

CURRICULUM VITAE

Prof. M. Firas Al-Hinnawi, Ph.D.



A professor of biomedical engineering and engineering consultant with specialist experience in medical instrumentation and hospital design

Academic positions:

- Chairman of the Biomedical Engineering Department, Damascus University, Syria, September 2009 – Sept. 2013;
- Head of the Biomedical Engineering and Pharmaceutical Science Department, Arabic Encyclopedia, Syria, 2010 – Sept. 2013;
- Full Professor at the Biomedical Engineering Department, Damascus University, Syria, 2012 – present.
- Dean of FMEE, Damascus University Sept 2018- July/2020.
- Damascus University Vice President, for Scientific Research and Post Graduate Studies July2020- Now.

Education

	Mechanical Engineering (Mechanical Power), Faculty of Mechanical and Electrical Engineering, Damascus University, 1979-1984. Graduated 7 th in a class of 60 students. Thesis: Designing an Air-Conditioning Network System for Arabic Engineer Home.
B.Sc	Bioengineering, 1986 – 1987, University of Strathclyde, Glasgow, U.K.
M.Sc Course	The course provided a rigorous foundation of the different subjects that conform biomedical engineering.
Ph.D	Bioengineering Instrumentation, 1987-1991, University of Strathclyde, Glasgow, U.K. Thesis: Mechanical Assessment of the Extraocular Muscles.

Academic Experience

1. Academic positions

Assistant Professor	Damascus University 1993-2001.
Associate Professor	Damascus University, 2001-2011.
Full Professor	Damascus University, from 2012.

2. Publications

1. **Al-Hinnawi M.F**, Barbenel J, Al-Qurainy I.A, Dutton G.N, (1991) "Quantitative mechanical assessment of the extraocular muscles" *Journal of Engineering in Medicine*, 205: 101-108.
2. **Al-Hinnawi M.F** (1991) "Mechanical Assessment of the Extra-ocular Muscles". Ph.D. Thesis, Bioengineering Unit, University of Strathclyde, Glasgow, U.K.
3. **Al-Hinnawi M.F**, Barbanel J, Al-Qurainy I.A, Dutton G.N (1991) "New design for carrying-out forced duction and force generation tests", Annual Congress of the College of Ophthalmologists (poster), Glasgow, U.K.
4. **Al-Hinnawi M.F**, "Computer-aided duction and generation tests" (1993) The 2nd International Congress of the Pan-Arab Society of Ophthalmology, Damascus, Syria.
5. **Al-Hinnawi M.F**, "Low Temperature Sterilization Technologies Past, Present and Future" (2002) *Damascus University Journal for Engineering Sciences*, V18 – No. (1) 17-25, a refereed research journal.
6. Zarka N, **Al-Hinnawi M.F**, Dardari A, Tayyan M.A, (2004) "'Patient Keeper': medical application on mobile phone" The 1st International Conference on Information and Communication Technologies: from theory to applications – ICTTA 04, 37 – 38.
7. **Al-Hinnawi M.F**, (2009) "Using a mobile phone while driving could become a criminal act" *Damascus University Journal for Engineering Sciences*, Vol. (25) - No. (1):23-38, a refereed research journal.
8. **Al-Hinnawi M.F**, (2009) "Can 'Patient Keeper' help in-patients?" *Telemedicine and E-Health*, Vol. 15, No. 5: 484-489.
9. **Al-Hinnawi M.F**, (2009) "Relation Between GD Ration and Diplopia" *Damascus University Journal for Engineering Sciences*, Vol. (25) - No. (2):81-94, a refereed research journal.
10. **Al-Hinnawi M.F**, (2010) "Ventilation of operating rooms' parameters and their different flow types" *Damascus University Journal for Engineering Sciences*, Vol. (26) - No. (2):73-86, a refereed research journal.
11. **Al-Kayal A Al-Hinnawi, M.F, Abu Aisa N, (2013)**, Ultraviolet usage efficiency in supporting particulate filters to disinfect re-circulated air in both ICU and O.R rooms. *Damascus University Journal for Engineering Sciences*. 29 (1), 173-184
12. **Haddad Z., Alhinnawi M. F., Berro Y., (2020)**, "Thermal imaging for early detection of breast cancer ", *albaath University engineering Journal*, vol. 42, pages 83-130.

