Eastern Illinois University
New/Revised Course Proposal Format
(Approved by CAA on 4/3/14 and CGS on 4/15/14, Effective Fall 2014)

CGS Agenda Item: 21-15
Effective Fall 2021

Banner/Catalog Information (Coversheet)

1. **_X__New Course or _____Revision of Existing Course**
2. **Course prefix and number:** __TEC 5863_____
3. **Short title:** _ Advanced Cloud Computing_____
4. **Long title:** _ Advanced Cloud Computing _____
5. **Hours per week:** _2__ Class _2__ Lab _3_ Credit
6. **Terms:** _X__ Fall _X__ Spring __ Summer _X_ On demand
7. **Initial term**: _X__ Fall ___ Spring ___ Summer Year: _2021___
8. **Catalog course description:** _ This course provides students the understanding of a broad set of global cloud-based products including compute, storage, databases, analytics, networking, mobile, developer tools, management tools, IoT, security, enterprise applications and pricing. The students will gain an overview of the benefits of the Cloud and introducing them to the services that make up the platform which enables the above.
9. **Course attributes:**

   General education component: ___ N/A _____

   ___ Cultural diversity ___ Honors ___ Writing centered ___ Writing intensive ___Writing active

10. **Instructional delivery**
    Type of Course:

    ___ Lecture ___ Lab _X__ Lecture/lab combined ___ Independent study/research

    ___ Internship ___ Performance ___ Practicum/clinical ___ Other, specify: _____

    Mode(s) of Delivery:

    _X__ Face to Face _X__ Online ___ Study Abroad

    _X_ Hybrid, specify approximate amount of on-line and face-to-face instruction___~ 51% Face-to-face and 49% online_____

11. Course(s) to be deleted from the catalog once this course is approved. ___None_____
12. **Equivalent course(s):** _____

    a. **Are students allowed to take equivalent course(s) for credit?** ___ Yes _X__ No

    b. **Prerequisite(s):** _TEC 5373 or equivalent, OR permission of instructor OR permission of School of Technology chair

    c. **Can prerequisite be taken concurrently?** ___ Yes _X__ No

d. Minimum grade required for the prerequisite course(s)? _C__

e. Use Banner coding to enforce prerequisite course(s)? _X_ Yes ___ No

f. Who may waive prerequisite(s)?

___ No one _X__ Chair _X__ Instructor __ Advisor ___ Other (specify)

13. Co-requisite(s): ___None_____

14. Enrollment restrictions

a. Degrees, colleges, majors, levels, classes which <u>may</u> take the course: _

Students majoring in the Masters of Technology program and Cybersecurity

b. Degrees, colleges, majors, levels, classes which may <u>not</u> take the course: __ All others _

15. Repeat status: _X__ May not be repeated ___ May be repeated once with credit

16. Enter the limit, if any, on hours which may be applied to a major or minor: ___

17. Grading methods: _X__ Standard ___ CR/NC __ Audit ___ ABC/NC

18. Special grading provisions:

___ Grade for course will <u>not</u> count in a student's grade point average.

___ Grade for course will <u>not</u> count in hours toward graduation.

___ Grade for course will be removed from GPA if student already has credit for or is registered in: _____

___ Credit hours for course will be removed from student's hours toward graduation if student already has credit for or is registered in: _____

19. Additional costs to students:
Supplemental Materials or Software_____

Course Fee _X__No ___Yes, Explain if yes_____

20. Community college transfer:

___ A community college course may be judged equivalent.

_X__ A community college may <u>not</u> be judged equivalent.

Note: Upper division credit (3000+) will <u>not</u> be granted for a community college course, even if the content is judged to be equivalent.

Rationale, Justifications, and Assurances (Part I)

1. ___Course is required for the major(s) of _____
   ___Course is required for the minor(s) of _____
   ___Course is required for the certificate program(s) of _____
   _X__ Course is used as an elective

2. **Rationale for proposal**:
   Graduate students in Technology are required to take a minimum of 19 hours of elective courses numbered 5000 and above. Currently, we offer fewer courses at 5000 and above in the computer domain in the graduate program of Technology.

