

Learning Resources of Master program (مصادر التعلم في

برنامج ماجستير العلوم في الفيزياء).

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| Required Textbooks | Classical Mechanics, Herbert Goldstein, Charles Poole Jr., John Safko (Pearson) 3rd edition (2001). |
| Essential References Materials | Classical Mechanics, John R. Taylor (University Science Books) (2005). |
| Electronic Materials | Selected electronic lectures |
| Other Learning Materials | Scientific software like Origin, Mathematica etc. |

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| Required Textbooks | Mathematical Methods for Physicists, G. B. Arfken and H. J. Weber (Elsevier) 6th edition (2005). |
| Essential References Materials | Mathematical methods for physical sciences, Boas (Wiley) (1983). |
| Electronic Materials | Wolfram (website for mathematica software). |
| Other Learning Materials | Scientific software like Origin, Mathematica etc. |

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| Required Textbooks | M. Kardar, Statistical physics of Particle (vol1)-MIT course M. Kardar, Statistical physics of fields (vol2)-MIT course L. D. Landau and E. M. Lifshitz, statistical physics Vol 5 and Vol 9 , Pergamon Press. |
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| <p>Essential References Materials</p> | <p>a) Elements of Statistical Thermodynamic / NASH b) Introduction to statistical physics, Kerson Huang c) John Cardy, Scaling and renormalization in statistical physics, Cambridge Press. d) Zinn-Justin , transitions des phases et groupe de renormalization, CNRS editions e) G. D. Mahan, Many particle physics, 3rd ed. Kluwer Academic/ Plenum Publishers</p> |
| <p>Electronic Materials</p> | <p>http://demonstrations.wolfram.com/BoseEinsteinFermiDiracAndMaxwellBoltzmannStatistics/ http://ocw.mit.edu/courses/physics/8-08-statistical-physics-ii-spring-2005/lecture-notes/ https://phd.epfl.ch/op/edit/EDPY/Coursebook https://www.ph.ed.ac.uk/icmcs/research-themes/statistical-physics-and-complexity http://theory.fi.infn.it/SFTschool/ https://web.science.uu.nl/drstp/ https://www.physics.harvard.edu/academics/grad/faq https://web.mit.edu/physics/current/graduate/index.html https://gradschool.princeton.edu/academics/fields-study/physics <u>main journal in the field of statistical physics</u> Journal of Statistical physics (Springer) : https://link.springer.com/journal/10955 Journal of statistical mechanics : theory and experiment: https://iopscience.iop.org/journal/1742-5468 Physica A : https://www.journals.elsevier.com/physica-a-statistical-mechanics-and-its-applications Phys. Rev. E : https://journals.aps.org/pre/</p> |
| <p>Other Learning Materials</p> | <p>Black Board electronic activities</p> |



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| Required Textbooks | - John David Jackson- Classical Electrodynamics, Wiley 1999. - D. J. Griffiths, Introduction to electrodynamics, Pearson International edition. 1999. |
| Essential References Materials | Electronic lectures in Blackboard. https://ms.kku.edu.sa/webapps/portal/frameset.jsp |
| Electronic Materials | Electronic lectures in Blackboard. https://ms.kku.edu.sa/webapps/portal/frameset.jsp |
| Other Learning Materials | No further materials are recommended |

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| Required Textbooks | Quantum Mechanics: concepts and applications by NouredineZettili. – 2nd ed |
| Essential References Materials | <ul style="list-style-type: none"> • Introduction to Quantum Mechanics, Griffiths 2nd edition, 2005 • Quantum Mechanics, Merzbacher -1999, Wiley. • Modern Quantum Mechanics, J.Sakuri, 1994 Addison-Wesley • Principle of Quantum Mechanics, R.Shankar, 1980, Plenum |
| Electronic Materials | Web based course ware from the internet |
| Other Learning Materials | Audio lectures |

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| Required Textbooks | - <i>Solid State Physics By A J Dekker (Author).</i> - <i>H. D. Young and R. A. Freedman, University Physics, 9th edition, Addison-Wesley, Reading, MA (1996</i> |
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| Essential References Materials | Charles Kittel, Introduction to Solid State Physics (Wiley: New York, 2004). |
| Electronic Materials | Electronic lectures on practical solid state from the Internet |
| Other Learning Materials | Nothing else |

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| Required Textbooks | Nuclear Physics in a Nutshell by C. A. Bertulani (Princeton University Press) 1st edition 2007 |
| Essential References Materials | <ul style="list-style-type: none"> Introductory Nuclear Physics by K. Krane (John Wiley) 3rd edition 1987 |
| Electronic Materials | <p>The Berkeley Laboratory Isotopes Project's (Exploring the Table of Isotopes).</p> <p>http://pdg.lbl.gov/2014/AtomicNuclearProperties/outsidelinks.html</p> |
| Other Learning Materials | Origin and Mathematica (software). |

