



Course Specification

(Bachelor)

Course Title: **Business Process Modelling and Simulation**

Course Code: **SE4702**

Program: **BSc in Software Engineering**

Department: **Software Engineering**

College: **College of Computing**

Institution: **Umm Al Qura University**

Version: **1.0**

Last Revision Date: **22/04/2025**



Table of Contents

A. General information about the course:	3
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods	4
C. Course Content	5
D. Students Assessment Activities	6
E. Learning Resources and Facilities	6
F. Assessment of Course Quality	7
G. Specification Approval	7



A. General information about the course:

1. Course Identification

1. Credit hours: (3)

2. Course type

A. University College Department Track Others
 B. Required Elective

3. Level/year at which this course is offered: (3rd year/ 5th or 6th level) or (4th year/8th level)

4. Course General Description:

Business Process Modeling and Simulation focuses on the methodologies and tools needed to analyze, model, and simulate business processes to enhance efficiency and performance. Students will learn techniques for identifying, documenting, and optimizing processes. This includes the use of both quantitative and qualitative analysis, redesign strategies, automation frameworks, and process intelligence tools to tackle real-world organizational challenges.

5. Pre-requirements for this course (if any):

SE3102 - Software Design and Architecture

6. Co-requisites for this course (if any):

N/A

7. Course Main Objective(s):

Upon successful completion of this unit, students should be able to:

1. Describe the fundamental concepts, terminologies, and techniques involved in business process modeling and simulation.
2. Develop analytical and design skills to analyze, model, and optimize business processes using both qualitative and quantitative approaches.
3. Apply advanced modeling techniques to implement sophisticated process modeling, simulation tools, and automation strategies aimed at improving organizational efficiency.
4. Foster critical thinking and innovation to creatively redesign business processes and evaluate their effectiveness through simulation and process intelligence methodologies.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	45	100%



No	Mode of Instruction	Contact Hours	Percentage
2	E-learning	0	0
3	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 	0	0
4	Distance learning	0	0

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	0
3.	Field	0
4.	Tutorial	0
5.	Others (specify)	0
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Define the key concepts and terminology of business process modeling and simulation.	K1	Lecture, Exercise	Quizzes, Exams, Assignments
1.2	Explain the principles and methods used in business process analysis, modeling, and simulation.	K1	Lecture, Case Studies, Discussions	Quizzes, Exams, Assignments
2.0	Skills			
2.1	Develop and document business processes using essential and advanced modeling techniques.	S1	Group Discussion, Tutorials	Problem-Solving Tasks, Project
2.2	Analyze existing business processes to identify	S3	Lecture, Group	Assignments, Project



Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	inefficiencies using qualitative and quantitative techniques.		Discussion, Tutorials	
2.3	Model and simulate business processes using tools.	S2	Group Projects, Tutorials	Assignments, Project
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate an understanding of ethical standards and professional responsibilities in business process design, focusing on fairness, transparency, and regulatory compliance.	V1	Group Discussions, Guest Lectures	Reflection Essays on Ethical Scenarios.
3.2	Collaborate within a team to achieve project objectives that align with business process modeling and simulation standards.	V2	Group Projects, Tutorials	Group Project

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Business Process Modelling and Simulation	3
2.	Process Identification	3
3.	Essential and Advanced Process Modeling	6
4.	Basic Tools for Business Process Design	6
5.	Process Discovery	3
6.	Qualitative Process Analysis	6
7.	Quantitative Process Analysis	6
8.	Modeling & Simulating Business Processes	6
9.	Process Redesign	3
10.	Process Automation and Intelligence	3
Total		45



D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes	2-14	15
2.	Projects	2-14	15
3.	Assignments	2-14	10
4.	Mid Term	7	20
5.	Final Exam	16-17	40

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	<ul style="list-style-type: none"> Dumas, M., La Rosa, M., Mendling, J., & Reijers, H. A. (2018). <i>Fundamentals of business process management</i> (2nd ed.). Springer-Verlag. ISBN 978-3-662-56508-7. Laguna, M., & Marklund, J. (2018). <i>Business process modeling, simulation, and design</i> (3rd ed.). CRC Press. ISBN 978-1-138-06173-6.
Supportive References	<ul style="list-style-type: none"> Paul, D., & Cadle, J. (2020). <i>Business analysis</i> (4th ed.). BCS, The Chartered Institute for IT. ISBN 978-1780175102. Cadle, J., Paul, D., Hunsley, J., Reed, A., Beckham, D., & Turner, P. (2021). <i>Business analysis techniques: 123 essential tools for success</i> (3rd ed.). BCS, The Chartered Institute for IT. ISBN 978-1780175690. Schedlbauer, M. (2010). <i>The art of business process modeling: The business analyst's guide to process modeling with UML & BPMN</i>. CreateSpace Independent Publishing Platform. ISBN 978-1450541372.
Electronic Materials	<ul style="list-style-type: none"> Admin, E. (n.d.). <i>ExtendSim Learning Center</i>. ExtendSim Simulation Software. https://extendsim.com/learning
Other Learning Materials	<ul style="list-style-type: none"> Object Management Group (OMG). (n.d.). <i>Business Process Model and Notation (BPMN)</i>. Retrieved from https://www.bpmn.org/





2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom
Technology equipment (projector, smart board, software)	Projector
Other equipment (depending on the nature of the specialty)	N/A

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Direct, Indirect
Effectiveness of Students' assessment	Faculty, Peer reviewer	Direct, Indirect
Quality of learning resources	Faculty, Course coordinator	Direct, Indirect
The extent to which CLOs have been achieved	Course coordinator, Program management committee	Direct
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	SOFTWARE ENGINEERING DEPARTMENT COUNCIL
REFERENCE NO.	THE 17TH MEETING FOR THE ACADEMIC YEAR 1446H
DATE	22/04/2025

