# Course Syllabus

1. **Course number and name:** 020DOMES3.Automation.
2. **Credits and contact hours:** 4 credits, 35 course hours**.**
3. **Instructor's or course coordinator's name:** Antoine SAWAYA
4. **Textbook and other supplemental material:**
   - **a.** Instructor's Class Notes.
   - **b.** KNX systems Arguments and Basic concept (KNX Associations)

5. **Specific course information**
   - **a. Catalog description:** Provide the necessary elements to: Basic of home automations, existent protocols, concept of typical automation projects, related electrical drawings, list of devices, implementation of the devices into the tools software.
   - **b. Prerequisites:** 020ELNES2 – Digital Electronics
   - **c. Required/Elective/Selected Elective:** Selected Elective course for EE program.
6. **Specific goals for the course**
   - **a. Specific outcomes of instruction:**
     - Introduce the students to the basic of home automation.
     - Present the majorities of communication modes complete the type of existent protocols.
     - Enhance the relation between home automation and internet of things (IOT)
     - Develop the type of control per different load such as lighting, electrical shutters, HVAC and Audio video equipment.
     - Interface with other related systems such as BMS, intrusion, Access control, CCTV and Fire Alarm.
     - Introduce the User interface for the home automation system.
     - Expose students to the regulation of electrical installation related to the home automation requirements.
     - Familiarize the students to the home automation equipment.
     - Enhance the student to understand the KNX protocol complete with the ETS software.
     - Concept of the Home Automation project in terms of marketing/sales and technical themes.
   - **b. KPIs addressed by the course:**

| **KPI** | a2 | b1 | c1 | c2 | e1 | e3 | g1 | h1 | k2 | k3 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Covered** | X | X | X | X | X | X | X | X | X | X |
| **Assessed** | X | X | | X | | X | X | | X | X |
| **Give Feedback** | X | | | | | X | X | | X | |

7. **Brief list of topics to be covered and approximate number of lectures:**
   1. Introduction to Home Automation. (1)
   2. Communication mode: Dry contact, Serial, Infra red and TCP-IP (2)
   3. Protocol: Wired and Wireless, Dedicated and Universal. (2)
   4. Type of control: Lighting, electrical curtains, HVAC and Audio video equipment. (4)

5. Interface with other systems: Building management systems (BMS), Fire Alarm, Intrusion, CCTV and intercom. (1)
6. Internet of things (IOT) (1)
7. User Interface: Binary input, Wired Keypads, Wireless remote control, Touch screen and Mobile / Tablet applications. (2)
8. Concept of electrical installation relative to home automation complete with the relative electrical panel. (1)
9. Load schedule with the number of circuits and type of control. (1)
10. Home Automation devices. (1)
11. KNX Protocol. (1)
12. ETS software. (2)
13. Concept of typical project (requirement and recommendations) (1)
14. Distribution of project on student
15. Evaluation on the project process per group of student. (4)