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| Required Textbooks | Physics of Atoms and Molecules/Bransden and Joachain. |
| Essential References Materials | <p>Electronic lectures in Blackboard.</p> <p>- The Theory of Atomic Structure and Spectra / Robert D.Cowan.</p> |
| Electronic Materials | <p>Physics of Atoms and Molecules/Bransden and Joachain.</p> <p>- The Theory of Atomic Structure and Spectra / Robert D.Cowan.</p> |
| Other Learning Materials | No further materials are recommended |

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| Required Textbooks | R. Loudon, The quantum theory of light (2000,Oxford) M. Scully and S. Zubairy Quantum –2 optics,(1997,Cambridge) M. Sergant III and P. Meystre , Elemets of quantum –3 optics (1999,Oxford) |
| Essential References Materials | |
| Electronic Materials | |
| Other Learning Materials | Origin and Mathematica (software). |

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| Required Textbooks | Quantum Mechanics, Eugen Merzbacher, Wiley 1997 |
| Essential References Materials | Sakurai, Napolitano,Modern Quantum Mechanics, 2ed, Addison-Wesley, 2011 |
| Electronic Materials | Mathematica codes |
| Other Learning Materials | |

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| Required Textbooks | 1- Optical Spectroscopy: Methods and Instrumentations 1st Edition, Author: Nikolai Tkachenko Hardcover ISBN: 9780444521262 eBook ISBN: 9780080461724 Imprint: Elsevier Science |
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| | <p>Published Date: 27th March 2006</p> <p>Page Count: 322</p> <p>2- Near-Infrared Spectroscopy: Principles, Instruments, Applications 1st Edition</p> <p>by Heinz W. Siesler (Editor), Yukihiro Ozaki (Editor), Satoshi Kawata (Editor), H. Michael Heise (Editor)</p> <p>Publisher : Wiley-VCH; 1st edition (February 15, 2002)</p> <p>Language : English</p> <p>Hardcover : 361 pages</p> <p>ISBN-10 : 3527301496</p> <p>ISBN-13 : 978-3527301492</p> |
| Essential References Materials | Solid state physics (structure and properties of materials), M A Wahab, Narosa Publisher, |
| Electronic Materials | Web Sites, Facebook, Twitter, etc. Websites on the internet that are relevant to the topics of the course |
| Other Learning Materials | Using many computer programs such as (Word, Excel, Origin and PowerPoint program) in calculating and drawing the results. |

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| Required Textbooks | <p>1. Solid State Physics, Ascroft/Mermin, Thomson publisher</p> <p>2. Solid State Physics, C. Kittel, Wiley Publication</p> |
| Essential References Materials | Solid state physics (structure and properties of materials), M A Wahab, Narosa Publisher, |
| Electronic Materials | Websites on the internet that are relevant to the topics of the course |
| Other Learning Materials | Multi media associated with the text book and the relevant websites |

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| Required Textbooks | Introductory Nuclear Physics, Kenneth S. Krane, John Wiley & Sons; 3rd edition (1987). |
| Essential References Materials | <ol style="list-style-type: none"> 1. Concepts of nuclear physics, Cohen 2. Physics of Radioactive Beams; Authors: Bertulani, C.A. (Brookhaven National Laboratory) . ; Hussein, M.S. (University of Sao Paulo) ; Münzenberg, G. (GSI/Darmstadt, Germany) |
| Electronic Materials | <ol style="list-style-type: none"> 1. Websites on the internet that are relevant to the topics of the course such as: 2. http://www.hazemsakeek.com/Physics_Lectures/gp1_lectures.htmhh |
| Other Learning Materials | <ol style="list-style-type: none"> 1. Scientific software like, Mathematica. 2. Multi media associated with the text book and the relevant websites |

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| Required Textbooks | <p>Introductory Quantum Optics</p> <p>Christopher Gerry and Peter Knight</p> <p>Cambridge, 2004</p> |
| Essential References Materials | <p><u>Fundamentals of Quantum Optics and Quantum Information</u></p> <p>Peter Lambropoulos</p> |



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| | Springer, 2007 |
| Electronic Materials | MATLAB codes |
| Other Learning Materials | ----- |

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| Required Textbooks | Published research articles in refereed journals. Research articles of the faculty members. |
| Essential References Materials | Published research articles in refereed journals. Research articles of the faculty members. |
| Electronic Materials | Wolfram (website for mathematica software). |
| Other Learning Materials | Origin and Mathematica (software). |

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| Required Textbooks | Published research articles in refereed journals. Research articles of the faculty members. |
| Essential References Materials | Published research articles in refereed journals. Research articles of the faculty members. |
| Electronic Materials | Wolfram (website for mathematica software). |
| Other Learning Materials | Origin ; Matlab and Mathematica (software). |

رئيس قسم الفيزياء: د. ذكريات حسن أحمد ال عبدالعال