PROSPECTIVE STUDENT PROFILE

As prospective medical radiation technologists, students are expected to be trustworthy, cooperative, and respectful towards others, must be responsible for their actions and display a high degree of integrity and honesty.

Furthermore they must:

- possess technical skills as well as communication skills
- demonstrate empathy and understand their role as future care giver
- be able to motivate themselves and function competently and responsibly
- be able to work effectively as a team member, and cultivate positive critical thinking
- show excellence, commitment and dedication in their work

PROGRAM INFORMATION

Radiation Oncology is a three-year program within Radiological Technologies. The radiation oncology technologist uses specialized equipment and principles of dosimetry and treatment planning in order to administer ionizing radiation treatment to a patient. The technologist is responsible for the care of patients during the course of their treatments and for the safe and efficient organization of workload and the work area.

Among the skills students in the Radiation Oncology program will acquire are:

- Safely using ionizing radiation for the treatment of malignancies
- Safely operating sophisticated equipment that delivers high energy radiation
- Caring for patients undergoing such treatment

In the third year of the program, students gain valuable clinical experience by working and studying in affiliated health centers.

CAREER OPPORTUNITIES

Graduates receive a DEC, which entitles them to write the examination of l'Ordre des technologues en radiologie du Québec. Those who successfully complete this examination become registered technologists; they are able to work across Canada and in many other countries. Graduates must meet provincial French requirements before being granted a work permit in Quebec.

Radiation oncology graduates are qualified to work in all areas of the profession, including treatment planning and simulation, dosimetry, fabrication of treatment accessory equipment and brachytherapy.
ADMISSION REQUIREMENTS

Diploma of Secondary Studies (DES), including:

- Secondary V Language of Instruction
- Secondary V Second Language
- Secondary IV Science
- Secondary IV Mathematics
- Secondary IV History

or academic background judged equivalent to the DES. Students with a DES missing any of the above subjects may be admitted, space permitting, but may be required to complete remedial courses.

- Mathematics 564-506 or 565-506 or Mathematics 526 or 536
- Science 558-404 or 558-402 or Physical Science 436
- Interview
- Must be eligible to take College English 603-101 (Testing may be required)
- Must be eligible to take Basic French 602-100 (Testing may be required)
- Immunization requirements and certificates of medical health once admitted.

FEES

Tuition is free for Canadian citizens or landed immigrants with permanent residence in Quebec taking at least four courses per semester. A non-refundable $30 application fee and about $200 in student fees are charged. Books and supplies cost between $500 and $1,000 per year, although visual arts supplies are more costly. Financial aid is available; contact (514) 931 8731 ext. 1186 for more information. Fees are subject to change without notice.

APPLICATION DEADLINE

March 1 (for Fall semester)
The program begins in the Fall semester; it does not admit new students in the Winter term.

FOR MORE INFORMATION

Please contact (514) 931-8731
Or visit: www.dawsoncollege.qc.ca
# LESSON PLAN
## INTRODUCTION TO RADIATION ONCOLOGY

<table>
<thead>
<tr>
<th>Activity Title:</th>
<th>Radiation Beam delivery design in Radiation Oncology Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview:</td>
<td>Following a presentation on what Radiation Oncology is all about, the students will create the beams eye view (BEV) of 4 treatment fields. The activity will use a grade 9 level math skill that explores 3 dimensional shapes and their related 2 dimensional views that make up the shape as a whole. (2D representation of a 3D object)</td>
</tr>
<tr>
<td>Duration:</td>
<td>Approximately 60 minutes</td>
</tr>
</tbody>
</table>
| Materials:      | Computer  
Projector or large screen  
PowerPoint presentation  
Handouts of the 3 dimensional color treatment volume and blank template of the 2 dimensional views to be filled out. Red, blue, green, yellow, black markers. |
| Grouping:       | Individual / Pairs / Small Groups / Whole Class |
| Artifacts:      | Students will complete the exercises. |

## Links with the POP Program

<table>
<thead>
<tr>
<th>Competencies</th>
<th>Competency I</th>
<th>Competency II</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Carries out a process of career exploration</td>
<td>Contemplates his/her learning and work possibilities</td>
</tr>
</tbody>
</table>

| Key features | Uses documentary resources in academic and career information | Considers possible career paths in a time frame. |

## Process

<table>
<thead>
<tr>
<th>Part 1</th>
<th>Role of the student(s)</th>
<th>Notes</th>
</tr>
</thead>
</table>
| Before       | Using the provided presentation, open the PowerPoint program (or slide show file)  
Take out handouts (2 sheets with isometric and cube shape) |       |
|              | Introduction to the Radiation Oncology profession. |       |
1. What do you think Radiation Oncology is? What do you believe therapeutic radiation is and what is it used for? Record your answers and share your ideas with a peer, a teacher or a parent. Radiology has 2 related sciences, therapeutic and diagnostic as described in the PowerPoint presentation. Explore the overview of oncology and the 3D treatment planning process.

**Part 2: Student Activity**

**Before**

Take out the handouts for the Isometric activity; the 4 sheets and colored markers.

1. Two dimensional drawings can be done on graph paper and represent a top view of an object. Isometric drawings are done on isometric graph paper and allow you to take the two dimensional image and show its depth, making it a three-dimensional image. Complete the orientation on each sheet.

2. Advance the PowerPoint presentation to display exploded (correct term?) views of the 3d shape to help you understand. You may also refer to handout reference images.

3. Use the colored markers to draw the BEV shapes according to the instructions provided.

**Follow-up**

Share your findings with a peer, a teacher or a parent. How would you deal with the bottom view that has the spine in the way of the treatment? What would a suggestion be in order to avoid dosing the spine, which is considered a critical organ, with radiation?
TEACHER’S SHEET FOR THE ACTIVITY

Background information

Radiation Oncology is the therapeutic use of radiation as opposed to Diagnostic Imaging, which uses radiation for diagnostic purposes. Diagnostic studies such as X-rays studies are used to rule out a fracture, or a CT scan for head traumas or diseases. Other modalities that are included under Diagnostic imaging are MRI for or Ultrasound that do not use radiation in imaging.

Radiation Oncology uses high energy x-rays to treat cancers locally, and is quite precise in its delivery. Chemotherapy is a systemic delivery of chemo drugs that travel throughout the body. Radiation side effects are localized (skin reaction and sensitive organ reactions) where chemo is throughout the body (hair loss, vomiting).

Summary:

Materials –

- Power point presentation
- Colored markers
- Isometric and cube activity sheets (2).
- Answer sheets

Procedure –

- Ask students question about Radiation Oncology
- Present PPP, hold on screen that has views of treatment volume and begin Activity
- Using the right and left views have the students fill out the isometric charts and give the relevant views
- Once students have completed display on screen answers. (BEV slides)
- Promote discussion and have students help each other in order to resolve the views.
- On final slide (Bottom) pose the question about the spine and why is it in the way of the beam. This is an issue since the spine is a critical organ and could cause paralysis below the treated level if the proper corrective measures are not applied in the treatment planning and delivery.

Nov. 2013
ACTIVITY: Views of 3D shape in treatment volume

Top Right view

Bottom Left view
ANSWER SHEET 1 of 2: Isometric drawings

Top View

Isometric Drawing of Right Top View

Sheet 1 Top and Right view

Right View

Nov. 2013