

# IFMG 254 Computer Technology Virtualization-NewCRS-2015-10-19

15-71a  
UWUCC AP- 11/10/15  
Senate App - 12/1/15

## Form Information

**First Step:** Change the text in the [brackets] so it looks like this: **CRIM 101 Intro to Criminology-NewCrs-2015-08-10**

**Second Step:** Click save on bottom right

**Third Step:** Make sure the word "**DRAFT**" is in yellow at the top of the proposal

**Fourth Step:** Click on **EDIT CONTENTS** and start completing the template. When exiting or done, click save on bottom right

When ready to submit click on the workflow icon and hit approve. It will then move to the chair as the next step in the workflow.

Please direct any questions to curriculum-approval@iup.edu

### \*Indicates a required field

Proposer*	Azad Ali	Proposer Email*	azad.ali@iup.edu
Contact Person*	Azad Ali	Contact Email*	azad.ali@iup.edu
Proposing Department/Unit*	Information Systems and Decision Science	Contact Phone*	724-357-5747

### (A) Course Prefix\*

See the Registrar's List of Unavailable Course Numbers at <http://www.iup.edu/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=129323>

IFMG

### (B) Course Number\*

If Dual Listed, enter both course numbers

254

### (C) Course Title\*

Computer Technology Virtualization

### (D) Course Level\*

undergraduate-level

### (E) Cross Listed\*

**Dual Listed = Courses listed at two levels, such as undergraduate and graduate, masters and doctoral, etc. Cross Listed = Course has more than one prefix such as GEOG/RGPL 233**

NO

If YES, with:

### (F) Variable Credit\*

NO

If YES, enter the number of credits:

### (G) Variable Title\*

NO

If YES, enter the title(s):

**(H) Number of Credits\***

Class Hours:3

Lab Hours:

Credits:3

**(I) Prerequisite(s)**

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**(J) Co-requisite(s)**

***This means that another course must be taken in the same semester as the proposed course***

**(K) Additional Information**

***Check all that apply. Note: Additional documentation will be required***

***\* Teacher Education: Please complete the Teacher***

***Education section of this form (below)***

***\* Liberal Studies: Please complete the Liberal Studies***

***section of this form (below)***

***\* Distance Education: Please complete the Distance***

***Education section of this form (below)***

**(L) Recommended Class Size**

YES

Number (Enter Zero if No):30

If YES: (Check one of the following reasons and provide a narrative explanation)

Pedagogical  
Explain (required):

A course for students to learn computer virtualization require a lot of hands-on work on the computer. Working in this environment is likely to produce a lot of challenges that need to be dealt with during class. Having a class size of more than 30 students is likely to generate problems that delay completing the teaching of the class in the regular time.

**(M) Catalog Description\***

***Guidelines: Do not include pre/co-requisite information here. The registrar prefers a concise description of course content, beginning with an active verb.***

**Introduces virtualization technology in the computing environment through the study of various related tools. Highlights key issues related to creating and using the virtual environment infrastructure. Presents alternatives for incorporating virtualization solutions at organizations. Uses technological case studies and practical applications. Prepares students to propose virtualization solutions for enterprise computing environments.**

**(N) Student Learning Outcomes\***

*These should be measurable, appropriate to the course level, and phrased in terms of student achievement, not instructional or content outcomes*

*If dual listed, indicate additional learning objectives for the higher level course.*

**Develop understanding of virtualization concepts and terms**

**Apply virtualization computing technology solutions**

**Comprehend issues related to virtual environment infrastructure**

**Establish procedures for the working of operating systems virtualization.**

**Propose solutions for enterprise virtualization issues**

**Configure and troubleshoot virtualization security issues**

**(O) Brief Course Outline\***

*Give an outline of sufficient detail to communicate the course content to faculty across campus. It is not necessary to include specific readings, calendar, or assignments*

*As outlined by the federal definition of a "credit hour", the following should be a consideration regarding student work - For every one hour of classroom or*

*direct faculty instruction, there should be a minimum of two hours of out of class student work.*

1. Virtualization overview
  - a. History of virtualization
  - b. Basic concepts of virtualization
  - c. Time sharing systems
  - d. Distributed computing system
  - e. Virtual machine anatomy
  - f. Virtual machine preparation
  - g. Virtual machine file system
2. Applying virtualization
  - a. Virtualization configuration
  - b. Preparing budget for virtualization
  - c. Migration to virtualization
  - d. Deployment of virtualization
  - e. Virtualization maintenance
3. The virtual environment infrastructure
  - a. Hardware role in virtualization
  - b. File Systems and Storage
  - c. Towers racks and blades
  - d. Chip vendors in virtualization
  - e. Cores and sockets in virtualization hardware
  - f. Virtualization vendor choices
  - g. Virtualization through cloud computing
4. Operating systems virtualization
  - a. File systems virtualization
  - b. Embedded systems virtualization
  - c. Environmental support for virtualization
  - d. Virtual operating systems interfaces
  - e. Abstraction virtualization
  - f. I/O and memory issues in virtualization
  - g. Virtualization challenges in operating systems
5. Enterprise virtualization
  - a. Installing virtual machine on enterprise servers
  - b. Deploying virtual machine on enterprise servers
  - c. Managing enterprise virtual solutions
  - d. Virtual machine backup and recovery
  - e. Virtual machine file systems
  - f. Virtual machine clusters
  - g. The virtualized system
6. Virtualization security
  - a. Fundamentals of virtualization security
  - b. Virtualization architecture
  - c. Vulnerabilities in virtualization
  - d. Challenges for securing virtualized environment
  - e. Protecting virtualized environment
  - f. Effects of virtualization on information security
  - g. Virtualization and forensics

#### **Rationale for Proposal**

**(P) Why is this Course Being Proposed?\***

It is one of four courses being proposed for a new Information Technology (IT) track that is being worked on by our department.

