

Resume



Prof. Dr. Ahmed Fayez Abdel Azim El-Sayed

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+20 (010) 538-4811 (Cell)

Personal data:

Name: Ahmed Fayez

Full name of father: Abdel Azim El-Sayed Helal

Nationality: 1- Egyptian
2- United States Permanent Resident

Gender: Male

Status: Married with three sons

Summary

Dr. Ahmed F. El-Sayed is a Professor in Aerospace and Mechanical Engineering at the University of Zagazig since 1983. He formerly served as Chair from 1999- 2005. He established three research groups in Zagazig University. The first is associated with particulate flows in industrial applications in 1990, which focuses on solid particulate flow and erosion of compressors and fans of aero-engines, aircraft propellers, cyclone separators, internal combustion engines (ICE), and pipe bends, water ingestion in axial compressors, and ice accretion in intakes of turbofan engines, effects of volcanoes and bird strike. The second research group is associated with aerodynamics and dynamics of automotive in Egypt and Germany. This group focuses on both aerodynamics and handling of road vehicles. It develops codes and experiments for defining aerodynamics of single car (passenger, truck or semi-trailer) and how to reduce drag forces through add-on-devices. Special related topics are fuel economy, flow visualization and vehicle handling performance under strong side winds. The third group handles wind turbines as one of renewable energy sources. Research work included, aerodynamics of both HAWT and VAWT as well as aero-elasticity and dynamics of Darrieus type of VAWT. As a principal investigator he gets over LE 1.5 M from Arab Organization for Industry (AOI) for developing 20 and 100 kW HAWTs. His research in aircraft propulsion, industrial gas turbine performance, and design of its modules is published in six books including (Aircraft Propulsion and Gas Turbine Engines; CRC Title, Feb 2008) as well as more than 70 technical papers. A second edition of Aircraft propulsion; CRC Title is planned for 2014, another propulsion book:

Fundamentals of Aerospace Propulsion; Springer, UK is also planned for 2014.

A new book on (Foreign Object Damage and Aviation) CRC Title is planned for 2014.

Professor El-Sayed is currently accepting consulting, short courses and long term offers

Working and Lecturing Abroad in the Following Universities and Companies



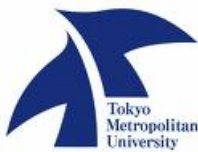
V.U.B., Brussels
(Belgium)



Royal Military College for
Science (UK)



Carnegie-Mellon University
(USA)



Tokyo Metropolitan University
(Japan)



Tsinghua University
(China)



Technical university Graz
(Austria)



Al-Fateh University (Libya)



Homos University (Syria)



University of Nevada, Las Vegas
(USA)



NASA Glenn
Research Center



Westinghouse



Rolls-Royce

Rolls-Royce



Von Karman Institute



United States Air Force
Academy

Working and Lecturing in the Following Egyptian Companies and Universities



Engineering Corps, Military Forces



Egypt Air Company



Military College



Military Technical College



Air Force Academy



Helwan University



Cairo University



Alexandria University



Institute of Aviation Engineering and Technology



The Arab Academy for Science & Technology and Maritime Transport, Alexandria, Egypt



Higher Technological Institute, 10th Ramadan City



Renewable Energy Organization



Arab Organization For Industry



Academy for Scientific Research and Technology



Egyptian Syndicate for Engineers

Education

Ph.D. Aeronautical Engineering, Cairo University, Cairo, Egypt	Graduation: 1980
Master of Science, Aeronautical Engineering, Cairo University, Cairo, Egypt	Graduation: 1976
Bachelor of Science Aeronautical Engineering, Cairo University, Cairo, Egypt	Graduation: 1970

Work Experience

Zagazig university (1983-Present)

2005- Present	Professor of aerospace and mechanical engineering, Mechanical Engineering Department
1999-2005	Chairman, Mechanical Power Engineering Department
1993-1999	Professor, Mechanical Power Engineering Department
1988-1993	Assoc. Prof, Mechanical Power Engineering Department
1983-1988	Assist. Prof, Mechanical Power Engineering Department

Egypt Air Company (1975-1983)

1980-1983	Planning and R & D departments, Egypt Air Co., Cairo Airport, Egypt
1975-1980	Maintenance and Engineering Inspection Departments

Engineering Corps (1970-1975)

1970-1975	Military service, supervised the repair and heavy maintenance of trucks, automobiles, heavy equipments and mechanical equipments in major workshops
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Consultant, Researcher and Supervisor engineering programs

2013-Present	Institute of Aviation Engineering and Technology, Cairo, Egypt
Dec. 2013	Member of organizing committee; 11th International Conference of Fluid Dynamics (ICFD11) http://www.icfd11.org
Dec. 2010	Member of organizing committee; 10th International Conference of Fluid Dynamics (ICFD10) http://www.icfd10.org
Dec. 2009	Thirteenth International Water Technology Conference, IWTC13 2009, Hurghada, Egypt
1999-2007	Institute of Aviation Engineering and Technology, Cairo, Egypt
1999-2004	Aeronautical Engineering Dept., Military Technical College, Cairo, Egypt
1994-1995	Aeronautical Engineering Dept.; Institute of Aviation Science and Technology Giza - Egypt
1992-1996	Mechanical Engineering Dept., Higher Technological Institute, 10th Ramadan City, Egypt
1988	Egyptian Air Academy (E.A.A.), Belbies, Egypt
1987	Engineering Programs, Military Academy, Cairo, Egypt
1986	Performance of Wind Turbines in Europe funded by (National Fonds Voor Wetenschappelijk Onderzoek, Brussels, Belgium)

1985	Performance of Aircraft Engines funded by Rolls Royce and Military Technical College for Science (RMCS), Shrivenham, Swindon, Wilts SN6 8L, UK
1984	Aerodynamics of Road Vehicles and Methods for Reduction of Aerodynamics Drag Academy of Scientific Research, Cairo, Egypt
1982	Performance of Gas Turbines, Carnegie-Mellon University , Pittsburgh, PA, USA

Prizes

2013	Excellence Research and Teaching Prize, Egyptian Syndicate for Engineers
2009	Excellence prize in engineering, Faculty of Engineering, Zagazig University
2008/2009	Excellence prize in engineering, Zagazig University

Fields Of Research

- Impacts of Volcanoes on Aviation
- Aircraft Propulsion
- Preliminary Design and Performance Analysis of Different Air breathing Engines (Examples: Turboprop, Turbofan, Turbo ramjet and Scramjet Engines)
- Hypersonic propulsion (Scramjet and Turbo ramjet engines)
- Preliminary Design and Performance Analysis of Industrial Gas Turbines (Air, Land and Sea)
- Gas and Particulate flows in axial turbomachinery and the associated erosion damage, performance deterioration and aero-elastic behavior (examples are found in aero-engines of both conventional aircrafts and helicopters as well as coal-fired power plants).
- Gas and Particulate flows in radial flow turbomachinery and their erosion rates (Auxiliary Power Units of aircraft like Boeing 737,747,767 and helicopters) and particle separators.
- Particulate flows and the erosion damage of pipe bends found in pneumatic conveying systems.
- Particulate flows in internal combustion engines and its effects on both erosion damage of internal surfaces and oil contamination. The effects of filtration on the performance and lifetime of ICE.
- Aerodynamics of road vehicles, including: ways of minimizing drag force and fuel consumption, aerodynamic interference between road vehicles in parallel passing, aerodynamics of road vehicles crossing tunnels.
- Aerodynamics, Aeroelasticity and dynamics of horizontal axis and vertical axis wind turbines (HAWT and VAWT).
- Computational Aerodynamics applied to different internal and external flow problems.
- Rotor Downwash of Helicopters
- Aerodynamics and Heat Transfer in Turbines of Turbojet Engines
- Particulate flow in the intakes of jet engines.
- Gas Flow and Dynamics of Solid Particles through Cyclone Separators.
- Performance of axial compressor at different tip clearance conditions
- Aerodynamics/aero-acoustics of fans of high bypass ratio turbofan engines
- Water ingestion in axial flow compressor

- Ice accretion of the intakes of aero-engines.
- Icing of aircraft wings
- Erosion of propellers of turboprop and internal combustion engines
- Erosion problems of the intakes and low pressure compressors of the turboshaft engines of tanks.

Sabbatical Leaves

1. USA

- University of Nevada Las Vegas, Las Vegas, NV, 2010.
- NASA Glenn Research Center, Ohio Aviation Institute and Case Western Reserve University, Cleveland, Ohio, USA, 2009
- University of Nevada Las Vegas, Las Vegas, NV, 2005.
- CMU, PA 15213, 1981-1982

2. Syria

- May-June 2003
- Homos University, Mechanical and Electrical Engineering College

3. China

- September-October 1999
- Tsinghua University, Beijing, China
- Beijing Aeronautical University, Beijing, China
- Chinese Scientific Academy
- Hydraulic Institute & Water Resources

4. Japan

- January-March 1999
- Environmental Agency, Tokyo
- Tokyo Metropolitan University

5. Austria

- September-October 1997
- Institute of Thermal Turbomachinery and Machine Dynamics
- Technical University Of Graz , Graz, Inffeldgasse
- The Institute of Thermal Turbomachinery and Power Plants
- Technical University of Vienna , Getreidemarkt, Vienna

6. Lybia

- September 1990- July 1992
- Al-Fateh University, Tripoli, Department of Aeronautical Engineering

7. Belgium

- January-October 1986
- Vrije Universiteit Brussel, Department of Fluid Mechanics, Brussels

8. United Kingdom

- August 1985-January 1986
- Royal Military College for Science, School of Mechanical Material and Civil Engineering, Shrivenham, Swindon Wilts

Management Experiences

- **Chairman**, Mechanical Power Engineering Department, Zagazig University, Zagazig, Egypt 1999-2005
- **Supervised staff and Laboratories** of the Faculty of Engineering, Zagazig University, Egypt 1999-2005.

- **Sessions chairman** for different conferences in USA and Egypt
- Designed maintenance planning and inspection procedure manuals and reliability reports for the airframes of Boeing 707 and 737 airplanes and their engines Pratt & Whitney JT 3D-7 and JT 8-17 series engines (**Egypt Air company**), 1977-1980
- Supervised staff, facilities and workshop for maintenance, inspection and repair of earth moving equipments, heavy trucks, air compressors, pumps, blowers and diesel engines(Heavy Equipments and Automotive workshop) in a major workshop during Military service with the **Engineering corps** (1971-1975)

Funded Researches

- LDA Measurements of Secondary Flows in Axial Turbomachinery (Amid-East Peace Fellowship Programs to Egypt, **USA**)
- Design of the Aerodynamic Shape of Automotive Vehicles, Methods to Reduce Aerodynamic Drag and Correlation with Fuel Consumption (**Egyptian Academy for Science**)
- Particulate Flows in Axial Turbomachinery of Aircraft engines (AERO-ENGINES) and Their Effects on Performance Loss and Structural Wear (Egyptian Ministry of Education and Partially by **ROLLS-ROYCE** Aero-Engine Company, UK)
- Aeroelastic and Dynamic Behavior of Eroded Axial Turbomachines (Nationaal Fonds Voor Wetenschappelijk Onderzoek, Brussels, **Belgium**).
- Aeroelasticity and Dynamics of Vertical Axis Wind Turbines (VAWT); DARRIEUS Type (Nationaal Fonds Voor Wetenschappelijk Onderzoek, Brussels, **Belgium**)
- Review of Particulate Flows in Industrial Power Plants and Their Fouling and / or Erosion (Austrian-Egyptian Cultural Agreements, **AUSTRIA**).
- Environmental Agency-Air Pollution control (Japan International Cooperation Agency JICA, **JAPAN**)
- Particulate Flows in Industrial Applications (Tsinghua University and Chinese Academy of Science, **CHINA**)
- Aerodynamic Design of 20 kW Horizontal Axis Wind Turbine Design, **Arab Organization for Industry (AOI)**
- Aerodynamic Design of 100 kW Horizontal Axis Wind Turbine Design, **Arab Organization for Industry (AOI)**

Teaching Activities

- **Post-graduate Courses**
 - Aero-thermodynamics and Design of Turbomachines
 - Aircraft Propulsion
 - Computational Fluid Dynamics
 - Fluid Mechanics
 - Multiphase Flows
 - Wind Engineering
- **Undergraduate Courses**
 - Aerodynamics I, II
 - Aircraft Propulsion I
 - Aircraft Propulsion II
 - Thermodynamics
 - Heat Transfer
 - Thermal Technology
 - Computational Fluid Dynamics

- Design and Construction of Aircrafts Engines
- Theory of Jet Engines
- Turbomachinery
- Wind Energy
- Engineering Drawing I
- Engineering Drawing II
- Engineering Drawing III
- Fluid Mechanics I, II
- Gas Dynamics I
- Gas Dynamics II
- Gas Turbine Theory and Performance
- Mechanical Engineering Design I
- Mechanical Engineering Design II
- Mobile Equipments

Experience

- | | |
|------------------|---|
| February 2013 | Invited Speaker
(Bird Strike and Aviation)
Air Force Academy Springfield, Colorado, USA |
| June 2010 | Invited speaker
(Iceland Volcano and its Impacts on Aviation),
UNLV, Nevada, USA
TAMU, TX, USA |
| August 2009 | Visitor, Gas Turbines Lab, Aeronautical Engineering Dept. Ohio State University,
Columbus, Ohio, USA |
| July 2009 | Invited speaker
NASA Glenn Research Center, Ohio Aviation Institute and Case Western Reserve
University, Cleveland, Ohio, USA |
| June 2009 | Member, Associate and Full Professor Egyptian National Promotion Committee in
Mechanical, Aeronautical and Naval Engineering specialization |
| March 2009 | Chairman, Networks and Pumps session, 13 th International Water Technology
Conference (IWTC), Hurgada, Egypt |
| January 2009 | Principal investigator, 20 kW Horizontal Axis Wind Turbine Design (Aerodynamic
group) |
| December
2008 | Arab Organization for Industry (AOI)
Chairman, Propulsion Session, International Congress of Fluid Dynamics & Propulsion

ASME - (ICFDP 9), Alexandria, Egypt |

- July 2008 Principal investigator, 100 kW Horizontal Axis Wind Turbine Design (Aerodynamic group)
- Arab Organization for Industry (AOI)
- May 2008 Aerodynamics and Computational Fluid Dynamics (CFD) Sessions Chairman, Mechanical Engineering Conference, Military Technical College, Cairo, Egypt .
- May 2007 Member of the scientific committee , Sessions Chairman and Invited Speaker to the 12th Aerospace Sciences and Aviation Technology (ASAT-12) , Military Technical College, Cairo, Egypt .
- May 2005 Chairman Fluid Mechanics Sessions, 11th Aerospace Sciences and Aviation Technology (ASAT-11), Military Technical College, Cairo, Egypt.
- July- Sept 2005 Visiting Professor, Department of Mechanical Engineering, **University of Nevada, Las Vegas, USA**, and lecturer of undergraduate and graduate courses on Aircraft Propulsion.
- 2003 Editor, J. Nonlinear Dynamics, **Kluwer Academic Publishers**
- 2003- Now Visiting professor, College of mechanical Engineering, **Homos University, Homos, Syria**
- 2002, 2003, 2007 External examiner to M.Sc. and B.Sc. theses, The Arab Academy for Science & Technology and Maritime Transport, Alexandria & Cairo, Egypt
- 2001 **Reviewer, Engineering Fluid Mechanics 7th edition by Clayton Crowe, John A. Roberson and Donald F. Elger, John Wiley & sons 2001 Publications .**
- 2001 Member of the scientific committee , Sessions Chairman and Invited Speaker to the 9th Aerospace Sciences and Aviation Technology (ASAT-9) , Military Technical College, Cairo, Egypt .
- 2001-2008 Reviewer, Society of Automotive Engineering (SAE), sessions : Aircraft Propulsion , Emissions and Aerodynamics
- 2001-2005 Member of the Advisory committee to the Aerospace Engineering Dept., Military Technical college, Cairo, Egypt.
- 2000 Member of the Scientific Committee to the 9th Int. Conf. On Applied Mechanics and Mechanical Engineering, Cairo ,Egypt 16-18 May 2000
- 2000 Vice chair for the 9th World Filtration Congress April 2004, **New Orleans, Louisiana, USA** organized by the American Filtration & Separation Society .
- 1999-2007 Consultant, Institute of Aviation Engineering and Technology, Cairo, Egypt.
- 1999-2005 **Chairman**, Mechanical Engineering Dept, Faculty of Engineering, Zagazig University Zagazig , Egypt.
- 1999-2004 Consultant, Aeronautical Engineering Dept., Military Technical College, Cairo, Egypt.
- 1999 **Reviewer and acknowledged by: Frank M. White, Fluid mechanics, 4th edition, McGraw-Hil**

- 1999 Visitor, Environmental Agency, **Tokyo, JAPAN.**
- 1999 Visiting Professor, Thermal Engineering Dept., **Tsinghua Univ., Beijing, China.**
Lecturing in Tsinghua Univ., Beijing Aeronautical Univ., Chinese Scientific Academy and Hydraulic Institute & Water Resources.
- 1998 **Reporter to Renewable Energy Sources:** Present Status and Future Prospectives Forum. Organized by Department of Mechanical Power Engineering, Zagazig University, Zagazig and chaired by : Minister of Electricity and Energy ,Egypt
- 1998 Member of the **Association of African Universities (AFU).**
- 1997 Visiting Professor, Institute of Thermal Turbomachinery and Machine Dynamics, **Technical University Of Graz**, A-8010 , Graz, Inffeldgasse 25 , AUSTRIA, and lecturing in The Institute of Thermal Turbomachinery and Power Plants, Technical University of Vienna , Getreidemarkt 9, A-1060, Vienna , **AUSTRIA.**
- 1994-Now Reviewer of the Engineering Bulletins of Zagazig, Cairo, Alexandria, Mansura and Helwan Universities.
- 1994-1995 Consultant, Aeronautical Engineering Dept.; **Institute of Aviation Science and Technology** Giza - Egypt.
- 1993-Now Professor, Mechanical Power Engineering Department, Zagazig University, Zagazig, EGYPT.
- 1992-1996 Supervisor, Mechanical Engineering Dept., **Higher Technological Institute**, 10th Ramadan City, Egypt.
- 1990-1992 Visiting Professor, Aeronautical Engineering. Dept., Al-Fateh Univ., **Tripoli, Libya.**
- 1989 Supervisor, **Egyptian Military Academy**, Cairo, Egypt.
- 1989 **Contributor (and acknowledged) to the 5th ed. Of: Mechanical Engineering Design by J. E. Shigley and C.R .Mischke, McGraw- Hill. Moreover problems 9-16 through 9-18 and 17-5 were courtesy to the authors**
- 1988-1990 Associate Professor, Mechanical Power Engineering Department, Zagazig University, Zagazig, EGYPT.
- 1988 Supervisor; **Egyptian Air Academy (E.A.A.)**, Belbies, Egypt.
- 1987 Associate Professor, Mechanical Engineering Department, Zagazig University, Zagazig, Egypt.
- 1986 Visiting Professor at the **Vrije Universiteit Brussel, Department of Fluid Mechanics, BELGIUM** (February 21st-July 31, 1986).

- 1985 Sabbatical leave; **Royal Military College of Science (RMCS)**, School of Mechanical Material and Civil Engineering (SMMCE), Shrivenham, Swindon Wilts SN6 8LA, **ENGLAND** (September 1985 - February 1986).
- 1983-1986 Research Professor; **Scientific Research Academy**, Cairo, Egypt.
- 1983-1985 Assistant Professor, Mech. Engineering. Dept., **Zagazig University**.
- 1982-1983 Senior research engineer; **Egypt Air Co.** and part-time lecturer with Mech. Engineering. Dept., Zagazig University.
- 1981-1982 Post-Doctoral Research Fellow, Mechanical Engineering. Dept., **Carnegie-Mellon University, Pittsburgh, PA 15213, USA**, investigated the effect of secondary flow in axial cascades on erosion damage.
- 1980-1981 Senior engineer; planning dept., **Egypt Air Co.**, designed the maintenance planning, reliability and inspection manuals.
- 1975-1980 Research engineer in the research and development department, Egypt Air Co., planned and supervised the maintenance and overhaul schedule for airframe and engines (Boeing 707 & 737 airplanes and Pratt & Whitney JT3D & JT8 engines).
- 1970-1975 Military service with the **Engineering corps**, supervised the repair and heavy maintenance of trucks and mechanical equipments in a major workshop.

Societies Membership

- **American Institute for Aeronautics & Astronautics (AIAA).**
- **American Society for Mechanical Engineers (ASME).**
- **Sigma Xi (American Scientists).**
- **Society of Automotive Engineers (SAE).**
- **International Technology Institute (ITI).**
- **International Association for Hydrogen Energy (IAHE).**
- **International Association of Science and Technology for Development (IASTED).**
- **Egyptian Society for Aeronautical Engineers (ESAE).**
- **People-to-People Citizen Ambassador Program (Founded by President Dwight D. Eisenhower), presided by President George W. Bush.**
- **Marquis Who's Who in Science and Engineering, 2nd Ed., 1994-1995.**
- **Marquis Who's Who in the World, 14th Ed.,1997**
- **Marquis Who's Who in Education ,1997**
- **Arab Healthy Water Association**
- **Association Of African Universities (1998)**
- **Scientific Committee of Egyptian Engineering Syndicate, 1993-Now.**

University Service

- Member, Graduate Study Committee, Faculty of Engineering, Zagazig University
- Member, Department of Engineering Committee, Zagazig University
- Supervisor, Faculty of Engineering Laboratories Committee, Zagazig University
- Supervisor, Fluid Mechanics Laboratory, Faculty of Engineering, Zagazig University
- Member, Graduation Projects, Institute of Aviation Engineering & Technology, Cairo Univ.

Supervised Ph.D. and M. Sc. Theses

- Computational Investigation of Flow Field and Aerodynamics of Iced Airfoils
(M.Sc. Thesis, Ahmed Hassany Badry, Cairo University, December 2013)
- Investigation of Performance of Multi-stage Axial Compressor,
(M.Sc. Thesis, Captain Ahmed Sasi, Military Technical College, February 2013)
- Erosion Of Propeller Blades For Turboprop Engines
(M.Sc. Thesis, Mr. Mohamed Badr Saad Farghaly, Aeronautical Engineering Department, Cairo University, December 2012)
- Effect Of Turbine Blade Cooling On Performance Of Turbofan Engines
(M.Sc Thesis, Mr. Eslam Saeed, 2012, Cairo University)
- Effects of Turbine Cooling on The Performance of Turbojet Engines
(M.Sc Thesis, Captain Aly Aly, Military Technical College, Cairo, 2011)
- Selection and Optimization of Propulsion System for a Hypersonic Civil Transport
(M.Sc Thesis, Mr. Ahmed M.Zaky, 2010, Cairo University)
- Passive Control of Tip Clearance of Axial Compressors
(Ph.D Thesis, Mr. Mostafa Mohamed Ibrahim, 2010, Zagazig University)
- Aero acoustics of Fans of HBPR Turbofan Engines
(M.Sc Thesis, Mr. Hamdy Ahmed Nasr, 2009, Zagazig University)
- Particulate Flow in a backward Centrifugal Compressor
(M. Sc. Thesis, Mr. Wesam Al-Metawak, 2008; Cairo University)
- Icing of the Intakes of Turbofan Engines
(M. Sc. Thesis, Mr. Hassan El-Hady, 2008, Zagazig Univ).
- Water Injection in Axial Turbomachinery of Gas Turbines
(M. Sc. Thesis, Mr. Reda Gad, 2007, Zagazig Univ)
- Theoretical Investigation for Forced Air Motion in Closed Places
(Ph.D.Thesis, Mr. Saber AbdelAal, Al-Azhar University, Nov.2007)
- Particulate flow and Erosion of the Intakes of Turbofan Engines
(M. Sc. Thesis, Mr. Hassan Zuheir, 2005, Zagazig univ).
- Particulate Flow and Erosion of Intake and Low Pressure Compressor of Turbo-shaft Engine of Tanks
(M. Sc. Thesis, Captain Shehab Hassan, 2004, Military Technical College).

- Air Pollution Control.
(M. Sc. Thesis, Mr. Moustafa Mohamed, 2004, Zagazig univ).
- Effect of Aerodynamic Interference on Road Vehicle Handling
(Ph. D. Thesis, Mr Waleed Abdel Hady, Helwan Univ., 2000)
- Particulate flows and the Associated Erosion Damage of Internal Combustion Engines
(M. Sc. Thesis, Mr. Osama Mosalam, 1997)
- An Investigation into the Aerodynamics of Road Vehicles
(Ph.D. Thesis, Mr. Mofreh M. Nassief, 1995)
- The Role of the Aerodynamic Forces on the Economy of Vehicle Fuel Consumption.
(M. Sc. Thesis, Mr. Waleed A. Kheir, Helwan Univ., 1995)
- Erosion Due to Particulate Flow in Pipe Bends.
(M. Sc. Thesis, Mr. Hesham E. Abdel-Hameed, 1994)
- Numerical Solution of Laminar Boundary Layer Flow over a Flat Plate in a Non-uniform Stream.
(M. Sc. Thesis, Mr. Salem A. A. Salem, 1991)
- Numerical Investigation of Laminar Flow in a Plane Duct with Sudden Contraction.
(M. Sc. Thesis, Mr. Hany Mohamed Elgohary, 1989)
- Comparative Study of Theories of Through Flow Analysis of Axial Turbomachines
(M. Sc. Thesis, Mr. Mohamed A. Saleh, 1988)
- Finite Element Application on Cascade Problems.
(M. Sc. Thesis, Mr. Mofreh M. Nassief, 1988)
- Finite Element Application to Compressible Flow in Axial Cascade.
(M. Sc. Thesis, Mr. Radwan M. Kamal, 1988)
- Aerodynamic Design and Performance of Wind Turbine Rotor.
(M. Sc. Thesis, Mr. Ahmad A. Hassan, 1988)
- Dynamic Contact of Deformable Bodies.
(Ph.D. Thesis, Mr. Mohamed M. Hassan, 1988).

Supervised 36 B.Sc. Graduation theses in the fields of

- Wind turbines Aerodynamics
- Road vehicles Aerodynamics (Numerical and Experimental)
- Aerodynamics of skyscrapers (Wind Engineering)
- Jet Propulsion (Conceptual design of Turbo prop, Turbofan, Turbo ramjet and Scramjet Engines)

- Gas Turbines used in generating electricity and offshore applications
- Turbomachinery (Compressor and Turbine Design)
- Computational Fluid Dynamics (CFD)
- Mechanical design for mobile cranes

Publications

- **Books**

- *Propulsion Systems for Air Transportation*

Ahmed F. El-Sayed and Nihad Daidzic

CRC Press, 2011

Product Details

Hardcover: 672 pages

Publisher: Crc Pr I Llc (Oct 15 2011)

Language: English

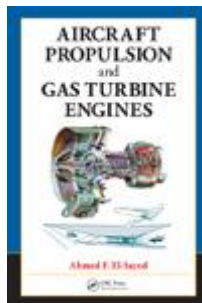
ISBN-10: 1439842140

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- *Aircraft Propulsion and Gas Turbine Engines, Taylor & Francis CRC Press, February 2008*

Aircraft Propulsion and Gas Turbine Engines

Ahmed F. El-Sayed Zagazig University, Zagazig, Egypt



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Availability: In Stock



CRC Press

Two supplements:

1. **Solution Manual (Detailed solution in 670 pages for problems of the above text)**
2. **Exam Supplement (60 Full exams in 300 pages)**

- Provides performance analysis of ramjet, turbojet and turbofan engines
- Examines turboprop and propfan engines
- Presents a comprehensive step-by-step design of multi-stage axial compressors and turbines
- Delineates the analysis of radial compressors and turbines
- Details Vertical Take Off and Landing aircraft
- Addresses industrial problems such as erosion and engine fouling
- Includes a glossary and end-of-chapter problems The inclusion of a comprehensive analysis of hypersonic engines makes this one-of-a-kind volume an invaluable reference for both civil and military engineers and researchers, as well as mechanical

and aeronautical students.

