

**D&S Diversified Technologies**  
**OHIO GXMO CANDIDATE HANDBOOK 1/2016**

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**Contact Information**

**Questions regarding test applications-test scheduling-eligibility to test:**

D&S Diversified Technologies  
333 Oakland Avenue  
Findlay, OH 45840  
PH: (877) 851-2355  
Fax: (419) 422-8328

Hours of Operation  
8:00 am to 6:00 pm M-F  
8:00am to 2:00 pm Saturday

**Questions about registry status:**

Ohio Department of Health  
246 North High Street  
Columbus, OH 43215.....(614) 466-3543

## 1. INTRODUCTION

### (Quoted from the Ohio Department of Health General X-Ray Machine Operator syllabus)

Consolidated guidance documents have been developed by the Ohio Department of Health's Bureau of Radiation Protection to provide guidance to licensees, registrants and applicants on implementing specific parts of the department's rules published in the Ohio Administrative Code (OAC) and guidance on the specific data and information needed, as a minimum, by the bureau in its review of applications for Department of Health licenses, registrations and educational program approvals.

These guides are not substitutes for rules, and compliance with them is not required. Methods and solutions different from those set out in the guides will be acceptable if they provide a basis for the findings requisite to the issuance or continuance of a license registration or approved by the department.

This guide describes a didactic training syllabus that is acceptable to the Bureau of Radiation Protection for a General X-Ray Machine Operator (GXMO) educational program meeting the curriculum requirements outlined in rule 3701-72-03 of the OAC.

This consolidated guidance was issued by the bureau and is based on the effort and input of the Radiation Advisory Council's Radiation-Generating Equipment Committee. Comments and suggestions for improvements in any of the bureau's consolidated guidance documents are encouraged at all times, and guides will be revised, as appropriate, to accommodate comments and to reflect new information or techniques, evolving technology and experience or lessons learned. The guidebook is available at: <http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/rp/radiologic%20licensure/guidanceondevelopingana%20cceptabledidacticsyllabus.pdf>

### Process for Obtaining an Initial GXMO License

#### Step 1

Complete GXMO educational course OR complete first year of accredited radiography program. Educators will supply students with exam registration form.

#### Step 2

Submit examination registration form to D&S Diversified Technologies, an affiliate of RadEd LLC, to schedule the exam.  
[www.hdmaster.com](http://www.hdmaster.com)

#### Step 3

Complete one or as many approved clinical module course(s), specific to the procedures to be performed when licensed, OR be a student enrolled in an accredited radiography program. The GXMO program director will provide a clinical course certificate, OR for radiography students, the radiography program director will provide affidavit of clinical competency.

#### Step 4

Submit complete application to ODH via online or by mail. Complete Application Means:

- \$65 application fee
- GXMO exam score
- GXMO course certificate or college transcript
- Clinic course certificate(s) or clinical course affidavit

Online: [www.odh.ohio.gov/odhPrograms/rp/rlic/rlic1.aspx](http://www.odh.ohio.gov/odhPrograms/rp/rlic/rlic1.aspx)

**THE KNOWLEDGE EXAM:**

A knowledge test proctor will hand out materials and give instructions for taking the knowledge test. You will have a maximum of ninety (90) minutes to complete the sixty (60) question knowledge test. You will be told when you have fifteen (15) minutes remaining. You may not ask questions about the content of the knowledge test (such as “What does this question mean?”). Fill in only one (1) oval on the answer sheet for each question. DO NOT MARK in the testing booklet. Marks in the test booklet will not be accepted as answers. Your answers must appear on the separate scan form answer sheet if you are taking a paper test. For WebETest, electronic testing, you will use either the mouse or keyboard to select correct answers. You must have a score of 70% or better to pass the knowledge test. Your knowledge test proctor will have **scrap paper available for math related questions. The scrap paper must be turned in with your test at the end of your test.** All test materials must be left in the testing room. Anyone who takes or tries to take materials or information from the testing room is subject to prosecution to the full extent of the law and will be reported to the Ohio Department of Health and will not be allowed to take the test again without ODH approval.

**KNOWLEDGE TEST CONTENT OUTLINE**

The knowledge test consists of sixty (60) multiple choice items/questions. Questions are selected from subject areas based on the Ohio Department of Health approved test plan and includes questions from all the required categories. The subject areas and number of items are as follows:

- Radiographic Equipment .....2
- X-Ray Ionization.....4
- X-Ray Tube Design.....5
- X-Ray Beam.....2
- Primary Radio.....2
- Film Image.....5
- Digital Imaging.....5
- Technique.....7
- Image Quality.....4
- Radiation Safety.....9
- Patient Safety.....6
- Operation Safety.....6
- Patient Assessment.....3

**TEST DAY**

You should arrive at your confirmed test event between twenty and thirty (20-30) minutes before your test is scheduled to start. You must bring a GOVERNMENT ISSUED, SIGNED, NON-EXPIRED PHOTO ID (Drivers license, State ID, Military ID, passport etc. and a second form of ID such as a library card, utility bill or credit card.) You will not be admitted for testing if you do not bring proper ID’s and you will have to reapply for a new test date and repay all required testing fees.

**TESTING POLICY**

If you arrive late for your confirmed test, or if you do not bring appropriate ID’S you will not be admitted to the test and your test fee will NOT be refunded. If you NO SHOW for your testing day you will forfeit your testing fees and you will have to reapply for a new test date and repay all required testing fees.

Cellular phones, beepers, blue tooth phones or any other electronic devices are not permitted during your test. No electronic device of any kind is permitted in the testing area.

Candidates that enter the testing area with a cell phone on will be asked to leave and forfeit any testing fees.

You are not permitted to bring personal belongings such as briefcase, large bags, study materials, extra books, or papers into the testing room. Any such materials brought into the testing room will be collected and returned to you when you have completed the test. D&S Diversified Technologies, Facilities, Test sites, Test Observers or Knowledge Test Proctors are not responsible for personal items brought to testing.

Candidates with long hair will pull their hair back to ensure that no blue tooth device is present.

You may not take any notes or other materials from the testing room.

If you cause a disturbance of any kind or engaging in any kind of misconduct, you will be dismissed from the test, your test will be scored as a failed test. You will be reported to your training program and the Ohio Department of Health.

No visitors, guests, pets, instructors or children are allowed at the testing site, if you bring visitors, guests, pets, instructors or children you will be asked to leave and forfeit your testing fee. You would then have to reapply and repay your fees to secure a seat in a subsequent test event.

**RESCHEDULE/CANCELLATION POLICY—Documentation must be sent via email or fax to D&S Diversified Technologies, documents sent to ODH will not be valid.**

**Reschedules**-An individual may reschedule to a new mutually agreed upon test date for \$25.00, all reschedules must be requested 48 hours before the scheduled testing date and time, excluding Sundays and Holidays. All reschedules must occur within 60 days of the original testing date. No refunds will be granted after 120 calendar days from the last reschedule date.

**Cancellations**– Cancellations MUST be in writing and must be faxed or emailed, at least 48 business hours prior to the scheduled test date and time. No phone calls will be accepted to qualify for a full refund minus a \$25.00 cancellation fee. No refunds will be granted after 120 calendar days have elapsed from the original test date.

**No Shows**-If you are scheduled for your test and do not show up without notifying D&S DT at least 48 business hours before the scheduled testing time. (Sundays and holidays are not business days.) You will be considered a no show and must submit a new application with all required fees to be scheduled for a new test date. No refunds will be granted after 120 calendar days from the original test date.

If you No Show for any of the following reasons please provide the relevant documentation:

**Car breakdown:** A tow bill faxed within 48 hours of the test date. If we do not receive proof within 48 hours you will remain a No Show.

**Medical Emergency:** Doctor excuse identifying the actual testing date within 5 working days, if we do not receive proof within 5 business days you will remain a No show.

**Death in the family:** Obituary for only immediate family member within 14 business days from a missed test date otherwise you will remain a No Show. Your name must appear in the obituary or letter from the funeral home listing you as an immediate family member.

**SECURITY**

Anyone who removes or tries to remove test material or information from the test site will be prosecuted to the full extent of the law, you will be recorded as a test failure, and will not be allowed to retest for a minimum period of 6 months. Study materials or any form of electronic devices may not be present at the test or used during testing. If you give or receive help from anyone during testing, the test will be stopped, your test will be scored as a failure. You will be dismissed from the testing room and your name will be reported to the appropriate agencies. You will be suspended from testing for six months.

## **TEST RESULTS**

Test results will be available on line at [www.hdmaster.com](http://www.hdmaster.com), emailed to you if you provided your email address on your application and you will receive a copy of your test results in the mail. Your training program will also receive a copy of your test results.

## **D&S DIVERSIFIED TECHNOLOGIES TEST REGISTRATION PROCESS**

- 1) Complete application form 1101. (Find at [www.hdmaster.com](http://www.hdmaster.com))
  - 2) Copy of Training Certificate or Transcripts
  - 3) Applicable payment (\$140.00)
  - 4) Send your completed application to D&S Diversified Technologies, applications must be received in our office at least 10 business days before a desired test date. (Sundays and holidays are not business days.)
- If paying with a credit card you may email or fax in your application for an additional \$5.00 priority processing fee.

## **GXMO VOCABULARY/TERMINOLOGY**

artifacts  
atomic structure  
attenuation  
automatic exposure control  
basic biologic effects of radiation exposure  
beam quality  
beam restrictors  
beam restrictors contrast  
chemical safety  
contrast  
contrast resolution  
CR  
definition of x-ray beam intensity  
density  
differences between digital and film  
differential attenuation  
digital basics  
digital image: cassetteless  
digital image: CR  
digital post-processing  
display qualities  
distortion  
dose limits  
dosimeters  
dosimetry

early/late effects  
electromagnetic spectrum  
exposure index  
film  
film basics  
film handling & storage  
film processing  
filtration  
general safety  
general safety principles  
genetic-fetal effects  
geometric factors  
grid contrast  
grids  
HIPAA  
ID  
image artifact  
image contrast  
image evaluation  
image scatter reduction  
intensifying screens  
interactions of matter  
interactions with matter  
inverse square law  
ionization  
kilovoltage  
Law of Bergonie & Tribondeau  
legal documentation  
medical records  
monitoring  
motion  
occupational dose limits  
occupational protection  
OSHA  
patient history  
patient ID  
patient safety  
personnel shielding & protective barriers  
pixel size  
post-processing

practical considerations  
practical considerations CR  
pregnant patient  
pregnant workers  
processing quality control  
properties of x-rays  
public dose limits  
quality control (processor)  
radiobiology  
radio sensitivity  
reduction of unnecessary dose  
reduction of unnecessary patient control  
relative safety  
remnant radiation  
safelights  
scatter control  
scatter reduction  
scope of practice  
sharpness of detail  
shielding  
sources of radiation  
subject contrast  
survey & monitoring requirements  
technique charts  
Types of personal dosimeters  
units of measure  
visibility of detail  
visibility of structure  
x-ray beam quality  
x-ray beam quantity  
x-ray film  
x-ray production  
x-ray tube  
x-ray tube construction