NE 401: Reactor Analysis and Design

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27. PeopleSoft (none)

Approval Path
1. Wed, 10 Feb 2016 20:46:03 GMT
   Lisa Marshall (lisa.marshall): Approved for 14NE UG Director of Curriculum
2. Thu, 11 Feb 2016 15:26:12 GMT
   Korukonda Murty (murty): Approved for 14NE GR Director of Curriculum
3. Thu, 11 Feb 2016 15:46:15 GMT
   Kostadin Ivanov (knivanov): Approved for 14NE UnderGrad Head
4. Mon, 21 Mar 2016 20:10:00 GMT
   David Parish (dwparish): Approved for COE CC Coordinator UG
5. Fri, 15 Apr 2016 18:45:33 GMT
   David Parish (dwparish): Approved for COE CC Meeting UG
6. Tue, 26 Apr 2016 14:49:58 GMT
   David Parish (dwparish): Approved for COE CC Chair UG
7. Tue, 26 Apr 2016 14:58:45 GMT
   David Parish (dwparish): Approved for COE Final Review UG
8. Tue, 26 Apr 2016 17:03:11 GMT
   Jerome Lavelle (jerome_lavelle): Approved for COE Dean UG
   Robyn Fillinger (rfillin): Approved for COE CC Coordinator GR
10. Thu, 19 May 2016 12:02:52 GMT
    Douglas Reeves (reeves): Approved for COE CC Chair GR
11. Thu, 19 May 2016 12:55:46 GMT
   Robyn Fillinger (rfillin): Approved for COE Final Review GR
12. Thu, 19 May 2016 13:00:11 GMT
   Douglas Reeves (reeves): Approved for COE Dean GR
   Li Marcus (lamarcus): Approved for OUCC Review
14. Thu, 18 Aug 2016 20:00:44 GMT
   Li Marcus (lamarcus): Approved for UCCC Coordinator
   Li Marcus (lamarcus): Approved for UCCC Meeting
   Andrew Nowel (andy_nowel): Approved for UCCC Chair
17. Wed, 24 Aug 2016 21:47:00 GMT
   Barbara Kirby (barbara_kirby): Approved for OUCC Final Signature
   Amy Matthews (amy_matthews): Approved for anmatthe
   Li Marcus (lamarcus): Rollback to anmatthe for OUCC Final Review
   Amy Matthews (amy_matthews): Approved for anmatthe
   Li Marcus (lamarcus): Rollback to anmatthe for OUCC Final Review
22. Tue, 04 Oct 2016 20:45:56 GMT
   Lisa Marshall (lisa.marshall): Approved for lmmarsha
23. Tue, 04 Oct 2016 20:47:30 GMT
   Li Marcus (lamarcus): Approved for OUCC Final Review
   Dmitriy Anistratov (anistratov): Approved for dyanistr
25. Wed, 02 Nov 2016 14:33:24 GMT
   Dmitriy Anistratov (anistratov): Approved for dyanistr
26. Thu, 03 Nov 2016 15:18:09 GMT
   Melissa Nosbisch (mnosbis): Approved for ABGS Coordinator
27. Thu, 15 Dec 2016 16:46:49 GMT
   Dmitriy Anistratov (anistratov): Approved for dyanistr
   Peter Harries (pjharrie): Approved for ABGS Meeting

Date Submitted: Mon, 08 Feb 2016 14:37:39 GMT

**Viewing: NE 401/NE 501: Reactor Analysis and Design**
Changes proposed by: doster

**Change Type**

**Major**

**Course Prefix**

NE (Nuclear Engineering)

**Course Number**

401

**Course ID**

016171

**Dual-Level Course**
Yes

Dual-Level Course Number:
501

Cross-listed Course
No

Title
Reactor Analysis and Design

Abbreviated Title
Reac Anly & Des

College
College of Engineering

Academic Org Code
Nuclear Engineering (14NE)

CIP Discipline Specialty Number
14.2301

CIP Discipline Specialty Title
Nuclear Engineering.

