# http://www.ric.edu/webcommunications/images/SealWithText_Small_Black.pngUNDERGRADUATE CURRICULUM COMMITTEE (UCC)PROPOSAL FORM

## Cover page scroll over blue text to see further important [instructions](#instructions): [if not working select “COMMents on rollover” in your Word preferences under view] please read these.

**N.B. DO NOT USE HIGHLIGHT, where choices are given within categories, please DELETE those THAT DO NOT APPLY TO YOUR PROPOSAL. Do not delete numbered categories.**

**ALL numbers in section (A) to be completed, including the impact ones (#5-7), put “none” if that is the case.**

|  |  |  |
| --- | --- | --- |
| A.1. [Course or program](#Proposal) | **rad 335 radiation physics** |  |
| [Replacing](#Ifapplicable)  |  |
| A.2. [Proposal type](#type) | **Course: creation** |
| A.3. [Originator](#Originator) | **Eric Hall** | [Home department](#home_dept) | **Biology/Health Sciences** |
| A.4. [Context and Rationale](#Rationale)  | **In this reorganization of the medical imaging program, new courses are being developed to cover the depth and breadth of content needed for certification as a radiographer.**  |
| A.5. [Student impact](#student_impact) | **Improved readiness for working in the hospital or clinical environment** |
| A.6. [Impact on other programs](#impact)  | **None** |
| A.7. [Resource impact](#Resource) | [*Faculty PT & FT*](#faculty):  | **This course will be taught by LSMI faculty.** |
| [*Library*:](#library) | **None** |
| [*Technology*](#technology) | **None** |
| [*Facilities*](#facilities): | **None** |
| A.8. [Semester effective](#Semester_effective) | **Fall 2020** | A.9. [Rationale if sooner than next Fall](#Semester_effective) |  |
| A.10. INSTRUCTIONS FOR CATALOG COPY: This single file copy must include ALL relevant pages from the college catalog, and show how the catalog will be revised. (1) Go to the “Forms and Information” page on the UCC website. Scroll down until you see the Word files for the current catalog. (2) Download ALL catalog sections relevant for this proposal, including course descriptions and/or other affected programs. (3) Place ALL relevant catalog copy into a single file. Put page breaks between sections and **delete any catalog pages not relevant for this proposal**. (4) Using the track changes function, revise the catalog pages to demonstrate what the information should look like in next year’s catalog. (5) Check the revised catalog pages against the proposal form, especially making sure that program totals are correct if adding/deleting course credits. If new copy, indicate where it should go in the catalog. If making related proposals a single catalog copy that includes all is acceptable. Send as a separate single file along with this form. |

B. [NEW OR REVISED COURSES](#delete_if)  **DO NOT use highlight. Do not delete numbered categories, just leave blank if they do not apply. Delete this whole page if the proposal does not include a new or revised course. Always fill in b. 1 and B. 3 for context.**

|  | Old ([for revisions only](#Revisions))ONLY include information that is being revised, otherwise leave blank.  | NewExamples are provided within some of the boxes for guidance, delete just the examples that do not apply. |
| --- | --- | --- |
| B.1. [Course prefix and number](#cours_title)  |  | **RAD 335** |
| B.2. Cross listing number if any |  |  |
| B.3. [Course title](#title)  |  | **Radiation Physics** |
| B.4. [Course description](#description)  |  | Students will learn about x-ray circuit components, methods of rectification, and construction of the x-ray tube. Topics include X-ray interactions and the absorption of radiation and effects upon tissue and tissue recovery. |
| B.5. [Prerequisite(s)](#prereqs) |  | **RAD 331** |
| B.6. [Offered](#Offered) |  | **Summer** |
| B.7. [Contact hours](#contacthours)  |  | **3** |
| B.8. [Credit hours](#credits) |  | **3** |
| B.9. [Justify differences if any](#differences) |  |
| B.10. [Grading system](#grading)  |  | **Letter grade**  |
| B.11. [Instructional methods](#instr_methods) |  | **Lecture** |
| B.12.[Categories](#required) |  | **Required for major**  |
| B.13. Is this an Honors course? |  | **NO** |
| B.14. [General Education](#ge)N.B. Connections must include at least 50% Standard Classroom instruction. |  | **NO |****category:** |
| B.15. [How will student performance be evaluated?](#performance) |  | **Exams** **Quizzes****Assignments** |
| B.16 [Recommended class-size](#class_size" \o "Check appendix XVIII in the UCC Manual for Best Practices) |  | **24** |
| B.17. [Redundancy statement](#competing) |  | **N/A** |
| B. 18. Other changes, if any |  |

