

MILITARY TECHNICAL COLLEGE
IUGRC



الكلية الفنية العسكرية
2018

THE 3rd
INTERNATIONAL
UNDER-GRADUATE
RESEARCH
CONFERENCE

JULY 30th - AUG 2nd, 2018



Conference Activities Guide



2018
CAIRO - EGYPT



Conference Committee

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Commandant of MTC

Vice Chairman:

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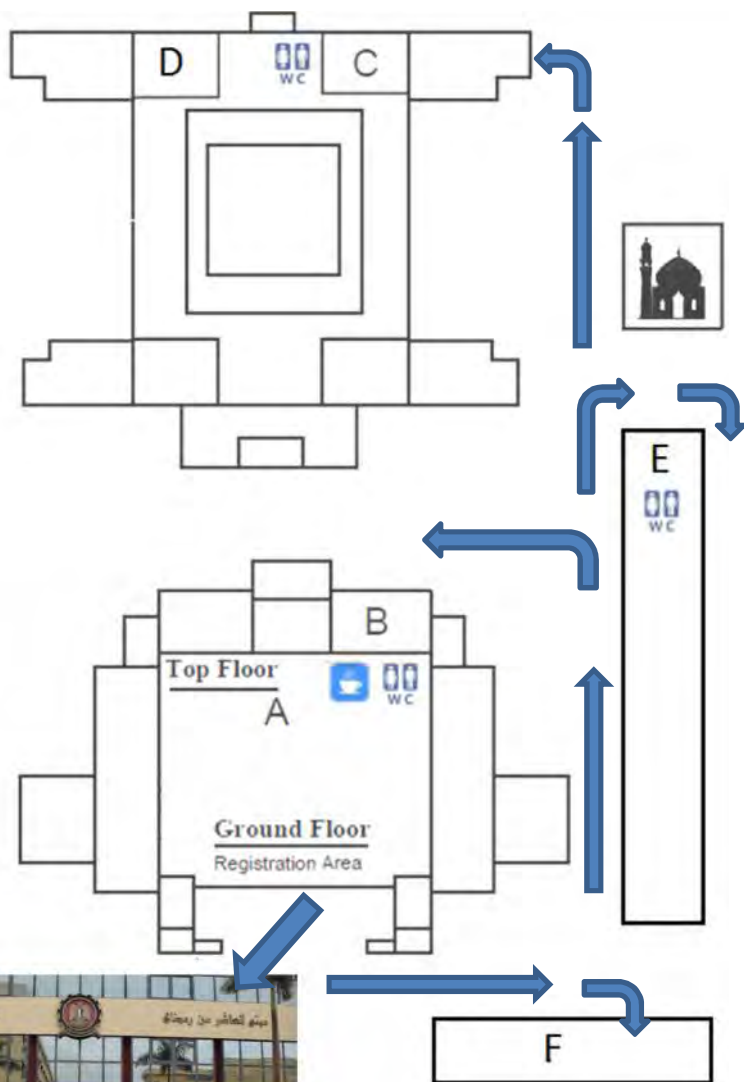
Lt. Col. Dr. Mohamed khairy Altahlawy

Maj. Eng. Basem S. Zaghloul

Capt. Eng. Mohamed G. Yousef

Capt. Eng. Anwar A. A. Hashish

Location of Conference Sessions



Day One: July 30th , 2018, Morning

| 8:00 | 8:30 | 9:00 | 9:30 | 10:00 | 10:30 | 11:00 | 11:30 | 12:00 |
|--------------|------|------|---|--|--|---|---|-------|
| Registration | | | SS01: Electric Power <i>Coordinator: Dr. Sherif Helmy, MTC, Egypt</i> Room: B | | | | Plenary Talk 1 | |
| | | | 026-EP Experimental Analysis of Conditions Based Variations of Characteristics and Parameters of Photovoltaic Modules | 040-EP Comparison of Electricity Consumption Cost between Solar System and Utility For Healthcare Facility | 055-EP Sizing Piller Cooler Operated By Solar PV System | 089-EP Harmonic Analysis of PV Grid-connected Smart Building with High Penetration of Electronic Loads and LED Illumination | | |
| | | | SS02: Design, Production, and Management <i>Coordinator: Dr. Wessam M. Alnaggar, MTC, Egypt</i> Room: C | | | | Vision of the PLP Youth on National Security and Challenges of the Future | |
| | | | 027-MPT Optimal design of jet engine bracket | 033-MQC Modeling and Improving Co-working Space System by using Discrete Event Simulation | 034-MQC Design and Implementation of Internet of Things in Supply Chain Management | 052-MPT Loads and its impacts on the mechanical design of unmanned ground vehicles | | |
| | | | SS03: Social Networks and Engineering <i>Coordinator: Dr. Ahmed Maher, MTC, Egypt</i> Room: D | | | | Presidential Leadership Program | |
| | | | 035-CIT Terroristic tendency detection from human behavior on Social media using Machine Learning approaches | 097-CIT Building Social Connections Online "Feed Me" | 107-CIT Fake News Detection in Social Media | 126-CVA ASCE Code of Engineering Ethics: Social Media Use | | |
| | | | SS04: Radars and Microwave Applications <i>Coordinator: Assoc. Prof. Fathy M. Abdel Kader, MTC, Egypt</i> Room: E | | | | Coordinator: Assoc. Prof. Yehia Z. Elhalwagi, MTC, Egypt | |
| | | | 090-CM Comparative study of performance of deceptive and noise jamming on SAR focused image | 114-CM Warship Hull RCS Mathematical Modeling and Calculation using Matlab GUI | 120-CM Waveform Generation and Processing using FPGA | 125-CM High Gain Narrow Beam Planar Array Antenna For C Band Radar Applications | | |
| | | | SS05: Aerodynamics and Flight Mechanics <i>Coordinator: Dr. Mohamed Y. Zakaria, MTC, Egypt</i> Room: F | | | | Room: A | |
| | | | 023-AFD Computational Investigation of Spoiler Effect on the Aerodynamic Performance of Passenger Cars | 091-AFD Design of a recovery system for rockets using Magnus effect | 115-MIL A Developed Thermobaric Mortar Bomb of 120mm Caliber | | | |

Day One: July 31st, 2018, Afternoon

| | | | | | | | | |
|--|-------|--|-------|--|--|---|--|--|
| 12:30 | 13:00 | 13:30 | 14:00 | 14:30 | 15:00 | 15:30 | 16:00 | 16:30 |
| <div>Plenary Talk 2</div> <div>Introduction to Egyptian Knowledge Bank</div> <div>Egyptian Knowledge Bank</div> <div>Coordinator: Assoc. Prof. Mohamed Elkhatib, MTC, Egypt</div> <div>Room: A</div> | | SS06: Circuits and Systems | | | | | Room: B | |
| | | Coordinator: Dr. Ayman Abdelhameed, MTC, Egypt | | | | | | |
| | | 009-CM | | 010-CM | 011-CM | 015-CM | 017-CM | 087-CM |
| | | IF Receiver followed by a MIC AMP | | PAM Demodulation | Amplitude Demodulation | Intensity Modulation and Direct Detection Channel Model and Figure of Merit | Frequency modulation and demodulation derivation and simulation using SIMULINK | Practical Implementation of Chipless Radio Frequency Identification System |
| | | SS07: Mechatronics | | | | | ROOM: C | |
| | | Coordinator: Assoc. Prof. Wesam M. Abdelaziz, MTC, Egypt | | | | | | |
| | | 045-MPT | | 046-GNC | 078-RUS | 094-CIT | 113-VGE | 128-RUS |
| | | CNC design for Printed Circuit Board (PCB) manufacturing | | Automatic Solar Tracer System | Design Artificial Hand based on Finite Element Method | Home Devices Control with Arduino Board and 1Sheeld Board | Design of Opening and Closing mechanism of Amphibious Ferry for Tanks PMM-2M | Design of a 2-DOF Stabilizing Platform |
| | | SS08: Smart Systems | | | | | Room: D | |
| | | Coordinator: Assoc. Prof. Mohamed M. Elkhatib, MTC, Egypt | | | | | | |
| | | 007-CIT | | 068-CIT | 086-CIT | 092-CIT | 098-CIT | |
| | | Smart Control of Home Door to Assist Handicapped Using Face Recognition | | Smart T V | Smart Traffic Management System | Fortress Security: Smart Doorbells for Home Automation | Smart system for child's Monitor | |
| | | SS09: Applied Mechanics and Technolgical Solutions | | | | | Room: E | |
| | | Coordinator: Dr. Ahmed E. Hussein, MTC, Egypt | | | | | | |
| | | 002-ST | | 003-ST | 020-AFD | 079-AFD | 103-ST | |
| | | Design and production of a test dummy for measuring blast effects on occupants in armored vehicles | | Survey and production of a test dummy for measuring blast effects on occupants in armored vehicles | Utilization of Compressed Air by Artificial Road Bumps | Simple Computational Platform of Ship Stability for Engineering Education | Determination of Over-mounted Rotor Critical Speeds | |
| | | SS10: Biomedical Engineering I | | | | | Room: F | |
| | | Coordinator: Dr. Ramy M. Yehia, MTC, Egypt | | | | | | |
| | | 001-BM | | 038-CIT | 039-RUS | 076-CIT | 077-CIT | |
| | | Prosthetic Hand for Trans radial Amputees | | Smart Telemedicine using the IOT technology | Mobile Smart Prosthetic Hand (MSPH) "Mobi-Hand" | Developed Intensive Care unit depend on IoT and Cloud | Sign Language Translator using Microsoft XBOX One Kinect™ | |

Day Two: July 31st , 2018, Morning

| 9:00 | 9:30 | 10:00 | 10:30 | 11:00 | 11:30 | 12:00 |
|---|------|-------|-------|-------|--|-------|
| Opening of Science and Innovation Exhibition | | | | | Plenary Talk 3 The New Research Trends in Engineering and Insights on How Elsevier Engineering Solutions can Enhance Your Scientific Workflow Elsevier Africa, Elsevier Coordinator: Assoc. Prof. Mohamed Elkhatib, MTC, Egypt Room: A | |

Day Two: July 31st , 2018, Afternoon

| 12:30 | 13:00 | 13:30 | 14:00 | 14:30 | 15:00 | 15:30 | 16:00 | 16:30 |
|---|-----------------------|-------|--|--|--|--|--|---|
| Intellectual Property and Patents and Their Role in Economy Development Egyptian Patent Office Ministry of Scientific Research and Technology Coordinator: Prof. Yehia Alhalwagy, MTC, Egypt Room: A | Plenary Talk 4 | | SS11: System Automation <i>Coordinator: Assoc. Prof. Zhen Gao, McMaster University, Canada</i> Room: B | | | | | |
| | | | 037-RUS | 044-CM | 057-RUS | 072-CIT | 073-CIT | 111-CIT |
| | | | Autonomous Owner Following Luggage Trolley Suitcase | Car Controlled by Communication Technology | Auto-Driven Smart Car for Discovery and Photographing Purposes | Real-Time Smart Troubleshooter System for Near Future Vehicles Utilizing Sensor Networks | Implementation of a Low-Cost Smart Home Automation System | Design and Implementation of a Smart House Model and its Control via Smart Phones |
| | | | SS12: Computer Engineering I <i>Coordinator: Assoc. Prof. Hesham Aboul-soud, MTC, Egypt</i> Room: C | | | | | |
| | | | 032-CIT | 050-CIT | 059-CIT | 067-CIT | 101-CIT | |
| | | | Extracting UML Class Diagram from User Requirements | Influence of Cache Coherence Protocol on Multi-Processors Buss Traffic | Influence of the replacement policy on the miss rate in single processor | Implementation Of Motion Detection Using RASPBERRY PI | Implementation of AES on Different GPUs | |
| | | | SS13: Localization, Guidance, Navigation, and Control <i>Coordinator: Dr. Mohamed Abouzaid, MTC, Egypt</i> Room: D | | | | | |
| | | | 008-GNC | 030-GNC | 056-RUS | 074-GNC | 088-GNC | 124-CM |
| | | | Automatic Reporting Position System | Error Reduction in Indoor localization systems | Rover Control System | Design and Implementation of Control System for Rocket Model | Modeling and Simulation of a Low Cost MEMS Gyroscope Using MATLAB (SIMULINK) | Smart Tracker: A Vehicle-Tracking System |
| | | | SS14: Vehicles and Ground Equipment I <i>Coordinator: Prof. Alhussein M. Sharaf, MTC, Egypt</i> Room: E | | | | | |
| | | | 062-VGE | 063-VGE | 083-VGE | 112-VGE | 121-VGE | 122-LOP |
| | | | Frame and Body Design of BAJA Multi-Function Off-Road Vehicle | BAJA HURT Suspension and Steering Design of BAJA Off-Road Vehicle | Design of The Under Carriage Sub Systems for A 4x4 Vehicle | Effect of Adding Anti-Tank Mines Protection Kit on the Dynamic Performance of M113 Tracked Vehicle | BAJA Helwan Non-technical system of BAJA Off-Road Vehicle | Optical Device to Simulate the Vehicle Speed across the Road |
| | | | SS15: Ground Propulsion <i>Coordinator: Assoc. Prof. Ahmed Rashad, MTC, Egypt</i> Room: F | | | | | |
| | | | 005-PEP | 071-PEP | 108-PEP | 116-PEP | | |
| | | | Converting modern internal combustion engine (ICE) vehicles to autonomous hybrids | An Educational Model of a Two-Stroke Petrol Engine | Selection of the optimum firing order for a V20 warship Diesel engines | Investigation of Turbocharger Conversion to Turboshaft Engine | | |

Day Three: August 1st , 2018, Morning

| 9:00 | 9:30 | 10:00 | 10:30 | 11:00 | 11:30 | 12:00 | |
|---|--|--|--|---|--|-------|---------|
| SS16: Biomedical Engineering II Coordinator: Dr. Kadry Ali Ezzat, Cairo, University, Egypt | | | | Room: B | Plenary Talk 5 | | |
| 029-CM | 048-BM | 093-CIT | 100-CIT | | | | |
| ECG Compression on FPGA for Wireless Transmission | Smart biomedical sensors | AI Reads Body Language: Human Behavior Detection from Video and Camera Feeds | Identify Criminal's Faces | | | | |
| SS17: Off-Ground Propulsion Coordinator: Dr. Ahmed F. Nemnem, MTC, Egypt | | | | Room: C | | | |
| 012-PEP | 042-PEP | 109-PEP | 119-RUS | ASRT Programs for Supporting Small and Medium Enterprises and Entrepreneurship -I | | | |
| High Performance, Locally Manufactured Underwater Propulsion System | Performance analysis of high bypass Turbofan engine Trent 1000-A | Ship Propeller Design using software program | Electric Propulsion System for Unmanned Aerial Vehicles | | | | |
| SS18: Satellite Systems Coordinator: Assoc. Prof. Mahmoud M. Ashry, MTC, Egypt | | | | | | | Room: D |
| 036-GNC | 069-CM | 070-CM | 084-EP | | | | |
| Design & Impelementation of the (SOM) Satellite On The Move Terminal Unit | Design and Implementation of CubeSat attitude Control and ground transceiver station | Design and Altitude Control of CubeSat Satellite Imaging Sensors | Developed MPPT Based power supply module for cubesat applications | Academy of Scientific Research & Technology Ministry of Scientific Research and Technology | | | |
| SS19: Civil and Architecture Engineering Coordinator: Dr. Mohamed S. Zahran, MTC, Egypt | | | | | | | Room: E |
| 043-CVA | 104-ST | 106-ST | 117-CVA | | | | |
| Effect of Grand Ethiopian Renaissance Dam (GERD) on the Life Span of Aswan Reservoir During Regular and Drought Years | Composite Panel Structure Performance under Blast effect | Structural Design Optimization of SSBC/ASCE Steel Bridge using ANSYS | Predicting urban community future energy efficiency using coupled outdoor-indoor simulations | | | | |
| SS20: Chemical Engineering Coordinator: Dr. Ibrahim Samir, MTC, Egypt | | | | Room: F | Coordinator: Prof. Yehia Alhalwagy, MTC, Egypt | | |
| 006-CA | 021-CA | 127-CA | | | | | |
| Preparation and Characterization of Magnetite - Reduced Graphene Oxide Composite Material | Plastic Bonded Explosives Based on Octogen Bonded by Flurel Binder | Assessment of Natural Radioactivity of some Ores and their Potential Hazards using Non-destructive Technique | | | | | |
| | | | | Room: A | | | |

Day Three: August 1st , 2018, Afternoon

| 12:30 | 13:00 | 13:30 | 14:00 | 14:30 | 15:00 | 15:30 | 16:00 | 16:30 |
|---|-----------------------|-------|--|--|---|---|--|-----------------------------------|
| ASRT Programs for Supporting Small and Medium Enterprises and Entrepreneurship -II Academy of Scientific Research & Technology Ministry of Scientific Research and Technology Coordinator: Prof. Yehia Alhalwagy, MTC, Egypt Room: A | Plenary Talk 6 | | SS21: Renewable Energy <i>Coordinator: Dr. Tariq A. Alnady, MTC, Egypt</i> Room: B | | | | | |
| | | | 024-PEP | 031-PEP | 047-CFD | 058-MP | 085-EP | |
| | | | Novel Proposed Idea for Vertical Hydroelectric Power Wheel | Enhanced Nano Phase Change Material for Solar Energy Storage | Optimum Design of Vertical-Axis Wind Turbine (VAWT) Based on Aerodynamic Analysis | Manufacturing a Solar Heat Driven Adsorption Refrigeration System (Air Conditioning) | Overvoltage Protection for Solar PV system due to lightning strikes, grid overvoltage events and ground faults | |
| | | | SS22: Robotics and Unmanned Systems <i>Coordinator: Dr. Khalid A. Shaaban, MTC, Egypt</i> Room: C | | | | | |
| | | | 004-RUS | 013-RUS | 022-RUS | 049-RUS | 054-RUS | 095-RUS |
| | | | Implementation of an Autonomous Guided Vehicle in a Warehouse Environment | Manufacturing of a multitasking underwater remotely operated vehicle | Modeling and Control of Hexapod Robot | Analyzing and Controlling 6 DOF Robotic Arm Using ROS and Inverse Kinematics | Development of a Compact-Size, Standalone and Remotely-Controlled Hydraulic Forklift | Aerial Taxi Services "Delicopter" |
| | | | SS23: Communication Engineering <i>Coordinator: Dr. Ahmed H. Alghandoor, MTC, Egypt</i> Room: D | | | | | |
| | | | 028-CM | 051-CM | 061-CM | 118-CM | 123-CM | |
| | | | Proposed secure communication via Vehicle-to-Everything (V2X) | Vehicle-to-Infrastructure communication (V2I) | Communication Using Visible Light | Performance Evaluation of Underwater Communication under Effect of Gaussian Mixture Noise | Modified LFM Matched Filter for Sidelobe cancellation | |
| | | | SS24: Vehicles and Ground Equipment II <i>Coordinator: Dr. Mostafa S. Asfour, MTC, Egypt</i> Room: E | | | | | |
| | | | 064-VGE | 065-VGE | 080-VGE | 081-VGE | 082-VGE | |
| | | | BAJA Helwan Power Train Design of BAJA Off-Road Vehicle | BAJA Helwan Brake Design of BAJA Off-Road Vehicle | Design of A 4x4 Vehicle Structure | Dynamic Performance Study For the Design of A 4x4 Vehicle | Design of The Power Train for A 4x4 Vehicle | |
| | | | SS25: Computer Engineering II <i>Coordinator: Assoc. Prof. Mohamed M. Fouad, MTC, Egypt</i> Room: F | | | | | |
| | | | 060-CIT | 066-CIT | 096-CIT | 099-CIT | 110-CIT | |
| | | | Influence of the Cache Coherence Protocol on the Miss Rate | Influence of the Number of Processors on the Miss Rate | Influence of the Cache Size on the Bus Traffic in Multiprocessor | Tourism Energizing through Mobile Augmented Reality | Design and Implementation of a proposed Quiz Maker and Management System (QMMS) | |

Plenary Talk 1

Vision of the PLP Youth on National Security and Challenges of the Future

Presidential Leadership Program

Duration
Up to 90 Minutes



Moderator
Dr/ Alaa Fawzy



Modern Technology and Information War and
its Impact on National Security

Dr/ Haithem
Mohamed

Cyber Security Threats in the Field of Civil
Aviation and its Impact on National Security

Captain/ Fady
Salem

Developing and Encouraging Youth and Women to
Contribute and Participate in Development, Progress,
and Confronting the Challenges of Developing Cultural
Heritage and its Impact on National Security

Dr/ Sara
Ma'moun

The Role of Media in Confronting the Failed State and
its Impact on National Security

Dr/ Alaa
Fawzy

Room A – July 30th – 11:00 to 12:00

Plenary Talk 2



Introduction to Egyptian Knowledge Bank

Egyptian Knowledge Bank

"The Egyptian knowledge bank is one of the presidential initiatives that is concerned with knowledge ,education and scientific research in Egypt, it aims to provide a huge and diversified source of knowledge and culture for free to all Egyptian .

The Egyptian Knowledge Bank consists of four sub portals to serve the diversity of the Egyptian community, Children, General Readers, Students & Teachers and Researchers and provide each category with best sources to help them pioneer in what they need and it can be accessed through any computer or any smart device like phones and tablets to reach the vision of an Egyptian community that learns, thinks and innovates."

Speaker:

Mahmoud Dawoud

EKB Coordinator

Publishers relation , Marketing & Training

Room A – July 30th – 12:30 to 13:30

Plenary Talk 3



The New Research Trends in Engineering and Insights on How Elsevier Engineering Solutions can Enhance Your Scientific Workflow

Elsevier Africa Team, Elsevier

Elsevier cordially invites you to an introduction to its Engineering research solutions. The essential research platforms in the field of engineering. They provide searchable and comprehensive platforms for research literature and patent information. Designed by, and for, the engineering community, these platform provides academic institutions, corporations and government agencies, access to deeply index engineering content, revised, relevant and accurate — all in one easy-to-use interface. We provide the place to find answers to engineering questions, from theoretical to applied, from basic to complex, researchers can easily access today's most authoritative content and take advantage of intelligent tools and enhanced features to help make sense of engineering research and how to apply it. These tools are specialize in providing core engineering content across a variety of industries including oil and gas, automotive, electronics, aerospace/defence, construction, manufacturing and energy related interests to name a few.

Presenters:

Eng. Khalid Shalan
Eng. Hossam Sweilam
Eng. Ahmed Helmy
Eng. Samer Gamal
Eng. Mohamed Gaafar

Room A – July 31st – 11:00 to 12:00

Plenary Talk 4

أكاديمية البحث
العلمي والتكنولوجيا
Academy of Scientific
Research & Technology



Intellectual Property and Patents and Their Role in Economy Development

Egyptian Patent Office
Ministry of Scientific Research and Technology

- ☐ What is Intellectual Property, IP?
- ☐ Difference between Intellectual Property and Copy Right
- ☐ National and International Registration for IP
- ☐ Intellectual Property and Economic Growth
- ☐ Role of IP Office to Broaden Awareness and Encourage Innovation

Speaker:

Adel E. Ewida

President of Egyptian Patent Office
Academy Of Scientific Research & Technology
Ministry of Scientific Research and Technology

Room A – July 31st – 12:30 to 13:30

Plenary Talk 5

أكاديمية البحث
العلمي والتكنولوجيا
Academy of Scientific
Research & Technology



ASRT Programs for Supporting Small and Medium Enterprises and Entrepreneurship -I

Academy of Scientific Research & Technology
Ministry of Scientific Research and Technology

Moderator:

Dr. Amr Farouq

“The Role of ASRT to Support Technology and Development in Egypt”

Speakers:

Dr. Hala Ahmadi

“Technological Incubators”

Dr. Yasim Samir

“My Project... My Start; A New Generation of Entrepreneurs”

Dr. Wafaa Mohamed

“Innovation support and Technology transfer and Commercialization”

Dr. Yasim Abd El-Monaim

“The importance of IP and the role of TISCs”

Room A – Aug 1st – 11:00 to 12:00

Plenary Talk 6

أكاديمية البحث
العلمي والتكنولوجيا
Academy of Scientific
Research & Technology



ASRT Programs for Supporting Small and Medium Enterprises and Entrepreneurship -II

Academy of Scientific Research & Technology
Ministry of Scientific Research and Technology

Speakers:

Dr. Merit Rostom

“From Education to Research and Innovation”

Ms. Salma Essawi

“New Mechanism of Tackling Societal Challenges using Egypt Assets and Resources”

Eng. Mona Alrawi

“Egypt Knowledge and Technology Alliances – EG-KTA Program”

Room A – Aug 1st – 12:30 to 13:30

Contributors

أكاديمية البحث
العلمي والتكنولوجيا
Academy of Scientific
Research & Technology



Yanbu Industrial College



VIT
UNIVERSITY
(Est'd. u/s 3 of UGC Act 1956)

McMaster
University



Shorouk Academy



OCTOBER HIGH INSTITUTE
For Engineering & Technology

معهد أكتوبر العالي
للهندسة والتكنولوجيا



Egyptian Knowledge Bank
بنك المعرفة المصري



جامعة الإسكندرية
ALEXANDRIA
UNIVERSITY



معاهد طبية العليا
Integrated Thebes Institutes



أكاديمية العلوم والتكنولوجيا والنقل البحري
Arab Academy for Science, Technology & Maritime Transport
College of Management and Technology, Cairo-Heliopolis



MINIA UNIVERSITY



ELSEVIER



أكاديمية
أخبار اليوم
AKHBAR ELYOM ACADEMY



The Higher Institute of Engineering



أين شمس UNIVERSITY



BUE
The British University in Egypt
الجامعة البريطانية في مصر



Helwan University



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Innovation Has History



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