



Course Approval Form

For instructions see:
<http://registrar.gmu.edu/facultystaff/catalog-revisions/course/>

Action Requested:

Create new course Inactivate existing course Reinstate inactive course

Modify existing course (check all that apply)

Title Credits Repeat Status Grade Type

Prereq/coreq Schedule Type Restrictions

Other: _____

Course Level:

Undergraduate

Graduate

College/School: Department:

Submitted by: Ext: Email:

Subject Code: Number: Effective Term: Fall Spring Summer

(Do not list multiple codes or numbers. Each course proposal must have a separate form.) Year:

Title: Current Banner (30 characters max w/ spaces) New

Fulfills Mason Core Req? (undergrad only)

Currently fulfills requirement

Submission in progress

Credits: (check one) Fixed Variable or

Repeat Status: (check one) Not Repeatable (NR) Repeatable within degree (RD) Repeatable within term (RT) Maximum credits allowed:

Grade Mode: (check one) Regular (A, B, C, etc.) Satisfactory/No Credit Special (A, B, C, etc. +IP)

Schedule Type: (check one) Lecture (LEC) Lab (LAB) Recitation (RCT) Internship (INT)

Independent Study (IND) Seminar (SEM) Studio (STU)

Prerequisite(s): Corequisite(s):

Instructional Mode:

100% face-to-face

Hybrid: ≤ 50% electronically delivered

100% electronically delivered

Restrictions Enforced by System: Major, College, Degree, Program, etc. Include Code.

Are there equivalent course(s)?

Yes No

If yes, please list _____

Catalog Copy for NEW Courses Only (Consult University Catalog for models)

Description (No more than 60 words, use verb phrases and present tense)	Notes (List additional information for the course)
Introduction to basic analog and digital circuits, circuit design and simulation, and data acquisition	

Indicate number of contact hours: Hours of Lecture or Seminar per week: Hours of Lab or Studio:

When Offered: (check all that apply) Fall Summer Spring

Approval Signatures

Department Approval _____ Date _____ College/School Approval _____ Date _____

If this course includes subject matter currently dealt with by any other units, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.

Unit Name	Unit Approval Name	Unit Approver's Signature	Date

For Graduate Courses Only

Graduate Council Member _____ Provost Office _____ Graduate Council Approval Date _____

For Registrar Office's Use Only: Banner _____ Catalog _____

Course Proposal Submitted to the College of Science Curriculum Committee (COSCC)

The form above is processed by the Office of the University Registrar. This second page is for the COSCC's reference.
Please complete the applicable portions of this page to clearly communicate what the form above is requesting.

FOR ALL COURSES (required)

Course Number and Title: PHYS 311 – Instrumentation

Date of Departmental Approval:

FOR NEW COURSES (required if creating a new course)

- Reason for the New Course: No one-semester introductory survey of circuits and data acquisition suitable as preparation for experimental research for undergraduates in physical science exists.
- Relationship to Existing Programs: This course will be integral to the revised Physics B.S., required for the degree without concentration and for several of the concentrations
- Relationship to Existing Courses: ECE offers broader, more in-depth electronics courses for the professional electrical engineer.
- Semester of Initial Offering: Spring 2018
- Proposed Instructors: Cressman, Rubin, Sauer, Tian, Vora
- Insert Tentative Syllabus Below

Physics 311 – Instrumentation

Syllabus

Instructor: Phil Rubin

Office: PH 253

Phone: 703.993.3815

E-mail: prubin@gmu.edu

Office Hours: Monday and Wednesday 10:30-12:00

Prerequisite: PHYS 251 and 261 (strictly enforced)

Please note:

- All e-mail communication from the instructor concerning this course will be to GMU accounts only.
- If you are a student with a disability and require academic accommodations, please see me and contact the Office of Disability Resources at 703.993.2474. All academic accommodations must be arranged through that office.

Course Goals:

- To become familiar with circuit CAD and simulation and virtual instrumentation software
- To become familiar with basic analog and digital electronics
- To become proficient at keeping a laboratory notebook and producing technical notes

Textbooks:

- Hands-on Introduction to LabVIEW for Scientists and Engineers, J. Essick
- The Art of Electronics, P. Horowitz and W. Hill

Requirements:

- All technical work for this lab course must be kept and maintained in a bound notebook; notebooks will be checked weekly
- All projects are to be reported in a short technical note due the week after the project has been undertaken
- Projects consist of a simulation and a layout integrated with a data acquisition program, which provides signals and reads out responses; comparison of results with simulation is an integral portion of the technical note

Grading:

- Laboratory Notebook Checks: 50%
- Technical Notes: 50%

Topics:

1. Laboratory Notebooks and Technical Notes
2. Electronics CAD and Simulation Software, and National Instruments LabVIEW
3. Voltage Dividers
4. Frequency Filters
5. Diodes and Transistors
6. Operational Amplifiers

7. Digital Logic
8. Sequential Logic
9. ADCs and DACs

Honor Code Violations:

Science is impossible when dishonesty, in any manifestation, exists. It's the worst possible conduct a scientist can display. Dishonesty of any sort (cheating, plagiarism, lying, stealing) will be addressed in accordance with the GMU Honor Code.

Don't cheat. Don't even look like you're cheating.

The GMU Honor Code: <http://www.gmu.edu/catalog/9798/honorcod.html#code>

GMU Diversity Statement:

<http://ctfe.gmu.edu/professional-development/mason-diversity-statement/>