هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

Course Specification

— (Bachelor)

Course Title: **Final Project Phase- 2**

Course Code: **583 COMP-3**

Program: **Bachelor in Computer Science**

Department: **Computer Science**

College: **Computer of Engineering & Computer Science**

Institution: **Jazan University**

Version: **V1**

Last Revision Date: **11/08/2024**

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A. General information about the course:

1. Course Identification

1. Credit hours: (03 Hours)

2. Course type

A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required			☐ Elective	

3. Level/year at which this course is offered: (Level 10/Year 5)

4. Course general Description:

This a continuation of the graduation project started in COMP 582. This course focuses on the implementation, testing, and final delivery of the project planned in Phase 1. Students are expected to develop a functional prototype or final product based on their proposal. The course will emphasize practical development, testing methodologies, performance evaluation, and continuous refinement of the solution. At the end of the semester, students will submit a comprehensive report and demonstrate their project to a review committee.

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

COMP 582

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

7. Course Main Objective(s):

- Implementation: Students are expected to develop and implement the solution or system proposed in Phase-1. This involves coding, system integration, and ensuring that the solution meets the specified requirements.
- Testing and Validation: Rigorous testing is conducted to ensure that the solution is functional, reliable, and meets the project objectives. This includes unit testing, integration testing, system testing, and user acceptance testing.
- Evaluation and Analysis: Students must evaluate the performance of their solution against the initial objectives and criteria. This may involve performance analysis, benchmarking, and user feedback.

- Documentation: Comprehensive documentation is required, detailing the design, implementation, testing, and evaluation processes. This includes user manuals, technical documentation, and a final project report.
- Presentation and Defense: Students are required to present their project to a panel of faculty members and possibly external examiners. This involves a formal presentation and a defense session where students must answer questions and justify their design and implementation choices.
- Project Management: Effective project management is crucial to ensure that the project is completed on time and within scope. This includes managing resources, timelines, and any risks or issues that arise.
- Professional and Ethical Considerations: Students must continue to adhere to professional standards and ethical considerations throughout the implementation and evaluation phases.
- Preparation for Professional Practice or Further Research: The completion of the project prepares students for professional practice in the industry or for further academic research. It demonstrates their ability to undertake significant projects and solve complex problems.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	22
2.	Laboratory/Studio	20
3.	Field	
4.	Tutorial	
5.	Others (specify)	3
Total		45

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

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	**Apply software engineering principles and methodologies (e.g., Agile, Waterfall) to implement the proposed project.**	K1	Physical and online meetings with supervisor • Group discussion • Project assignments • Reading	Midterm Evaluation Exam
1.2	**Comprehend best practices for software deployment, maintenance, and post-delivery support..**	K2	Physical and online meetings with supervisor • Group discussion • Project assignments • Reading	Midterm Evaluation Exam/super visor Assessment/
1.3	Acquire knowledge of performance metrics and optimization techniques relevant to the project domain.	K3	Physical and online meetings with supervisor • Group discussion • Project assignments • Reading and research	Midterm Evaluation /super visor Assessment/((Rubrics) • Final Evaluation Exam (Rubrics)
2.0	**Skills**			
2.1	**Develop the system or software based on the design and requirements outlined in Phase 1, demonstrating proficiency in programming languages and development tools.**	S1	Physical and online meetings with supervisor • Group discussion • Project assignments • Reading and research	Midterm /super visor Assessment/(Ev aluation (Rubrics) • Final Evaluation Exam (Rubrics)
2.2	**Apply software development methodologies** such as Agile, DevOps, or Waterfall, as appropriate, to manage the project lifecycle.	S3	Physical and online meetings with supervisor • Group discussion • Project assignments • Reading and research	Midterm Evaluation /super visor Assessment/((Rubrics) • Final Evaluation Exam (Rubrics)
2.3	**Develop and test the system** to ensure it meets the defined functional and non-functional requirements.	S4	Physical and online meetings with supervisor • Group discussion	Midterm Evaluation /super visor Assessment/(

