2-year Automation International Student Industry-Academia Collaboration Program Spring 2019 Course Outlines

Course Titles	Description/ Outline	Credits	Hours
Electric Machinery	1. Electromechanical fundamentals 2. Dynamo construction and winding 3. DC dynamo voltage relations-dc generators 4. DC dynamo yorque relations-dc motors 5. Armature reaction and commutation in dynamos 6. AC dynamo voltage relations-alternators 7. Paraller operation 8. AC dynamo torqure relations-synchronous motors 9. Polyphase induction dynamos 10. Single-phase motors 11. Specialized dynamos 12. Transformers	3	3
Automatic Control Systems	1. Introduction 2. Mathematical Foundation 3. Block Diagrams and Signal-Flow Graphs 4. Mathematical Modeling of Physical Systems 5. Stability of Linear Control Systems 6. Time-Domain Analysis of Control Systems 7. Root-Locus Technique	3	3
Elementary Mandarin Conversation(1B)	In this course, students will work on building vocabulary and listening skills in exercises relevant to the daily life topic. Various kinds of activities are conducted to enhance learners' listening and speaking abilities. The course would be helpful for students to get used to living in Taiwan by practicing pronunciation and Mandarin grammar. Furthermore, students can learn to recognize some Chinese characters and to know part of Taiwan culture as well. Course design will be subject to change according to learners' level and situation.	2	2
Programmable Logic Controller Applications and Practice	1. General Rule of Application Instruction 2. Explanation and Experience of Application Instruction	2	4

	3. Program Design and Implementation of PLC 4. Application of Special Function Module 5. Control of Phenumatics and Hydrolics using PLC 6. Graphic Monitoring of PLC		
Workplace English	This course gives students the language they need for real life, hands-on tasks like describing a problem, giving instructions, discussing logistics, or explaining procedures. From maintenance to customer service, and from manufacturing to technical support, the focus is always on getting the job done.	3	3
Dynamics	1. Kinematics of particles 2. Kinetics of particles : Force and Acceleration 3. Kinetics of particles : Work and Energy 4. Kinetics of particles : Impulse and Momentum 5. Kinematics of rigid body in plane motion	3	3
Mechatronics Practice	1. Introduction of Mechatronics 2. Some basic Mechatronics components 3. The circuits formed by Mechatronics components 4. 4~8th week Simple serial and parallel control circuits 5. The first exam 6. Sensors and applications 7. The second exam 8. PLC and ladder diagrams 9. Practices on PLC applications 10. The final exam	2	4
Microprocessor Practice	1. Basic concept 2. Memory structure 3. Instruction set 4. Input/Output 5. Interrupt structure 6. Timer 7. A/D converter 8. CCP 9. WDT 10. Application experiment	2	4