

MT3.825: Process Control & Instrumentation

Linn-Benton Community College – Spring 2020

3 Credit Hours

Instructor: Josh Hanson

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Instructor website: linnbenton.edu → Quick Links → Instructor Websites → Hanson, Josh

OFFICE HOURS:

See Instructor Website for schedule

REQUIRED TEXTS

1. Textbook: None, reference materials to be supplied by the instructor

COURSE DESCRIPTION:

Provides an introduction to process control and instrumentation. Students will develop a working production line that includes sensors, pneumatics, PLCs and motor controls. Energy efficiency and maintenance, troubleshooting, and repair of control systems is emphasized.

COURSE OUTCOMES:

Upon successful completion of this course, students will be able to:

1. Identify and/or describe equipment used to calibrate process control devices and/or industrial sensors
2. Use instrumentation equipment to calibrate process control devices and/or industrial sensors
3. Employ a logical, systematic approach to troubleshooting industrial manufacturing equipment
4. Explain process and/or rationale for determining faults when troubleshooting industrial manufacturing equipment
5. Describe where PLCs fit into the broader context of process control systems

GRADING

This class is graded “A” through “F”. Letter grades will be assigned as follows:

90-100% = A, 80-89% = B, 70-79% = C, 60-69% = D, Below 60% = F

Item	% of Grade
Exams	20
Homework	25
Labs	30
Positive Participation	25

Assignments, Late Work and Attendance: All assignments will be turned in by the due date shown on Moodle. Anything turned in after that will be considered late. Late assignments lose 10% of possible points for every day they are late.

Schedule

Week	Topic
1	Intro to Control, Controllers
2	Documentation, Instrument Cals
3	Pressure Measurement
4	Level Measurement
5	Temperature Measurement
6	Final Control Elements
7	Fluid Flow Measurement
8	Start-Up & Loop Tuning, PID, PID Tuning
9	Control Valve Maintenance
10	Distributed Control Systems

ACADEMIC HONESTY

Students are expected to follow [LBCC policies](#) regarding academic integrity as articulated in the Students' Rights Responsibilities and Conduct Policy. Students found to be involved in academic dishonesty will receive an F (failing grade) in this course.

POSITIVE PARTICIPATION:

Positive participation includes demonstrating a self-starting attitude, respecting the rights of others to learn, behaving like decent people, and contributing to an effective learning situation in the classroom. You will be asked a weekly question that you will have to answer to show that you either attended the live lecture, or watched the recorded lecture.

PERSONAL CONDUCT

This course will have live lectures that will be recorded. These recorded lectures will be made available for students to watch. Please be mindful of what you say and/or type during these lectures as it could be captured on the recording.

Safety is our primary concern. Follow all safety regulations. Failure to do so can result in your removal from lab or classroom activities. No horseplay or disruptive activities will be tolerated.

Under the Influence: Due to the inherent danger of the shop areas, any student suspected of being under the influence of intoxicants will be asked to leave the shop area.

LBCC EMAIL AND COURSE COMMUNICATIONS

You are responsible for all communications sent via Moodle and to your LBCC email account. You are required to use your LBCC provided email account for all email communications at the College. You may access your LBCC student email account through Student Email and your Moodle account through Moodle.

SPECIAL ACCOMMODATIONS

Students who may need accommodations due to documented disabilities, who have medical information which the instructor should know, or who need special arrangements in an emergency should speak with their instructor during the first week of class. If you believe you may need accommodations but are not yet registered with the Center for Accessibility Resources (CFAR), please visit the [CFAR Website](#) for steps on how to apply for services or call [\(541\) 917-4789](#).

STATEMENT OF INCLUSION

To promote academic excellence and learning environments that encourage multiple perspectives and the free exchange of ideas, all courses at LBCC will provide students the opportunity to interact with values, opinions, and/or beliefs different than their own in safe, positive and nurturing learning environments. LBCC is committed to producing culturally literate individuals capable of interacting, collaborating and problem-solving in an ever-changing community and diverse workforce.

TITLE IX REPORTING POLICY

If you or another student are the victim of any form of sexual misconduct (including dating/domestic violence, stalking, sexual harassment), or any form of gender discrimination, LBCC can assist you. You can [report](#) a violation of our sexual misconduct policy directly to our Title IX Coordinator. You may also report the issue to a faculty member, who is required to notify the Coordinator, or you may make an appointment to speak confidentially to our Advising and Career Center by calling 541-917-4780.

PUBLIC SAFETY/CAMPUS SECURITY/EMERGENCY RESOURCES

In an emergency, call 911. Also, call LBCC Campus Security/Public Safety at [541-926-6855](#) and [541-917-4440](#).

From any LBCC phone, you may alternatively dial extension 411 or 4440. LBCC has a [public safety app](#) available for free. We encourage people to download it to their cell phones. Public Safety also is the home for LBCC's Lost & Found. They provide escorts for safety when needed. Visit them to learn more.

CHANGES TO THE SYLLABUS

I reserve the right to change the contents of this syllabus due to unforeseen circumstances. You will be given notice of relevant changes in class, through a Moodle Announcement, or through LBCC e-mail.