SECTION III. EXTRA TOPICS (SELF-STUDY)

1. Automation
- o [Examples of Advanced Automate](#)
- o [Glazed Donuts Automation](#)

Main Automation Process:

1. **Manipulators**
   [Spot-welding robots - Automotive industry](#)
2. **SCARA (Selective Compliance Assembly Robot Arm)**
   [Robotic Micro Screw Fastening](#)
   [Assembly System with Scara Robots](#)
3. **Parallel Robots**
   [High Speed Pancake stacking with Flex-picker Robots](#)
4. **Spherical Parallel Robots**
   [Concept](#)
5. **Grippers**
   [Vacuum Gripper](#)

2. Sustainable Manufacturing
[Introduction by Professor Gutowski MIT (Part 1)](#)
[Introduction by Professor Gutowski MIT (Part 2)](#)

3. General Tips and Tricks - Manufacturing in China
(It will be covered briefly in the class)

4. Future of Manufacturing
[What is your vision for future of manufacturing?](#)
[Virtual and Augmented reality in use for industry 4.0 and building technology](#)
[Industry 4.0: Augmented reality system for production](#)
[CPS (Cyber-Physical Systems)](#)

5. Quick Introduction to 3D Modeling, STL-file , and G-Code
[What is Fusion 360?](#)
[Features of Fusion 360](#)
[Download Software (Free for Students)](#)
Note: Use your UBC email, so the system let you get the full version for free.

6. [CNC](#) (Beginners Guide to Manual & CNC Machining)