# Valencia Logo

## Department of Energy Management and Controls Technology

## Division of Engineering, Computer Programming, & Technology

## West Campus, Building 9, Room 140

<http://www.valenciacollege.edu/west/engineering/> **SESSION: Spring 2021**

**Course Syllabus: ETM2605C –**  **AUTOMATION AND CONTROLS INTEGRATION–** **CRN 26083**

**Catalog Course Description:** This course investigates several building automation systems integration platforms present in the industry. Topics include: Modbus, LonWorks, and BACnet.

**Major Learning Outcomes:**

* Student will demonstrate a basic understanding of the differences between the three main communication protocols.
* Student will know the hardware and software requirements for Modbus.
* Student will be able to give examples of typical applications and locations Modbus is used.
* Student will know the hardware and software requirements for LonWorks.
* Student will be able to give examples of typical applications and locations LonWorks is used.
* Student will know the hardware and software requirements for BACnet.
* Student will be able to give examples of typical applications and locations BACnet is used.

**Prerequisites:** ETM 1601C; one of the following: PHY 1020, MAC 1105 or higher, MGF 1106, MGF 1107, STA 2023

**Class Time and Location: Lecture: Online / Laboratory: Face to Face Meetings on Valencia College’s West Campus, Building 7, Room 148 every other Wednesdays from 6 PM to 8 PM (Weeks 1, 3, 5, 7, 11, 13, 15, 17)**

**Textbooks**: Building Automation: System Integration with Open Protocols

 ISBN 978-0-8269-2012-6

**Primary Content:** "BASc22 User Manual” (documents can be found in Canvas under files)

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| **Additional Resources:**  | Throughout the semester, additional resources may be used. They may include the Internet, professional magazines and/or journal publications. |
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**Professor’s Information:**

**Instructor:** Professor Stephen Rybka

**Office:** Zoom (Details in Canvas under Office Hours)

**Phone:** N/A

**Email:** srybka@valenciacollege.edu

**Office Hours:** Posted within Canvas Course

**Student Performance Assessment:**

**A** 90-100%

**B** 80 - 89%

**C** 70 – 79%

**D** 60 – 69%

**F** < 60%

**Lab & Discussions**…………………………………………………..........**35%**

**Assignments**………………………………………...……...……………..**35%**

**Mid-Term**………………………………………………….…….……..….**10%**

**Final Exam**…………………………….…………………...…….…….… **.20%**

**Valencia College Support Systems:**

* Online Tutoring Services: In response to COVID-19, Valencia’s tutoring services have moved online and are now being offered for accounting & economics, computer programming, math, EAP and foreign languages, science, writing, and more! To get started, visit <https://libguides.valenciacollege.edu/c.php?g=1014597&p=7348794> and self-enroll in the tutoring courses in Canvas. This is where you will access the links to live tutoring (via Zoom), as well as the schedule of tutors, times, services, and additional topics through Smarthinking.
* Quick Start Library Guide: Use this handy guide to learn about and gain access to all the library resources from home or on-the-go. Visit http://libguides.valenciacollege.edu/quickstartlibraryguide to get started!
* Keep Learning: Visit https://valenciacollege.edu/students/online/keep-learning/ if you are still unable to find what you are looking for, please visit our Keep Learning webpage to get information on a wide range of resources and online learning tips.
* Internship and Workforce Services (http://valenciacollege.edu/internship/)

**Important Dates:**

MLK Day (College Closed) January 18th

Faculty Learning Day (College Closed) February 12th

Spring Break (College Closed) March 8th - 14th

**Withdrawal Deadline for “W” Grade March 26th**

Final Grades Viewable in Atlas May 4th

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| **Course Outline for ETM 2605C** |
| **Due Date** | **Week Overview** | **Submit Online within Canvas** |
| WEEK 1(Week of Jan 11) | * **Meet in the EMCT Lab (7-148) on the West Campus**
	+ **Lab**: Intro to Lab, PC Setup & Familiarization
* **Online Activities:**
	+ Review Syllabus and Canvas Course Set Up
	+ Complete and submit **“Week 1: Discussion”**
 | **“Week 1: Discussion” Discussion Board Posting**(Required Week 1 ***No Show*** Assignment) |
| WEEK 2(Week of Jan 18) | * **Online Activities:**
	+ Review CH 1 Building Automation Interoperability
	+ Review CH 2 Control Concepts

