





# Student Handbook Civil Engineering Program 2023-2024

C E P



## Program Manager:

The Civil Engineering Program is regarded as one of the most recent programs to be established at the Higher Institute of Engineering in Shorouk. With a student enrolment rate of 40% of all students at the Institute, it is currently the largest program at the institute in terms of both enrolment and scientific strength, with 33 faculty members. A faculty member, which consists of a professor, an assistant professor, and a teacher; additionally, there are 40 supporting staff members, which includes teaching assistants. To give students a comprehensive understanding of all the training experiences at these esteemed institutions, faculty members are assigned to graduate projects for students in all program specialisations from government universities, such as Ain Shams University - Helwan - Zagazig - Tanta - Research Centres. The program comprises seven laboratories at the highest technical and laboratory level. The National Authority for Quality Assurance has granted the program its accreditation...

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## **Program Development:** ✚

- ✚ The Department of Civil Engineering was established by Ministerial Resolution No. 1437 dated 9/10/2000, and studies began in it as of the academic year 2000/2001.

## **Development of Program Study Plans:** ✚

The civil engineering program regulation was developed in 1995, the 2013 regulation was prepared, and then it was developed for the 2019 developed regulation.

- The program adopted the National Academic Standards (NARS 2009) issued by the National Authority for Educational Quality Assurance and Accreditation, which are compatible with the ethics of practicing the engineering profession (Egyptian Code) on 5/26/2016.
- The adoption of the National Academic Standards (NARS 2009) was also approved by the Institute's Board of Directors on 6/23/2014.
- By updating the National Standard Academic Standards (NARS 2018), the program updated and adopted these standards in the Department Council on 9/29/2020, and they were approved by the Institute's Board of Directors on 11/1/2020 .
- The scientific program was designed with the help of the program's faculty members appointed and seconded internally and externally, and based on societal needs, through labor market discussions and questionnaires.

### **Program Vision:** ✚

The Civil Engineering Program seeks to use research development and excellence in education at the local, regional, and community levels in addition to employing sustainability and community service.

### **Program Mission:**

With a dedication to improving the administrative, technological, educational, and research environments and creating the right conditions for excellence and competitive leadership, our distinguished graduates are prepared both scientifically and professionally to meet the demands of the changing labor market and to compete and effectively serve society.

### **Program Objectives:** ✚

**First Objective:** Improving the quality of the educational process.

**Second Objective:** Professional development for program graduates according to the needs of the labor market.

**Third Objective:** Developing self-skills and continuing education skills.

**Fourth Objective:** Working on continuous improvement of various aspects of the educational process.

### **✚ Distinctive features of the program:**

- The Civil Engineering Program at the Higher Institute of Engineering at Shorouk Academy is a scientific program that was established in the year

2000/2001 by a group of scientific figures known for their competence in the fields of engineering education and scientific research locally, regionally, and internationally considering the Institute's adoption of academic standards in its various programs, and this was reflected in its graduates. The program and the institute, with their scientific experience and good reputation, have placed them at the top of the wanted list to meet the needs of the labor market, entities, and research samples locally, regionally, and internationally.

- The Civil Engineering program combines many different major specializations that rely on distinct academic courses that serve those specializations, with many advanced laboratories supporting those different specializations .
- The program is distinguished by the presence of faculty members who hold academic degrees from prestigious universities inside and outside Egypt. These universities are characterized by scientific excellence locally as well as internationally, such as some universities in the United States of America and Ireland.
- The program is distinguished by the Institute's distinguished geographical location, which makes it a meeting point for many of the surrounding governorates, such as Cairo, Sharqia, Qalyubia, Suez, and Ismailia, which enables the program to serve the largest number of people in those governorates, in addition to the people of other governorates of the Republic also outside Egypt.

- The program is characterized by increasing student demand according to the number of students enrolled in the program compared to the number of students at the institute distributed among other programs.
- The program is popular with students from other countries because of its good reputation regionally .
- Carrying out applied and research projects to serve the community and creating protocols that serve the surrounding environment, such as the Shorouk City Authority, the Heliopolis Sports Club, the Shorouk General Hospital, the British University in Egypt, and the South Sinai Governorate .
- The program is characterized by supporting students to participate in local competitions and obtain advanced positions.

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## Program Laboratories:

### Sanitary Lab



Figure 1 Velocity Measuring Apparatus



Figure 2 Turbidity Meter



Figure 3 Consort (Belgium) PH/mv/C meter model C830



Figure 4 Portable Turbid meter





**Figure 7 Model for an Aeration Tank**



**Figure 8 Measuring Flasks & Graduated Cylinders**



**Figure 9 Graduated Cylinders**



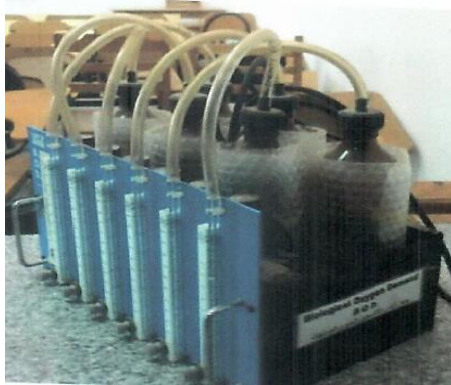
**Figure 10 Graduated Cylinders**



**Figure 11 Measuring Flasks**



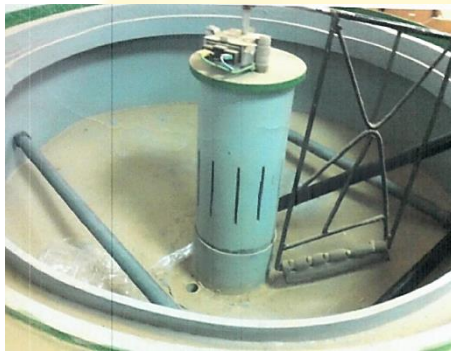
**Figure 12 Drying Oven**



**Figure 13 Bio Chemical Oxygen Demand (BOD)**



**Figure 14 Model for a circular Sedimentation Tank**



**Figure 15 Model for a circular Sedimentation Tank**

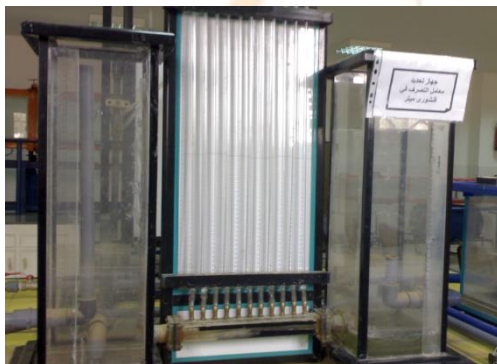
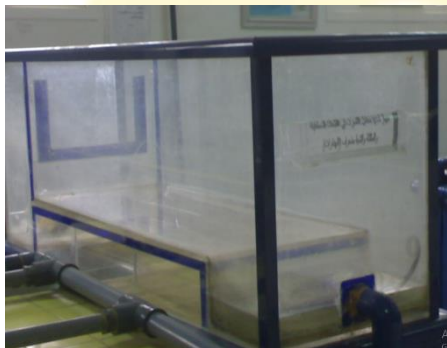
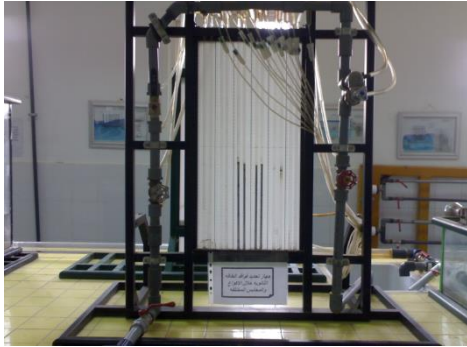


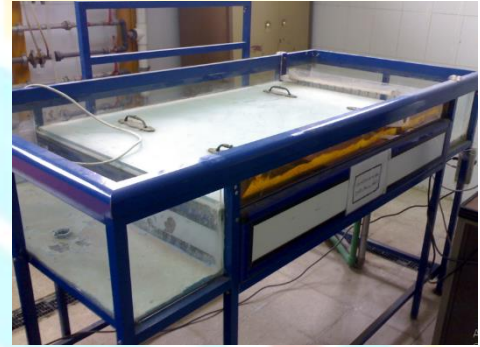
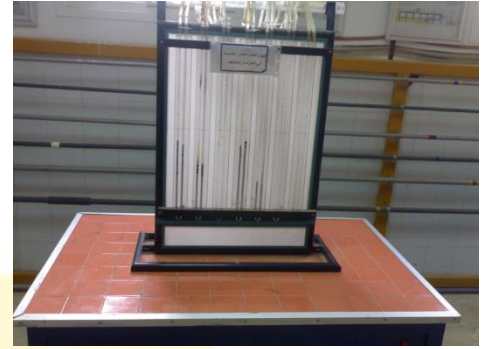
**Figure 16 Muffle Oven**



