



Colegio de San Juan de Letran
Dominican Avenue, Abucay, Bataan
Library and Media Services

RESEARCH GUIDE:

PHYSICS 2

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RESEARCH GUIDES

PHYSICS 2

I. SCOPE NOTE

University **Physics II** introduces electrical and magnetic phenomena in nature, including the concepts of electrical charges, electric and magnetic fields, the application of Gauss' Law, electric potential, conductors and insulators, currents, basic circuits, and induction.

tamuc.edu.com

II. SEARCH AIDS

BT:

- Science

RT:

- Thermodynamics
- Electricity
- Magnetism
- EM Induction
- Condensed Matter
- Energy Conversion
- Semiconductor Physics
- Electric Systems
- Electric Fields
- Electric Field Lines
- Electric Potential
- Charge Distribution
- Capacitance
- Electric Power
- Current Density
- Resistance
- EMF (Electromotive force)
- Magnetic Fields and Flux
- Ampere's Law
- Faraday's Law
- Lenz's Law
- Induced Electric Field
- Eddy Currents
- Displacement Current
- Electromagnetic Waves
- Lenses
- Diffraction
- Free Body Diagrams
- Gravitational Forces

- Electromagnetic Forces

NT:

- Static Field
- Dynamic Field
- Electric Charge
- Coulomb's Law
- Gauss' Law
- Electric Dipole
- Electric Force
- Electric Flux
- Electric Potential Energy
- Electric Potentials of Charge
- Distributions
- Conductors
- Semiconductors (Diodes)
- Superconductors
- Crystals
- Equipotential Line
- Potential Gradient
- Resistor-Capacitor Circuits
- Capacitors in Series and Parallel
- Dielectrics
- Kirchhoff's Rules
- Resistance in Series and Parallel
- Electric Current
- Electrical Instruments
- Gauss' Law for Magnetism
- Magnetic Forces on Currents
- Magnetic Torque
- Magnetic Field of a Current
- Biot-Savart Law
- Magnetic Field of Wires
- Magnetic Field of a Current Loop
- Solenoids
- Toroids
- Induction
- Motional emf
- Generators
- Concave and Convex Mirrors
- Optical Instruments
- Double Slit Interference
- Thin Film Interference
- Conservation of Electric Energy

III. INFORMATION RESOURCES

A. LIBRARY RESOURCES

Note: For the appropriate access credentials, please contact the Letran Bataan Library

➤ E-JOURNALS

- Journal of Physics: Conference Series.
https://www.proquest.com/publication/publications_4998668
- Condensed Matter. https://www.proquest.com/publication/publications_2055427
- Scientific Reports (Nature Publisher Group).
https://www.proquest.com/publication/publications_2041939
- Journal of High Energy Physics.
https://www.proquest.com/publication/publications_2034718
- Axioms. https://www.proquest.com/publication/publications_2032429
- Nanosystem: Physics, Chemistry, Mathematics.
<http://dx.doi.org/10.17586/22208054201895641662>
- Energies. <http://dx.doi.org/10.3390/en12071237>
- Journal of Geoscience Education.
<https://search.proquest.com/docview/202778250?accountid=190548>
- Applied Sciences. <http://dx.doi.org/10.3390/app9071367>
- EPJ Photovoltaics. <http://dx.doi.org/10.1051/epjpv/2013029>
- Microscopy Today. <http://dx.doi.org/10.1017/S1551929510001240>
- Microscopy and Microanalysis. <http://dx.doi.org/10.1017/S1431927618013715>

➤ E-THESES

- Crothers, A. R. (2020). Theory of multiscale and multicomponent transport and thermodynamics in water-filled phase-separated cation-exchange membranes (Order No. 28000964). Available from ProQuest Central. (2462428624). Retrieved from <https://www.proquest.com/dissertations-theses/theory-multiscale-multicomponent-transport/docview/2462428624/se-2?accountid=190548>
- Xu, Z. (2020). Near field phenomena in dipole radiation (Order No. 27836205). Available from ProQuest Central. (2405340113). Retrieved from <https://www.proquest.com/dissertations-theses/near-field-phenomena-dipole-radiation/docview/2405340113/se-2?accountid=190548>
- Manjulagodu Basavanna, A. (2019). Visual insight into the electrohydrodynamics of droplet heat transfer at high voltages (Order No. 13861826). Available from ProQuest Central. (2272298554). Retrieved from <https://www.proquest.com/dissertations-theses/visual-insight-into-electrohydrodynamics-droplet/docview/2272298554/se-2?accountid=190548>
- Yu, H. (2018). Modeling and characterization of electrical resistivity of carbon composite laminates (Order No. 10745689). Available from ProQuest Central. (2025947731). Retrieved from <https://www.proquest.com/dissertations-theses/modeling-characterization-electrical-resistivity/docview/2025947731/se-2?accountid=190548>

- Wan, Z. (2018). Induced superconductivity in two dimensional electron gas system (Order No. 10830652). Available from ProQuest Central. (2100692231). Retrieved from <https://www.proquest.com/dissertations-theses/induced-superconductivity-two-dimensional/docview/2100692231/se-2?accountid=190548>
- Boyd, A. B. (2018). Thermodynamics of correlations and structure in information engines (Order No. 10689139). Available from ProQuest Central. (2047668591). Retrieved from <https://www.proquest.com/dissertations-theses/thermodynamics-correlations-structure-information/docview/2047668591/se-2?accountid=190548>
- Rose, J. Stephanie. (2016). Communication efficiencies: Utilizing electromagnetic spectrum for wireless broadband services. Available from ProQuest Central. Retrieved from <https://search.proquest.com/docview/1800752271?accountid=190548>
- Webster, Kevin T. (2014). The thermodynamics of high frequency markets (Order No. 3627279). Available from ProQuest Central. Retrieved from <https://search.proquest.com/docview/1558888155?accountid=190548>
- Robinson, C. J. (2010). Whole -body vibration: Is gravitational force a valid measurement of exercise intensity?. Available from ProQuest Central. Retrieved from <https://search.proquest.com/docview/760989419?accountid=190548>
- Avagyan, Ruben R. (2010). Electric power distribution expansion planning using distributed generation sources and storages. Available from ProQuest Central. Retrieved from <https://search.proquest.com/docview/859578510?accountid=190548>
- De, Amritanand. (2009). Spin dynamics and opto-electronic properties of some novel semiconductor systems. Available from ProQuest Central. Retrieved from <https://search.proquest.com/docview/304902937?accountid=190548>
- Stefani, Francesco. (2008). Qualitative understanding of magnetism at three levels of expertise. Available from ProQuest Central. Retrieved from <https://search.proquest.com/docview/304486804?accountid=190548>
- Pape, Andrew E. (1997). Implementing sustainable energy in competitive electricity markets. Available from ProQuest Central. Retrieved from <https://search.proquest.com/docview/304414781?accountid=190548>

B. OPEN ACCESS

➤ FREE E-BOOKS

- Malacara-Hernandez, Daniel, Thompson, Brian J. (Eds.) (2018). Advanced Optical Instruments and Techniques. Volume 2. Boca Raton, FL: CRC Press. <https://www.pdfdrive.com/fundamentals-and-basic-optical-Instruments-advanced-optical-instruments-and-techniques-e187749822.html>
- Goswami, D. Yogi & Krieth, Frank (Eds.) (2017). Energy Conversion (2nd ed.). Boca Raton, FL: CRC Press. <https://www.pdfdrive.com/energy-conversion-second-edition-d158202157.html>
- Walker, Jearl (2014). Halliday & Resnick Fundamentals of Physics: Textbook (10th ed.). Hoboken, NJ: John Wiley & Sons. <https://www.pdfdrive.com/fundamentals-of-physics-textbook-d33735280.html>
- Purcell, Edward M., Morin, David J. (2013). Electricity and Magnetism (3rd ed.). Cambridge: Cambridge University Press. <https://www.pdfdrive.com/electricity-and-magnetism-sicyon-d18019651.html>

- Brown, Robert (2013). Introductory Physics II: Electricity, Magnetism, and Optics. (n.p). <https://www.pdfdrive.com/introductory-physics-2-duke-university-e6433274.html>
- Huebener, Rudolf P. (2016). Conductors, Semiconductors, Superconductors: Conductors, Semiconductors, Superconductors, 2nd ed. Germany: Springer. <https://www.pdfdrive.com/conductors-semiconductors-superconductors-an-introduction-to-solid-state-physics-d157922871.html>
- Borgnakke, Claus. (2013). Fundamentals of Thermodynamics, 8th ed. USA: John Wiley & Sons, Inc. <https://www.pdfdrive.com/fundamentals-of-thermodynamics-8th-edition-d39204418.html>
- Araújo, RuiEsteves. (2012). Induction Motors – Modelling and Control. Croatia: InTech. <https://www.pdfdrive.com/induction-motors-modelling-and-control-d187324271.html>
- Becherrawy, Tamer. (2012). Electromagnetism: Maxwell Equations, Wave Propagation and Emission. USA: John Wiley & Sons, Inc. <https://www.pdfdrive.com/electromagnetism-maxwell-equations-wave-propagation-and-emission-d165218971.html>
- Fardo, Stephen W. (2009). Electrical Power System Technology. Lilburn, GA: Published by The Fairmont Press, Inc. <https://www.pdfdrive.com/electrical-power-systems-technology-d3641111.html>
- Jacoby, Wolfgang. (2009). Gravity Interpretation: Fundamentals and Application of Gravity Inversion and Geological Interpretation. German: Springer-Verlag Berlin Heidelberg. <https://www.pdfdrive.com/gravity-interpretation-fundamentals-and-application-of-gravity-inversion-and-geological-interpretation-d175329813.html>
- Mishra, Umesh K. (2008). Semiconductor Device Physics and Design. Netherlands: Springer. <https://www.pdfdrive.com/semiconductor-device-physics-and-design-d17634659.html>

➤ FREE E-JOURNALS

- Measurement. <https://doi.org/10.1016/j.measurement.2020.108119>
- iScience. <https://doi.org/10.1016/j.isci.2020.101484>
- Journal of Saudi Chemical Society. <https://doi.org/10.1016/j.jscs.2020.05.006>
- Results in Physics. <https://doi.org/10.1016/j.rinp.2019.102312>
- IFAC Proceedings Volumes. [https://doi.org/10.1016/S1474-6670\(17\)54613-3](https://doi.org/10.1016/S1474-6670(17)54613-3)
- Cell Reports Physical Science. <https://doi.org/10.1016/j.xcrp.2020.100075>

➤ FREE E-THESES

- Patel, Akash (2021). Electromagnetic and gravitational wave interactions. (Thesis). University of Lethbridge. Retrieved from <http://hdl.handle.net/10133/5882>
- Lawhorn, D. (2021). Electric power systems and components for electric aircraft. (Doctoral Dissertation). University of Kentucky. Retrieved from https://uknowledge.uky.edu/ece_etds/163
- Doganay, O. (2021). Monitoring electric field induced changes in biological tissue by using ultrasound. (Thesis). Ryerson University. Retrieved from <http://hdl.handle.net/10.32920/ryerson.14653407.v1>

- Udas, P. (2021). Investigations on the surge withstand capability of SCALED System. (Masters Thesis). University of Waikato. Retrieved from <http://hdl.handle.net/10289/14114>
- Robert, B. C. (2020). Electromagnetic characterisation and modelling of superconducting wires and coils for engineering applications. (Doctoral Dissertation). University of Leicester. Retrieved from <https://doi.org/10.25392/leicester.data.13315547.v1> ; <https://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.819504>
- Mihaylov, D. P. (2019). Exploring fundamental physics with gravitational waves. (Doctoral Dissertation). University of Cambridge. Retrieved from <https://www.repository.cam.ac.uk/handle/1810/292065>
- Huaung, S. (2017). The melting of a surface irradiated by electromagnetic wave. (Thesis). NSYSU. Retrieved from http://etd.lib.nsysu.edu.tw/ETD-db/ETD-search/view_etd?URN=etd-0716117-165603
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- Ye, Mengxi. (2019). Magnetism in correlated electron systems. (Doctoral Dissertation). University of Minnesota. <http://hdl.handle.net/11299/209029>
- Ericsson, Andreas. (2017). Design and Characterization of Functional Structures for Electromagnetic Waves. (Doctoral Dissertation). University of Lund. <https://lup.lub.lu.se/record/0a2f5392-8b27-48f6-976d-39df2134e6e2>
- Rubino, Edoardo. (2016). Magnetic field and electric field effect on magnetostrictive and electrostrictive photonic resonators. (Dissertation). Southern Methodist University. <https://www.proquest.com/dissertations-theses/magnetic-field-electric-effect-on/docview/1872983181/se-2?accountid=190548>
- Scandolo, Carlo M. (2014). Entanglement and thermodynamics in general probabilistic theories. (Thesis). Università degli Studi di Padova. http://tesi.cab.unipd.it/46015/1/Scandolo_carlo_maria.pdf
- Jimenez, Hector O. (2013). AC resistance evaluation of foil, round and litz conductors in magnetic components. (Thesis). Chalmers University of Technology. <http://hdl.handle.net/20.500.12380/175744>
- Vandervelde, Daniel John. (2008). Magnetic penetration depth analysis of unconventional superconductors. University of Illinois at Urbana-Champaign. <https://www.proquest.com/dissertations-theses/magnetic-penetration-depth-analysis/docview/304604088/se-2?accountid=190548>

C. PROFESSIONAL ORGANIZATIONS

- Philippine Physics Society. <https://philippinephysicsociety.org/>
- Philippine Association of Physics and Science Instructors. <https://www.facebook.com/PAPSIpage/posts/2263812577059142>
- Philippine Society of Mechanical Engineers. <https://psme.org.ph/>
- Institute of Integrated Electrical Engineers of the Philippine, Inc. <https://www.iiee.org.ph/>
- American Physical Society. <https://www.aps.org/>
- American Association of Physics Teachers. <https://www.aapt.org/>

D. OTHER RELATED WEB PORTALS

- Phys Org. <https://phys.org/>
- The Physics Classroom. <https://www.physicsclassroom.com/>
- Physics Forum. <https://www.physicsforums.com/>
- Hyber Physics. <http://hyperphysics.phy-astr.gsu.edu/hbase/index.html>
- Science Blogs. <https://scienceblogs.com/>

E. RELATED RESEARCH GUIDES

- IOWA State University. <https://instr.iastate.libguides.com/physics>
- ACC Library Services. <https://researchguides.austincc.edu/physics>
- UC Sta Cruz University. <https://guides.library.ucsc.edu/physics>
- UC River Side. <https://library.ucr.edu/research-services/subject-guides/physics-and-astronomysubject-guide>
- Northwestern. <https://libguides.northwestern.edu/physics>

IV. TUTORIALS

- Electric Charges and Forces-Coulomb's Law-Polrization.
<https://www.youtube.com/watch?v=x1-SibwIPM4&list=PLyQSN7X0ro2314mKyUiOILaOC2hk6Pc3j&index=2>
- Electric Field Lines, Superposition, Inductive Charging, Induces Dipoles.
<https://www.youtube.com/watch?v=Pd9HY8iLiCA&list=PLyQSN7X0ro2314mKyUiOILaOC2hk6Pc3j&index=3>
- Electric Flux, Gauss' Laws, Examples.
<https://www.youtube.com/watch?v=Zu2gomaDqnM&list=PLyQSN7X0ro2314mKyUiOILaOC2hk6Pc3j&index=4>
- Magnetic Fields, Lorentz Force, Torques, Electric Motors (DC).
<https://www.youtube.com/watch?v=0y9x7CS5Vrk&list=PLyQSN7X0ro2314mKyUiOILaOC2hk6Pc3j&index=12>
- Ampere's Law, Solenoids, Kelvin Water Dropper (Revisited).
<https://www.youtube.com/watch?v=MXuZ1SRjpbq&list=PLyQSN7X0ro2314mKyUiOILaOC2hk6Pc3j&index=16>
- Physics Tutorial. <https://www.physicstutorials.org/pt/1-Introduction>
- PHET. <https://phet.colorado.edu/>
- MIT Open Courseware. <https://ocw.mit.edu/courses/physics/index.htm>
- Physics 24/7. <http://ww12.physics247.com/>
- Tutor for Physics. <http://www.tutor4physics.com/>

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