| B.19**.** [**Course learning outcomes**](#outcomes)**: List each one in a separate row** | [**Professional Org.Standard(s)**](#standards)**, if relevant** | [**How will each outcome be measured**](#measured)**?** |
| --- | --- | --- |
| The student will: * Review the properties of x-rays.
* Identify the components and functions of the x-ray tube and circuit.
* Compare generators in terms of radiation produced and efficiency.
* Describe the conditions necessary to produce x-radiation.
* Explain protocols to extend tube life.
* Compare the production of Bremsstrahlung and characteristic radiation.
* Describe the x-ray emission spectra and discuss the factors that affect the spectra.
* Discuss the relationships of wavelength and frequency to beam characteristics.
* Discuss the various photon interactions with matter by describing the interaction, relation to atomic number, photon energy and part density, and their applications in diagnostic radiology.
* Discuss the clinical significance of photoelectric and Compton scattering interactions in diagnostic imaging.
 |  | Examination, quizzes, assignments |

| B.20. [**Topical outline**](#outline)**: DO NOT INSERT WHOLE SYLLABUS, JUST A TWO-TIER TOPIC OUTLINE. Proposals that ignore this request will be returned for revision.** |
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| --- | --- | --- | --- |
| **Week**  | **Lecture**  | **Chapter**  | **Activity**  |
| 1  | Review syllabus X-ray imaging system  | C – CH 8   |   |
| 2  | X-ray imaging system  | C – CH 8   | Homework  |
| 3  | X-ray imaging system  | C – CH 8   | Homework  |
| 4  | X-ray tube  | C – CH 9 F – CH 2  | Quiz  Homework  |
| 5  | X-ray tube   | C – CH 9 F – CH 2  | Homework  |
| 6  | X-ray tube Review Exam  | C – CH 9 F – CH 2  |   |
| 7  | Exam  X-ray production  |  C – CH 10 F – CH 2  | Exam – imaging system & x-ray tube Homework   |
| 8  | X-ray production  | C – CH 10 F – CH 2  | Homework  |
| 9  | X-ray production  X-ray emission  | C – CH 10 F – CH 2 C – CH 5 F – CH 1, 2  | Homework  |
| 10  | X-ray emission  | C – CH 5 F – CH 1, 2  | Quiz Homework  |
| 11  | Review for Exam Interactions with matter  |  C – CH 11 F – CH 3   | Homework  |
| 12  | Interactions with matter  | C – CH 11 F – CH 3  | Exam – production and emission   |
| 13  | Interactions with matter  | C – CH 11 F – CH 3  |   |
| 14  | Review for final exam   |   | Quiz  |

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## D. Signatures

* Changes that affect General Education in any way MUST be approved by ALL Deans and COGE Chair.
* Changes that directly impact more than one department/program MUST have the signatures of all relevant department chairs, program directors, and their relevant dean (e.g. when creating/revising a program using courses from other departments/programs). Check UCC manual 4.2 for further guidelines on whether the signatures need to be approval or acknowledgement.
* Proposals that do not have appropriate approval signatures will not be considered.
* Type in name of person signing and their position/affiliation.
* Send electronic files of this proposal and accompanying catalog copy to curriculum@ric.edu and a printed signature copy of this whole form to the current Chair of UCC. Check UCC website for due dates.

##### D.1. Approvals: required from programs/departments/deans who originate the proposal. may include multiple departments, e.g., for joint/interdisciplinary proposals.

| Name | Position/affiliation | [Signature](#_Signature" \o "Insert electronic signature, if available, in this column) | Date |
| --- | --- | --- | --- |
| Eric Hall | Program Director of Medical Imaging | e-mail confirmation to curriculum@ric.edu | 4/1/2020 |
| Eric Roberts | Chair of Biology | e-mail confirmation to curriculum@ric.edu | 4/1/2020 |
| Earl Simson | Dean of FAS | e-mail confirmation to curriculum@ric.edu | 4/6/2020 |

##### D.2. [Acknowledgements](#acknowledge): REQUIRED from OTHER PROGRAMS/DEPARTMENTS (and their relevant deans if not already included above) that are IMPACTED BY THE PROPOSAL. SIGNATURE DOES NOT INDICATE APPROVAL, ONLY AWARENESS THAT THE PROPOSAL IS BEING SUBMITTED. CONCERNS SHOULD BE BROUGHT TO THE UCC COMMITTEE MEETING FOR DISCUSSION; all faculty are welcome to attend.

| Name | Position/affiliation | [Signature](#Signature_2) | Date |
| --- | --- | --- | --- |
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|  |  |  |  |
|  |  |  | Tab to add rows |