The University of Jordan

Accreditation & Quality Assurance Center

COURSE Syllabus

1	Course title	**System Programming and Management**
2	Course number	**(1901376)**
3	**Credit hours (theory, practical)**	**3**
	Contact hours (theory, practical)	**3**
4	Prerequisites/corequisites	**Computer Organization (1931321)**
5	Program title	**Computer Science**
6	Program code	
7	Awarding institution	**University of Jordan**
8	Faculty	**King Abdullah II School for Information Technology (KASIT)**
9	Department	**Computer Science**
10	Level of course	**3**
11	Year of study and semester (s)	**2015/2016/Second**
12	Final Qualification	
13	Other department (s) involved in teaching the course	**-**
14	Language of Instruction	**English**
15	Date of production/revision	**Jan, 2016**
16	Required/ Elective	**Required**

16. Course Coordinator:

Prof. Riad Jabri	Office Location	KASIT, First Floor – Beside CS Department
	Office Phone #	06-5355000 ext. 22591
	Office Hours	Sunday & Tuesday 12:00 – 13:00
	e-mail	**jabri@ju.edu.jo**

17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.
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18. Course Description:

Background; Assemblers: basic functions, machine-dependent features, machine-independent features, assembler design options; Loaders and linkers: basic functions, machine-dependent features, machine-independent features, loader design options; Macro processors: basic functions, macro processor design options; Compilers: grammars, lexical analysis, syntax analysis, code generation; Drivers. Weekly practice in the lab.

19. Course aims and outcomes:

A- Aims: **This course aims at:**

Exploring concepts that underlie system software.
Exploring Design issues of system software.
Exploring Implementation issues of system software
Providing exposure to multiple system sofware, such as assemblers Loaders , linkers, compilers and operating systems

B- Intended Learning Outcomes (ILOs): Successful completion of this course should lead to the following learning outcomes:

- **Knowledge and understanding: Students should**
  A0) Understand the different machine architectures
  A1) Understand the basic assembler functions
  A2) Understand the basic loaders functions.
  A3) Understand the basic macro-processors functions
  A4) Understand the basic compiler functions.

  A5) Understand the basic operating system functions.

- **Intellectual skills: with the ability to**
  B1) Design a simple one-pass/multi-pass assembler..
  B2) Design a simple loader..

- **Subject specific skills: with ability to**
  C1) Implement assemblers' basic functions.
  C2) Implement loaders' basic functions.
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  Transferable skills: with ability to
  D1) Discuss and work in a group in order to design the basic functions of an assembler.

  D2) Discuss and work in a group in order to design the basic functions of a loader.

  D3) Demonstrate designed assemblers and loaders.

  D4) Discuss and work in a group in order to explore the basic design issues of a compiler
  D5) Discuss and work in a group in order to explore the basic design issues of operating System.

20. Topic Outline and Schedule:

Course Contents, Teaching/Learning & Assessments Methods with ILOs			
Chapter & Number of Lectures	**Topic Details**	**Teaching/Learning & Assessments Methods**	**ILOs**
Chapter 1 (8 Lectures)	**1. Introduction** o Simple SIC Machine. o SIC/XE Machine. o CISC Machines. o RISC Machines	**T:** Lecture & Discussion **L:** Reading lecture notes and Chapter 1 **A:** In class questions	A0
Chapter 2 (6 Lectures)	**Assemblers.** o Simple SIC assembler.	**T:** Lecture & Presentation **L:** Reading Chapter 2	A1, B1 &D1

	o Assembler algorithm and data structures.
	     o Machine-dependent assembler features.
	     o Machine-independent assembler features
	     o Assembler design options
	 o Implementation examples
		A: Quiz-1 on Chap. 1 , 2	

Chapter 3
 (6 Lectures)
	Loaders and Linkers.
	 Basic loader functions.
	     o Machine-dependent loader features.
	     o Machine-independent loader features.
	 Implementation examples
		T: Lecture & Presentation
		 L: Reading Chapter 5
		 L: Programming assignment
		 A: In class questions,
		     homework and
		     programming assignment
		 Midterm Exam in
		     Chap. 1-3
			A2, B2, C2 &D2

Chapter 6
 (6 Lectures)
	Macro Processors.
	 2 weeks
	 o Basic macro processor features.
	     - Macro definition and expansions.
	     - Macro processor algorithm and data structures.
	 o Machine-independent macro processor features.
	     - Concatenation of macro parameters.
	     - Generation of unique labels.
	     - Conditional macro expansions.
	     - Keyword macro parameters.
	 o Macro processor design options.
	     - Recursive macro expansions.
	     - General purpose macro processors.
	     - Macro processing with language translators.
	     - Implementation examples
		T: Lecture & Presentation
		 L: Reading Chapter 6
		 L: Programming assignment
		 A: Quiz-2 on Chap. 5 & 4
		     homework and
		     programming assignment
			A3, B1, C1 &D3