   Computer Technology profession is expected to grow 13 % each year till 2026 according the Bureau of Labor Statistics. In Illinois alone, this equates to several hundreds of jobs each year. As a result, this course is being developed to satisfy the Industry needs for our students to have knowledge of the latest trends and topics in the Computer Technology domain. The content of this course helps the students attain the more "in-demand" skills. Currently, there is no coursework that is flexible for students seeking knowledge in this area online or in a hybrid format.

3. **Justifications for (answer N/A if not applicable)**
   Similarity to other courses: N/A
   Prerequisites: Some background in JAVA or equivalent object-oriented programming language is necessary to be successful in this course.
   Co-requisites: N/A
   Enrollment restrictions: Graduate students in TEC and CYB
   Writing active, intensive, centered: N/A

4. **General education assurances (answer N/A if not applicable)**
   General education component: N/A
   Curriculum: N/A
   Instruction: N/A
   Assessment: N/A

5. **Online/Hybrid delivery justification & assurances (answer N/A if not applicable)**
   Online or hybrid delivery justification:
   The content and structure for this course relies upon independent research, in-depth group discussion, and video based lecture. As compared to many lab courses already offered in technology area, this course requires online delivery of lecture and discussion and face-to-face lab activities for applied projects. For content delivered online, the course employs online video presentations, structured web discussions focused on reading assignments, and linked to articles submitted to the instructor. Students are required to draw on research and review of articles to discuss and develop fundamental

procedural knowledge of application. Discussions invite students to explore in more detail the required knowledge and procedures to analyze and design systems. Discussions and examinations will be administered and submitted via the online course management tool. With the current technology, many software design companies have made their software tools more readily accessible for students. The Internet connection speed for many users has increased thereby allowing for higher quality rich media instruction to be delivered. Finally, the course management tools that the university now uses allows there to be a richer interaction between students and faculty. To accommodate this situation, many of the given activities may be completed in a hybrid format.

Instruction:

This course employs instructor led online presentations, student reading assignments, student applied design assignments, peer critique and troubleshooting, student presentations, and examinations. After reviewing the instructor led presentations and completing the student reading assignments, students will be required to draw on what they have read and then to apply it to a context of analyzing and designing software systems. While working on these projects, students may engage in the activity of troubleshooting or critique while posting their work in an online discussion board for both classmates and the instructor to provide feedback and guidance. Presentations will provide learners a forum to share the results of their work and receive further feedback. Reading assignments, applied projects, and examinations will be administered, collected, and/or submitted via the online course management tool. Presentations may also be delivered in the course tool or face-to-face. All faculty who will deliver this course online are/will be OCDi (or appropriate equivalent) trained.

Integrity:

Work submitted online, such as discussions and examinations, will be substantiated via learners providing citation in APA format and submitting related articles to quantify work. Further, the length, frequency, quality, and integrity of discussion posts can be monitored via the online course management tool. Examinations will require the same of learners and additionally will use software tools, such as “TURNITIN”, to check work for the integrity and authenticity of submitted assignments. The examinations will be time restricted and of sufficient length to prohibit consultation of unauthorized sources. Work submitted face-to-face in applied lab projects will be checked for authenticity via the individualized nature of project completion. Requirements for projects will require learners to engage in activities that require creation of original content for either themselves or local entity.

Interaction:

For online content, the course employs email, web-based discussions, exploration of off-site Internet resources, web-based presentations, web chat rooms and lab based applied project work. The instructor will communicate with students through the online discussion board and web-based discussions. Email may also be a tool used for the instructor to communicate with an individual student or to post course announcements. The learners for this course may also communicate with one

another for these tools. During digital office hours, the instructor will remain available for discussion during certain times and communicate using a chat room tool in the learning management system. For face-to-face interaction, the instructor may communicate synchronously with the learners during open lab activities and during office hours. The learners are also free to communicate with other learners during lab activities.

Model Syllabus (Part II)

Please include the following information:

1. Course number and title
TEC 5863 – Advanced Cloud Computing

2. Catalog description
This course provides students the understanding of a broad set of global cloud-based products including compute, storage, databases, analytics, networking, mobile, developer tools, management tools, IoT, security, enterprise applications and pricing. The students will gain an overview of the benefits of the Cloud and introducing them to the services that make up the platform which enables the above.

