University of Petra

Faculty of Information Technology

BSc of Software Engineering

2024-2025

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Introduction

Software Engineering is the most in-demand specialization in the information technology industry. Software Engineering is concerned with managing information technology projects and developing and designing high-quality software. The program aims to:

- **Provide students with up-to-date educational programs in the field of Software Engineering and information technology.**
- **Equip students with the necessary knowledge and skills to become leaders and innovators in the field of Software Engineering.**
- **Prepare graduates to be successful and professional in their field, and to conduct themselves in a professional and ethical manner to provide services that support the community and the region.**
- **Prepare graduates to adapt to new technologies and to remain at the leading edge of Software Engineering practice, and to be able to pursue advanced education and research opportunities.**

Objectives

To be distinguished in software engineering field according to international standards and to educate engineers who can create effective and innovative solutions by using modern technologies in software engineering field.

Our *Mission*

The mission of the Software Engineering Department is to supply local and international IT industries with highly qualified competitive graduates by equipping them with the necessary knowledge and skills to become leaders and innovators in the field of Software Engineering. And establish a vibrant scientific environment respecting diversity, equality and inclusion.

Our Educational objectives

Professional Career: The ability to assume successful professional career in the Software Engineering Industry relying on the broad understanding of the fundamental concepts, tools and methodologies of software development and maintenance.

Lifelong Learning and Graduate Studies: Be able to adapt to new technologies and to remain at the leading edge of Software Engineering practice, and to be able to pursue postgraduate studies in modern research areas.

Leadership and Community Service: Be able to use effective communication skills, innovative thinking, and technical background to conduct themselves in a professional and ethical manner to provide services that support the community and the region.

Learning outcomes

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. The ability to apply processes that support Software development and process improvement in organization [SE].
7. Apply knowledge of computing and understanding of wide range of theoretical basics, principles, concepts, and advanced topics of information technology appropriate to the program's student outcomes and to the discipline.

Study Plan

Year 1- First Semester	CH
Calculus (1)	3
Information Technology Fundamentals	3
Introduction to Web Design	3
National Education	3
Life Skills	2

Year 1- Second Semester	CH
Discrete Mathematics (1)	3
University General Elective (1)	3
Programming Language (1)	3
Introduction to Data Communication & Networking	3
Communication Skills in English (1)	3

Year 2- First Semester	CH
Principles of Statistics	3
Data Structures and Algorithms	3
Programming Language (2)	3
Communication Skills for IT	3
Entrepreneurship and Innovation	2
Communication Skills in Arabic (1)	3

Year 2- Second Semester	CH
Numerical Analysis (1)	3
Graphical Interface Programming	3
Computer Logic Design	3
Database (1)	3
Information & Network Security	3
Leadership and social responsibility	2

Year 3- First Semester	CH
Internet Applications Programming	3
Computer Organization & Architecture	3
Database Administration	3
Systems Analysis & Design	3
University General Elective (2)	3
Department Elective (1)	3

Year 3- Second Semester	CH
Software Engineering	3
Software Testing	3
IT Project Management	3
Secured Wireless Application Programming	3
Military Science	3
Department Elective (2)	3

Year 4- First Semester	CH
Operating Systems	3
Field Training	3
Requirements Engineering and Specification	3
Software Development & Documentation	3
Graduation Project (1)	3
Community Service	0
Advanced Software Engineering	3

Year 4- Second Semester	CH
Software Architecture & Design	1
Professional Ethics for Information Technology	3
Graduation Project (2)	3
Quality Management & Process Improvement	3
Department Elective (3)	3
Free Requirement	0

"*": The course contains a laboratory of two working hours per week. Course's Laboratory is scheduled as zero credit hours and should be registered simultaneously with the theoretical course.