Code # NHP17 (2014) REV

**New/Special Course Proposal-Bulletin Change Transmittal Form**

**Undergraduate Curriculum Council** - Print 1 copy for signatures and save 1 electronic copy.

**Graduate Council** - Print 1 copy for signatures and send 1 electronic copy to [mmcginnis@astate.edu](mailto:mmcginnis@astate.edu)

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| --- |
| **New Course or**  **Special Course (Check one box)**  *Please complete the following and attach a copy of the catalogue page(s) showing what changes are necessary.* |

|  |  |
| --- | --- |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **COPE Chair (if applicable)** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **Department Chair:** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **General Education Committee Chair (If applicable)** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **College Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Undergraduate Curriculum Council Chair** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date… **College Dean** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Graduate Curriculum Committee Chair** |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Vice Chancellor for Academic Affairs** |

1. Proposed Course Prefix and Number (For variable credit courses, indicate variable range.)

RAD 3211

2. Course Title – if title is more than 30 characters (including spaces), provide short title to be used on transcripts. Title cannot have any symbols (e.g. slash, colon, semi-colon, apostrophe, dash, and parenthesis). Please indicate if this course will have variable titles (e.g. independent study, thesis, special topics).

Image Acquisition and Evaluation I Lab

Short Title: Image ACQ and EVAL I Lab

3. Will this course be lecture only, lab only, lecture and lab, activity, dissertation, experiential learning, independent study, internship, performance, practicum, recitation, seminar, special problems, special topics, studio problems, student exchange, occupational learning credit, or course for fee purpose only (e.g. an exam)? Please choose one.

Experiential learning

4. What is the grade type (i.e. standard letter, credit/no credit, pass/fail, no grade, developmental)?

Standard letter

5. Is this course dual listed (undergraduate/graduate)?

No

6. Is this course cross listed? (If it is, all course entries must be identical including course descriptions. It is important to check the course description of an existing course when adding a new cross listed course.)

No

7. Brief course description (40 words or fewer) as it should appear in the bulletin.

Manipulation of exposure factors and evaluation of the effects on image quality in the laboratory setting. Focus on skills to achieve safe and optimal image acquisition.

8. Indicate all prerequisites and if this course is restricted to a specific major, which major. (If a student does not have the prerequisites or does not have the appropriate major, the student will not be allowed to register).

a. Are there any prerequisites?

Formal admittance into the Radiologic Science Program.

b. Why?

The Medical Imaging and Radiations Sciences programs are lock step programs. Students complete the program in cohorts.

9. Course frequency(e.g. Fall, Spring, Summer). Not applicable to Graduate courses.

Fall

10. Contact Person (Name, Email Address, Phone Number)

Ray Winters

[rwinters@astate.edu](mailto:rwinters@astate.edu)

ext. 3329

11. Proposed Starting Term/Year

Fall 2015

12. Is this course in support of a new program? No

If yes, what program?

Enter text...

13. Does this course replace a course being deleted? No

If yes, what course?

Has this course number been used in the past? No

*Submit Course Deletion Proposal-Bulletin Change Transmittal Form.*

14. Does this course affect another program? No

If yes, provide contact information from the Dean, Department Head, and/or Program Director whose area this affects.

Enter text...

15. Justification should include:

a. Academic rationale and goals for the course (skills or level of knowledge students can be expected to attain)

This is an upper division laboratory course containing practices essential to the professional curriculum. The lab activities will require application of materials learned in RAD 3213, as well as critical thinking, decision-making, and evaluation of outcomes in order to succeed in this course.

Course Goals:

1. Set exposure factors and create radiographic images of phantoms.
2. Manipulate exposure factors and evaluate the effect on image quality.
3. Evaluate and analyze optimal and sub-optimal images of phantoms.
4. Explain the effect of exposure factor changes on photon interactions within the simulated tissues of the phantom.
5. Create technique charts.
6. Justify the exposure factors stated in the technique charts in terms of patient and equipment safety, ALARA, and image quality.

b. How does the course fit with the mission established by the department for the curriculum? If course is mandated by an accrediting or certifying agency, include the directive.

This course is mandated by the current American Society of Radiologic Technologists Radiography Educational Curriculum stipulated by the Joint Review Committee on Education in Radiologic Technology. It is a foundational course which leads to preparing students for entry level practice of radiologic technology.

c. Student population served.

Students formally admitted to the Bachelor of Science in Radiologic Sciences program

d. Rationale for the level of the course (lower, upper, or graduate).

