the **Fundamentals, Detection and Measurement, and Applied Radiation Protection** sections.

The bar contains five audio controls



Stops the narration at the time the button is selected



Restarts a paused narration, from the point it was paused



Starts the narration at the beginning of the section



Turns the narration off. In this position the audio buttons are replaced with one button (which is used to reactivate the audio).



Used to reactivate the audio portion of the program after the audio has been disabled.

There are four navigation buttons on the navigation bar:



Go back one screen

Calculation work book:

A group of sample problems and answers that have been seen on examinations over the years. This is a good tool to learn the calculations and unit conversions required to score well on the exam. This section includes:

- Unit Analysis
- Atomic and Nuclear Structure
- Radioactive Decay
- Internal Dosimetry
- Radiation Detectors
- Reporting Data
- Dose Equivalent Calculations
- External Exposure Control
- Internal Exposure Control
- Protective Equipment

Performance check

This add-on tracks your progress on the three examinations and gives you an insight into the areas you are weak. This will allow you to focus your study time better in preparing for the exam.

Screen controls



This button exits the program



This button turns the sound on and off. If you have a sound card you will have to turn the sound on when you first start the program. This button changes the way this program works. If the sound is turned off the images will change as you scroll the text. When the sound is turned on the images will change to the audio presentation.

Navigating the courses

When you select a section from the Main Menu, the course screen replaces the main menu screen.

The six button bar along the bottom of the Main Menu screen are program add-ons.

Outline:

Contains an outline of the course topical areas which are split into three sections: Fundamentals, Detection and Measurements, and Applied Radiation Protection.

Exam breakdown:

Provides a breakdown of the number of questions found in the course. The number of questions per objective is not equal. Some objectives are tested more than others. For example, more than 20% of the questions involve radiation interactions, one objective of the course. An understanding of radiation interactions is essential to answering questions on biological effects, instrumentation, external monitoring and shielding.

Selecting this button also displays the question-to-objective number sequence for Exam 3. The questions for Exam 1 and 2 are in objective order. The first three questions on Exam 1 cover Objective 1, the next three cover Objective 2. On Exam 2, every four questions covers an objective, so questions 1 through 4 cover Objective 1. On the NRRPT exam the questions are presented in a random order. Exam 3 is setup in a similar manner.

Glossary:

Activates the glossary of terms used throughout the program. Each entry in the glossary is found somewhere in the program in highlighted text.

Objectives:

Displays the 25 objectives of the NRRPT course and exam and the objective for each test question in Exam 3.