1.	Course title	Computer Systems' Performance'
2.	Course number	1901446
3.	Credit hours (theory, practical)	3 credit hours
	Contact hours (theory, practical)	3 hours (12-1 STR), and by appointment, mixed
4.	Prerequisites/corequisites	Computer Organization (1231011) & Statistics (0301131)
5.	Program title	B.Sc. in Computer Science
6.	Year of study and semester (s)	2016-2017
7.	Final Qualification	
8.	Other department (s) involved in teaching the course	
9.	Language of Instruction	English
10.	Date of production/revision	September 3 rd , 2016
11.	Required/ Elective	

12. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.

Dr. Sherenaz Al-Haj Baddar,
Office hours: 12-1 Sundays, Tuesdays, and Thursdays, and by appointment,
Tel: 065355000, ext. 22589,
Office number: 121
Email: s.baddar@ju.edu.jo

13. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.
None

14. Course Description:

As stated in the approved study plan.

Concepts of performance. Concepts of performance Metric and Benchmark programs. Characteristics of good performance metric, summarizing data: averaging performance and variability. Quantifying errors in experiments. Comparing alternatives. Measurement tools and techniques. Introduction to simulation. Analytical models: introduction to queuing theory.

Practice in the lab: experimenting with benchmarks and code profiling.

15. Course aims and outcomes:

A- Aims:

The course aims at introducing students to basic principles and understanding of performance measurement and analysis

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to …

A. Knowledge and Understanding: Students should …
A1) A1. Understand the concept of measuring performance.
A2) Understand the concept of performance metric
A3) Understand the concept of performance errors, and how to measure them.
A4) Understand selected measurement tools and techniques.
A5) Understand the concept of benchmarking.
A6) Understand basic concepts in simulation
A7) Understand basic concepts in queueing analysis
B. Intellectual skills: with the ability to …
B1. Compare between analytical modelling, simulation, and measurement for performan B2. Compare and contrast means Vs. end-based metrics B3. Compare and contrast concepts of accuracy, precision, and resolution B4. Compare and contrast different types of means B5. Compare and contrast different measurement tools and techniques
C. Subject specific skills – with ability to …
C1. Apply and utilize suitable benchmarks and benchmarking tools for given problems C2. Apply and utilize program profiling tools for given problems C3. Apply and utilize simulation tools for given problems
D. Transferable skills – with ability to
D1) Work in group to deliver presentations on benchmarking and program profiling

16. Topic Outline and Schedule:

Topic	Week	ILOs	Program SOs[1]	TLA (teaching, learning and Assessment)
Revision: • Basic statistics • Computer organization	1	A1, B3	a	Quizzes, Exams
Methodology	2	A1, B1	a,b,g	Quizzes, Exams
Summarizing Performance Data and	3+4	A2, B2	a,b	Quizzes, Exams

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[1] The ABET outcomes

Confidence Intervals					
Model Fitting	5	A1, A2, B4	a,c	Quizzes, Exams
Tests	6	A3, B3	a.c	Quizzes, Exams
Forecasting	7+8	A4, B5	b,c	Quizzes, Exams
Discrete Event Simulation	9	A5, B5	a,b,c	Quizzes, Exams
Queuing Theory	10	A6, B5	a,b,c	Quizzes, Exams
Student Presentations	11-15	A7, B5	a,b,c,g	Presentations, Exams

(Please mention instructors per topic if the course topics are being taught by more than one instructor)

17. Evaluation Methods and Course Requirements (Optional):

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:
Assessment (A) Methods: There will be several assessment methods to evaluate the performance of the students such as class participation; conducting the Midterm and the Final Exams. Grading a number of in-class assignments and/or grading a course project.
Assessment Weights:
Midterm Exam   30%
Quizzes   10%
Presentation   10%
Final Exam   50%

18. Course Policies:

A- Attendance policies:
  • Attendance is required per UJ regulations
B- Absences from exams and handing in assignments on time:
  • No make up for quizzes, and presentations, under all circumstances
  • Midterm and final exams make up are per UJ regulations, strictly
  • Any task submitted after its announced deadline will be rejected regardless of any excuse
C- Health and safety procedures:
  • Any tampering with the class equipment will not be tolerated and will be punished according to UJ regulations
D- Honesty policy regarding cheating, plagiarism, misbehaviour:
  • All acts of plagiarism and or cheating are not tolerated and will be punished per UJ regulations
E- Grading policy (tentative course scale):
  0-45 F   46-49 D-   50-52 D   53-55 D+
  56-58 C-   59-61 C   62-68 C+   69-72 B-
  73-76 B   77-82 B+   83-86 A-   87-100 A
F- Available university services that support achievement in the course:
  • KASIT Hall 101 for lecturing, KASIT lab of choice when hands-on demonstration is necessary

19. Required equipment:

Computer with proper operating system and network connectivity

20. References:

    A- Required book (s), assigned reading and audio-visuals:
    Jean-Yves Le Boudec , Performance Evaluation of Computer and Communication Systems", EPFL Press; 1 edition (February 1, 2011), ISBN-10, 1439849927, ISBN-13, 978-1420053173, 2011.
    B- Recommended books, materials, and media:
      • Measuring Computer Systems: How to Measure Performance, Margo Seltzer, Aaron Brown https://www.usenix.org/legacy/event/lisa/cfp/seltzer.pdf
      • http://www.spec.org/
      • http://www.intel.com/content/www/us/en/benchmarks/intel-product-performance.html
      • Computer Simulations in Science, http://plato.stanford.edu/entries/simulations-science/

21. Additional information:

Hands-on presentations delivered in computer labs by students, will be highly encouraged.

Date: ------------------------

Name of Course Coordinator: Dr. Sherenaz Al-Haj Baddar Signature: ----------------------

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