This is an upper division laboratory course containing practices essential to the professional curriculum. The lab activities will require application of previously learned materials, critical thinking, decision-making, and evaluation of outcomes in order to succeed in this course. Students are required to be admitted to the Radiologic Science Program before taking this class. Students must have completed all core classes of approximately 75 hours with a minimum of 2.5 GPA. The 3000-level is appropriate for the foundation of this professional track, leading to the 4000-level mastery courses. It will require higher level us of critical thinking synthesis for problem solving.

16. Outline (The course outline should be topical by weeks and should be sufficient in detail to allow for judgment of the content of the course.)

Week1: Equipment operation

Week 2: Image receptor comparison

Weeks 3-4: Exposure factors: Evaluate and calculate changes in ma, time and mAs

Weeks 5-6: Exposure factors: Evaluate and calculate changes in kVp

Week 7 Review and assessment

Weeks 8-9: Exposure factors: Evaluate and calculate changes in SID

Weeks 10-11: Exposure factors: Evaluate and calculate changes in grid ratio

Week 12: Review and assessment

Weeks 13-14: Synthesize an accurate technique chart and Justify and explain technique chart

17. Course requirements (e.g. research papers, projects, interviews, tests, etc.)

Pre-laboratory preparation assignments, Lab activities, such as creating of optimal and sub-optimal images; calculations of exposure factors, formulate a technique chart for 3 different x-ray rooms. Written critique of each “exposure factors” lab listed in the outline (16.

18. Special features (e.g. labs, exhibits, site visitations, etc.)

This will be a lab course with activities designed to allow students to apply critical thinking skills related to image acquisition and evaluation..

19. Department staffing and classroom/lab resources (Will this require additional faculty, supplies, etc.?)

No additional resources will be required.

20. What is the primary intended learning goal for students enrolled in this course?

The successful student will be able to cite the steps of image acquisition and understand the process of technical factor manipulation required to produce an optimal radiographic image.

21. Reading and writing requirements:

a. Name of book, author, edition, company and year

Radiologic Sciences for Technologists by Stuart Bushong, 10th edition, Elsevier, 2013 and Radiographic Imaging and Exposure by Terri Fauber, 4th edition, Elsevier, 2013.

b. Number of pages of reading required per week: 30

c. Number of pages of writing required over the course of the semester: 2

22. High-Impact Activities (Check all that apply)

Collaborative assignments

Research with a faculty member

Diversity/Global learning experience

Service learning or community learning

Study abroad

Internship

Capstone or senior culminating experience

Other Explain: Hands-on image production using phantoms in a digital x-ray room (lab)

23. Considering the indicated primary goal (in Box #20), provide up to three outcomes that you expect of students after completion of this course.

**Outcome #1:** (For example, what will students who meet this goal know or be able to do as a result of this course?)

The student will be able to explain the effect of technical factor manipulation on image acquisition.

Learning Activity:(For example, what instructional processes do you plan to use to help students reach this outcome?)

Lab activities will allow the students to see and evaluate the effects of changing the technical factors on the image acquisition process.

Assessment Tool: (For example, what will students demonstrate, represent, or produce to provide evidence of their learning?)

Written analysis of the images produced in the lab activities will be evaluated using a rubric that specifies standards of performance.

*(Repeat if needed for additional outcomes 2 and 3)*

**Outcome #2:**

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Learning Activity:

Assessment Tool:

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**Outcome #3**:

Learning Activity:

Assessment Tool:

24. Please indicate the extent to which this course addresses university-level student learning outcomes:

* 1. Global Awareness

Minimally  
Indirectly  
Directly

* 1. Thinking Critically

Minimally  
Indirectly  
Directly

* 1. Using Technology

Minimally  
Indirectly  
Directly

**From the most current electronic version of the bulletin, copy all bulletin pages that this proposal affects and paste it to the end of this proposal.**

**To copy from the bulletin:**

1. Minimize this form.
2. Go to <http://registrar.astate.edu/bulletin.htm> and choose either undergraduate or graduate.
3. This will take you to a list of the bulletins by year, please open the most current bulletin.
4. Find the page(s) you wish to copy, click on the “select” button and highlight the pages you want to copy.
5. Right-click on the highlighted area.
6. Click on “copy”.
7. Minimize the bulletin and maximize this page.
8. Right-click immediately below this area and choose “paste”.
9. For additions to the bulletin, please change font color and make the font size larger than the surrounding text. Make it noticeable.
10. For deletions, strike through the text, change the font color, and enlarge the font size. Make it noticeable.

This is a complete program overhaul. Please refer to the accompanying Program package. This information will replace information on pages 311-332 and 504-512 in the bulletin