13. **Alturifi S, Al Hinnawi M.F, Khaddam A, Al Khaddour A**, (2021), “Effect of Low-Intensity Pulsed Ultrasound on Ischaemic Heart Disease Patients (Novel Technique)”, *World Journal of Cardiovascular Surgery* 11 (3), 21-28.
14. **Zaarour B., Al Hinnawi M.F**, May (2022), “A comprehensive review on branched nanofibers: Preparations, strategies, and applications”. *Journal of Industrial Textiles* <https://doi.org/10.1177/15280837221083031>. Online.
15. **Asood A., Shahriari-Khalaji M, Wang Y, Balilonda A, Al Hinnawi M.F, Yang Shengyuan (2022)**, “Functionalization of Aminoalkylsilane-Grafted Cotton for Antibacterial, Thermal, and Wettability Properties”, *RSC advances*, Issue 32.
16. **Husein R, Almadi N, Abu Haileh H, Masri M, Al Hinnawi M.F** (2022), “**3D Printed Upper Limb Prosthetics: Ambition & Reality**”, *Damascus University Journal for Engineering Sciences*. 38(2), 135-144.
17. **Haddad Z., Alhinnawi M. F., Berro Y.**, (2023), "Computer aided detection of breast cancer in colored thermal images", *Damascus engineering Journal*, In press.
18. **Kheshfeh MN, Hajeer MY, Al Hinnawi MF, Awawdeh MA, Albalawi F, Alotaib GS, Alam MK, Zakaria AS.** *J Clin Med.* 2023 Dec 30;13(1):231. doi: 10.3390/jcm13010231.PMID: 38202238 Free PMC article. Review. “What Is the Most Effective Frictionless Method for Retracting Anterior Teeth When Using Buccal Fixed-Appliance Therapy? A Systematic Review.”
19. **Kheshfeh MN, Hajeer MY, Al Hinnawi MF, Awawdeh MA, Aljhani AS, Alhazmi N.** *J Clin Med.* 2023 Oct 25;12(21):6757. doi: 10.3390/jcm12216757.PMID: 37959222 Free PMC article. Review.” How Effective Are Non-Frictional Techniques Compared to Sliding Techniques in the Retraction of Upper Anterior Teeth When Using Buccal Fixed-Appliance Therapy? A Systematic Review.”
20. **Zaarour, B., Liu, W., Omran, W., Alhinnawi, M.F., Dib, F., Shikh Alshabab, M., Ghannoum, S., Kayed, K., Mansour, G., & Balidi, G.** (2024). A mini-review on wrinkled nanofibers: Preparation principles via electrospinning and potential applications. *Journal of Industrial Textiles*.
21. **Essa, H.A., Ismaiel, E. & Hinnawi, M.F.A.** Feature-based detection of breast cancer using convolutional neural network and feature engineering. *Sci Rep* 14, 22215 (2024).

3. Books

1. **Al-Hinnawi M.F**, Sabouni, A (2011), “Medical Equipment II for 4th year Biomedical Engineering Program” Damascus University.
2. **Al-Hinnawi M.F**, Wazeh, M, (2002) “Telemedicine and telehealth principles, policies, performance and pitfalls” Arab Center of Arabization, translation into Arabic of the book originally written by Adam Darkins and Margaret Cary.

4. Book revision

1. Chan. A. “Medical Technology Management Practice” (2003) published by Charles C. Thomas, translated by King Saud University Translation Center.
2. Panichello J. “X-ray repair” (2004) published by Charles C. Thomas, translated by King Saud University Translation Center.
3. Abu Aisa. N. “Medical Rays Physics” (2002) Damascus University Press.
4. Ammar. M. “ Medical Image Procesing” (2012) Damascus University Press.

5. Membership of examining committees: More than 20 committes for M.Sc and Ph.D.

6. Subjects taught

Subject	Year	Department	University	Duration
Medical instrumentation 1	4 th Year	Biomedical Engineering	Damascus University	1992-1996 1999 - now
Medical instrumentation 2	5 th year	Biomedical Engineering	Damascus University	1992-1996 1999 - now
Medical instrumentation 3	5 th year	Biomedical Engineering	Damascus University	1992-1996 1999 - now
Occupational safety in hospitals	5 th year	Biomedical Engineering	Damascus University	2002 - now
Rehabilitation instrumentation	Postgraduate diploma	Biomedical Engineering	Damascus University	2003-2006
Introduction to biomedical engineering	4 th year	Electronic Engineering	International University for Science and Technology, Damascus	2006-2008
Telemedicine and E-Health	M.Sc. Course	Biomedical Engineering	Damascus University	2008 - now
Health Care Facility Design	5 th Year	Biomedical Engineering	Damascus University	1998-2013
Innovation in Biomedical Engineering	M.Sc. Course	Biomedical Engineering	Damascus University	2015-2016