3. Learning objectives.
Upon completion of this course, students will be able to:

a. Describe the core Cloud services including architecture, compute, network, database, and storage services (Grad 1,3)
b. Describe the basics of Cloud migration (Grad 1,3)
c. Employ the core billing, account management, and pricing models to provide financial benefits of the Cloud (Grad 1-3)
d. Apply the core security services within the Cloud to respect the compliance aspects of a Cloud platform (Grad 1-3)
e. Deploy and operate cloud-based solutions (Grad 1-4)

Graduate Learning Goals

Objective	Depth of Content knowledge	Critical thinking and problem solving	Oral and/or written communication	Advance scholarship through research and creative activity
(a)	X		X	
(b)	X		X	
(c)	X	X	X	
(d)	X	X	X	
(e)	X	X	X	X

4. Course materials.
This will include lecture notes, online resources (such as online tutorials, research papers), etc. There will be no specific textbook requirement.

5. Weekly outline of content.

Face-to-Face / Online Modality:

Week	**Topics (1 – 100 mins session, 2 – 50 mins sessions)**	**Activities (1 – 100 mins session, 2 – 50 mins sessions)**
Week 1	History and Introduction of Cloud	Intro Lab
Week 2	Cloud Environment	Environment Lab
Week 3	Pricing and Billing	Cost Lab
Week 4	Security	Security Lab
Week 5-6	Core Computing Services	Computing Lab
Week 7-8	Core Storage Services	Storage Lab
Week 9	Midterm	Presentation
Week 10-11	Core Database Services	dB Lab
Week 12 -13	Core Networking Services	Networking Lab
Week 14	Automating the Workload	Automation Lab
Week 15	Common Use-Case Scenarios	Use-Cases Lab
Week 16	Final Exam	Final Project

Hybrid Modality:

Face-to-Face / Online Modality:

Week	**Topics (1 – 100 mins session, 2 – 50 mins sessions)**	**Activities (1 – 100 mins session, 2 – 50 mins sessions)**
Week 1	History and Introduction of Cloud	Intro Lab
Week 2	Cloud Environment	Environment Lab
Week 3	Pricing and Billing	Cost Lab
Week 4 Face to Face Meetings: 8 am to 5 pm	Question/Answers/Review Sessions of Weeks 1 to 3 Security	Security Lab
Week 5-6	Core Computing Services	Computing Lab
Week 7-8	Core Storage Services	Storage Lab
Week 9 Face to Face Meetings: 8 am to 5 pm	Question/Answers/Review Sessions of Weeks 5 to 8 Midterm	Presentation
Week 10-11	Core Database Services	dB Lab
Week 12 -13	Core Networking Services	Networking Lab
Week 14 Face to Face Meetings: 8 am to 5 pm	Question/Answers/Review Sessions of Weeks 10 to 13 Automating the Workload	Automation Lab
Week 15	Common Use-Case Scenarios	Use-Cases Lab
Week 16	Final Exam	Final Project

6. Assignments and evaluation, including weights for final course grade.

	Graduate (G)
Labs	45 %
Class Participation	5 %
Exams	35 %
Projects	15 %
Total	100 %

7. Grading scale.
A = 90% or above, B = 80 – 89%, C = 70 – 79%, D = 60 – 69%, F = Below 60%

8. Correlation of learning objectives to assignments and evaluation.

Objective	**Labs** 45%	**Class Participation** 5%	**Projects** 15%	**Exams** 35%
a. Describe the core Cloud services including architecture, compute, network, database, and storage services (Grad 1,3)	X	X		X
b. Describe the basics of Cloud migration (Grad 1,3)	X	X		X
c. Employ the core billing, account management, and pricing models to provide financial benefits of the Cloud (Grad 1-3)	X	X		X
d. Apply the core security services within the Cloud to respect the compliance aspects of a Cloud platform (Grad 1-3)	X	X	X	X
e. Deploy and operate cloud-based solutions (Grad 1-4)	X	X	X	X
f. Describe the core Cloud services including architecture, compute, network, database, and storage services (Grad 1,3)	X	X	X	X

Date approved by the department or school: 1-28-2021
Date approved by the college curriculum committee: 02-08-2021
Date approved by the Honors Council *(if this is an honors course):*
Date approved by CAA: CGS: