

PRECAST CONCRETE TECHNOLOGY

| | | | | | |
|----------------------------|--|--------------------|--------------------------|---------------------|------------------------|
| <i>Credits</i> | 3 (2.2.5) | | | Code | CI3093 |
| <i>Periods</i> | Total: 60 | Theory: 30 | Practice: 30 | Exp: 30 | Assignment: 0 |
| <i>Project</i> | | | | | |
| <i>Grading</i> | <i>Assignment:</i> | <i>Experiment:</i> | <i>Midterm exam: 20%</i> | <i>Project: 30%</i> | <i>Final exam: 50%</i> |
| <i>Evaluation</i> | <ul style="list-style-type: none"> - <i>Midterm exam: writing, 45 minutes</i> - <i>Final exam: writing, 90 minutes</i> - <i>Project</i> | | | | |
| <i>Prerequisite course</i> | | | | | |
| <i>Previous course</i> | Construction Materials Concrete technology | | | | |
| <i>Co-requisite course</i> | | | | | |
| <i>Training field</i> | <ul style="list-style-type: none"> - <i>Kỹ thuật Xây dựng (Kỹ thuật Công trình Xây dựng)/ Civil Engineering</i> - <i>Kỹ thuật Xây dựng (Công nghệ Kỹ thuật Vật liệu Xây dựng)/ Construction Material Engineering</i> | | | | |
| <i>Level</i> | <i>Bachelor</i> | | | | |
| <i>Studied year</i> | 4 | | | | |
| <i>Other notes</i> | | | | | |

Course Description

The students study the principles of the basic and modern technological process in producing precast reinforced concrete structural elements. Also students know the chain principle, including influence factors, the mechanization and the automatization of processes. The students choose various principles of organizing production chain such as: steel manufacturing technology, drawing of structural element forming technology, as well as the choice and calculation of equipment and quality control. The students study the principles of the basic and modern technological process in producing precast reinforced concrete structural elements. Also students know the chain principle, including influence factors, the mechanization and the automatization of processes. The students choose various principles of organizing production chain such as steel manufacturing technology, drawing of structural element forming technology, as well as the choice and calculation of equipment and quality control.

Course materials

- [1] **Technologie des Produits en beton et beton armée**, O.A. Gerchber – Moscow 1971
 [2] **Công nghchber – Moscow 1971beton et beton armée**, , Nguyghchber – Moscow 1971beto
 Thchbuý, Nhà xuất bản Xây dựng, Hà Nội – 1978.

Course Outcomes

| STT | Course learning outcomes | CDIO |
|-------|---|---------------------------|
| L.O.1 | Apply basically science and basically specialist knowledge | 1.2, 1.2 |
| | L.O.1.1 – Apply basic knowledge to calculate: areas of factories, equipment and tools used for manufacturing. | 1.1.1, 1.2.2 |
| | L.O.1.2 – Apply basic knowledge to determine properties of materials used in the factory. | 4.5.4, 4.5.5 |
| L.O.2 | Design ready mix concrete plant | 1.1,1.3, 2.1 |
| | L.O.2.1 – Establish procedure for producing ready mix concrete, receive, transfer, unload and keep materials used for producing concrete. Calculate and choose storage of materials, equipment used in the storages and concrete plant. | 2.1.3, 1.3.10 1.1.1 |
| | L.O.2.2 – Have enough knowledge for checking properties of materials and concrete. | 1.3.12 |
| L.O.3 | Design workshop of steel | 1.1,4.3, 4.4 |
| | L.O.3.1- Introduction of steel types, shapes of steels and properties of steels. | 4.3.1 |
| | L.O.3.2- Introduction of steps to design steel workshop. Calculate equipment and tools used in the steel workshop. | 4.3.2, 4.4.1 |
| | L.O.3.3– Make plan and steps in the processing of the steel frame used to cast precast concrete structures. | 1.1.1 4.4.2 |
| L.O.4 | Design frame of precast concrete structures. | 1.1, 4.3, 4.4. 4.5 |

| STT | Course learning outcomes | CDIO |
|-------|--|---|
| | L.O.4.1 – Introduction of casting. L.O.4.2 – Classification and design of frame. L.O.4.3 – Frame preparation, and calculate to choose frame oil and other equipment used to frame preparation. | 4.3.1, 4.4.1 4.5.2 4.3.1, 1.1.1 |
| L.O.5 | Cast concrete structures. | 1.3 |
| | L.O.5.1 – Introduction of casting methods. L.O.5.2 – Casting method using vibration L.O.5.3–Vibration combines with pressure. Vibration combines with air vacuum. | 1.3.10 |
| L.O.6 | Show knowledge of general manufacturing process, manufacturing organize, classification and steps of precast concrete structure processing, evaluate quality of precast concrete structures. | 4.4, 4.5 |
| | L.O.6.1 – Knowledge of general manufacturing process. L.O.6.2 –Organize, classification and steps of precast concrete structure processing. | 4.4.1, 1.3.10 |

Guide

- Project: 30%
- Midterm exam: 20%
- Final exam: 50% .

Teachers

- **Assoc. Prof.** Nguyễn Văn Chánh
- **D.Eng.** Nguyễn Ninh Thụy
- **M.Eng.** Cù Khắc Trúc