Ministry of Defence
Military Technical College

Conference Program

The International Scientific Conference of Military Technical College

2025

Program of International Scientific Conference of the Military Technical College 2025

Allocated Rooms and Halls for Sessions, Workshops, and Seminars of the International Scientific Conference of the Military Technical College 2025

S - Building:
- Ibraheim Abd El-Naby Hall
- Abd El-Hameed Shawky Hall

College Library:
- Registration

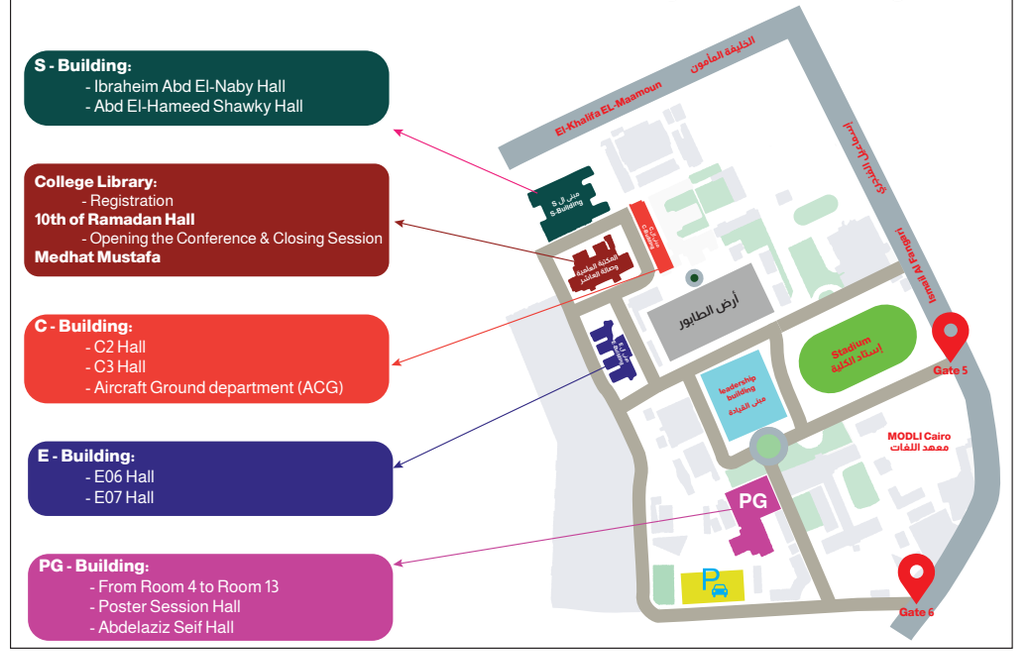
10th of Ramadan Hall
- Opening the Conference & Closing Session

Medhat Mustafa

C - Building:
- C2 Hall
- C3 Hall
- Aircraft Ground department (ACG)

E - Building:
- E06 Hall
- E07 Hall

PG - Building:
- From Room 4 to Room 13
- Poster Session Hall
- Abdelaziz Seif Hall



AMME-22

International Conference on Applied Mechanics and Mechanical Engineering

ASAT-21

International Conference on Aerospace Sciences & Aviation Technology

ICEENG-15

International Conference on on Electrical Engineering

ICCAE-16

International Conference on Civil and Architecture Engineering

ICEE-13

International Conference on Chemical and Environmental Engineering

ICMEP-13

International Conference on Mathematics and Engineering Physics

The 22nd International Conference on Applied Mechanics and Mechanical Engineering (AMME-22)

Monday 12 May 2025 - Day 1

Time	Hall	Session Name
08:00 - 09:00	College Library	Registration
09:00 - 11:45	10th of Ramadan Hall	Opening the Conference & Opening Lecture
12:00 - 13:45	E06	Impact of multiple launches on initial disturbances of unguided rockets
		Natural Frequency and Thermal Buckling Behaviour of Delaminated Composite Plate
		A Comprehensive Analysis of Directional Stability Criteria for a Typical Fin-Stabilized Missile
		Effect of coupled rotational and transverse vibration on the vortex structures around a rectangular cross-section

The 22nd International Conference on Applied Mechanics and Mechanical Engineering (AMME-22)

Monday 12 May 2025 - Day 1

Time	Hall	Session Name
12:00 - 13:45	E07	Future of Engineering Education: Skill Development and Outcome-Based Assessment **Prof. Hossam A. Kishawy** Dean of Faculty of Engineering and Applied Science -Ontario Tech University, CANADA
14:30 - 16:15		Optimizing Ride Comfort through Deep Reinforcement Learning for Autonomous Vehicle Control
		Coordinated Formation and Resilience in Mobile Multi-Robot Systems: Consensus-Based Control in Dynamic Environment
		Vision Based Navigation System for 8x8 Scaled Combat Vehicle
		Modeling and Optimal Trajectory Tracking Control of an Autonomous Tracked Mobile Robot Using a Modified PID Controller and Backstepping

The 22nd International Conference on Applied Mechanics and Mechanical Engineering (AMME-22)

Tuesday 13 May 2025 - Day 2

Time / Hall	8:30 - 10:15		10:30 - 12:15		13:00 - 14:45
E06	Mechanical and Thermal Characterization of a Vitrimerized Thermoplastic	Break	Investigation of Ballistic Impact Behaviour of SiC/ZTA Nano-Ceramics Backed by A UHMWPE Plate: Numerical Simulation and Experimental Validation	Break	Experimental and numerical investigation of ballistic performance of Kevlar / Ceramic (SiC) armor system
	Enhancing Mechanical Properties of PETG by Optimization of Process Parameters Using the Taguchi Method		Microstructural and Mechanical Properties Change with Heat Treatment of β-type Ti-14Mn-Zr alloys		Developing deep drawing circular blanks from low carbon hot rolled plates
	Properties and Applications of Freestanding Ti3C2Tx MXene Films and Structures		Acoustic Emission Monitoring of Ultra-Fast Low Energy Ceramization and Thermite Reaction for Ultra High Strength Steel Processing		Investigating the Effect of Thermal Stresses on Multijunction PV Solar Cells
	A Study of Fused Filament Fabrication for Manufacturing Fiber Reinforced Polymer Components in Home Appliances		Hybrid Friction Stir Welding: The Role of Ultrasonic Vibration and Tool Rotation in Enhancing the Joint Properties		Towards Strength–Ductility Synergy through the Synthesis and Processing of a Hybrid Sustainable AHSS, XHSS, and UHSS
					Understanding the reasons for wide variation of mechanical properties of A390 hypereutectic Al-Si alloy reinforced with hybrid nanoparticles
10th of Ramadan Hall	Workshop 1 Metal Additive Manufactuing Optimization Problems **Prof. Moataz M. Attallah** Professor, Director of Research & Knowledge Transfer, University of Birmingham, School of Metallurgy & Materials,UK. **Brig. Gen. Assoc. Prof/ Sherif Abdel Khalek** Military Technical College				

The 22nd International Conference on Applied Mechanics and Mechanical Engineering (AMME-22)

Tuesday 13 May 2025 - Day 2

Time / Hall	8:30 - 10:15		10:30 - 12:15		13:00 - 14:45
E07	Performance analysis of a direct contact humidifier of a humidification-dehumidification desalination system: A heat and mass transfer	Break	Synthesis and Application of the Nano-Additive in Biodiesel-Diesel Blends: Enhancing Combustion Efficiency, Engine Performance, and Emission Reduction in a Single-Cylinder Diesel Engine	Break	Innovative Energy System Using Sonic Hydrogen and Nuclear Power Generation for a Sustainable Community
	Vortex Bladeless Wind Turbine Technology an Interdisciplinary and Multidisciplinary Approach in Engineering Science		Experimental Study of Gaseous Flames Issuing from a Conically Stabilized Swirl Burner Using Prevaporized Partially Premixed Biodiesel and Diethyl Ether		Performance sustainability of absorption water chillier driven by solar energy in local climate of Cairo, Egypt
	Conformal Mapping as a Tool for Analytical Hydraulic Calculations in Corrugated Pipe Flows		Experimental and Numerical Heat Transfer Analysis of Shell and Tube Heat Exchanger by Using Helical Finned Tubes		A Review of mathematical model for breakthrough times of active carbon used in air conditioning
	Comparative Thermal Performance Analysis of Solar Flat Plate Collectors Using CFD with Various Working Fluids				

The 22nd International Conference on Applied Mechanics and Mechanical Engineering (AMME-22)

Wednesday 14 May 2025 - Day 3

Time / Hall	8:30 - 10:15		10:30 - 12:15
E06	Finite Element Analysis of Incremental Sheet Metal Forming Process on Complex Shapes	Break	Investigation of FDM Process Parameters and their Interactions on Surface Roughness of PLA 3D Printed Parts
	A Cross-Industry Analysis of Sustainable Practices and Trends of Circular Economy Dynamics on Production Technology in Bangladesh		Using the industrial engineering concepts through the reverse engineering approach for improving the sprockets
	Investigating the effect of varying multi-pass welding sequence and plate thickness with manhole on plate distortion		Investigation of the Impact of Abrasive Water Jet Machining Parameters on Delamination of Glass Fiber Reinforced Polymer Composites during Hole Drilling Process
	An Integrated Simulation-Optimization Model for Production Planning and Scheduling Problem: A Case Study of Yarn Dyeing and Processing in an Egyptian Factory		A Digitalized Camera Selection Tool for Photogrammetry Scanners