Professional Experience

Duration	Roles
From 1995 to 1996	Consultant in Biomedical Engineering (Instrumentation and Hospital Engineering) for the following Hospital in Damascus: • Dermatology Hospital (100 Beds) • Cardiovascular Surgery Center (80 Beds) • Hospital of the Dental School - Damascus University (50 Beds) • Al-Muwasa Hospital (300 Beds) • Tishreen Hospital (200 beds).
From 1996 to 1997	Consultant for the Ministry of Health - Saudi Arabia. Hael Maternity and Children Hospital. The job involved carrying out whole hospital studies such as: room listing, medical equipment and furniture specification, consolidate list, bills of quantity, equipment layout, pre-installation requirements. Other duties such as: bid technical and financial analysis submitted to furnish the hospital, receiving installed equipment, attending testing and commissioning. Member of the Central Maintenance Ministry of Health Project Committee.
From 1997 to 1999	Consultant to Specialized Medical Company. The job included preparing: room listing, medical equipment and furniture specifications, consolidate list, bills of quantity, equipment layout, re-planning the architectural layout to fit the requirements of the new technology, pre-installation requirements (for example, specific air-conditioning requirements to match the equipment heat dissipation, electricity and safety for both patients and practitioners, special filters required for certain areas, operating room layout, wall finishes, ceiling materials, etc), asking for quotations, technical specification analysis, drafting contracts, Site finishing supervision, supervising equipment installation, testing and commissioning, coordination of staff training. Setting-up of the necessary forms for the biomedical engineering department to carry out maintenance. Consultant (part-time) for the following projects: • Arar Hospital, Ministry of Health (100-bed general hospital) Al-Mazroa Consultants & Engineers. The job involved revising and updating room listing, equipment

	specification, equipment layout, bills of quantity, consolidate list. • Al-Kharj Hospital (100-bed hospital of the Dar Jana – Al-Mutabagani Group). Al-Mazroa Consultants & Engineers. Creating room listing, equipment specification and layout, bills of quantity, consolidate list. • Al-Razi Hospital (100-bed private hospital) in Al-Ehsaa city. Creating room listing, equipment specification and layout, bills of quantity, consolidate list, generating layout using AutoCAD. • Al-Hujailan Hospital (100-bed hospital in Hafer Al-Batin). Al-Majaz Medical Planners. Creating room listing, equipment specification and layout, bills of quantity, consolidate list, translating all documents into Arabic to fulfill the requirements of the Ministry of Finance for credit purposes.
From 1999 to 2003	Consultant at the Consulting Clinic, Beirut, Lebanon. The job involved: 1) Reviewing, upgrading and updating all documents prepared for the hospital plans and medical equipment specifications 2) Purchasing and planning for installation, testing and commissioning for the whole project. The hospital consists of 11000 m², comprising X-ray imaging, sterilization, operating room, recovery, clinical laboratory, various medical speciality clinics, in-patient rooms, kitchen facilities, etc.
From 2004 to 2008	Consultant to the remodelling of the Maternity Hospital in Raqa, Syria The hospital, located in the east of Syria, was remodeled to accommodate 150 beds instead of 50, which required both horizontal and vertical expansion. A complete implementation was undertaken. Consultancy to Kudsia General Hospital, Damascus, Syria. General and medical design and layout of a 50-bed, public hospital, located in Kudsia, an area in Damascus, creating room listing, equipment specification and layout, bills of quantity, consolidated list and generating the final layout using AutoCAD. Consultancy to Kutaifa General Hospital, Damascus, Syria. General and medical design and layout of a 50-bed public hospital located at the major Homs highway, creating room listing, equipment specification and layout, bills of quantity, consolidated list and generating the final layout using AutoCAD. Consultancy to Al-Salam Hospital, Damascus, Syria. This 120-bed hospital facility established ground-breaking health care standards for the Syrian capital. Hinnawi Planners & Consultants (HPC), where I am a partner and project manager, partnered in the

	architectural and electro-mechanical design for the facility. HPC also handled all medical equipment specifications, design, purchasing, and installation supervision.
	Consultancy to Al- Hanan Hospital, Nabek, Syria A 100-bed hospital located on a main highway between Damascus and Homs in Nabek. This hospital opened in 2010. Re-designing of this facility was necessary to fulfill the requirements for Richard Wolf, GmbH, as its training centre in the Middle East. A complete development was undertaken with the finest medical equipment. I managed the project management and also offered specialist advice.
From 2009 to present	Consultancy to the Emergency Department, Damascus Hospital, Damascus. One of its kind in the Middle East, consisting of an area of 4200 m². Designed as state of the art for its functionality. The department is composed of 33 individual rooms for trauma care, and five intensive care beds. Consultancy to the Cardiac Intensive Care Unit, Damascus Hospital, Damascus. Consisting of 13 individual cardiac intensive care rooms and four surgery intensive care rooms in a total area of 1100 m². Consultant for the design and executing Dr Rami Hamed's Centre – one day surgery centre located in Dubai Health Care City. OR turn key projects, design and executing Al Balsam Hospital -UAE

Personal information

Full Name:	Mohamad Firas Al-Hinnawi
Date of Birth:	September 7th 1961
Place of Birth:	Damascus, Syria
Marital Status:	Married with two children
Mobile:	+963 944284898
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Languages:	Arabic: native language English: fluent.
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