

Resume

Manar Fathy Al-Sayed



Personal Information:

Academic Rank: Teaching Assistant

Department: Biomedical Engineering

Specialization: Clinical Engineering, Biomaterial, Electronics, Programming, Communication, and Biomedical Device and Equipment

Position: Teaching Assistance

Research Gate: <https://www.researchgate.net/profile/Manar-Al-Sayed>

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Education:

Degree	Discipline	Institution	Year
M.Sc.	Clinical Engineering, Biomaterial, Biomedical Engineering	Biomedical Engineering Department, Helwan University, Faculty of Engineering	2021-2023
B.Sc.	Biomedical Engineering	Higher technological institute	2011-2016

Academic Experience:

Institution: Higher Technological Institute

Rank: Teaching Assistant

Dates: 2018

Research interests:

- Systems for people of determination.
- Biomaterial.
- Clinical engineering.
- Biomedical Systems.
- Programming & AI.

Publications:

Al-Sayed, M.F.; Tarek El-Wakad, M.; Hassan, M.A.; Soliman, A.M.; Eldesoky, A.S. Optimal Concentration and Duration of Endotracheal Tube Coating to Achieve Optimal Antimicrobial Efficacy and Safety Balance: An In Vitro Study. Gels 2023, 9, 414. <https://doi.org/10.3390/gels9050414>

Certifications or Professional Registrations:

- I completed the **Good Practices for Laboratory (GPL) activities training** recommended by the **National Institute of Metrology and Calibration**, in **2024**.
- I received **training in emergency and first aid**, organized by the **General Federation of Egyptian Trade Unions**, in **2024**.
- I served as a **jury member** at the **17th Undergraduate Research Forum (UGRF)** hosted by **Nile University**, in **2024**.
- I have been an **advisor** for the **ATOM biomedical club** within the **Biomedical Engineering Department** at the **Higher Technological Institute**, since **2023**.
- I hold the position of **Quality Coordinator** in the **Biomedical Engineering Department** at the **Higher Technological Institute**, since **2023**.
- A **reviewer**, I contribute to the **Elsevier journal MethodsX** (ISSN: 2215-0161) and the **Arabian Journal of Chemistry** (ISSN: 1878-5352), since **2023**.
- I have been involved as a **reviewer** for the **Springer Nature journal Biomaterials Research** (ISSN: 2055-7124), since **2023**.
- I received **training in Credit hours and academic advising**, organized by **Training Development Center Qualification Ain Shams University**, **2023**.
- I participated as a **jury member** in the **15th Undergraduate Research Forum (UGRF)** at **Nile University**, in **2023**.
- I served as a **jury member** at the **16th UGRF (4th Egyptian Junior Researcher Competition)** at **Nile University**, in **2023**.
- I had the privilege of being a **speaker** at the **4th International Virtual Conference on Materials Science & Engineering**, hosted by **Delight Scientific Conferences**. The conference took place online from London, in **2023**.
- I was part of the **jury** for the **Error Competition** organized by **IEEE HTI-SB** at the **Higher Technological Institute**, in **2023**.

- I participated as a **jury member** in the **14th UGRF (4th Egyptian Junior Researcher Competition)** at **Nile University**, in **2022**.

Honors and Awards:

- **Honoring from 3rd Egyptian Junior Researcher Completion – 14th UGRF**, Nile University, for the SI team among the **129 best projects in Egypt**, August 2022.
- **Honoring from 3rd Egyptian Junior Researcher Completion – 14th UGRF**, Nile University, for the RESQU EQUDE team among the **129 best projects in Egypt**, August 2022.
- **The third-place** award with **“Sign Language Glove Project,”** in the 3rd Egyptian Junior Researcher Completion – 14th UGRF, Nile University, August 2022.
- **The third-place** award in the Geniuses Forum for the academic year 2022/2023 in the student project **“Virtual reality applications in medicine”** in biomedical field at the Obour Institute under the auspices of the General Administration of Student Welfare at the Ministry of Higher Education.
- **The first-place** award in the Geniuses Forum competition qualifiers for the academic year 2022/2023 in the student project **“Virtual Reality Applications in Medicine”** in biomedical field at the level of the Arab Republic of Egypt under the auspices of the General Administration for Student Welfare at the Ministry of Higher Education.
- **The first-place** award in the Geniuses Forum competition qualifiers for the academic year 2023/2024 in the student project **“Magnetic Steering”** in biomedical field at the Egyptian Academy for Engineering and Advanced Technology under the auspices of the General Administration of Student Welfare at the Ministry of Higher Education.
- **The second-place** award in the Geniuses Forum competition qualifiers for the academic year 2023/2024 in the student project **“TENS”** in biomedical field at the Egyptian Academy for Engineering and Advanced Technology under the auspices of the General Administration of Student Welfare at the Ministry of Higher Education.
- **The third-place** award in the Geniuses Forum competition qualifiers for the academic year 2023/2024 in the student project **“Assistant robot”** in biomedical field at the Egyptian Academy for Engineering and Advanced Technology under the auspices of the General Administration of Student Welfare at the Ministry of Higher Education.