The 22nd International Conference on Applied Mechanics and Mechanical Engineering (AMME-22)

Wednesday 14 May 2025 - Day 3

Time / Hall	8:30 - 10:15		10:30 - 12:15
E07	Development of a central fleet monitoring system	Break	User-centric Design of a Power-Driven Hand Drill Machine Incorporating Ergonomics
	Adaptive Cruise Control for Electric Vehicles: A Performance Study Using CARLA		Simulation and structural analysis for the boom of the rocket launcher
	Design and Implementation of Electrode Holder and Electrode Consumption System for Educational Welding Simulator for SMAW		Systematic Review on Applications of Axiomatic Design
			A Systematic Review of Cellular Manufacturing System Approaches

Thursday 15 May 2025 - Day 4

Time	Hall	Session Name
08:30 - 10:15	E07	Workshop 2 Manufacturing Technologies and Developments of Personal Body Armours and Clothi ng **Prof. Amr Fayed,** Staff Member, MTC **Eng. Hany Salam,** CEO of Salamtex **Assoc. Prof. Doaa El-Gohary,** Researcher at National Research Centre (NRC) **Assoc. Prof. Tamer Z. Wafy,** Head of the Chemical Engineering Branch (MTC) **Mr. Mohamed Fahmy,** General Manager Of Body Armor Sector

Arab Republic of Egypt
Ministry of Defence
Military Technical College

13th International Scientific Conference of The Military Technical College

12 - 15 May, 2025

Conference Program of

The 22nd International Conference on Applied Mechanics and Mechanical Engineering,

(AMME-22)

Cairo 2025

Military Technical College *Kobry El-Kobbah,* *Cairo, Egypt.* *icamme@mtc.edu.eg*	A.M.M.E.	*22nd Int. Conference on Applied Mechanics and Mechanical Engineering,* *May 12-15, 2025* *https://www.morressier.com/call-for-papers/6749ce94ca9430f6be9fb0ef*

CONFERENCE PROGRAM

Program of the 22nd International Conference on Applied Mechanics and Mechanical Engineering (AMME-22)

		8:00 – 9:00	9:00 – 11:45		12:00 – 13:45		14:30 – 16:15
Monday 12 May 2025	Hall E6	Registration	Opening the conference & opening lecture	Break	**Dynamics and Vibration (4) ID :1 – 2 – 6 – 40** Impact of multiple launches on initial disturbances of unguided rockets Natural Frequency and Thermal Buckling Behaviour of Delaminated Composite Plate A Comprehensive Analysis of Directional Stability Criteria for a Typical Fin-Stabilized Missile Effect of coupled rotational and transverse vibration on the vortex structures around a rectangular cross-section	Break	

		8:00 – 9:00	9:00 – 11:45		12:00 – 13:45		14:30 – 16:15
Monday 12 May 2025	Hall E7	Registration	Opening the conference & opening lecture	Break	**Future of Engineering Education: Skill Development and Outcome-Based Assessment*** **Hossam A. Kishawy**	Break	**Robotic and Control ID: 3 – 10 – 60 – 64** Optimizing Ride Comfort through Deep Reinforcement Learning for Autonomous Vehicle Control Coordinated Formation and Resilience in Mobile Multi-Robot Systems: Consensus-Based Control in Dynamic Environment Vision Based Navigation System for 8x8 Scaled Combat Vehicle Modeling and Optimal Trajectory Tracking Control of an Autonomous Tracked Mobile Robot Using a Modified PID Controller and Backstepping

*Key speaker

Program of the 22nd International Conference on Applied Mechanics and Mechanical Engineering (AMME-22)