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
			• Project assignments • Reading and research	(Rubrics) • Final Evaluation Exam (Rubrics)
2.4	**Create comprehensive project documentation, detailing the technical aspects of design, implementation, and testing processes.**	S4	Physical and online meetings with supervisor • Group discussion • Project assignments • Reading and research	Midterm Evaluation /super visor Assessment/((Rubrics) • Final Evaluation Exam (Rubrics)
3.0	**Values, autonomy, and responsibility**			
3.1	**Demonstrate and present the completed project** to a panel, showcasing its functionality, technical merits, and relevance to real-world applications.	V1	Physical and online meetings with supervisor • Group discussion • Project assignments • Reading and research	Midterm Evaluation /super visor Assessment/(Rubrics) • Final Evaluation Exam (Rubrics)
3.2	**Reflect on the overall project experience**, identifying areas for personal and technical growth and highlighting the contributions made to the field.	**V2**	Physical and online meetings with supervisor • Group discussion • Project assignments • Reading and research	Midterm Evaluation (Rubrics) /super visor Assessment/• Final Evaluation Exam (Rubrics)

C. Course Content

No	List of Topics	Contact Hours
1.	**Introduction** 1.1. Recap of Phase 1 Objectives 1.2. Transition from Planning to Development 1.3. Overview of Final Product/Solution	6
2.	System Design 2.1. Detailed Design Specifications	

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	2.2. Class Diagrams and System Architecture	
	2.3. Database Design (if applicable)	
	2.4. Technical Specifications (Algorithms, Data Structures, APIs)	9
	2.5. Design Changes (if any, from Phase 1)	
3.	Implementation 3.1. Tools and Development Environment 3.2. Implementation Phases 3.3. Code Structure and Development Details 3.4. Integration and Interfaces 3.5. Challenges Faced During Development	6
4.	Testing 4.1. Test Plan and Strategy 4.2. Unit Testing 4.3. Integration Testing 4.4. System Testing 4.5. User Acceptance Testing (UAT)	6
5.	**Performance Evaluation** 5.1. Evaluation Criteria (Speed, Accuracy, Load, etc.) 5.2. Benchmarking and Performance Metrics 5.3. Optimizations Applied 5.4. Final System Performance Results	3
6	**Deployment** 6.1. Deployment Strategy (Local, Cloud, etc.) 6.2. Installation and Configuration Guide 6.3. User Manual and Documentation 6.4. Post-Deployment Maintenance Plan	6
7	Conclusion and Reflection 8.1. Summary of Key Achievements 8.2. Limitations and Future Enhancements 8.3. Lessons Learned 8.4. Reflection on Teamwork and Project Experience	6
8	**References** • Cited work, research papers, tools, and technologies used.	3
Total		**45**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	First Examiner Assessment	9th week	20%
2.	Supervisor Assessment (PreFinal)	14th week	40%
3.	Final Presentation	16th week	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	▪ ACM (Association for Computer Machinery) Curricula Recommendations 2017 – https://www.acm.org/binaries/content/assets/education/curricula-recommendations/it2017.pdf
Supportive References	▪ Rex Black, Erik Van Veenendaal, Dorothy Graham, "Foundations of Software Testing ISTQB Certification", Third Edition, Cengage Learning, 2012.
Electronic Materials	Access to the Saudi Digital Library (SDL). Using the learning management system of the university – Rafid System (https://lms.bu.edu.sa/).https://www.youtube.com/watch?v=qENBiYaAXNE&list=PLUgFMzuE8lQDeixpbP3s6EyQx8PiNdeQL
Other Learning Materials	Online tutorial

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	A classroom or lecture hall with whiteboard for 3-5 students or more to present their project work. • A laboratory with 3-5 computers or more to be used to prepare the project.
Technology equipment (projector, smart board, software)	A laptop or access to a desktop computer with access to necessary computational tools and platforms. • A digital image projection system with connection to desktop or laptop computer. • High speed Internet connection
Other equipment (depending on the nature of the specialty)	Mainly the software and hardware used for IT-related senior projects (e.g networking, cloud-computing, IoT, cybersecurity, system administration, ….).

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students • Peer Reviewer • Program Leaders	Survey (indirect) • Peer review (direct) • Class visit (direct)
Effectiveness of Students assessment	Students •Exam Evaluation Committee • Course Coordinator	Survey (indirect) • Exam Review (direct) review of course file (direct)
Quality of learning resources	Track leaders / CRC	Indirect (Review, meetings and star rating with suggestions for further modification and improvements)
The extent to which CLOs have been achieved	CRC / QAU	Direct (CLO assessment template further verified at course coordinator, Track leader and QAU level)
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	DEPARTMENT COUNCIL
REFERENCE NO.	
DATE	