15-710
UWUCC AP 11/20/15
Senate App 12/1/15

# IFMG 360 Information Storage and Management -NewCrs-2015-10-22

**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*** | Pankaj Chaudhary | **Proposer Email*** | pankaj@iup.edu |
| **Contact Person*** | Pankaj Chaudhary | **Contact Email*** | pankaj@iup.edu |
| **Proposing Department/Unit*** | Information Systems and Decision Sciences | **Contact Phone*** | 724-357-2601 |

**(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***

360

**(C) Course Title***

Information Storage and Management

**(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:0

Credits:3

**(I) Prerequisite(s)**

IFMG 352

**(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):

The course involves hands on work by students. This makes it difficult to address student problems during the class period when students are doing hands on work, in case class size is too large, in a 50 minute class periods. This is most likely to happen when the class is scheduled during the MWF regular time slots.

**(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.***

Provides the knowledge for understanding the storage infrastructure required to store this information in personal, enterprise, and cloud computing settings. Focuses on the different components of storage infrastructure and how to successfully manage it. Examines basic and advanced concepts of storage technology to enable evaluation and design of storage architectures with features to meet a variety of technical and business needs. Considers disaster recovery and business continuity solutions such as backups, replication, and archiving which is related to the broader field of information assurance.

**(N) Student Learning Outcomes***

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

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

1. Understand the importance of information storage and management from a business perspective.
2. Apply storage management in personal, enterprise, and cloud computing settings.
3. Discuss the different components and technologies that go into designing different storage architectures.
4. Evaluate different architectures for information storage.
5. Analyze security and legal issues related to information and storage management.
6. Synthesize information and storage considerations required for business continuity and disaster recovery purposes.

**(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. Introduction to Information and Storage Management:
   a. Evolution of storage architecture, key data center elements, virtualization, and cloud computing.
   b. Data Center Environment: Hosts, networking, storage, and application in both traditional and virtual environments.
2. Technology Components
   a. Addressing schemes
   b. Mechanical drives, solid-state drives, and other emerging technologies.
   c. Direct Attached Storage and Network Attached Storage
   d. RAID types, implementations, and application performance considerations.
3. Storage Architectures
   a. Intelligent Storage system including virtual storage provisioning
   b. Storage Networking Technologies
   c. Fibre Channel Storage Area Network (FC SAN)
   d. IP Storage Area Network and Fibre Channel over Ethernet (FCoE) Storage Area Network
   e. Network Attached Storage (NAS)
   f. Object based and Unified Storage
   g. Storage in a Cloud Computing Paradigm
4. Disaster Recover and Business Continuity
   a. Information availability and business continuity solutions in both virtualized and non-virtualized environments.
   b. Backup and Archiving including deduplication.
   c. Local and Remote replication.
5. Securing and Managing Storage Infrastructure
   a. Framework and domains of storage security
   b. Storage security implementation
   c. Storage infrastructure monitoring and management (storage tiering, information lifecycle management (ILM))

**Rationale for Proposal**

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

The ISDS department is in process of floating an IT track to augment its curriculum offering. The purpose of the IT track is to develop professionals to fulfill the demands of managing the IT infrastructure that is coming online on a large scale and rapid fashion scale due to establishment of data centers to service personal, private, public, and hybrid cloud infrastructure. This course is likely to be part of this IT track as well being offered as an elective to students interested in learning more about information and storage management. Information is the new oil of the information age. Information is not only coming online at at large scale but also in a rapid fashion. This course addresses the knowledge areas needed to store and manage the storage in efficient and effective manner.

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

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

The ISDS department is in process of floating an IT track to augment its curriculum offering. The purpose of the IT track is to develop professionals to fulfill the demands of managing the IT infrastructure that is coming online on a large scale and rapid fashion scale due to establishment of data centers to service personal, private, public, and hybrid cloud infrastructure. This course is likely to be part of this IT track as well being offered as an elective to students interested learning more about information and storage management. Information is the new oil of the information age. Information is not only coming online at a large scale but also in a rapid fashion. This course addresses the knowledge areas needed to store and manage the storage in efficient and effective manner.

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

***Check all that apply***

Other

If Other, please explain:

Controlled Elective

Requirement for the IT track.

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

NO

Please Provide Comment:

**(T)Does it Serve the College/University Above and Beyond the Role it Serves in the Department?***

YES

Please Provide Comment:

As mentioned before the course addresses a knowledge area required for professionals going out into the new emerging paradigm of cloud computing. There is no similar coursework anywhere in the university and given the importance of cloud computing it is likely to provide some competitive advantage in terms of attracting students who are interested in the area of IT infrastructure to the Eberly College and the ISDS Department. It will also leverage the skills of two new faculty members that the ISDS department got as a result of merger between the MISDS and the BTST departments.

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

Department Elective

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)***

There are no implications for any other departments.

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

Not applicable.

**(W) Attach Supporting Documents for Implications, if Necessary**

| File | Modified |
|---|---|

**(X) Are the Resources Adequate?***

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

YES

Please Provide Comment:

Space: Classroom space is adequate. The ECB lab 111 is adequately equipped for this course.

Equipment: The Eberly laboratory is adequately equipped for this course; all software is available either free or through existing subscription or free through industry academic alliances.

Laboratory Supplies and other Consumable Goods: The ISDS Department has licensed copies of software required for the course. The course will use some simulators and software available as Software as a Service free of cost through academic alliances. Some periodic updates to locally installed software will be required to keep up with the technology. Hardware resources are also available.

Library Materials: There is an adequate source of reading material in Stapleton Library. Other reading material is available either as free white papers, magazine articles, and industry reports on the Internet.

Travel Funds: No travel funds are needed.

## 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 Learning Outcomes (EUSLOs)** | ***Describe how each Student Learning Outcome in the course enables students to become Informed Learners, Empowered Learners and/or Responsible Learners***<br><br>***See http://www.iup.edu/WorkArea/DownloadAsset.aspx?id=181694*** |
| **Description of the Required Content for this Category** | ***Narrative on how the course will address the Selected Category Content*** |

**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.

**Narrative Description of the Required Content**

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

**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: