

NagmEldeen Abdo Mustafa Hassanain

Associated Professor

Personal Data

Nationality | Sudanese

Date of Birth | 1973

Department | Mechanical and Energy Engineering Department

Official UoD Email | nahassanain@iau.edu.sa

Web page:

- ResearchGate: https://www.researchgate.net/profile/Nagmeldeen_Hassanain
- Scholar: <https://scholar.google.com/citations?user=-ccPFRIAAA&hl=en>
- LinkedIn: <https://sa.linkedin.com/in/nagmeldeen-a-m-hassanain-a84335154>
- ORCID: <https://orcid.org/0000-0002-7989-710X>
- Scopus: <https://www.scopus.com/authid/detail.uri?authorId=55627444800>



Language Proficiency

Language	Read	Write	Speak
Arabic	√	√	√
English	√	√	√

Academic Qualifications (Beginning with the most recent)

Date	Academic Degree	Place of Issue	Address
2009	Phd	Strathclyde university. UK	Glasgow-UK
2002	MSc	Sudan university of science and technology.	Khartoum, Sudan
1998	BSC	Sudan university of science and technology.	Khartoum, Sudan



PhD, Master or Fellowship Research Title: (Academic Honors or Distinctions)

PhD	Comparison between Three- and Five-phase Permanent Magnet Generators Connected to a diode Bridge Rectifier
Master	Performance analysis of salient-pole self-excited reluctance generators

Professional Record: (Beginning with the most recent)

Job Rank	Place and Address of Work		Date
Associate professor	Imam Abdulrahman Bin Faisal University	KSA	24/9/2917
Associate professor	Sudan University of science and Technology	Sudan	1/2/21015
Assistant professor	Sudan University of science and Technology	Sudan	1/12/2009
Lecturer	Sudan University of science and Technology	Sudan	2002
Teaching assistant	Sudan University of science and Technology	Sudan	1/10/1998

Scientific Achievements

Published Refereed Scientific Researches

(In Chronological Order Beginning with the Most Recent)

#	Name of Investigator(s)	Research Title	Publisher and Date of Publication
1	GA Fahad AL-AMRI, NAGMELDEEN HASSANAIN, NORAH AL-AMRI	An Experimental Study of Solar Panel Performance Using Heat Pipe and Thermoelectric Generator	<i>International Journal of Renewable Energy Research-IJREER</i> 9 (No. 3), 1418-1427- (2019)
2	Hassanain N. A. M., Abbas A.Y. M., and Hussien A. S. G.	Performance Analysis of Isolated Self-Exited Reluctance Generators Connected to Diode Bridge Rectifier	<i>SUST Journal of Engineering and Computer Science (JECS)</i> . 16 (3), pp.4-9.(2015)
3	Hassanain N. A. M. and Kalcon G.	Performance Analysis of Self-Excited Induction Generator connected to a micro hydro turbine	<i>International Journal of Engineering and Technical Research, (IJETR)</i> . 3 (1), pp.106-110.(2015)
4	Nagmeldeen M Hassanain, Giddani Kalcon, Abdelaziz Y. M. Abbas, Aamir Hashim Obeid Ahmed	Sahara Desert Interconnected DC Network”	<i>International Journal of Scientific and Engineering Research</i> 6 (5), 1365-1372 (2015)



5	Aamir Hashim Obeid Ahmed, Giddani Kalcon, NagmEldeen Abdo Mustafa Hassanain	Model Reference Adaptive System Sensorless Vector Control of an Induction Motor Using a Novel Fractional Order PI Controller Adaptation Mechanism	<i>International Journal of Scientific Research in Science, Engineering and Technology, Vol 1, issue 3- (2015)</i>
6	Hassanain N. A. M., Abbas A.Y. M. and Ahmed M. H.	Performance Analysis of Hybrid Electric Vehicle Battery Charger Using Voltage Oriented Control.	<i>International Journal of Scientific & Engineering Research, (IJSER). 5 (11), pp. 152-157.(2014)</i>
7	Hassanain N. A. M., Abbas A. Y. M. and Hassan O.M.	Performance Analysis of Doubly-Fed Induction Generator Connected to A Wind Turbine for Variable Wind Speed.	<i>International Journal of Scientific & Engineering Research, (IJSER). 5 (11), pp.145-152, (2014)</i>
8	Hassanain N. and Fletcher J.E.	Steady-state performance assessment of three and five-phase permanent magnet generators connected to a diode bridge rectifier under open-circuit faults.	<i>IET renewable power generation, 4 (5), pp. 420-427.(2010)</i>
9	A Rahim Y. H., Fletcher J.E. and Hassanain N. A. M.	Performance analysis of salient-pole self-excited reluctance generators using a simplified model.	<i>IET Renewable Power Generation. 4 (3), pp. 253-260.(2010)</i>
10	Fletcher J.E. and Hassanain N.	Comparison of DC capacitor requirements for 3-and 5-phase permanent magnet generators feeding diode rectifiers.	<i>Universities Power Engineering Conference (AUPEC), 20th. 5-8 December. Pp.1-6. Christchurch (2010)</i>
11	Mohammad M.T., Fletcher J.E. and Hassanain N.A.M.	Novel Five-Phase Permanent Magnet Generator Systems for Wind Turbine Applications.	<i>International Conference on Renewable Energies and Power Quality, ICREPQ'10. 23- 25 March. Granada, Spain, (2010)</i>
12	Fletcher J., Judendorfer T., Mueller M., Hassanain N., Muhr M.	Electrical issues associated with sea-water immersed windings in electrical generators for wave-and tidal current-driven power generation	<i>IET Renewable Power Generation. 3 (2), pp.254-264. (2009)</i>
13	Judendorfer T., Fletcher J.E., Hassanain N., Mueller M. and Muhr M.	Challenges to machine windings used in electrical generators in wave and tidal power plants.	<i>Electrical Insulation and Dielectric Phenomena, CEIDP'09, IEEE Conference. pp. 238 – 241.(2009)</i>
14	Hassanain N. A. M. and Fletcher J.E.	Analysis three-and five-phase permanent magnet machines supplying diode bridge rectifiers for small-scale wind generators.	<i>Power Engineering, Energy and Electrical Drives Conference, POWERENG, 12-14 April. Pp. 648 – 653. Setubal, Portugal (2007)</i>



Contribution to Scientific Conferences and Symposia

#	Conference Title	Place and Date of the Conference	Extent of Contribution
1	2 nd Symposium on wind and solar	Imam Abdulrahman Bin Faisal University April 2018	Organizer
2	1st Symposium on wind and solar	Imam Abdulrahman Bin Faisal University April 2018	Organizer
3	Second workshop on AFRA project- SAEC-	Khartoum, Sudan, 2012	Attendance
4	1st General Assembly of AFRA-NEST-	United Republic of Tanzania, Arusha 2013.	attendance
5	IAEA Expert Mission To Review the Human Resources Development Master Plan and Implementation Plan of	Sudan Nuclear Power Programme, Khartoum, Sudan, February 2015	attendance
6	IAEA Expert Mission on The final review of the TC Project SUD1006 and to assist Sudan with IAEA Milestones approach for a new research reactor project, including methodology on assessment of the relevant national infrastructure,	Khartoum, Sudan, January 2015.	attendance

Membership of Scientific and Professional Societies and Organizations

- *IET Member*

Teaching Activities

Undergraduate (at Imam Abdulrahman Bin Faisal university)

#	Course/Rotation Title	No./Code	Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics)
1	Introduction to Engineering	ENG 215	15
2	Measurements and data acquisition	ENRG312	15
3	Electronics Devices and Circuits	ENG322	15
4	Control system	ENRG405	15
5	Introduction to Electric Power system	ENRG411	5



Undergraduate (at Sudan university for science and technology)

#	Course/Rotation Title	No./Code	Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics)
1	Electrical machine 3 (Induction machine)	EE412	15
2	Electrical machine 4(synchronous Machine)	EE414	15
3	Special Electrical Machines	EE517	15
4	Electrical Machines 2 (Transformers)	EE312	15
5	Direct current Machines	EE311	15
6	Electrical circuits	EE201	15
7	Electrical Power System1	EE321	15
8	Electrical Drawing	EE241	15

Postgraduate (at Sudan university for science and technology)

#	Course/Rotation Title	Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics)
1	Renewable Energy	15
2	Power electronics	15

Brief Description of Undergraduate Courses Taught: (Course Title – Code: Description)

Introduction to Engineering-ENG 215

This course provides introduction to engineering, its disciplines, and its interaction with society. Engineering profession, computer applications and programming related to engineering; Broad overview of the fields of biomedical, construction, environmental, traffic and transportation engineering, including professional societies and their student chapters, professional licensing and registration, professional codes of ethics, the elements of engineering design, and the scope of analysis and design activities undertaken by private- and public-sector engineering design professionals. Problem-solving exercises apply fundamental concepts from engineering fields to integrate the steps of analysis, synthesis, and evaluation through individual homework assignments and group projects that require attention to a broad range of issues. The course also exposes the students to issues related to engineering practice such as working in teams, scheduling, evaluating risk and making ethical decisions. In addition to regular lectures and project exercises, the course includes guest speakers and class demonstrations

Measurements and data acquisition-ENRG 312

Introduction to Measurements and Data Acquisition Systems with emphasis on analog electronics, digital electronics, sensors and transducers, actuators, and microprocessors. Course is intended to provide the student with foundational concepts in measurements and data acquisition systems and practical familiarity with commonly used electronic test and measurement instrumentation. Fundamental aspects of data acquisition and data conversion (e.g. measuring position and speed, differential transformer, digital optical encoder, resistance thermometer, pressure and flow Measurement).

Electronics Devices and Circuits- ENG 322

This course presents a solid foundation for the students in the structure and function of semiconductor devices. Students learn to examine the design of some circuits that utilize these



devices. Topics include: Principles of diode, Bipolar Junction Transistor (BJT). Graphical and analytical means of analysis. Linear modeling; amplifiers.

Control system -ENRG 405

The course is designed for the undergraduate students in energy engineering. The course is focused on the introduction to linear systems, transfer functions, the Laplace transform, control systems design, human-machine interface (HMI control), stability in control systems, system modeling principles for electrical and mechanical systems, open and closed loop control, feedback in control systems, real-time systems, transient and steady state performance, frequency response analysis, and practical issues in implementation of control systems. The course also includes laboratory experiments related to these topics to give hands on experience to the students in the field of control systems.

Introduction to Electric Power system – ENRG411

This course is designed for undergraduate students in the field of electric power systems and electrical to mechanical energy conversion. Electric power has become an extremely important to transmit and transform energy in industrial, military, and transportation applications. Electric power systems are also used in solar systems, wind energy generation and in hydroelectric generation. The course material includes fundamentals of energy handling electric circuits, power electronic circuits, simplification and transformation techniques, analysis of electric power circuits, magnetic circuits, and elements of linear and rotating electric machines, models of DC machines, and synchronous and induction machines, the integration and interconnection of electric power modules and operation of power systems

Electrical machine 3 (Induction machine)-EE412

3 hours lecture, 1 hour tutorial, 3 credit hours. Construction of I.M, principles of operation, A.C. machines, winding analysis of 3 phase I.M., slip, torque, equivalent circuit, phasor diagram, open circuit test, locked rotor test, efficiency, starting of I.M., speed control, single phase I.M.

Electrical machine 4(synchronous Machine)-EE414

Lecture 3 hours, Tutorials 1; 3 Credits. A.C. winding types, distribution & distribution factor, span & span factor synchronous machines: construction, principle of action equivalent circuits, salient & cylindrical types, Armature reaction. Regulation, synchronizing & parallel operation, potier diagram .M/c tests, synchronous motors. V-curves.

Special Electrical Machines-EE517

Lecture 3 hours, 1 hour tutorial,; 3 credits. Axial Flux motors, Linear Motors for high and low speed and for stand still application, Levitation by induction, linear induction motors as an accelerators, Brushless variable speed motors, Two phase servo motors, AC tachometers, Self synchronous systems, Synchro synchro control transformers, Stepping motors.



Electrical Machines 11(Transformer)

Lecture 3 hours, Tutorial 1 hour, laboratory 2 hours, 3 credit hours. Single phase transformers; construction and principle of operation, e.m.f equation, ideal transformer, leakage and useful flux, equivalent circuit, phasor diagram, efficiency and regulation, open circuit and short circuit tests, auto transformer, Scott connection, tap changing, three phase transformers.

Electrical machine1 (Direct current machines)-EE311

3 hours lecture, 1-hour tutorial, 3 credit hours. Construct of D.C. machines, classifications, D.C. generators, performance, D.C. motors performance, motors control.

Electrical Circuits1

Lecture 3 Hours, Tutorial 1 Hours, Laboratory 2 hour, 4 credit hours. Alternating current circuits, Theorems of Electrical circuits Analysis, Three phase circuits' simulations, Analysis of transient state circuits.

Electrical Power system1- EE321

Lecture 3 hours, Tutorials 1; 3 Credits. Generation and energy sources, short and long forecast, general system layout. Power station components: steam and gas turbines, internal combustion engines. Condensers, boilers regeneration, pumps, combustion, theoretical air and size of pump, etc ... power cycle (steam cycle) over head lines & underground cables, Mechanical and Electrical designs, Types of Towers, calculation & parameters of transmission lines, Tension and sag, conductors, bundle

Electrical Drawing -EE 241

Lecture 1 hours, practical 3 hours. 2 credits. The student will conduct some lectures before going to practice drawing dealing with the following topics: Lighting Circuits, Alarm circuits, Motor circuits, Telecommunication Circuits, Instrument devices circuits, Electronic circuits.

Supervision of Master and/or PhD Thesis

#	Degree Type	Title	Institution	Date
1	Master	Performance Analysis of Wind Energy System Integrated into Electrical Grid	Sudan University of Science and Technology	2017
2	Master	Performance Analysis of Grid Connected Photovoltaic System	Sudan University of Science and Technology	2017
3	Master	Design of Solar, Batteries and Diesel Hybrid Power System for Telecommunications Applications	Sudan University of Science and Technology	2017



4	Master	Performance Analysis of Hybrid Wind- Solar Generation system	Sudan University of Science and Technology	2016
5	Master	Maximum Power Point Tracker of Wind Energy Generation Systems	Sudan University of Science and Technology	2015
6	Master	Constant Voltagr and frequency of self-excited induction generator driven by a variable speed wind turbine'	Sudan University of Science and Technology	Dec. 2014.
7	Master	Performance analysis of self-excited induction generator connected to a micro-hydro turbine	Sudan University of Science and Technology	Oct. 2014.
8	Master	Performance analysis of hybrid electrical vehicle battery charger using voltage oriented control	Sudan University of Science and Technology	April 2013.
9	Master	Performance analysis of double-fed induction generator connected to a wind turbine for variable wind speed	Sudan University of Science and Technology	January 2013.
10	Master	Performance analysis of isolated self-excited reluctance generator connected to a diode bridge rectifier	Sudan University of Science and Technology	Septemb er 2012.

Administrative Responsibilities, Committee and Community Service (Beginning with the most recent)

Administrative Responsibilities

#	From	To	Position	Organization
1	2016	2017	Head	Electrical Engineering department Sudan university for science and Technology
2	2011	2016	Head	Nuclear department Sudan university for science and Technology



Committee Membership

#	From	To	Position	Organization
1	2018	Up to date	Member	Graduate Studies Committee- College of engineering- IAU
2	2018	Up to date	Member	Recruitment committee – College of engineering- IAU
3	2018	2019	Member	Community Service- Mechanical and energy department -College of engineering -IAU
4	2010	2016	Member	Central Exam committee -Sudan University of science and technology (one of the Sudan university senate committees)

Last Update

14/03/2021