

AUTOMATED SYSTEMS ELECTROMECHANICS

Teacher: Constantin Munteanu

**Material to support ongoing learning and is 100% on a voluntary basis.
For module 17 (MOTORS)**

How power is generated:

<https://www.site.uottawa.ca/~rhabash/ELG4126PowerSystem.pdf>

And a tutorial on 3 phase power systems:

https://www.researchgate.net/profile/Francisco_Gonzalez-Longatt/publication/337973012_TUTORIAL_3-phase_systems_an_Introduction/links/5df8a224299bf10bc3613a8a/TUTORIAL-3-phase-systems-an-Introduction.pdf?origin=publication_detail

Most of the motors used in school are Baldor ABB:

Here is a link, where students can find valuable information (pdf files), and ABB download center:

<https://www.baldor.com/resources-and-support/download-center#area=%22literature%22>

DC motors basics:

<http://nit-edu.org/wp-content/uploads/2019/06/ch-29-Dc-motor.pdf>

Basic training, motors, gears and drives:

<http://www.iprocessmart.com/techsmart/basictraining.pdf>

AC motors fundamentals (from Oriental motors)

https://www.orientalmotor.com/ac-motors-gear-motors/technology/ac-motor-fundamentals.html?gclid=EAlaIqobChMly8649L_66AIVGeDICH0_ywHsEAAYASAAEgL3KPD_BwE

A good one from Siemens (pdf):

https://www.eandm.com/Products/Content/Siemens/Training/Siemens_Courses/acm_1.pdf

***** includes theory and review questions for each chapter (topic)**

A detailed description for single phase motors (from Grundfos):

http://machining.grundfos.com/media/16565/motorbook_chapter2.pdf

Trouble shooting and testing Motors

DC motors:

https://www.researchgate.net/publication/334783780_A_Review_on_Maintenance_and_Troubleshooting_of_DC_Machines

AC motors <https://www.baldor.com/our-profile/news/company-news/detail?id={9FBA07E3-6704-4892-9056-4C1A4A08685C}> Tips and tricks to prevent electric motors headaches

We can implement (purchase) **Motor Testing Software**, e.g., Magtrol's M-TEST 7 is a state-of-the-art motor testing program for data acquisition, used with a Magtrol Programmable Dynamometer Controller, M-TEST 7 works with any Magtrol Dynamometer or In-Line Torque Transducer to help determine the performance characteristics of a motor under test. Up to 63 parameters are calculated and displayed utilizing M-TEST 7's feature-rich testing and graphing capabilities. Written in LabVIEW™, M-TEST 7 has the flexibility to test a variety of motors in a multitude of configurations. Magtrol can also make custom modifications to the software to meet additional motor testing requirements. This move might be a huge advance. ***It's just an example.*** On the market, we find many companies offering motor training simulators (software).

Some companies offer webinars (most of them, for Free), on various topics, such as:

Motors/Motor testing/Motor maintenance and testing. Students can sign up for free demos and webinars:

https://www.google.com/search?rlz=1C1GCEU_enCA848CA848&ei=ol2fXta3LoGKytMPjIGagAI&q=free+webinars+on+motors&og=free+webinars+on+motors&gs_lcp=CgZwc3ktYWlQDFDW8AJYlaEDYNikCmgBcAB4AIABYYgB9QSSAQE3mAEAoAEBggEHZ3dzLXdpeg&scient=psy-ab&ved=0ahUKEwjWh8m24froAhUBhXIEHYyABiAQ4dUDCAw

Motor control; Control equipment, relays, DOL contactors, electromagnetic starters, basic control principles:

https://download.schneider-electric.com/files?p_enDocType=Brochure&p_File_Name=0140BR9102.pdf&p_Doc_Ref=0140BR9102

From Schneider, Fundamentals of Motor Control/Basic principles and language of AC motors control