- **The first-place** award in the Geniuses Forum competition qualifiers for the academic year 2023/2024 in the student project **“RC Robot with Metal Detector”** in electronics field at the Egyptian Academy for Engineering and Advanced Technology under the auspices of the General Administration of Student Welfare at the Ministry of Higher Education.
- **The second-place** award in the Geniuses Forum competition qualifiers for the academic year 2023/2024 in the student project **“DIY Ventilator”** in artificial intelligence field at the Egyptian Academy for Engineering and Advanced Technology under the auspices of the General Administration of Student Welfare at the Ministry of Higher Education.
- **The third-place** award in the Geniuses Forum competition qualifiers for the academic year 2023/2024 in the student project **“Parkinson glove”** in Internet of Things field at the Egyptian Academy for Engineering and Advanced Technology under the auspices of the General Administration of Student Welfare at the Ministry of Higher Education.
- **The first-place** award in the Geniuses Forum competition qualifiers for the academic year 2023/2024 in the student project **“RC Robot with Metal Detector”** in robotics field at Robosoccer V2 Competition.

Teaching Experience:

Courses taught.

Principles of Electrical Engineering:

Electrical quantities, definitions and laws- circuit laws and network theorems-electrical signal waveforms, phase representation of sinusoidal signals, natural response, forced response, and complete response of first and second order circuits- steady state A.C. circuits, power, frequency response, resonance and three phase circuits magnetic fields and circuits, types of transformers and its operation, circuit models and performance-translational transducers and principles of electro mechanics- types of D.C. generators and motors, alternators, synchronous and induction motors.

Electronics (1):

Introduction to semiconductors-the diode-diode rectifier and power supply- diode clamping-Zener diode-the varactor diode-optical diode-BJT structure operation, parameters and C/Cs- and BJT an amplifier-BJT switch transistors bias circuit-JFET/Cs and parameters JFET biasing –MOSFET biasing, C/Cs and parameters.

Electronics (2):

BJT amplifiers –common emitter amplifiers- common collector amplifiers- common Base amplifiers-FET amplifiers- common source amplifiers- common Drain amplifiers- common Gate Amplifiers-Thyristor-the four-layer diode-SCR and its amplification-Diac and Triac-SCS-The unijunction transistor-amplifier frequency response-low and high frequency response-Total amplifier frequency response.

Computer Interfacing & Networks:

Computer development designing hardware and software for a specific application- Basic hardware and software for parallel interfacing-Basic hardware and software for Serial Interfacing-Basic hardware and software for universal serial bus interfacing-Networks basics topology-Medical application for networks (DICOM)

C++ Programming Language:

Methods to solve problems and design algorithms basic data types and operations and terminology sporting types and functions ready precedence operations, sentences attribution, sentences input and output, conditional statements and exceptional sentences control types, defined functions, looping, Ingredients region and processes.

Biomedical Equipment's:

Biomedical instrumentation: Medical imaging devices: Ultrasound, magnetic resonance imaging (MRI), theory of operation and physics of U.S. and MRI. Methods for enhancing the resolution and slice selection – Hemodialysis machines.

Biomedical Electronics & Instruments:

Physical measurements: pressure, low displacement, velocity- Transducer types and circuit analysis-Electrode type and circuit analysis.electrical effects on body, electrical safety of instrument and leakage currents - Electrical measurements, EMG, EEG, EOG, ERG, Pulse oximeter, infant incubator, etc. Different measurements and therapeutic instrumentation: blood pressure, heart sounds, cardiac catheterization, cardiac pacemakers, defibrillation ventilators and surgical instruments - In addition to biomedical Lab.

Biomaterial:

Basics of material science – crystallographic structures - Human machine component materials – Corrosion – biocompatibility - Metal implants – dental material – heart valve substitutes – scaffolds for tissue engineering – Nanomaterials. Materials science: nature of metals and alloys, nonmetallic materials, plastics, elastomers, ceramics, porous structures, composite materials. Mechanical testing, friction, wear and lubrication, corrosion. Properties of biological materials: biocompatibility, surface characteristics, bonding, fatigue properties, standard specifications, implant materials overview about Finite Elements method.

Clinical engineering:

Healthcare technology management - classification of technology management - classification of health care delivery system - hospital departments organizations - the definition of clinical engineer - the role of clinical engineer - mission statement and objectives - clinical engineer duties and responsibilities - organization of clinical engineering department - staff qualification - asset management – nomenclature - equipment inventory - equipment identification – coding - tagging - medical equipment life cycle - medical equipment repair cycle - different maintenance types - Purchasing contracts and systems - Tenders and practice.