



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

RESEARCH GUIDE: ELECTRICAL MACHINES

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RESEARCH GUIDES

ELECTRICAL MACHINES

I. SCOPE NOTE

An electrical machine is a device which converts mechanical energy into electrical energy or vice versa. Electrical machines also include transformers, which do not actually make conversion between mechanical and electrical form but they convert AC current from one voltage level to another voltage level. electricaleasy.com

II. SEARCH AIDS (BT: Broader Term, RT: Related Term, NT: Narrow Term)

BT:

- Electrical Machines

RT:

- DC machinery
- DC motors
- DC generators
- AC machinery
- Synchronous generators
- Synchronous motors
- Induction motors
- Single-phase motors
- Special-purpose motors

NT:

- Commutation in real machines
- Internal generated voltage
- Power flow and losses
- Equivalent circuit
- Magnetization curve
- Magnetic flux
- Permanent magnet DC motor
- Series motor
- Compounded DC motor
- DC motor starters
- Ward-Leonard system
- Solid-state speed controllers
- Shunt DC generator
- Series DC generator
- Compounded DC generator
- Rotating magnetic field
- Magnetomotive force
- Flux distribution

- Induced voltage
- Induced torque
- Winding insulation
- Induction generators
- Reluctance motor
- Hysteresis motor
- Stepper motors
- Brushless DC motors

III. INFORMATION RESOURCES

A. LIBRARY RESOURCES

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

➤ E-JOURNALS

- Machines. https://www.proquest.com/central/publication/publications_2032370
- IEEE Industrial Electronics Magazine.
https://www.proquest.com/central/publication/publications_75724
- Journal of Quality in Maintenance Engineering.
https://www.proquest.com/central/publication/publications_25901
- Compel. https://www.proquest.com/central/publication/publications_31712
- Scientific Bulletin Series C: Fascicle Mechanics, Tribology, Machine Manufacturing Technology. https://www.proquest.com/central/publication/publications_51656
- Proceedings of the Estonian Academy of Sciences.
https://www.proquest.com/central/publication/publications_106016
- IEEE Transactions on Magnetics.
https://www.proquest.com/central/publication/publications_85461
- Russian Electrical Engineering.
https://www.proquest.com/central/publication/publications_2044411
- Electric Power Components and Systems.
https://www.proquest.com/central/publication/publications_52905
- IOP Conference Series. Materials Science and Engineering.
https://www.proquest.com/central/publication/publications_4998670
- IEEE Sensors Journal.
https://www.proquest.com/central/publication/publications_75733
- Nonlinear Dynamics.
https://www.proquest.com/central/publication/publications_2043746
- International Transactions on Electrical Energy System.
https://www.proquest.com/central/publication/publications_2034359
- Computer Applications in Engineering Education.
https://search.proquest.com/central/publication/publications_2045172
- Electric Power Components & Systems.
https://search.proquest.com/central/publication/publications_52905

- IEEE Transactions on Electrical and Electronic Engineering.
https://search.proquest.com/central/publication/publications_996339
- International Journal of Electrical Engineering & Education.
https://search.proquest.com/central/publication/publications_37651
- Electrical Engineering & Electro mechanics.
<https://search.proquest.com/central/docview/2397974997/7E0ADB59A21445EPQ/11>

➤ E-THESES

- Lin, R. (2017). A design paradigm for V-shape interior permanent-magnet machines using multi-objective optimization (Order No. 10272940). Available from ProQuest Central. (2070530652). Retrieved from <https://www.proquest.com/dissertations-theses/design-paradigm-v-shape-interior-permanent-magnet/docview/2070530652/se-2?accountid=190548>
- da Silva, A. M. (2015). Mechatronics design process with energy optimization for industrial machines (Order No. 3701219). Available from ProQuest Central. (1680274285). Retrieved from <https://www.proquest.com/dissertations-theses/mechatronics-design-process-with-energy/docview/1680274285/se-2?accountid=190548>
- Alsawalhi, J. Y. (2014). An asymmetric salient permanent magnet synchronous machine for wide constant power speed range applications (Order No. 3686817). Available from ProQuest Central. (1667442715). Retrieved from <https://www.proquest.com/dissertations-theses/asymmetric-salient-permanent-magnet-synchronous/docview/1667442715/se-2?accountid=190548>
- Lama, N. (2017). Optimized veterinary thermographic image classification using support vector machines and noise mitigation (Order No. 10616467). Available from ProQuest Central. (1957410653). Retrieved from <https://www.proquest.com/dissertations-theses/optimized-veterinary-thermographic-image/docview/1957410653/se-2?accountid=190548>
- White, J. W. (2019). Bearing currents and shaft voltages in electric motors and their relationship to pulse width modulation drives (Order No. 13878181). Available from ProQuest Central. (2302691954). Retrieved from <https://www.proquest.com/dissertations-theses/bearing-currents-shaft-voltages-electric-motors/docview/2302691954/se-2?accountid=190548>
- Jiang, Y. (2015). Optimal design of permanent magnet synchronous machines based on magnetic field distribution assessment and performance analysis (Order No. 3664036). Available from ProQuest Central. (1713583981). Retrieved from <https://search.proquest.com/docview/1713583981?accountid=190548>
- Plotnick, R. (2013). Signal and switch: A cultural history of the push-button interface (Order No. 3563823). Available from ProQuest Central. (1400272079). Retrieved from <https://search.proquest.com/docview/1400272079?accountid=190548>
- White, J. W. (2019). Bearing currents and shaft voltages in electric motors and their relationship to pulse width modulation drives (Order No. 13878181). Available from ProQuest Central. (2302691954). Retrieved from <https://search.proquest.com/docview/2302691954?accountid=190548>

- Xiao, T. P. (2019). Optoelectronics for refrigeration and analog circuits for combinatorial optimization (Order No. 13886372). Available from ProQuest Central. (2299216382). Retrieved from <https://search.proquest.com/docview/2299216382?accountid=190548>
- Sathyan, A. (2008). Digital PWM control of brush-less DC (BLDC) motor drives (Order No. 3370892). Available from ProQuest Central. (304606436). Retrieved from <https://search.proquest.com/docview/304606436?accountid=190548>

B. OPEN ACCESS

➤ FREE E-BOOKS

- Hameyer, Kay & Belmans, Ronnie. (1999). Numerical Modelling and Design of Electrical Machines and Devices. United Kingdom: WIT Press. <https://www.pdfdrive.com/numerical-modelling-and-design-of-electrical-machines-and-devices-advances-in-electrical-and-electronic-engineering-advances-in-electrical-and-electronic-engineering-v-1-d163551256.html>
- Sen, P. C. (Paresh Chandra). (2013). Principles of electric machines and power electronics, 3rd edition. New Jersey: John Wiley & Sons, Inc. <https://www.pdfdrive.com/principles-of-electric-machines-and-power-electronics-3rdedition-d52688650.html>
- Sen, P. C. (Paresh Chandra). (1996). Principles of electric machines and power electronics. New Jersey: John Wiley & Sons, Inc. <https://www.pdfdrive.com/principlesof-electrical-machines-and-power-electronics-pc-sen-d51239404.html>
- Schubert, Tomas F. and Kim, Ernest M. (2014). Fundamentals of Electronics: Book 1 Electronic Devices and Circuit Applications. Morgan & Claypool Publisher. <https://www.pdfdrive.com/fundamentals-of-electronics-book-1-electronic-devices-and-circuit-applications-d186374504.html>

➤ FREE E-JOURNALS

- Electrical Engineering Open Access Journals. <https://www.springeropen.com/p/engineering/electrical-engineering-journals>
- Special Issue "Advances in Electrical Machines and Drives". https://www.mdpi.com/journal/machines/special_issues/advances_electrical_machines_drives
- Machines. <https://www.mdpi.com/journal/machines>
- Electric Power Components and Systems, Volume 21, Issue 1 (1993). <https://www.tandfonline.com/toc/uemp19/21/1?nav=toCList>
- Journal of Electrical Systems. <http://journal.esrgroups.org/jes/>
- Journal of Electrical Engineering & Technology (JEET). <https://www.springer.com/journal/42835>
- Journal of Electrical & Electronic Systems. <https://www.hilarispublisher.com/electrical-electronic-systems.html>
- Journal of Electrical Systems. <https://journal.esrgroups.org/jes/>
- Electrical & Electronic Technology Open Access Journal. <https://publons.com/journal/60863/electrical-electronic-technology-open-access-journ/>

