



# 620-303-3E2A Motors and Ind Electrical Systems

Spring 2019 Syllabus

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## Instructor Information

<b>Instructor:</b>	JD (Jason) Jones	<b>Office Hours:</b>	M E 7:40-8:25 I 3-3:30
<b>Office:</b>	Room 126 or 130		T _____
<b>Address:</b>	Gateway Technical College Attention: JD Jones 400 County Rd H Elkhorn, WI 53121		W E 7:40-8:25 I 3-3:30
<b>Phone:</b>	(262) 741-8410		TH E 7:30-8:10 & 1:10-2:30
<b>Email:</b>	jonesj@gtc.edu		F _____
			S _____

## Course Information

<b>Key Dates:</b>	Class Day/Time:	Monday 8:25 - 2:10 pm
	Start/End Date:	1/7/19 to 4/15/19
	Financial Aid Census Date:	1/20/19
	Last Day for Students to Drop:	1/25/19
	Instructor Drop Period:	1/26/19 to 2/1/19
	Midterm Grade Date:	2/22/19
	Last Date for Students to Withdraw:	3/26/19

See the *Gateway Student Handbook* ([PDF](#)) for details about how the financial aid census date, student drops, instructor drops, and student withdrawals affect financial aid and potential refunds.

**Check-in:** To check in to class prior to the Financial Aid Census Date and to acknowledge understanding of the syllabus, students must the syllabus test

To maintain enrollment in the course, students must complete 2 labs, 2 Elearning modules.

**Description:** This course will cover motors and transformers utilized in industrial applications. Single and 3 phase AC motors, DC Motors, stepper and servo motors will all be wired and troubleshot using ladder diagrams. Variable frequency drives (VFD's) will be programmed and wired to control 3 phase AC motors. All topics will be covered along with failure modes, troubleshooting and replacement of the devices.

**Competencies:** The following competencies are promoted and assessed in this course:  
 Utilize a DC motor using various DC sources.

- Demonstrate the operating principle of a universal motor.
- Demonstrate the operating principles of a single phase transformer.
- Examine the operating principles of a 3 phase transformer.
- Demonstrate the operation and control of single phase and three phase induction motors.
- Demonstrate the operation and control of a stepper motor.
- Demonstrate the operation and control of a servo motor.
- Conduct applications of a Variable Frequency Drive (VFD) with a 3 phase motor.
- Identify errors in motor control circuits.
- Resolve errors in motor control circuits.
- Troubleshoot errors in circuits.

**Credits:** 3

**Prerequisites:** 620-302 Electrical Principles and Ind Controls

**Corequisites:** None

**Textbook:** Amatrols Elearning activation code. This can be shared with other courses using the Amatrols Elearning system.

**Materials:**

- Pen and pencil
- Paper
- Jump drive (You can use the same jump drive for all the classes) 4 gig or larger
- Safety glasses

**Core Abilities:** Gateway Technical College believes students need both technical knowledge and skills and core abilities in order to succeed in a career and in life. The following nine core abilities are the general attitudes and skills promoted and assessed in all Gateway programs:

- Act responsibly
- Communicate clearly and effectively
- Demonstrate essential computer skills
- Demonstrate essential mathematical skills
- Develop job-seeking skills
- Respect self and others as members of a diverse society
- Think critically and creatively
- Work cooperatively
- Value learning

## Grading

An understanding of the grading guidelines is critical to the successful completion of this course. Please read carefully, and contact the instructor if you have any questions.

**Final Grades:** This class will have points assigned to each assignment, quiz, participation, test, labs and other activities. The final grade will be computed by taking the obtained points and dividing by the total

possible points and turned into a percentage and referenced to the conversion scale to obtain the letter grade.

**Late Work:**

## Coupon

This coupon entitles the student to one **extension** on any project or assignment. The owner must negotiate the new deadline with their instructor. Limit ONE coupon per student, per course, per semester. Not valid with any other offer. Good only with participating instructors. **Offer expires one week before the course ends.**

The student needs to print this coupon out and turn into the instructor.

**THE STUDENT STILL NEEDS TO DUE THE ASSIGNMENT OR PROJECT!!!!**

We all can have a bad day or forget to do an assignment. Below is an Allow me to turn in a LATE assignment coupon. It only allows you one time per semester per class to turn in an assignment late. **YOU STILL HAVE TO DO THE ASSIGNMENT.** If you decide to use it, please cut and paste it into the top of your late assignment. Please note the date we negotiated for your new deadline and the coupons expiration date.

