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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Hashemite University**  **College of Engineering**  **Department of Electrical Engineering**  **EE 203-Electrical circuit 2 (3 Credit Hours/Dept. compulsory )[[1]](#footnote-1)** | | | | | | | | | |  |
|  | | | |  | **Grading info** | | |  | **Class Info** | | |
| **Instructor** | | Eng: Zahra Ghanem | |  | Mid exam | | 40% |  | Days | Sun/Tue/Thu  Mon ,Wed | |
| Email: | | zahray@Hu.edu.jo | |  |  | |  |  | Time | 11-12  1-2 | |
| participating , Hw, and quizes | | 20% |
| Office: | | Eng. 3050 | |  | Final | | 40% |  | Location | Eng. building | |
| Office hours: | |  | |  |  | |  |  |  |  | |
| **Course** | | | | | | | | | | | |
| Course Number: | | 0409203 | | | | | | | | | |
| Prerequisite: | | Electrical circuit 1 (0409201), covering the following topics:   * Voltage and current laws; series and parallel connected sources; voltage and current division. * Nodal and Mesh analysis * Circuit analysis techniques, Thevenin and Norton equivalent circuits; Delta-Wye conversion. * Basic RL and RC circuits; natural and forced response and Basic RLC circuits. | | | | | | | | | |
| Textbook: | | “Engineering Circuit Analysis”, 9th Edition, Authors: Willian H. Hayt; Jack E. Kemmerly, and Steven M. Durbin. McGraw-Hill | | | | | | | | | |
| Course Description: | | Sinusoidal steady-state response, phasor concept, A.C power analysis. Three phase circuits, magnetically coupled circuits, complex frequency, circuit analysis in s-domain, Bode plot, one-port and two-port networks, and passive filters. | | | | | | | | | |
| Specific Outcomes of Instruction (Course Learning Outcomes): | | * Solve AC circuits for voltage, current and power calculations.(a,e) * Analyze 3-phase AC circuits (a, e). * Analyze magnetically coupled circuits and linear transformers.(a,e) * Solve circuits in the S-domain (Laplace transform) to determine the time and frequency domain responses..(a,e) * Analyze passive filters (LPF, HPF, and BPF) and resonant circuits.(a,e)   Analyze two port networks and calculate Z, and Y Parameters.(a,e) | | | | | | | | | |
| Important material | | * Lecture notes * References * Internet resources | | | | | | | | | |
| **References:** | | | | | | | | | | | |
| 1. Electric Circuits, [James W. Nilsson](http://www.amazon.com/exec/obidos/search-handle-url/105-4278600-6824400?%5Fencoding=UTF8&search-type=ss&index=books&field-author=James%20W.%20Nilsson) , [Susan Riedel](http://www.amazon.com/exec/obidos/search-handle-url/105-4278600-6824400?%5Fencoding=UTF8&search-type=ss&index=books&field-author=Susan%20Riedel) , Prentice Hall; 9 *edition*. 2. Schaum's Outline of Electric Circuits, [Mahmood Nahvi](http://www.amazon.com/exec/obidos/search-handle-url/105-4278600-6824400?%5Fencoding=UTF8&search-type=ss&index=books&field-author=Mahmood%20Nahvi) , [Joseph A. Edminister](http://www.amazon.com/exec/obidos/search-handle-url/105-4278600-6824400?%5Fencoding=UTF8&search-type=ss&index=books&field-author=Joseph%20A.%20Edminister), McGraw-Hill; 4th ,2002 3. Electrical Circuit Theory and Technology, [John Bird](http://www.amazon.com/exec/obidos/search-handle-url/105-4278600-6824400?%5Fencoding=UTF8&search-type=ss&index=books&field-author=John%20Bird), Newnes; 3 edition , 2007 4. Fundamentals of Electric Circuits, by Charles Alexander and Matthew Sadiku, 5th, 2008. 5. Introduction to Electric Circuits, by [Richard C. Dorf](http://www.amazon.com/Richard-C.-Dorf/e/B001H6N422/ref=sr_ntt_srch_lnk_1?qid=1295253088&sr=1-1) and James | | | | | | | | | | | |
|  | | | | | | | | | | | |
| **Major Topics Covered and Schedule in Weeks:** | | | | | | | | | | | |
|  | | | | | | | | | | | |
| **Topic** | | | **# Weeks** | | | **# Contact hours\*** | | | | | |
| Sinusoidal functions, phasors, phasor relations for RLC, impedance, admittance, phasor diagrams. | | | 3 | | | 9 | | | | | |
| Instantaneous power, average power active power, apparent power, power factor and complex power. | | | 3 | | | 9 | | | | | |
| Single-phase 3-wire system, 3-phase system, Y-connection, delta-connection, power in 3-phase circuits. | | | 2 | | | 6 | | | | | |
| Mutual inductance, energy considerations, transformers, magnetically coupled circuit equivalent and analysis. | | | 2 | | | 6 | | | | | |
| Types of responses, Laplace Transform, Inverse transform.. | | | 2 | | | 6 | | | | | |
| Frequency response, parallel resonance, series resonance, Bode diagrams, Filters. | | | 2 | | | 6 | | | | | |
| Network impedance, Y-parameters, Z-parameters | | | 1 | | | 3 | | | | | |
| Total | | | **15** | | | **45** | | | | | |
| **Course Policy** | | | | | | | | | | | |
| * If you miss class, there won’t be a makeup test, quiz, etc. and you WILL get a zero unless you have a valid excuse. * Cheating and plagiarism are completely prohibited. * If you miss more than 15% of classes you will automatically fail the class.  |  |  |  | | --- | --- | --- | | **Student Outcomes (SO) Addressed by the Course:** | | | | ***#*** | ***Outcome Description*** | ***Contribution*** | | ***General Engineering Student Outcomes*** | | | | (a) | An ability to apply knowledge of mathematics, science, and engineering | ***H*** | | (b) | An ability to design and conduct experiments, as well as to analyze and interpret data |  | | (c) | An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability |  | | (d) | An ability to function on multidisciplinary teams |  | | (e) | An ability to identify, formulate, and solve engineering problems | ***H*** | | (f) | An understanding of professional and ethical responsibility |  | | (g) | An ability to communicate effectively |  | | (h) | The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context |  | | (i) | a recognition of the need for, and an ability to engage in life-long learning |  | | (j) | A knowledge of contemporary issues |  | | (k) | An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice |  | | **H**=High, **M**= Medium, **L**=Low | | | | | | | | | | | | | | |

1. summer Semester (2019/2020) [↑](#footnote-ref-1)