



Scientific research is considered a fundamental tool for understanding the truths of the universe and its creatures. It allows researchers to rely on themselves for knowledge and to acquire information, while also enabling them to explore various methodologies and choose the best among them. This process fosters a distinct way of thinking, behavior, and discipline among researchers.

Thus, the need for scientific research has become crucial in our present time for the welfare and advancement of societies, as well as for mitigating environmental and natural risks. The importance of scientific research increases with the growing reliance of countries on it, particularly among developed nations that recognize its significance for their continued progress and development.

The research activities of any educational institution are one of the essential pillars for the advancement of the educational process. They form the foundation for postgraduate education and the outcomes of research, which, when conducted scientifically and directed towards serving society, become a primary source for the nation's renaissance.

The strategy for scientific research at the Higher Institute of Engineering in El Shorouk aims to outline the broad lines of scientific research for the next five years, in line with the institute's vision and mission. It aspires to be a model for knowledge production and its applications, creating an environment conducive to research excellence. This will enable faculty members, support staff, and students to enrich scientific and intellectual research and actively participate in finding realistic solutions to community problems, addressing urgent and complex



challenges, and driving scientific research to align with national ambitions while engaging globally in knowledge production.

Contribution of Scientific Research to Supporting and Enhancing the Educational Process

The results of scientific research at the institute are utilized in the educational process by using research findings as practical examples to illustrate scientific theories and concepts. These findings have been applied in implementing various projects and developing the scientific content of certain courses, particularly elective ones. The institute is also keen on increasing student engagement in research activities, with several practices in place, including student and faculty participation represented by the following projects:

- Project on Using Rice Straw to Prepare a Drug Capsule: This project focuses on controlling the drug release rate.
- Project on Producing Biodiesel from Jatropha Plants: An initiative aimed at sustainable energy solutions.
- Project on Designing and Implementing a Hybrid Lighting Pole: This project, which combines solar and wind energy, won first place at the national level.
- Converting electrical energy of tourist village on the north coast.
- Sterilization of materials using microwave radiation.
- Eye Movement Wheelchair.
- Design and develop a smart interactive neck brace.
- Design of a prosthetic hand.
- Extracting water from the atmosphere.



- Advertising & security Robot.
- Load management in smart home with smart grid.
- Smart Prosthetic Knee.
- Smart Human Follower cart.
- Design & Development of Egypt University Satellite-3 (EUS-3) On-Board Computer(OBC) Subsystem.
- Design and Development of Egypt University Satellite-2 (EUS-2) Communication Subsystem (Hardware).

Available resources for scientific research activities

1- The institute provides financial resources to support scientific research, represented by the annual budget allocated for the following activities:

First: Rewards and publication fees for scientific research.

Second: Fees for participation in scientific conferences.

Third: Financial contributions for master's degrees.

Fourth: Financial contributions for doctoral degrees.

Fifth: Application fees for academic titles (Professor – Assistant Professor) from the Supreme Council of Universities.

2- The institute offers awards in the fields of science, technology, and engineering in collaboration with the Academy of Scientific Research, each valued at 25,000 EGP, under the title "Shorouk Academy Awards for



Scientific and Technological Creativity." The awards are available in the following fields:

- Electronic Engineering and Its Applications
- Chemical Engineering and Its Applications
- Computer Engineering and Information Systems
- Civil, Architectural, and Industrial Project Engineering

3- The institute has signed several scientific cooperation protocols with various scientific bodies in the fields of education and research. For example, a joint cooperation protocol was signed between the institute and the Nuclear Materials Authority to encourage the exchange of expertise in shared research areas. Additionally, a joint protocol was established with the Upper Egypt Development Authority for architectural studies and design work for the authority. In support of graduates, the institute has signed a cooperation protocol with Gelicom to provide training needs for students and contribute to the employment of graduates.

Supporting and encouraging scientific research and enhancing the capabilities of faculty members.

- 1-The institute grants faculty assistants one day of leave each week during their enrollment and registration period for master's and doctoral degrees. Their research progress is monitored through an annual report detailing their accomplishments. Additionally, they are given leave during the preliminary and comprehensive exam periods, language exams, and digital transformation training courses.
- 2-The institute contributes to covering the tuition fees for faculty assistants enrolled in master's and doctoral programs.
- 3-Incentives and publication fees are awarded to faculty members and their assistants for publishing international research in journals indexed in the Web of Science and Scopus databases, as well as in other journals listed by the promotion committees.



- 4-Application fees for obtaining academic titles (Professor – Assistant Professor) from the Supreme Council of Universities are covered.
- 5-The institute supports faculty members and their assistants in attending scientific conferences both domestically and internationally.
- 6-The institute is committed to enhancing the capabilities of faculty members and their assistants through a series of training courses and workshops managed by the Training and Development Department in collaboration with the Faculty and Leadership Development Center (FLDC) at Cairo University. Participants receive certified completion certificates for these courses, with a focus on international research publication and research ethics at the top of the list of courses the institute contracts with granting bodies.

The institute supports applied research and collaborative research projects

The institute funds applied research projects proposed by its faculty members, such as the "Smart Small Electric Vehicle" project, which received 120,000 EGP in funding, and the "Water Sterilization Using Microwave Radiation" project, funded at 50,000 EGP.

The institute also promotes collaborative research between different disciplines through applied research projects, such as the "Eye-Movement Controlled Wheelchair," which involved the Departments of Communications Engineering and Medical Engineering, and received 30,000 EGP in funding from the Academy of Scientific Research.



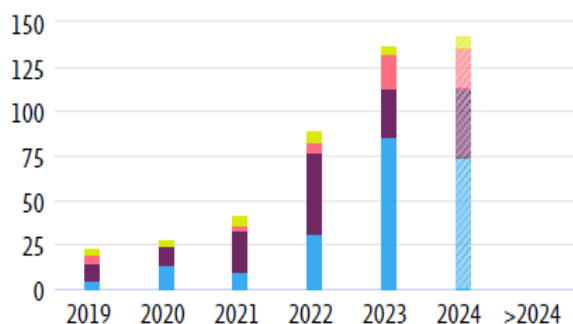
Research output is continuously growing and is proportional to the number of faculty members.

Faculty members at the institute have published a total of 498 scientific papers.

Journal quartiles

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Share of publications per Journal quartile by [CiteScore Percentile](#) ▾



Quartiles	Publications	Publication share (%)
Q1 (top 25%)	224	48.7
Q2 (26% - 50%)	154	33.5
Q3 (51% - 75%)	54	11.7
Q4 (76% - 100%)	28	6.1

Incomplete year [?](#)

Local, regional, and international scientific conferences

- 1- The institute encourages faculty members and their assistants to participate in local and international scientific conferences, covering the full registration fees as well as 50% of travel expenses.

Year	Local conference	International conference
2020	1	—
2021	6	2
2022	7	9
2023	4	1
2024	2	-

2- Conferences organized or co-organized by the institute



The High Institute of Engineering in Shorouk City organized its first international scientific conference in 2018 titled "Sustainability: Environmental Efficiency for a Better Living," which took place from December 13-15, 2018. Additionally, the institute held three local conferences: "Resilience in Architectural Education" in February 2021, "Technical Education" in January 2022, and "Sustainable Green Climate" in November 2022. The institute's academic departments also organized two local conferences. Furthermore, the institute hosted four employment forums in collaboration with external organizations.

The institute maintains databases for research and scientific activities

Item	Number
The number of internationally published research papers.	498
The number of applied research projects funded by the institute	13
The number of applied research projects funded by external sources.	8
The number of promotions to the rank of Assistant Lectures	161
The number of promotions to the rank of Assistant Professor	108
The number of promotions to the rank of Associate Professor	36
The number of promotions to the rank of Professor	8



The Higher Institute of Engineering

El Shorouk Academy
Higher Institute of Engineering
Scientific Research and Graduate Studies Unit



Two faculty members from the institute were included in the "The World's Top 2% of Scientists" list published by Stanford University for years 2022, 2023, 2024.



Prof. Dr. Hamdy Mohammed Ahmed



Dr. Ahmed Hassan Arnous

Department of Engineering Mathematics and Physics

Higher Institute of Engineering, El-Shorouk Academy

Hallensten, Olof	Ekonomihögskolan vid Lunds	swe	37	2009	2022	628,653	34	3
Esperanza, Huerta Lwanga	El Colegio de la Frontera Su	mex	62	1999	2022	89,000	1,122	15
Bañón, Ramón	El Colegio de la Frontera Su	mex	27	1995	2022	242,438	317	7
Juaristi, Eusebio	El Colegio Nacional	mex	289	1977	2022	143,278	515	7
Ahmed, Hamdy M.	El Shorouk Academy	egy	76	2003	2022	127,274	166	6
Arnous, Ahmed H.	El Shorouk Academy	egy	58	2012	2022	408,742	146	6
Peltoniemi, Olli	Eliniiskiteellinen Tiede	fin	119	1995	2022	333,156	272	8
Schenk, Dale	Elan Corporation	usa	148	1982	2019	73,154	786	17
Brown, Dorothy Cmina	Elanco Animal Health	usa	134	1995	2021	57,306	484	11
Overtan, Michael W.	Elanco Animal Health	usa	40	2001	2020	516,657	262	9
Hagbin, Saaid	Elbind Elektronik Ab	swe	44	2003	2022	386,180	112	5
Saron, Alain	Elcelyx Therapeutics, Inc.	usa	117	1985	2018	33,988	638	13
Ortega-Vazquez, M. A.	Electric Power Research Inc	usa	51	2006	2022	57,948	352	10