**\*The instructor reserves the right to adjust the late policy due to extenuating circumstances.**

**Grading Scale:** The following grading scale is used in this class:

Grade	Percentage	Grade	Percentage
A	94 – 100	C	74 – 76
A-	90 – 93	C-	70 – 73
B+	87 – 89	D+	67 – 69
B	84 – 86	D	64 – 66
B-	80 – 83	D-	60 – 63
C+	77 – 79	F	< 60

Note: Students in the Electromechanical Maintenance Technician program must earn a "C" or higher in the class or retake it.

**Incompletes:** An incomplete grade is given only in extenuating circumstances. To request an incomplete grade, a student must have already completed 80% of coursework and have a passing grade at the time of the request. The instructor and student will come up with a plan and timetable when unfinished work will be due. The incomplete grade can hold up a student's financial aid for the next semester, resulting in financial aid probation until the course is completed and a final grade is given.

**Midterm:** Midterm grades will be posted by the course instructor and available via WebAdvisor approximately seven weeks into the semester. Midterm grades are a snapshot of your grade on the date the midterm grade is entered. Midterm grades do

not appear on your transcript and are not calculated into your GPA. Instructor progress comments may also be provided via WebAdvisor and/or via email.

## Policies and Procedures

The following policies will be followed in this class. Additional college policies can be found in the *Gateway Student Handbook*. Printed and PDF copies of the handbook are available in the bookstore and on Gateway's website ([www.gtc.edu](http://www.gtc.edu)), respectively.

### Class Policies:

#### Equipment malfunction:

If the equipment in the lab breaks and is not repairable in a timely fashion it is up to the instructor on how to assess the student and the proper outcome.

### DSS:

<https://docs.google.com/document/d/1UNP5dioOppu2HuK7jcjyS0kB0bd7HDVgTMuy23Kk9co/edit>

Students with disabilities who believe they may need reasonable accommodations in this class are encouraged to contact the **Disability Support Services office on their campus** as soon as possible to ensure that such accommodations are implemented in a timely fashion.

Disability Support Services (DSS) offers a variety of accommodations and support services to assist students in their academic success. However, accommodations are not retroactive and course standards will not be lowered, therefore, students are encouraged to connect with the staff early.

Disability Support Services Instructors		
Burlington/Elkhorn	Kenosha	Racine
Learning Success Center North Building, 208 (262) 741-8020	Learning Success Center Academic Building, A111 (262) 564-2006	Learning Success Center Lake Building, R215 (262) 619-6216
Sue Stokes-Nelson <a href="mailto:stokes-nelsons@gtc.edu">stokes-nelsons@gtc.edu</a> (262) 741-8420	Dawn Kaiser <a href="mailto:kaiserd@gtc.edu">kaiserd@gtc.edu</a> (262) 564-2570	Pam Herr <a href="mailto:herrp@gtc.edu">herrp@gtc.edu</a> (262) 619-6520
Patty Nesheim <a href="mailto:nesheimp@gtc.edu">nesheimp@gtc.edu</a> (262) 767-5342	Barbara Yousefian <a href="mailto:yousefianb@gtc.edu">yousefianb@gtc.edu</a> (262) 564-2448	Beth Mulhollon <a href="mailto:mulhollone@gtc.edu">mulhollone@gtc.edu</a> (262) 619-6478
Deaf/Hard of Hearing Services		
Lisa Sadowski (District-Wide) <a href="mailto:sadowskil@gtc.edu">sadowskil@gtc.edu</a> , 262.564.2564 (voice), 262.960.1931 (text) Wisconsin Relay System: 711		

## Title IX/Sexual Misconduct

Gateway Technical College seeks to provide a nondiscriminatory environment that is free of bias, discrimination, and harassment. If you have been a victim of sexual harassment, sexual misconduct, or sexual assault, we encourage you to make a report. If you report to a faculty member, she or he must notify Gateway's Title IX Office about the basic facts of the incident (you may choose whether you want to identify anyone involved by name). You may also make a confidential report to Gateway's Student Support Counselor. For more information about Title IX or sexual misconduct, as well as your options, please visit [gtc.edu/TitleIX](http://gtc.edu/TitleIX)

## Parenting and Pregnant Students

Gateway Technical College does not discriminate against any student on the basis of pregnancy or related conditions. Pregnant and parenting students are eligible for protection and accommodation under Title IX. Absences due to medical conditions relating to pregnancy will be excused for as long as deemed medically necessary by the student's doctor and student will be given the opportunity to make up missing work. Students who are pregnant or parenting after pregnancy can receive accommodations by contacting a Disability Support Services Instructor from Disability Support Services located in the Learning Success Center. More information is available at [gtc.edu/TitleIX](http://gtc.edu/TitleIX)

- Due Process:** If you have an issue with the class, instructor, or grades, please follow the Student Due Process Rights outlined in the *Gateway Student Handbook* ([PDF](#)).
- Internet Use:** The Internet and social networking sites, including but not limited to Twitter, YouTube, and Facebook, are not controlled by Gateway Technical College. While there can be educational value to these sites, there is potential for offensive language, adult content and situations. If you have concerns, please talk with your instructor.
- Pandemic:** Should there be a public health pandemic emergency, students are responsible for the following:
- ❑ Being prepared and able to adapt if there is an unplanned absence (pandemic emergency). Students should be present when classes are in session and manage their time so that they can complete assignments and assessments on or before the date they are due.
  - ❑ Completing work missed due to an absence within the time frame determined by the instructor.
  - ❑ Participating in an alternative delivery method of instruction as determined by the instructor. The alternative delivery method that will be used for this course is Internet (Blackboard).
- Responsibility:** The Gateway District recognizes that in order to operate a meaningful educational program and a safe environment for students and staff, the Student Code of Conduct in the *Gateway Student Handbook* ([PDF](#)) will be followed. The Gateway District believes every student has the right to pursue an education free from disruption, harassment, illegal activities, threats, or danger. Every student is expected to comply with the standards set and to be familiar with all the rules, regulations, and policies of Gateway Technical College. On a daily basis, any student or group of students may be denied access to the classroom upon the instructor's determination

that their behavior impedes student learning, the health and safety of peers, self, or the staff. The instructor will notify the student(s) of their denied access. The dean of campus affairs will also be notified by the end of the working day.

The District further believes that academic honesty and integrity are fundamental to the educational mission of this College. Dishonesty, which includes, but is not limited to, knowingly furnishing false information to the College, plagiarism, or any form of cheating, will be punished. For a first violation, the instructor will issue an "F" for the assignment or exam. For a second violation, the instructor will issue an "F" for the course. All violations will be reported to the dean of campus affairs or designee, who will follow the discipline procedure in the *Gateway Student Handbook* ([PDF](#)).

**Student Support:** Gateway offers a variety of free support services and support programs to help students succeed in their studies. Services include tutoring, supplemental instruction, and disability support services in the Learning Success Center. Programs include the Learning Success Coaching, Multicultural Program, Non-Traditional Occupations Program, StepUp Program, and TRiO Support Services. For details, see the "Services for Students" section of the *Gateway Student Handbook* ([PDF](#)).

**Tech. Support:** If there is a technology problem, please contact the instructor or the Gateway Technology Support Center by doing the following:

- entering a support request on the ticketing system at <https://support.gtc.edu>
- telephoning 1.262.564.3695 or 1.800.353.3153

**Maxient/Incident Report** Please use this link to access the incident reporting [form](#)

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# Course Schedule for Motors and Ind Electrical systems 620-303

The schedule may change to promote learning.

## COURSE CALENDAR:

All items are due by 11:59 PM on Saturday of the week number except week 15 will all be due by end of the last day of class. Any item turned in after the due date will be zero points. If a student fails to complete a lab on time he/she will be required to complete it prior to receiving credit for any on-time labs.

Week #	Class date	Items Due
1	1-7-19	Lab 1, Elearning Control Transformers, Manual Motor Control
2	1-14-19	Lab 2 & Lab 3, Elearning Capacitor Start AC Motors, Intro to VFD
3	1-21-19	No Class 3 Phase AC Motors, Intro to Elec Motor Controls
4	1-28-19	Lab 4, Elearning Control Relay/Motor Starters, Config/Troubleshoot A-B Powerflex 40
5	2-4-19	Lab 5 & Lab 6, Elearning Rev Motor Control, Braking Methods
6	2-11-19	Lab 7 & Lab 8, Elearning Reduced Voltage Starting
7	2-18-19	Lab 9, Elearning Troubleshoot AC Motors
8	2-25-19	Midterm Test, Elearning VFD AC Speed/Torque
9	3-4-19	Lab 10 & Lab 11, Elearning VFD AC Accel/Decel
10	3-11-19	Lab 12,, Elearning VFD AC Fault
11	3-18-19	Lab 13, Lab 14, Elearning DC Series Motor & Trouble DC Motor
12	3-25-19	Lab 15, Elearning PLC/VFD Elec Control
13	4-1-19	Lab 16, Elearning Config/Trouble Servo Drives
14	4-8-19	Lab Clean Up,
15	4-15-19	Tests (3) Final Written & Final Build & Final Troubleshoot, Reflections

### Important dates

January 7th

1<sup>st</sup> class

Jan 26 - Feb 1st

INSTRUCTOR DROP DATE

February 22

Midterm grades

March 26th

Last date for students to withdraw!

April 15th

LAST CLASS