***Got Questions???***Swing by Professor Rybka’s Virtual Office Hours. Access Details & Times Under Announcements  | * **Week 2: Assignment Chapter 1 & 2**
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| WEEK 3(Week of Jan 25) | * **Meet in the EMCT Lab (7-148) on the West Campus**
	+ **Pre-Lab Reading:** Lab 1 & Associated reading from the BASc22 User Manual.
	+ **Lab**: BASControl22 Configuration.
* **Online Activities:**
	+ Review CH 3 Data Communications
	+ Complete and submit **“Week 3: Discussion”**
 | * **Week 3: Discussion**
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| WEEK 4(Week of Feb 1) | * **Online Activities:**
	+ Review CH 4 LonWorks System Overview
	+ Review CH 5 LonWorks Network Architecture & Infrastructure

***Got Questions???***Swing by Professor Rybka’s Virtual Office Hours. Access Details & Times Under Announcements  | * **Week 4: Assignment Chapter 4 & 5**
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| WEEK 5(Week of Feb 8) | * **Meet in the EMCT Lab (7-148) on the West Campus**
	+ **Pre-Lab Reading:** Lab 2 & Associated reading from the BASc22 User Manual.
	+ **Lab**: Using the BAS ToolKit.
* **Online Activities:**
	+ Review CH 6 LonWorks Nodes
	+ Complete and submit **“Week 5: Discussion”**
 | * **Week 5: Discussion**
 |
| WEEK 6(Week of Feb 15) | * **Online Activities:**
	+ Review CH 7 LonWorks Network Programming
	+ Review CH 8 LonWorks Network Testing

***Got Questions???***Swing by Professor Rybka’s Virtual Office Hours. Access Details & Times Under Announcements  | * **Week 6: Assignment Chapter 7 & 8**
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| WEEK 7(Week of Feb 22) | * **Meet in the EMCT Lab (7-148) on the West Campus**
	+ **Pre-Lab Reading:** Lab 3 & Associated reading from the BASc22 User Manual.
	+ **Lab**: Using the Sedona Application Editor
* **Online Activities:**
	+ Complete and submit **“Week 7: Discussion”**
	+ Complete and submit **“Mid-Term Exam”**
 | * **Week 7: Discussion**
* **Mid-Term Exam**
 |
| WEEK 8(Week of March 1) | * **Online Activities:**
	+ Review CH 10 BACnet System Overview
	+ Review CH 11 BACnet Transports & Internetworking

***Got Questions???***Swing by Professor Rybka’s Virtual Office Hours. Access Details & Times Under Announcements  | * **Week 8: Assignment Chapter 10 & 11**
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| WEEK 9(Week of March 8) | **Spring Break (College Closed)** |
| WEEK 10(Week of March 15) | * **Online Activities:**
	+ Review CH 12 BACnet Basic Objects & Core Services
	+ Review CH 13 BACnet Alarming, Scheduling, and Trending

***Got Questions???***Swing by Professor Rybka’s Virtual Office Hours. Access Details & Times Under Announcements  | * **Week 10: Assignment Chapter 12 & 13**
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| WEEK 11(Week of March 22) | * **Meet in the EMCT Lab (7-148) on the West Campus**
	+ **Pre-Lab Reading:** Lab 4 & Associated reading from the BASc22 User Manual.
	+ **Lab**: Basic Binary & Analog Program
* **Online Activities:**
	+ Review CH 14 BACnet Special Applications
	+ Complete and submit **“Week 11: Discussion”**

  | * **Week 11: Discussion**
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| WEEK 12(Week of March 29) | * **Online Activities:**
	+ Review CH 15 BACnet Installation, Configuration, and Troubleshooting
	+ Review Modbus Concepts – Online Material

***Got Questions???***Swing by Professor Rybka’s Virtual Office Hours. Access Details & Times Under Announcements  | * **Week 12: Assignment Chapter 15 & Modbus**
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| WEEK 13(Week of April 5) | * **Meet in the EMCT Lab (7-148) on the West Campus**
	+ **Pre-Lab Reading:** Lab 5 & Associated reading from the BASc22 User Manual.
	+ **Lab**: Basic Math & Logic Program
* **Online Activities:**
	+ Review CH 16 System Integration

Complete and submit **“Week 13: Discussion”** | * **Week 13: Discussion**
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| WEEK 14(Week of April 12) | * **Online Activities:**
	+ Review CH 17 Building Automation Interoperability