Chapter 5
 (5 Lectures)
	Introduction to Compiling.
	
	     o The phases of a compiler.
	 Compiler-construction tools
	    Compiler Design options
		T: Lecture & Presentation
		 L: Reading Chapter 7
		 A: Midterm Exam in
		     Chap. 1-6
			A4

Chapter 6 (5Lectures)	Basic Operating System functions Machine-dependent OS features Machine-independent assembler features Implementation examples	**T:** Lecture & Presentation **L:** Reading Chapter 7 L: Programming assignment **A:** homework and programming assignment	A5

Reading references of system software (6 Lectures)	Case study: representative system software compilers , assemblers and OS	**T:** Lecture & Presentation **L:** Reading references of programming languages **A: Presentation** Final Exam in all chapters covered in class	D1, …, D5

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following <u>teaching and learning methods</u>:

<u>Teaching (T) Methods:</u>

- Class contact is 3 hours per week. The Course will be delivered using different means like lectures, presentations, and discussion.

- Class lecture is 1 hour, lecture notes, exams (midterm and final) and quizzes are designed to achieve the course goals and objectives.

<u>Learning (L) Methods:</u>

- You should read the assigned topics before class, and participate in class and do whatever it takes for you to grasp this material. Also, ask any question related to system software.

- You are responsible for all material covered in the class.

- Please communicate with me regarding any concerns or issues related to system software by either in class, course web page, phone or email.

- The web page (elearning.ju.edu.jo) is a primary communication vehicle. Lecture notes, presentations and syllabus are available on the web.

<u>Assessment (A) Methods:</u>

There will be several assessment methods of evaluation the performance of the students such as attending and class participation, quizzes, programming assignments, case study, conducting the midterm and the final exams.

22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following <u>assessment methods and requirements</u>:

Assessment Type	Expected Due Date	Weight
Midterm Exam	TBA	30%
Final Exam	TBA	50%
Activities (Quizzes etc.)	TBA	20%

23. Course Policies:

A- Attendance policies:

- Excellent attendance is expected.

- The University of Jordan policy requires the faculty member to assign ZERO grade (F) if a student misses 10% of the classes that are not excused.

- Sign-in sheets will be circulated.

If you miss class, it is your responsibility to find out about any announcements or assignments you may have missed.

B- Absences from exams and handing in assignments on time:

- Makeup exams according to the University of Jordan regulations.

- Assignments should be Handed on times

C- Health and safety procedures:

- The University of Jordan procedures

D- Honesty policy regarding cheating, plagiarism, misbehavior:

- Cheating or copying on exam or quiz is an illegal and unethical activity.

- Standard University of Jordan policy will be applied.

All graded assignments must be your own work (your own words).

E- Grading policy:

| University Intended Grading Scale ||
Weight	Grade
Below 50%	F
50 – 55	D
56 – 62	D+
63 – 69	C
70 – 77	C+
78 – 84	B
85 – 90	B+
91 – 100	A

F- Available university services that support achievement in the course:

- The faculty labs

- The university labs

- The library and e-library

24. Required equipment:

The required equipment as provided by university services

25. References:

A- Required book (s), assigned reading and audio-visuals:

1. **Leland Beck, System Software, Publisher: Addison Wesley Longman, 3rd Edition,1994. ISBN: 0- 201-42300-6.**
2. **Adam Hoover, System Programming with C and Unix, Publisher: Pearson, 2010. ISBN-10: 0136067123.**

B- Recommended books, materials, and media:
1. **Windows System Programming, Johnson Hart, Addison Wesley, 3rd Edition, 2004.**
2. **http://www.ee.surrey.ac.uk/Teaching/Unix/**

26. Additional information:

- Average work-load student should expect to spend 6 hours per week.

- Participation in and contribution to class discussions will affect your final grade positively. Raise your hand if you have any question.
- Making any kind of disruption and (side talks) in the class will affect you negatively.

Name of Course Coordinator: -Prof. Riad Jabri-Signature: ------------------------ Date: ------------------------

Head of curriculum committee/Department: ------------------------ Signature: --------------------------------

Head of Department: ------------------------ Signature: --------------------------------

Head of curriculum committee/Faculty: ------------------------ Signature: --------------------------------

Dean: -- -Signature: --------------------------------

<u>Copy to:</u>
Head of Department
Assistant Dean for Quality Assurance
Course File