



CP02015: FOOD ENGINEERING 1

CREDITS: 3 (Lecture: 3 – Practice: 0)



COURSE EXPECTED LEARNING OUTCOMES

| NOTATION | Course expected learning outcomes After successfully completing this course, students are able to: | Program expected learning outcomes |
|-----------------------------|---|------------------------------------|
| KNOWLEDGE | | |
| K1 | Distinguish nature of processes commonly used in the food processing industry | ELO2 |
| K2 | Analyze technical principles of processes applied in food processing | ELO2, ELO3, ELO4 |
| K3 | Select suitable heat exchanger or mechanical equipment in accordance with technological requirements. | ELO5, ELO13 |
| SKILLS | | |
| K4 | Calculate main parameters of heat transfer and mechanical processes in food processing. | ELO12 |
| K5 | Assess advantages and disadvantages of common mechanical and heat transfer equipment in food technology. | ELO12 |
| ETHICS AND ATTITUDES | | |
| K6 | Take the initiative in finding and synthesizing information related to course | ELO14 |

COURSE DESCRIPTIONS

Introduction; Fluid flow in food processing; Heat transfer in food processing; Basic engineering principles and equipment of preservation process (pasteurization, sterilization); Basic engineering principles and equipment of food refrigeration and freezing; Basic engineering principles and equipment of size reduction process (cutting, grinding, milling, homogenization); Basic engineering principles and equipment of separation process (sedimentation, filtration, centrifugation); Basic engineering principles and equipment of mixing and forming.

TASKS OF STUDENT

- Attendance in class: All students of the course must attend at least 75% of class.
- Preparation for class: All students of the course must review lesson content before class and read references introduced in the list of reference.
- Homework: All students must do their homework by themselves before class.

LECTURERS IN CHARGE

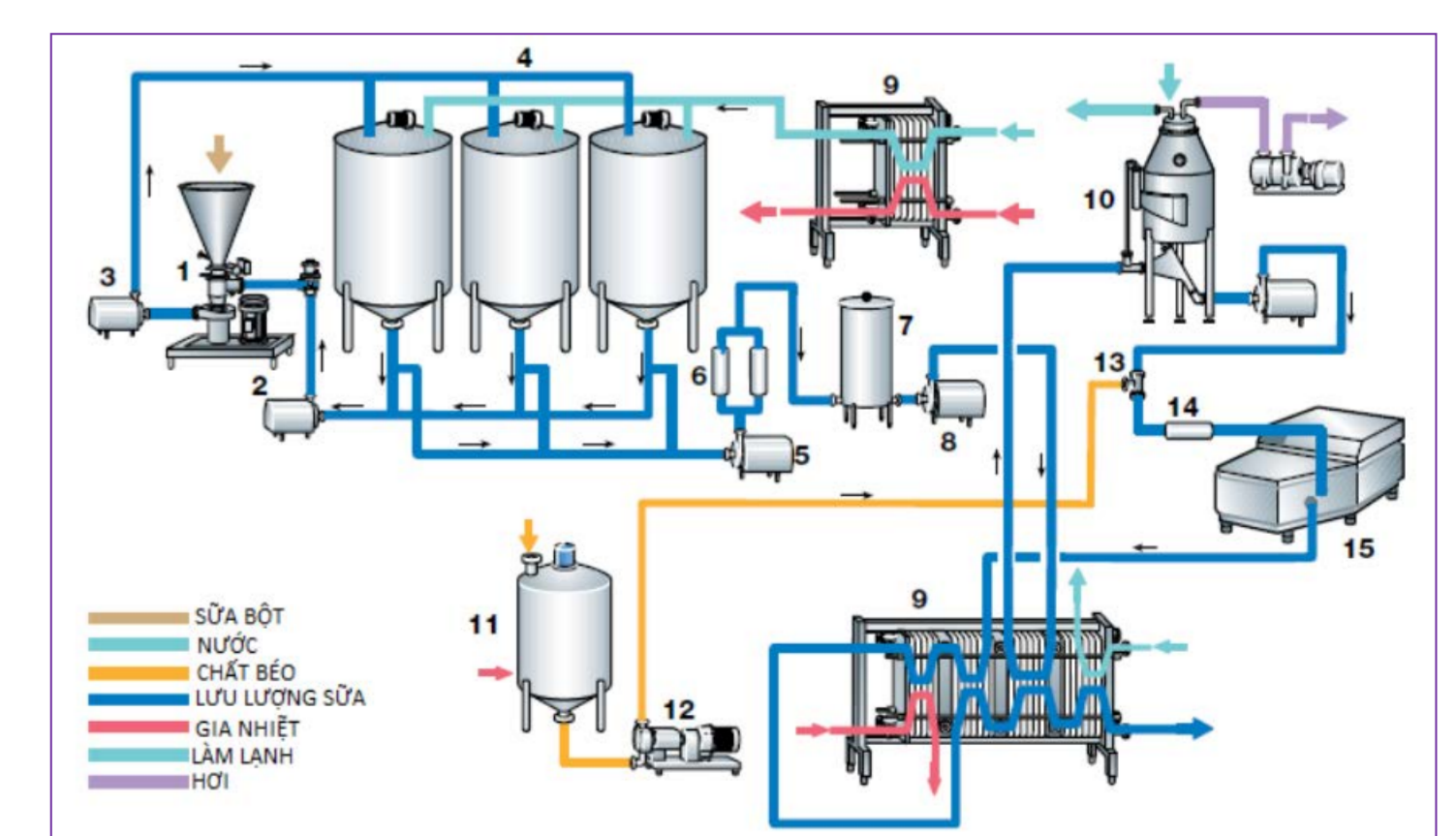
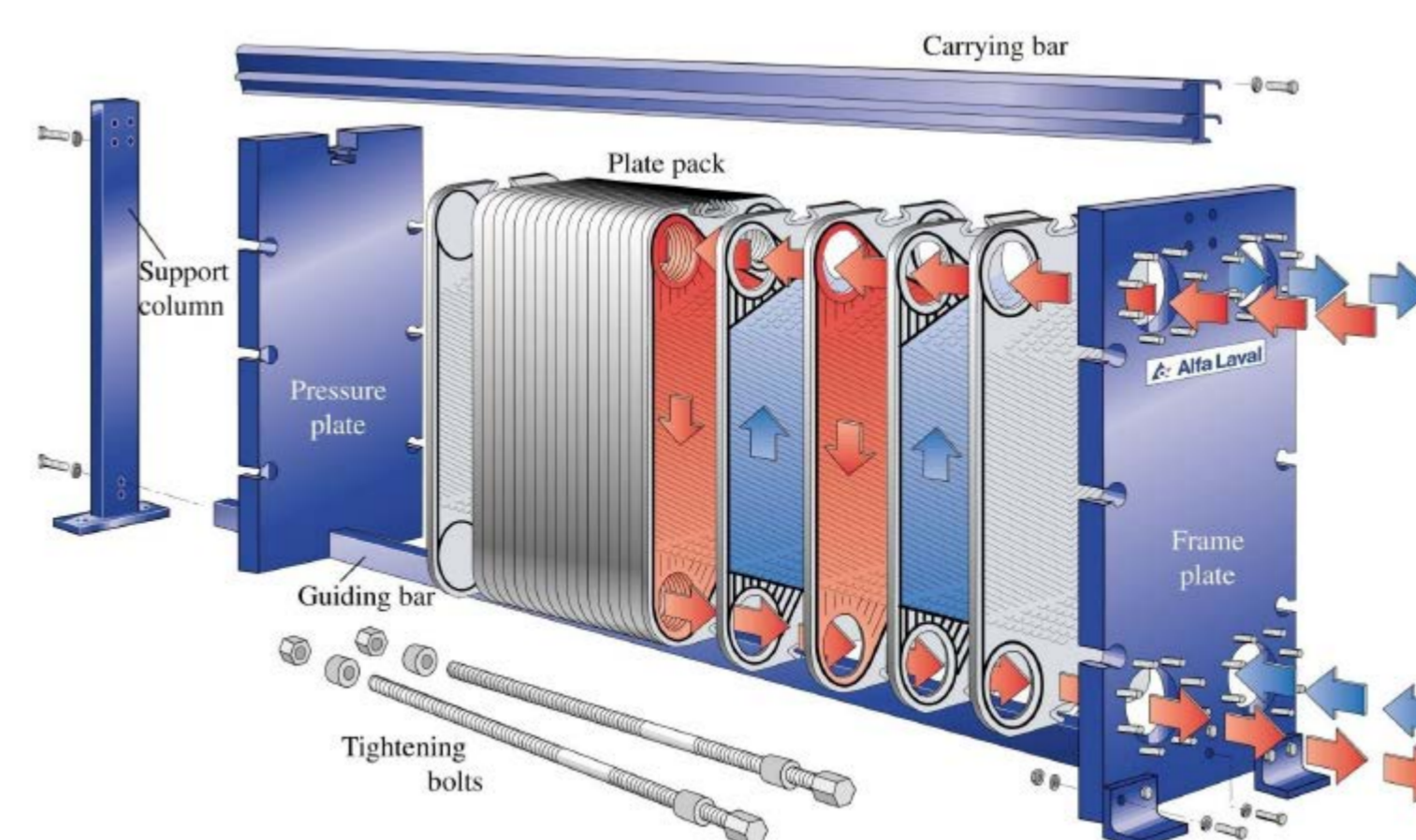
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LEARNING METHODS

- ❖ Listening, recording, proposing questions and discussing.
- ❖ Reading before class, preparing information, doing calculations at home, answering questions.
- ❖ E-learning

ASSESSMENT METHODS

- ❑ Grading: 10
- ❑ Average score of course is the total points of rubrics multiplied by the respective weight of each rubric.
- ❑ Group discussion: 10%; Mid-term test (essay): 30%; Final examination (essay): 60%.



$$m_{vào} = \sum_{i=1}^n m_i \quad (1.9)$$

i: dòng vào
n: số lượng dòng vào

$$m_{ra} = \sum_{e=1}^p m_e \quad (1.10)$$

e: dòng ra
p: số lượng dòng ra

$$m_{vào} - m_{ra} = \frac{dm_{hệ}}{dt} \quad (1.11)$$

