**The UT Arlington Syllabus Template for 2016-17  
*Frequently Asked Questions***

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| **What’s new for 2016-17?** | The two most important revisions to the template are:   1. Updated section on “Title IX”; and 2. IDEAS Center free tutoring and mentoring 3. Campus Carry information link |
| **When must my course syllabus be issued and posted?** | A syllabus for each course that you teach (as the instructor of record) must be made available to students in a medium of your choosing (hard copy, electronic format, or both) by **the first day of class.** |
| **Where must each syllabus be posted?** | Regardless of how you make a syllabus available to students, a syllabus for each course you teach **must** be posted to your faculty profile by the first day of class.   * To access your faculty profile, go to [**https://www.uta.edu/mentis**](https://www.uta.edu/mentis). * For guidance on how to upload your syllabus to the Profile System, visit [**https://www.uta.edu/provost/administrative-forms/index.php**](https://www.uta.edu/provost/administrative-forms/index.php) and choose one of the two “how to” options under “course-related information.”   Use of the Profile System has allows for compliance with state law regarding public access to course information. This system, housed with the “Mentis” platform, is the sole official University repository for all syllabi. While you may post or archive a syllabus in other locations, doing so does not meet the requirement to post the syllabus in the Profile System. |
| **Who is responsible for ensuring that a syllabus has been posted online?** | The timely and accurate posting of all course syllabi is the joint responsibility of the course instructor and his or her immediate supervisor. While some units may delegate the task to an administrative staff person, the instructor and his or her immediate supervisor share responsibility for adherence to relevant policies. |
| **What must be in the syllabus?** | See the following pages for University-required elements. Contact your home unit for additional advice pertaining to any relevant local policies. |
| **Is my syllabus binding?** | Yes, in that the syllabus represents a good faith account of what you have planned for the course. As the instructor of record, you may always make adjustments that serve your students’ best educational interests. Any changes to the syllabus should be announced in a timely fashion, particularly if the change involves a major exam, paper, or project. It is further advised that any syllabus changes be issued in writing *(e.g., via* e-mail, in Blackboard, or with a handout). |
| **May I adjust the formatting of the official template?** | Yes! You control the formatting and visual presentation of your syllabus. What’s most important to take from this template is content. In the template:   * **Black text** is **required**. * **Blue text (except for hyperlinks)** is **optional**. * **Red text** is **information for you**; be sure to **remove** it from the final document.   Specific colleges, schools, departments, or programs may require additional text. Consult your unit administration for details. |

**Direct questions about syllabus policies to the Division of Faculty Affairs.**

**This first page is not part of the syllabus. The syllabus template begins on the following page.**

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**EE 5377: PROGRAMMABLE LOGIC CONTROLLERS IN INDUSTRIAL AUTOMATION**

Fall 2016

**Instructor(s):** Wei-Jen Lee, PhD, PE

**Office Number:** ELB 304

**Office Telephone Number:** (817) 272-5046

**Email Address:** wlee@uta.edu

**Faculty Profile:** https://mentis.uta.edu/public/#profile/profile/edit/id/258/

**Office Hours:** 8:30 AM – 11:30 AM, TUESDAY & WEDNESDAY (OTHER TIME BY APPOINTMENT)

**Section Information:** EE5377-001

**Time and Place of Class Meetings:** ARCH 204, 2:00 – 3:20PM, Tuesday and Thursday

Description of Course Content: In late 1960’s, Programmable Logic Controllers (PLC) were first introduced as a means of automating manufacturing process. Since then, PLCs have evolved into sophisticated and sometimes complex pieces of equipment. Nevertheless, their use and flexibility has reached a point where they are no longer discretionary pieces of equipment, but necessities. Very few industries exist today that do not employ PLCs. The relatively rapid integration of the PLC into the manufacturing sector has been called the second industrial revolution, and the revolution is far from over.

A successful engineer who is involved in nearly any manufacturing business needs a basic knowledge of the way in which PLCs are used. This course is established under the response of this demand for knowledge about PLCs. In addition to the PLC’s programming languages and hardware configurations, its typical applications in the manufacturing industry are also introduced. A hand-on design project is designed for the students to understand the typical PLC implementation process in industry.

**Student Learning Outcomes:** The application of programmable Logic Controllers (PLC) to the system automation is the trend of industry. As such this course is a joint enterprise between you and your instructor; an adventure in which you start your formal study of the theory, programming languages and possible applications of PLCs to the field of industrial automation. It is the faculty's intention that this course imbues you with a never ceasing quest for knowledge and experience that you may apply to the pursuit of your professional career. Since there is no so-called "standards" among PLC industry, the material of this course is not so much to be "covered" as to be "uncovered" and it is the faculty's hope that the study of this material will start your professional journey in the automatic control.

This course will provide engineer students comprehensive information on the operation and application of PLCs. Some hands-on projects will be designed to enhance the application and programming skills of the students. The knowledge of analog circuit analysis, digital circuit design, and computer programming is the prerequisite of this course.

**Required Textbooks and Other Course Materials:** L. A. Bryan and E. A. Bryan, "Programmable Controllers - Theory and Implementation", An Industrial Text Co. Publication, 2nd Edition

**Descriptions of major assignments and examinations:** HOMEWORK and PROJECT assignments are due at the end of the class on the day the assignment is due (unless specifies). All work presented must meet professional standards regarding materials and format. Homework will be checked as to effort and number of problems presented. The homework grade is based on ten (10) points per problem per assignment. Since it is faculty’s strongly belief that a student’s success is directly proportional to success with homework, it is imperative that the homework be done. Grading policy of the Project will come with the project assignment

It is the expressed policy of the faculty of the department to take decisive action involving any incidence relating to academic dishonesty. The instructor of this course will strictly enforce this policy!

**Attendance:** At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. As the instructor of this section, I will take attendance sporadically”. While UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients “begin attendance in a course.

Though I do not factor attendance into the grade. It is important to understand that any attendance rules applied in this course is *not* a matter of institutional policy. Doing so will keep the University in compliance with Federal regulations as they apply to Title IV funding.

**Grading**:

# ITEM POINTS

1. HOMEWORK 10.00

2. FIRST EXAMINATION 20.00

3. FIRST PROJECT 20.00

4. SECOND PROJECT 25.00

5. FINAL EXAMINATION 25.00

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TOTAL COURSE POINTS 100.00

STUDENT COURSE AVERAGE FINAL LETTER GRADE

90.0 - 100.0 A

80.0 - 89.9 B

70.0 - 79.9 C

60.0 - 69.9 D

0.0 - 59.9 F

The grade of **W** will be assigned only if the conditions imposed by the University are met. The grade of **“Incomplete”** will be assigned only if the student has encountered circumstances beyond his or her control and the student’s previous actions have not created these circumstances. The assignment of this incomplete grade will be made at the decision of the instructor after consideration of the facts as presented in a written request from the student.

**Make-up Exams**: There will be no makeup of a missed examination.

**Grade Grievances**: It is the student’s responsibility to keep up with various grades assigned to their work by the instructor. If there is any question concerning the assigned grade, the instructor will accept a formal request to examine the grading in question if such a request is presented to the instructor within one-week following the returning of the material in question from the instructor. The entire original work in question must be submitted to the instructor. The instructor reserves the rights to re-grade the entire materials.

Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog. Please refer to <http://catalog.uta.edu/academicregulations/grades/#graduatetext> for additional information.

**Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/aao/fao/>).

**Disability Accommodations:** UTArlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act.* All instructors at UT Arlington are required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of **a letter certified** by the Office for Students with Disabilities (OSD).Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

**The Office for Students with Disabilities, (OSD)** [www.uta.edu/disability](http://www.uta.edu/disability) or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability).

Counseling and Psychological Services, (CAPS) [www.uta.edu/caps/](http://www.uta.edu/caps/) or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

**Non-Discrimination Policy:** *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit*[*uta.edu/eos*](http://www.uta.edu/hr/eos/index.php)*.*

**Title IX Policy:** The University of Texas at Arlington (“University”) is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated.*For information regarding Title IX, visit* [www.uta.edu/titleIX](http://www.uta.edu/titleIX) or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or <jmhood@uta.edu>.

**Academic Integrity:** Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents’ Rule* 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University. Additional information is available at <https://www.uta.edu/conduct/>.

**Lab Safety Training:**  **Students registered for this course must complete all required lab safety training prior to entering the lab and undertaking any activities.** Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e., Fall through Summer II) and must be completed anew in subsequent years. There are no exceptions to this University policy. Failure to complete the required training will preclude participation in any lab activities, including those for which a grade is assigned.

**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

**Campus Carry:** Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit <http://www.uta.edu/news/info/campus-carry/>

**Student Feedback Survey:** At the end of each term, students enrolled in face-to-face and online classes categorized as “lecture,” “seminar,” or “laboratory” are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback via the SFS database is aggregated with that of other students enrolled in the course. Students’ anonymity will be protected to the extent that the law allows. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit <http://www.uta.edu/sfs>.

**Final Review Week:** for semester-long courses**,** a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Emergency Exit Procedures:** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Evacuation plans may be found at <http://www.uta.edu/campus-ops/ehs/fire/Evac_Maps_Buildings.php>. In the case that you are unable to ascertain this information in time for your syllabus, you must be sure to explain to your students on day one how best to exit the building. Inclusion of this verbiage as well as a brief discussion on the matter with your students at the beginning of the term is mandated by UT Arlington Procedure 7-6: Emergency/Fire Evacuation Procedures ([http://www.uta.edu/police/Evacuation Procedures.pdf](http://www.uta.edu/police/Evacuation%20Procedures.pdf))

**Student Support Services**:UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include [tutoring](http://www.uta.edu/universitycollege/current/academic-support/learning-center/tutoring/index.php), [major-based learning centers](http://www.uta.edu/universitycollege/resources/college-based-clinics-labs.php), developmental education, [advising and mentoring](http://www.uta.edu/universitycollege/resources/advising.php), personal counseling, and [federally funded programs](http://www.uta.edu/universitycollege/current/academic-support/mcnair/index.php). For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to [resources@uta.edu](mailto:resources@uta.edu), or view the information at <http://www.uta.edu/universitycollege/resources/index.php>.

**The IDEAS Center (**2nd Floor of Central Library) offers **free** tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. To schedule an appointment with a peer tutor or mentor email [IDEAS@uta.edu](mailto:IDEAS@uta.edu) or call (817) 272-6593.

**The English Writing Center (411LIBR)**: [Optional.] The Writing Center Offers free tutoring in 20-, 40-, or 60-minute face-to-face and online sessions to all UTA students on any phase of their UTA coursework. Our hours are 9 am to 8 pm Mon.-Thurs., 9 am-3 pm Fri. and Noon-6 pm Sat. and Sun. Register and make appointments online at http://uta.mywconline.com. Classroom Visits, workshops, and specialized services for graduate students are also available. Please see [www.uta.edu/owl](http://www.uta.edu/owl) for detailed information on all our programs and services.

The Library’s 2nd floor Academic Plaza offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library’s hours of operation. <http://library.uta.edu/academic-plaza>

**Course Schedule**

**Tentative Lecture/Top Schedule (Course Content):**

0. Introduction of Utility Deregulation

\* Possible Applications of PLC at deregulated Environment

\* Distributed Generation

1. Introduction to PLCs

\* Principle of Operation

\* PLCs versus Other Type of Controllers

\* Typical Areas of PLC Applications

\* The Benefits of Using PLCs

2. Number System and Logic Concepts

\* Number System and Number Conversion

\* Principles of Boolean Algebra and Logic

\* PLC Circuits and Logic Contact Symbology

3. Programming Languages

\* Types of PLC Instructions

\* Ladder Diagram Format

\* Basic Relay Instructions

\* Timer and Counter Instructions

\* Program/Flow Control Instructions

\* Arithmetic and Data Manipulation Instructions

\* Data Transfer and Network Communication Instructions

\* Other Non-Ladder Programming Languages

4. Implementing and Programming the PLC System

\* Implementing Guidelines

\* Programming Organization and Implementation

\* Discrete I/O Programming

\* Analog I/O Programming

5. Hardware Components of PLC

\* Processors, The Power Supply, and Programming Devices

\* Memory Systems and I/O Interaction

\* Discrete I/O Systems

\* Analog I/O Systems

\* Special Function I/O, Networking, and Serial Communication Interfacing

6. Data Measurements and Transducers

\* Basic Measurement Concepts

\* Interpreting Errors in Measurements

\* Implementation of Transducer Measurements

\* Thermal Transducers

\* Displacement Transducers

\* Pressure Transducers

\* Flow Transducers

\* Voltage and Current Transducers

\* Power Transducers

7. Applications of PLC in Industrial Automation

\* Remote Monitoring, Data Acquisition, and Control of a Substation

\* Power Plant Monitoring and Control

\* Applications on the Process Control

\* Other Applications

*As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.*

**Emergency Phone Numbers**: [Optional but strongly recommended] In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. Non-emergency number 817-272-3381

**Additional Information**

**Library Home Page**[**library.uta.edu**](http://library.uta.edu/)

**Resources for Students**

**Academic Help**

Academic Plaza Consultation Services [library.uta.edu/academic-plaza](http://library.uta.edu/academic-plaza)

Ask Us [ask.uta.edu/](http://ask.uta.edu/)

Library Tutorials [library.uta.edu/how-to](http://library.uta.edu/how-to)

Subject and Course Research Guides [libguides.uta.edu](http://libguides.uta.edu/)

Subject Librarians [library.uta.edu/subject-librarians](http://library.uta.edu/subject-librarians)

**Resources**

A to Z List of Library Databases [libguides.uta.edu/az.php](http://libguides.uta.edu/az.php)

Course Reserves [pulse.uta.edu/vwebv/enterCourseReserve.do](http://pulse.uta.edu/vwebv/enterCourseReserve.do)

FabLab [fablab.uta.edu/](http://fablab.uta.edu/)

Special Collections [library.uta.edu/special-collections](http://library.uta.edu/special-collections)

Study Room Reservations [openroom.uta.edu/](http://openroom.uta.edu/)

**Teaching & Learning Services for Faculty**

Copyright Consultation [library-sc@listserv.uta.edu](http://library-sc@listserv.uta.edu)

Course Research Guide Development, Andy Herzog [amherzog@uta.edu](http://amherzog@uta.edu) or your subject librarian

Data Visualization Instruction, Peace Ossom-Williamson [peace@uta.edu](http://peace@uta.edu)

Digital Humanities Instruction, Rafia Mirza [rafia@uta.edu](http://rafia@uta.edu)

Graduate Student Research Skills Instruction, Andy Herzog [amherzog@uta.edu](http://amherzog@uta.edu) or your subject librarian

Project or Problem-Based Instruction, Gretchen Trkay [gtrkay@uta.edu](http://gtrkay@uta.edu)

Undergraduate Research Skills Instruction, Gretchen Trkay [gtrkay@uta.edu](http://gtrkay@uta.edu) or your subject librarian.