**Figure 17 Jar Test**

# Hydraulics Lab





## Survey Lab

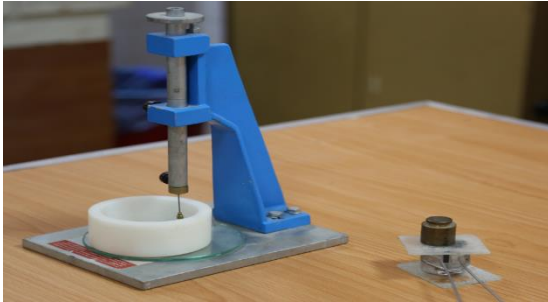


# Highway Lab





# Material Lab









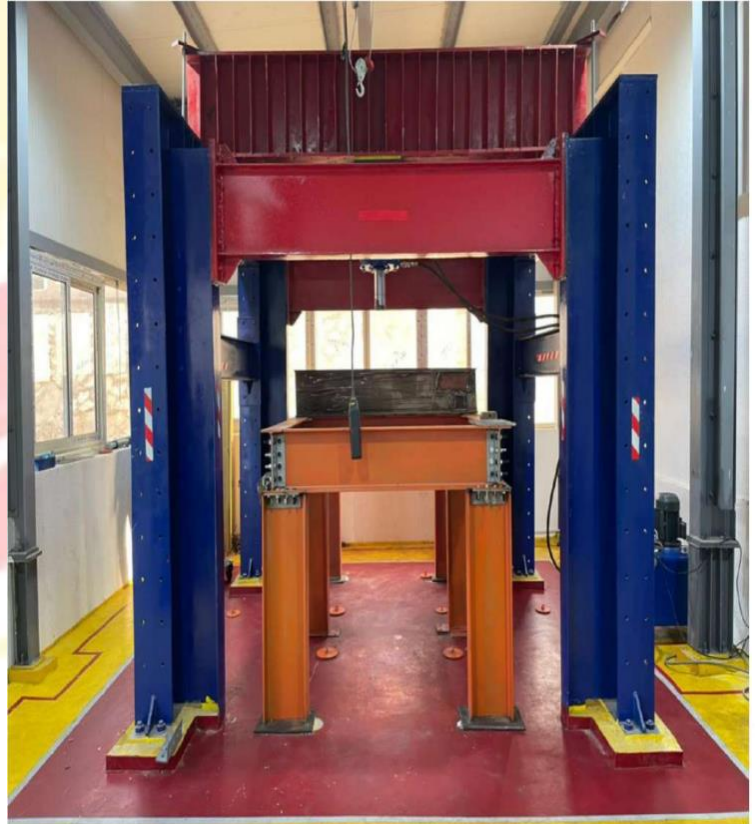
## Geotechnical & Foundation Lab







## Concrete Lab



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ماكينة اختبار القلب الخرساني

