|  |  |  |
| --- | --- | --- |
| المملكة العربية السعوديةوزارة التعليم العالي**جامعة أم القرى**الكلية الجامعية بالجموم – قسم الحاسب الآلي |  | Kingdom of Saudi ArabiaMinistry of Higher Education**Umm Al-Qura University**University College in Al-JamoumComputer Dept. |

Course Specification

1. **Course number and name:** (2316413-3) Software Engineering
2. **Credits and contact hours:** 3 Credits

(Lecture: 3/week – Practical Session: Non)

1. **Instructor’s or course coordinator’s name:** Dr. Yousel Al-Otabi
2. **Text books**
3. **Main Text book:** Ian Sommerville, Software Engineering, 9th Edition, Addison-Wesley, 2011.
4. **Reference:** M. Shooman, Software Engineering, Mcgraw-Hall, 2001.
5. **Specific course information**
6. **brief description of the content of the course (Catalog Description):**

Software engineering course prepares students to have background knowledge as well as core expertise in software engineering concepts, and to gain practical experiences of developing the software systems.

1. **prerequisites or co-requisites:** System Analysis & Design (2316322-3)
2. **indicate whether a required, elective, or selected elective course in the program:** required
3. **Specific goals for the course**

The student will be able to:

1. Apply software engineering theory, principles, tools and processes to the development and maintenance of complex, scalable software systems.
2. Analyze, design, verify, validate, implement, apply, and maintain software systems.
3. Work in one or more significant application domains.
4. Manage the development of software systems.
5. Define and assess software quality and software development processes for appropriate applications in different domain areas.

|  |  |
| --- | --- |
| *Course* *Goals* | *Program Outcomes* |
| SOa | SOb | SOc | SOd | SOe | SOf | SOg | SOh | SOi | SOj | SOk |
| 1 | **🗸** |  | **🗸** | **🗸** |  | **🗸** |  | **🗸** | **🗸** | **🗸** | **🗸** |
| 2 | **🗸** |  | **🗸** | **🗸** |  | **🗸** |  | **🗸** | **🗸** | **🗸** | **🗸** |
| 3 | **🗸** |  | **🗸** | **🗸** |  | **🗸** |  | **🗸** | **🗸** |  | **🗸** |
| 4 | **🗸** |  | **🗸** | **🗸** |  | **🗸** |  | **🗸** | **🗸** |  | **🗸** |
| 5 | **🗸** |  | **🗸** | **🗸** |  | **🗸** |  | **🗸** | **🗸** |  | **🗸** |

|  |
| --- |
| **Relationship of Course Goals to the Program Student Outcomes** |
| **SOa** | An ability to apply knowledge of computing and mathematics appropriate to the discipline* *Students apply knowledge of computing and design to a project.*
 |
| **SOc** | An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs.* *Students are required design and implement a software project to meet a specification.*
 |
| **SOd** | An ability to function effectively on teams to accomplish a common goal.* *Projects are implemented in teams.*
 |
| **SOf** | An ability to communicate effectively with a range of audiences.* *The projects require communications, specifications, progress reports, and final report.*
 |
| **SOh** | Recognition of the need for, and an ability to engage in, continuing professional development.* *The students often must utilize the internet to learn and apply the new technologies that they have chosen in support of their projects.*
 |
| **SOi** | An ability to use current techniques, skills, and tools necessary for computing practices.* *Projects use current computing and modeling/design tools.*
 |
| **SOj** | An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.* *Students are required to apply their knowledge of computing to design a solution to a problem and to document the solution including the tradeoffs involved in their design choices.*
 |
| **SOk** | An ability to apply design and development principles in the construction of software systems of varying complexity.* *The students are required to use standard design and development principles on a significant software project.*
 |

1. **Brief list of topics to be covered**
* Introduction
* Software processes
* Software requirements engineering
* Software system modeling
* Software design and implementation
* Software testing and evolution
* Software development project