The escalating use of aircraft in the 21st century demands a thorough understanding of engine propulsion concepts, including the performance of aero engines. Among other critical activities, gas turbines play an extensive role in electric power generation, and marine propulsion for naval vessels and cargo ships.

In the most exhaustive volume to date, this text examines the foundation of aircraft propulsion: aerodynamics interwoven with thermodynamics, heat transfer, and mechanical design. With a finely focused approach, the author devotes each chapter to a particular engine type, such as ramjet and pulsejet, turbojet, and turbofan. Supported by actual case studies, he illustrates engine performance under various operating conditions.

Complete Coverage of the Evolution of Aircraft, from Simple Piston Engines to Jet Engines

Part I discusses the history, classifications, and performance of air breathing engines. Beginning with Leonardo and continuing on to the emergence of the jet age and beyond, this section chronicles inventions up through the 20th century. It then moves into a detailed discussion of different engine types, including pulsejet, ramjet, single- and multi-spool turbojet, and turbofan in both subsonic and supersonic applications.

The author discusses Vertical Take Off and Landing aircraft, and provides a comprehensive examination of hypersonic scramjet and turbo ramjet engines. He also analyzes the different types of industrial gas turbines having single- and multi-spool with intercoolers, regenerators, and reheaters.

Part II investigates the design of rotating compressors and turbines, and non-rotating components, intakes, combustion chambers, and nozzles for all modern jet propulsion and gas turbine engine systems, along with their performance. Every chapter concludes with illustrative examples followed by a problems section; for greater clarity, some provide a listing of important mathematical relations.

- ***Turbomachines***
Zagazig University Press, 2nd ed., 2011

- ***Fluid mechanics- A Practical Approach***
Zagazig University Press, 2000

- ***Machine Design with Practical Applications***
Al- Ahram Publishing Co., 1987

- ***Engineering Drawing For Design and Product Development***
Al-Ahram Publishing Co., 1985

- ***Engineering Drawing For Design and Product Development, Exercise Book***
Al-Ahram Publishing Co., Cairo, Egypt, 1985

- **Reports**

- Aerodynamics of 20 kW Horizontal Axis Wind Turbine , Arab Organization for Industry (AOI), April 2009, Egypt
- Aerodynamics of 100 kW Horizontal Axis Wind Turbine , Arab Organization for Industry (AOI), December 2008, Egypt
- Dynamic and Aeroelastic Analysis of a Vertical Axis Darrieus Wind Turbine, Vrije Universiteit Brussel (V.U.B.) Internal Report, 1986 - 1987, **Belgium.**
- Use of Air Deflectors and its Effect on Motor Vehicles Fuel Consumption, **Three volumes**, Egyptian National Academy (1983-1985), Cairo, Egypt

- **Technical Papers**

Journals Publications

- Effect of Axial Gap on the Performance of a Multi-Stage Axial Flow Compressor, The Egyptian Int. J. OF Eng. Sci. and Technology, Vol. 16, No. 2, pp 1452-1462, May 2013
- Numerical study of Wet Compression using Methanol Injection In Axial Compressor, Proceedings of ASME Turbo Expo 2010: Power for Land, Sea and Air GT 2010-22079, June 14-18, 2010, Glasgow, UK
- Numerical Simulation of Impact of Wet Compression on the Performance of An Axial Compressor, Ain Shams Journal of Mechanical Engineering (ASJME), April 2010
- Unsteady Aerodynamics and Aero acoustics of a Fan Rotor of A HBPR Turbofan Engine, Zagazig University, Engineering Bulletin, December 2009
- Effect of Casing Circumferential Grooves on the Performance of a Transonic Axial Flow Compressor, Ain Shams Journal of Mechanical Engineering (ASJME), October 2009
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