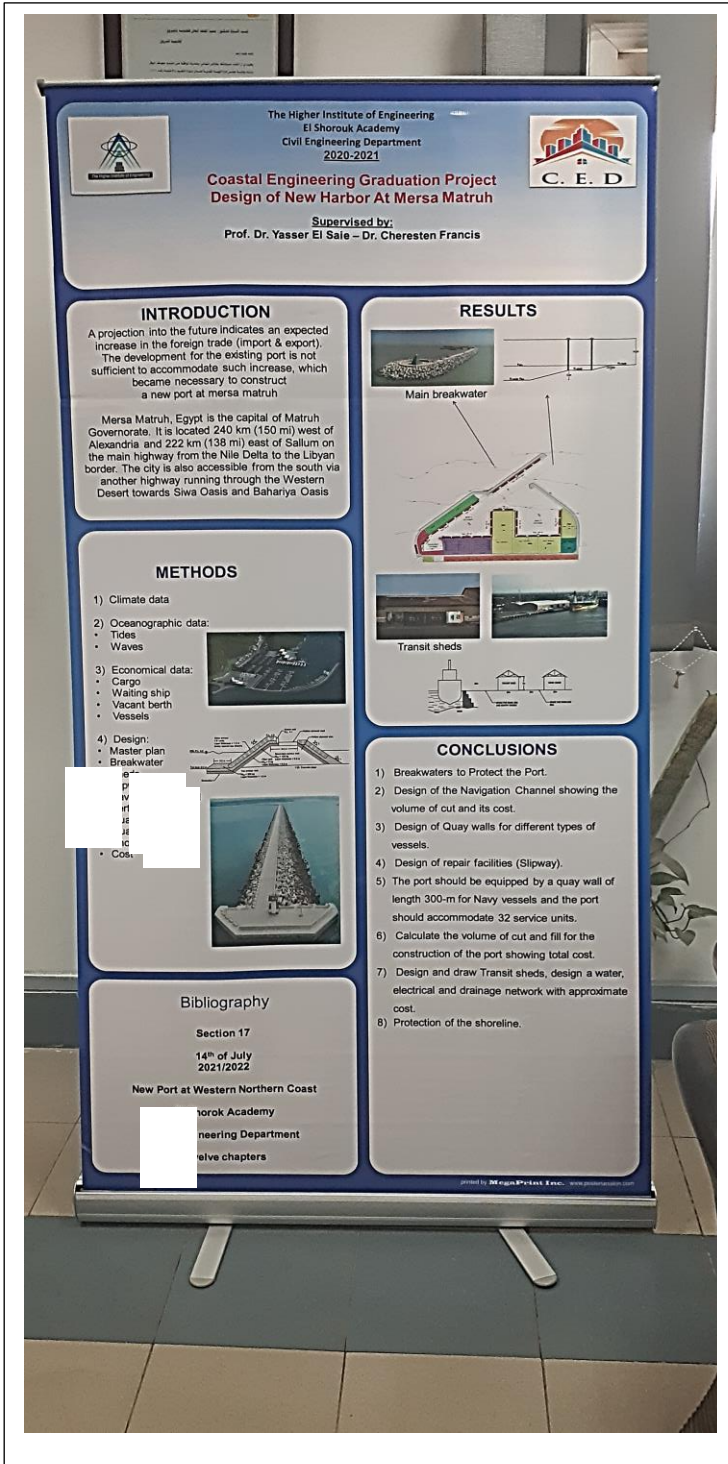








## ☛ Samples of the Graduation Projects:



The Higher Institute of Engineering  
El Shorouk Academy  
Civil Engineering Department  
2020-2021

**Coastal Engineering Graduation Project**  
**Design of New Harbor At Mersa Matruh**

Supervised by:  
Prof. Dr. Yasser El Sale – Dr. Cherestine Francis

**INTRODUCTION**  
A projection into the future indicates an expected increase in the foreign trade (import & export). The development for the existing port is not sufficient to accommodate such increase, which became necessary to construct a new port at mersa matruh

Mersa Matruh, Egypt is the capital of Matruh Governorate. It is located 240 km (150 mi) west of Alexandria and 222 km (138 mi) east of Sallum on the main highway from the Nile Delta to the Libyan border. The city is also accessible from the south via another highway running through the Western Desert towards Siwa Oasis and Bahariya Oasis

**METHODS**

- 1) Climate data
- 2) Oceanographic data:
  - Tides
  - Waves
- 3) Economical data:
  - Cargo
  - Waiting ship
  - Vacant berth
  - Vessels
- 4) Design:
  - Master plan
  - Breakwater

**RESULTS**

Main breakwater

Transit sheds

**CONCLUSIONS**

- 1) Breakwaters to Protect the Port.
- 2) Design of the Navigation Channel showing the volume of cut and its cost.
- 3) Design of Quay walls for different types of vessels.
- 4) Design of repair facilities (Slipway).
- 5) The port should be equipped by a quay wall of length 300-m for Navy vessels and the port should accommodate 32 service units.
- 6) Calculate the volume of cut and fill for the construction of the port showing total cost.
- 7) Design and draw Transit sheds, design a water, electrical and drainage network with approximate cost.
- 8) Protection of the shoreline.

**Bibliography**

Section 17  
14<sup>th</sup> of July  
2021/2022

New Port at Western Northern Coast  
El Shorouk Academy  
Civil Engineering Department  
El Shorouk Academy  
El Shorouk Academy



The Higher Institute of Engineering  
El Shorouk Academy  
Civil Engineering Department  
2020-2021

**Coastal Engineering Graduation Project**  
**Design of New Harbor At Mersa Matruh**

Supervised by:  
Prof. Dr. Yasser El Sale – Dr. Cherestine Francis

**INTRODUCTION**  
Mersa Matruh is the only port on northern Egypt on the Mediterranean Sea. It is the capital and largest city of the Egyptian governorate of North Sinai, lying on the Mediterranean coast of the Sinai Peninsula, 244 kilometers (151 mi) northwest of Cairo. Mersa Matruh is distinguished by its white blue waters, vibrant and beautiful green island on the coast, and its tall white sand, White dunes, and many luxury hotels.

**RESULTS**

Main breakwater

Transit sheds

**METHODS**

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