**(Q) University  
Senate Summary  
of Rationale**

**Please enter a single paragraph summary/rationale of changes or proposal for University Senate.**

**(R) How Does it  
Fit Into the  
Departmental  
Curriculum?\***

**Check all that apply**

Free Elective

If Other, please explain:

**(S) Is a Similar  
Class Offered in  
Other  
Departments?\***

NO

Please Provide Comment:

We checked, we did not find similar courses offered at other departments

**(T) Does It Serve  
the  
College/University  
Above and**

NO

Please Provide Comment:

**Beyond the  
Role it Serves in  
the Department?\***

This course explains about a growing solution for prevalent technology problems in the industry. Students from other departments (or from the industry) may find it useful in their programs or for their organizations.

**(U) Who is the  
Target Audience  
for the Course?\***

Course Designed for Minor

Department Elective

Course Designed for Majors

Restricted to Majors/Minors

If Other, please explain:

**(V) Implications  
for Other  
Departments\***

A. What are the implications for other departments?

**(For Example: overlap of content with other disciplines, requirements for other programs)**

No overlap and no implications for other departments

B. How have you addressed this with other department(s) involved? What was the outcome of that attempt?

(W) Attach  
Supporting  
Documents for  
Implications,

File

Modified ^

if Necessary

(X) Are the  
Resources  
Adequate?\*

(i.e. faculty, space, equipment, laboratory supplies, library materials, travel funds, etc.)

YES

Please Provide Comment:

Last year, two departments (MIS and BTS) were merged together. Part of the agreement at the time of merging was to develop a new track for Information Technology (IT) students. So we are working here to develop courses for this new track. Faculty from the old BTS major will be teaching courses in this track.

## Distance Education Section

**- Complete this section only if adding Distance Education to a New or Existing Course**

If Completing this  
Section,

Check the Box to the  
Right:

Course Prefix/Number

Course Title

Type of Proposal

**See CBA, Art. 42.D.1 for Definition**

Brief Course Outline

**Give an outline of sufficient detail to communicate the course content to faculty across campus. It is not necessary to include specific readings, calendar or assignments**

**As outlined by the federal definition of a "credit hour", the following should be a consideration regarding student work - For every one hour of classroom or**

**direct faculty instruction, there should be a minimum of two hours of out of class student work.**

### Rationale for Proposal (Required Questions from CBA)

How is/are the  
instructor(s) qualified

in the Distance  
Education delivery

method as well as the  
discipline?

**For each outcome in the course, describe**

**how the outcome will be achieved using**

**Distance Education technologies.**

**How will the instructor-student and**

**student-student interaction take place?**

**(If applicable)**

**How will student achievement be evaluated?**

**How will academic honesty for tests**

**and assignments be addressed?**

## **Liberal Studies Section**

**- Complete this section only for a new Liberal Studies course or Liberal Studies course revision**

**If Completing this Section,**

**Check the Box to the Right:**

**Liberal Studies Course Designations (Check all that apply)**

**Learning Skills:**

**Knowledge Area:**

**Liberal Studies  
Elective**

***Please mark the designation(s) that apply - must meet at least one***

**Expected  
Undergraduate  
Student**

***Describe how each Student Learning Outcome in the course enables students to become Informed Learners, Empowered Learners and/or Responsible Learners***

**Learning Outcomes  
(EUSLOs)**

***See <http://www.iup.edu/WorkArea/DownloadAsset.aspx?id=181694>***

**Description of the  
Required**

***Narrative on how the course will address the Selected Category Content***

**Content for this  
Category**

**All Liberal Studies courses are required to include perspectives on cultures and have a supplemental reading.**

**Please answer the following questions.**

**Liberal Studies  
courses must  
include**

**the perspectives and  
contributions**

**of ethnic and racial  
minorities and**

**of women whenever  
appropriate to**

**the subject matter.  
Please explain**

**how this course will  
meet this**

**criterion.**

**Liberal Studies  
courses require the**

**reading and use by  
students of at**

**least one  
non-textbook work of**

**fiction or non-fiction  
or a collection**

**of related articles.  
Please describe**

**how your course will  
meet this**

**criterion.**

## **Teacher Education Section**

**- Complete this section only for a new Teacher Education course or Teacher Education course revision**

**If Completing  
this Section,**

**Check the  
Box to the  
Right:**

**Course  
Designations:**

**Key  
Assessments**



For both new and revised courses, please attach (see the program education coordinator):

- The Overall Program Assessment Matrix
- The Key Assessment Guidelines
- The Key Assessment Rubric

**File**

**Modified** ▲

No files shared here yet.

Drag and drop to upload or **browse for files**

**Narrative  
Description  
of the**

***How the proposal relates to the Education Major***

**Required  
Content**

**For Deans Review**

Are Resources Available/Sufficient for this Course?

Is the Proposal Congruent with the College Mission?

Has the Proposer Attempted to Resolve Potential Conflicts with Other Academic Units?

Comments: