Course Specifications

Course Title:	Systems Integration and Architecture
Course Code:	**502510-3**
Program:	**Bachelor in Information Technology**
Department:	**Department of Information Technology**
College:	**College of Computers and Information Technology**
Institution:	**Taif University**

Table of Contents

A. Course Identification

1. Credit hours:	

2. Course type

a.	University ☐	College ☐	Department ☑			Others ☐	
b.		Required ☑		Elective ☐			

3. Level/year at which this course is offered: 13/5

4. Pre-requisites for this course (if any)**: 502449-3**

5. Co-requisites for this course (if any)**:None**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	8	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	50
2	Laboratory/Studio	30
3	Tutorial	
4	Others (specify)	
	Total	80

B. Course Objectives and Learning Outcomes

1. Course Description

This course studies the process of integrating different systems and software applications by examining current and emerging trends, strategies, and techniques for developing systems integration solutions effectively. Example topics covered include, but are not limited to: documenting integration requirements using business process models, designing integration solutions reusing patterns, and implementing integration solutions using service oriented architecture. Students will extend course topics via library assignments, programming assignments, tool evaluation assignments, and other assigned activities.

2. Course Main Objective

The main objective of this course is to Learn the students to identify key challenges, concepts, drivers, and strategies related to systems integration, explain the main systems integration architecture, methodologies, and technologies and design feasible solutions for an integration problem and apply the studied integration technologies to implement system integration solutions.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Identify and analyze key challenges, concepts, drivers , strategies and managerial issues related to systems integration projects	K1
2	**Skills :**	
2.1	Design feasible solutions for an integration problem that utilizes proven design solutions described in integration patterns	S2
2.2	Apply advanced integration technologies to implement system integration solutions	S1
2.3	Apply key systems integration architecture, methodologies, and technologies.	S3
3	**Values:**	

C. Course Content

No	List of Topics	Contact Hours
1	Overview of Systems Integration: challenges and drivers	5
2	Types of systems integration	5
3	Systems integration technologies	5
4	Enterprise Resource Planning Systems and business process models	5
5	Integration methodologies	5
6	Designing systems integration solutions and Enterprise integration patterns	5
7	XML and Application Integration	10
8	Systems integration tools assessment	10
9	Service-oriented Architecture and Web Services	10
10	Advanced Web Services technologies	10
11	Integrating Web Services into Applications	10
	Total	80

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Identify and analyze key challenges, concepts, drivers , strategies and managerial issues related to systems integration projects	Lecture Discussion Lab work	Written Exams Assignments Practical Exam
2.0	**Skills**		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.1	Design feasible solutions for an integration problem that utilizes proven design solutions described in integration patterns	Lecture Discussion Lab work	Written Exams Assignments Practical Exam
2.2	Apply advanced integration technologies to implement system integration solutions	Lecture Discussion Lab work	Written Exams Assignments Practical Exam
3.0	**Values**		
3.1	Describe and apply key systems integration architecture, methodologies, and technologies.	Lecture Discussion Work group	Writing Exam Assignments Project Report Oral Presentations

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Assignments	10	5%
2	Mid Exam	6	20%
3	Minor project	11	10%
4	Final presentation	11	5%
5	Labs	10	20%
6	Final Exam	12	40%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

Academic advising and counseling of students is an important component of teaching; student academic advising is a mandatory requirement of College of Computers and Information Technology (CCIT). Appropriate student advising provides support needed for the student during times of difficulty. In addition, it helps the student to build a close relationship with his/her advisor and to provide student motivation and involvement with the institution.

In addition, since faculty are usually the first to recognize that a student is having difficulty, faculty members play a key role in developing solutions for the students or referring them to appropriate services. Faculty members also participate in the formal student-mentoring program.

Additional counseling is provided by course directors, who provide students with academic reinforcement and assistance and refer "at risk" students to the Vice Dean for Academic Affairs and the Vice Dean for female section.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Enterprise Integration: An Architecture for Enterprise Application and Systems Integration (Paperback), by Fred A. Cummins (Author), Paperback: 496 pages, Publisher: Wiley; 1st edition (February 1, 2002), ISBN-10: 0471400106
Essential References Materials	• Enterprise Systems for Management, Luvai Motiwalla and Jeffrey Thompson, Prentice Hall, 2nd Edition, 2011, ISBN: 13 9780132145763 • Concepts in Enterprise Resource Planning, Bret Wagner and Ellen, Cengage Learning, 1st Edition, 2012, ISBN: 10 9781423901792 • Next Generation Application Integration: From Simple Information to Web Services, David S. Linthicum, Addison-Wesley Professional , 1st Edition, 2013, ISBN: 13 9780201844566 • Enterprise Integration: The Essential Guide to Integration Solutions, Beth Gold-Bernstein and William Ruh, Addison-Wesley Professional, 1st Edition, 2005, ISBN: 13 9780321223906 • Enterprise Integration Patterns: Designing, Building, and Deploying Messaging Solutions, Gregor Hohpe and Bobby Woolf, Addison-Wesley Professional, 1st Edition, 2012, ISBN: 13 9780321200686 • Service-Oriented Architecture: A Field Guide to Integrating XML and Web Services, Thomas Erl, Prentice Hall, 1st Edition, 2004, ISBN: 10 9780131428980
Electronic Materials	Presentations and recorded lectures
Other Learning Materials	-

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	• A Lecture room appropriate for maximum 25 students with a personal computer, a data show and a smart board. • A Lab room appropriate for maximum 15 students with a personal computer, a data show and a smart board.
Technology Resources (AV, data show, Smart Board, software, etc.)	Lab materials and required software
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students	Students' surveys and Students course evaluation
Improvement of Teaching	Course Coordinator	deficiencies based on the student Evaluation, faculty input, course file, and program assessment
Verifying Standards of Student Achievement	Curriculum Committee	● Review CAF (Course assessment file) ● Alumni surveys. ● Periodic exchange and remarking of tests or a sample of assignments with staff at another

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	IT Department Council/ Executive program committee
Reference No.	11
Date	23/10/21443