Term Offering
Spring Only

Year Offering
Offered Every Year

Effective Date
Spring 2017

Previously taught as Special Topics?
No

Course Delivery
Hybrid (Online/Face to Face)

Grading Method
Letter Grade Only

Credit Hours
3

Course Length
16 weeks

Contact Hours (Per Week)
Component Type
Lecture 3.0

Course Attribute(s)

Course Is Repeatable for Credit
No

Instructor Name
Dmitriy Anistratov

Instructor Title
Associate Professor

Grad Faculty Status
Full

Anticipated On-Campus Enrollment
Open when course_delivery = campus OR course_delivery = blended OR course_delivery = flip

<table>
<thead>
<tr>
<th>Enrollment Component</th>
<th>Per Semester</th>
<th>Per Section</th>
<th>Multiple Sections?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>40</td>
<td>40</td>
<td>No</td>
<td>NA</td>
</tr>
</tbody>
</table>

Course Prerequisites, Corequisites, and Restrictive Statement

NE 401 Prerequisites: MA 401 and C- or better in NE 301
NE 501 Prerequisites: NE 520 and MA 401 and CSC 112

Is the course required or an elective for a Curriculum?
Yes

Which Curricula are Affected?

<table>
<thead>
<tr>
<th>SIS Program Code</th>
<th>Program Title</th>
<th>Required or Elective?</th>
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</thead>
<tbody>
<tr>
<td>14NEBS</td>
<td>Nuclear Engineering</td>
<td>Required</td>
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</table>

Catalog Description

Elements of nuclear reactor theory for reactor core design and operation. Includes one-group neutron transport and mutigroup diffusion models, analytical and numerical criticality search, and flux distribution and calculations for homogeneous and heterogeneous reactors, slowing down models, introduction to perturbation theory.

Justification for each revision:
Revision in course hours from 4 to 3. The one hour laboratory sections associated with NE 301 and NE 401 are being dropped. In their place, a new required 2 hour Reactor Laboratory course is being added in the Spring Semester.

Does this course have a fee?
No

Is this a GEP Course?
No

Consultation

Instructional Resources Statement

This is an existing course, currently taught by the faculty in Nuclear Engineering as part of our required curriculum. No additional resources are required.
Course Objectives/Goals

Student Learning Outcomes

By the end of the course, the student will be able to:

a. apply the basic physical and mathematical models of particle transport that are behind basic theory of nuclear reactors

b. interpret the areas of application of these models,

c. apply these models for analysis of model reactors

d. perform basic calculations of flux distribution and criticality parameters (eigenvalues)

Student Evaluation Methods

<table>
<thead>
<tr>
<th>Evaluation Method</th>
<th>Weighting/Points for Each</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple exams</td>
<td>25</td>
<td>Two in-class exams</td>
</tr>
<tr>
<td>Homework</td>
<td>30</td>
<td>Weekly homework assigned</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25</td>
<td>Final examination given during the normal examination schedule</td>
</tr>
<tr>
<td>Project</td>
<td>20</td>
<td>One computational project</td>
</tr>
</tbody>
</table>

Topical Outline/Course Schedule

Syllabus

ne401-501syl-2017.pdf

Additional Documentation

Additional Comments

NE 501 has a separate syllabus for graduate students (attached).

minosbis 10/5/2016: No overlapping courses. There should be one syllabus for the course that covers undergraduate and graduate requirements. This is the requirement for all dual-level courses.

ghodge 10/14/2015 Need one dual level syllabus. Edit the Student Evaluation Methods shown above to include both undergraduate and graduate student requirements

ghound 11/01/2016 Student Learning outcomes do not match between CIM form and syllabus; Grading does not match between CIM form and syllabus; grading does not explain difference between 401 and 501; any difference between 401 and 501 for learning outcomes. Return to program

minosbis 11/3/2016: Received updated syllabus.

ASBGS Reviewer Comments:
- Textbook information is incomplete (required/optional, pricing, etc)
- Statement of differences between the 400- and 500-level versions is weak; the additional learning outcome for the graduate course is not assessable.
- Some dates in the action use spring dates, while others use fall dates.
- Class schedule ends 4/22/17, while the last day of classes is 4/28. A simple weekly schedule would be better and more permanent.
- Grading descriptions are too vague.
- “grading will go approximately as follows”. What is “approximate” about it?
- Typo entry for bullet item that simply says “The grading scale”
- Numerical to letter grade table needs <= entries to explain, for example, what grade a score of 89.3 would receive.
- The spot checking of HW should be described more carefully. (And as a personal opinion, this approach is destined to generate negative sentiment about the course and instructor.)
- The plan for auditors seems to be more suitable for S/U grading, since the policy statement mentions “to obtain credit”
- Extra credit mechanism is not clearly explained

ghodge 11/21/2016 Please ask program to address the concerns of the ABGS reviewers.

minosbis 1/10/2017: Concerns have been addressed.
Course Reviewer Comments

lamarcus (Wed, 07 Sep 2016 18:26:13 GMT): Rollback: NE 401/501 syllabus not attached - please attach a single, dual-level syllabus in order to move the course forward. Thanks!

Key: 4022