***Got Questions???***Swing by Professor Rybka’s Virtual Office Hours. Access Details & Times Under Announcements  | * **Week 14: Assignment**
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| WEEK 15(Week of April 19) | * **Meet in the EMCT Lab (7-148) on the West Campus**
	+ **Pre-Lab Reading:** Lab 6 & Associated reading from the BASc22 User Manual.
	+ **Lab**: PID Loop Program
* **Online Activities:**
	+ Final Exam Preparation
	+ Complete and submit **“Week 15: Discussion”**

  | * **Week 15: Discussion**
 |
| WEEK 16(Week of April 26) | * **Online Activities:**
	+ Submit Final Exam

***Got Questions???***Swing by Professor Rybka’s Virtual Office Hours. Access Details & Times Under Announcements | * **Final Exam**
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**Rules and Comments:**

* Students are strongly encouraged to read the Valencia policy Manual *Student Code of Conduct* and *Computer Acceptable Usage* found at: <https://catalog.valenciacollege.edu/academicpoliciesprocedures/studentcodeofconduct/>

* All forms of academic dishonesty are prohibited at Valencia College. Academic dishonesty includes, but is not limited to, acts or attempted acts of plagiarism, cheating, furnishing false information, forgery, alteration or misuse of documents, misconduct during a testing situation, facilitating academic dishonesty, and misuse of identification with intent to defraud or deceive.
* **NO LATE WORK** will be accepted (no exceptions).
* **NO MAKE UPS** on missed lab assignments or missed exams (no exceptions).
* It is the student’s responsibility to withdraw from the course. Any withdrawal after the withdraw deadline may result in earning an **F** as the overall grade for the course.
* If you are unable to participate in the course due to illness, family emergency, etc., please communicate with me as soon as possible in order to create a plan to complete any missed assignments so that your learning can progress in your course. In the case of a prolonged online absence, please communicate with me as soon as possible in order to create a plan for the best course of action.

**Student Core Competencies:**

The faculty members of Valencia College have established four Core Competencies that describe the learning outcomes for a Valencia graduate. They are: THINK, VALUE, COMMUNICATE, and ACT. These general competencies can be applied in many contexts and must be developed over a lifetime. They specify how learning can be expressed and assessed in practice. They enable students and faculty to set learning goals and assess learning within and across the many disciplines of human inquiry. Use the descriptions and examples of academic work for each to measure your own learning outcomes. Samples of the academic work are great additions to your Learning Portfolio. For further information on student core competencies please go to: www.valenciacollege.edu/competencies.

**Expected Student Conduct:**

Valencia College is dedicated not only to the advancement of knowledge and learning but is concerned with the development of responsible personal and social conduct. By enrolling at Valencia College, a student assumes the responsibility for becoming familiar with and abiding by the general rules of conduct. The primary responsibility for managing the classroom environment rests with the faculty. Students who engage in any prohibited or unlawful acts that result in the disruption of a class may be directed by the faculty member to leave the class. Violation of any classroom or Valencia’s rules may lead to disciplinary action up to and including expulsion from Valencia. Disciplinary action could include being withdrawn from class, disciplinary warning, probation, suspension, expulsion, or other appropriate and authorized actions. You will find the Student Code of Conduct in the current Valencia Student Handbook

**Students with disabilities** who qualify for academic accommodations must provide a letter from the Office for Students with Disabilities (OSD) and discuss specific needs with the professor, preferably during the first two weeks of class. The Office for Students with Disabilities determines accommodations based on appropriate documentation of disabilities (West Campus SSB 102, ext. 1523).

Valencia College is interested in making sure all our students have a rewarding and successful college experience. To that purpose, Valencia students can get immediate help with issues dealing with stress, anxiety, depression, adjustment difficulties, substance abuse, time management as well as relationship problems dealing with school, home or work. BayCare Behavioral Health Student Assistance Program (SAP) services are free to all Valencia students and available 24 hours a day by calling (800) 878-5470. Free face-to-face counseling is also available.

**The College is committed to creating an environment free from all forms of harassment and discrimination**, including all types of sexual harassment, interpersonal violence and stalking.  Faculty and staff at the college who are considered “Responsible Employees” in the College’s policy are required to share any relevant information disclosed to them with the College’s Title IX Coordinator/Equal Opportunity Officer.  Students wishing to seek confidential resources for support and assistance are encouraged to do so, and a list of available resources can be found at [www.valenciacollege.edu/equalopportunity](http://www.valenciacollege.edu/equalopportunity).  This website also lists information regarding how to report allegations to the College and/or law enforcement, additional information regarding the College’s process, and what assistance can be provided to those impacted by sexual misconduct, interpersonal violence and stalking.