➤ FREE E-THESSES

- Lexa, J. (2019). Vibration diagnostics of electrical machines. (Thesis). Brno University of Technology. Retrieved from <http://hdl.handle.net/11012/59915>
- Kuna, K. (2020). Investigation on operating characteristics of multi-phase machine. (Thesis). Brno University of Technology. Retrieved from <http://hdl.handle.net/11012/189187>
- Rodrigues, L. (2013). High temperature embedded electrical machines for aerospace turbine applications. (Doctoral Dissertation). University of Sheffield. Retrieved from <https://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.577457>
- Huang, Z. (2017). Modeling and Testing of Insulation Degradation due to Dynamic Thermal Loading of Electrical Machines. (Doctoral Dissertation). University of Lund. Retrieved from <https://portal.research.lu.se/ws/files/19894778/Binder1.pdf>
- Hall, S. (2019). Testing and Modelling of Electrical Traction Machines: Performance Characterization with Measurements from Transient Operation. (Doctoral Dissertation). University of Lund. Retrieved from https://portal.research.lu.se/ws/files/62982359/Popular_summary.pdf

C. PROFESSIONAL ORGANIZATIONS

- Institution of Electrical & Electronics Engineer. <https://www.ieee.org/>
- The Institution of Engineering & Technology. <https://www.theiet.org/>
- Electronic Power Research Institute. <https://www.epri.com/>
- American Society for Engineering Education. <http://www.asee.org/>
- IEEE Communication Society. <https://www.comsoc.org/>

D. OTHER RELATED WEB PORTALS

- Virtual Labs. <https://www.vlab.co.in/>
- MIT Open Courseware. <https://ocw.mit.edu/index.htm>
- Makezine. <https://makezine.com/>
- Electronics Weekly. <https://www.electronicweekly.com/>
- Tutorials Point. <https://www.tutorialspoint.com/index.htm>
- Electrical Engineering Portal. <https://electrical-engineering-portal.com/>
- Electronics. <http://electronics.wisc-online.com/>
- Electrical 4 U. <https://www.electrical4u.com/>
- Virtual Lab. <http://vlab.co.in/>
- Wolfram. <https://demonstrations.wolfram.com/>

E. RELATED RESEARCH GUIDES

- IOWA State University. <https://instr.iastate.libguides.com/ecpe>
- University of Suffolk. <https://libguides.uos.ac.uk/Engineering/wsc/electricalmachinesandplantprotection>
- University of Melbourne. https://unimelb.libguides.com/elec_eng
- Washington University Library. <https://libguides.libraries.wsu.edu/EE>
- Northwestern Library. <https://libguides.northwestern.edu/eecs>

IV. TUTORIALS

- Electrical Machines | Introduction to Electrical Machines | Part 1a. <https://www.youtube.com/watch?v=PGihCyWoVGE>
- Electrical Machines | Applications of Electric Machines | Part 1b. <https://www.youtube.com/watch?v=kX-iMQOkado>
- Electrical Machines | Introduction to AC machines | Part 2a. <https://www.youtube.com/watch?v=Dt0p5GI2-IA>
- Electrical Machines Fundamentals. <https://www.youtube.com/watch?v=fbwZkhaF0dk>
- Introduction to Electrical Machine Course | Lecture 1| Electrical Machines. <https://www.youtube.com/watch?v=nAOplzq7srM>
- Basics of Electrical Machines | Electrical Machine | GATE Preparation Lectures | EE. https://www.youtube.com/watch?v=Uhp9lu_oSEA
- Rotating Electrical Machines | Basic Concepts. <https://www.youtube.com/watch?v=6X78h74E-40>
- Classification of Electrical Machines | Electrical Machines 2. <https://www.youtube.com/watch?v=cd7RbSvMaBk>
- Java T Point. <https://www.javatpoint.com/electrical-machines-tutorial>
- Electronics Weekly. <https://www.electronicweekly.com/>
- Hack a Day. <https://hackaday.com/about/>
- Tutorials Point. https://www.tutorialspoint.com/electronic_circuits/index.htm

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