		8:30 – 10:15		10:30 – 12:15		13:00 – 14:45		
Tuesday 13 May 2025	Hall E6	**Material Science and Processing I** **ID: 15- 26 – 42 – 62**	Break	**Material Science and Processing II** **ID: 14 – 28 – 58 - 61**	Break	**Material Science and Processing III** **ID: 31- 41- 48-57- 68**	Break	**Hall 10th of Ramadan** **Workshop # 1** **Metal Additive Manufacturing Optimization Problems*** **Prof. Moataz M. Attallah** ***Key speaker / workshop**
		Mechanical and Thermal Characterization of a Vitrimerized Thermoplastic		Investigation of Ballistic Impact Behaviour of SiC/ZTA Nano-Ceramics Backed by A UHMWPE Plate: Numerical Simulation and Experimental Validation		Experimental and numerical investigation of ballistic performance of Kevlar / Ceramic (SiC) armor system		
		Enhancing Mechanical Properties of PETG by Optimization of Process Parameters Using the Taguchi Method		Microstructural and Mechanical Properties Change with Heat Treatment of β-type Ti-14Mn-Zr alloys		Developing deep drawing circular blanks from low carbon hot rolled plates		
		Properties and Applications of Freestanding Ti3C2Tx MXene Films and Structures		Acoustic Emission Monitoring of Ultra-Fast Low Energy Ceramization and Thermite Reaction for Ultra High Strength Steel Processing		Investigating the Effect of Thermal Stresses on Multijunction PV Solar Cells		
		A Study of Fused Filament Fabrication for Manufacturing Fiber Reinforced Polymer Components in Home Appliances		Hybrid Friction Stir Welding: The Role of Ultrasonic Vibration and Tool Rotation in Enhancing the Joint Properties		Towards Strength–Ductility Synergy through the Synthesis and Processing of a Hybrid Sustainable AHSS, XHSS, and UHSS		
						Understanding the reasons for wide variation of mechanical properties of A390 hypereutectic Al-Si alloy reinforced with hybrid nanoparticles		

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		8:30 – 10:15		10:30 – 12:15		13:00 – 14:45
Tuesday 13 May 2025	Hall E7	**Mechanical Power Engineering I** **ID: 18 – 25 – 50 – 53**	Break	**Mechanical Power Engineering II** **ID: 49 – 56 – 66**	Break	**Mechanical Power Engineering III** **ID: 19 – 22 – 13**
		Performance analysis of a direct contact humidifier of a humidification-dehumidification desalination system: A heat and mass transfer		Synthesis and Application of the Nano-Additive in Biodiesel-Diesel Blends: Enhancing Combustion Efficiency, Engine Performance, and Emission Reduction in a Single-Cylinder Diesel Engine		Innovative Energy System Using Sonic Hydrogen and Nuclear Power Generation for a Sustainable Community
		Vortex Bladeless Wind Turbine Technology an Interdisciplinary and Multidisciplinary Approach in Engineering Science		Experimental Study of Gaseous Flames Issuing from a Conically Stabilized Swirl Burner Using Prevaporized Partially Premixed Biodiesel and Diethyl Ether		Performance sustainability of absorption water chillier driven by solar energy in local climate of Cairo, Egypt
		Conformal Mapping as a Tool for Analytical Hydraulic Calculations in Corrugated Pipe Flows		Experimental and Numerical Heat Transfer Analysis of Shell and Tube Heat Exchanger by Using Helical Finned Tubes		A Review of mathematical model for breakthrough times of active carbon used in air conditioning

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		8:30 – 10:15		10:30 – 12:15
Wednesday 14 May 2025	Hall E6	**Production Technology I** **ID: 29 – 38 – 51 - 67**	Break	**Production Technology II** **ID: 4 – 8 – 9 - 32**
		Finite Element Analysis of Incremental Sheet Metal Forming Process on Complex Shapes		Investigation of FDM Process Parameters and their Interactions on Surface Roughness of PLA 3D Printed Parts
		A Cross-Industry Analysis of Sustainable Practices and Trends of Circular Economy Dynamics on Production Technology in Bangladesh		Using the industrial engineering concepts through the reverse engineering approach for improving the sprockets
		Investigating the effect of varying multi-pass welding sequence and plate thickness with manhole on plate distortion		Investigation of the Impact of Abrasive Water Je Machining Parameters on Delamination of Glass Fiber Reinforced Polymer Composites during Hole Drilling Process
		An Integrated Simulation-Optimization Model for Production Planning and Scheduling Problem: A Case Study of Yarn Dyeing and Processing in an Egyptian Factory		A Digitalized Camera Selection Tool for Photogrammetry Scanners

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		8:30 – 10:15		10:30 – 12:15
Wednesday 14 May 2025	Hall E7	**Automotive Engineering/ Mechatronics** **ID: 35 – 43 – 52**	Break	**Mechanical Design** **ID:63 – 24 –11- 59**
		Development of a central fleet monitoring system		**User-centric Design of a Power-Driven Hand Drill Machine Incorporating Ergonomics**
		Adaptive Cruise Control for Electric Vehicles: A Performance Study Using CARLA		**Simulation and structural analysis for the boom of the rocket launcher**
		Design and Implementation of Electrode Holder and Electrode Consumption System for Educational Welding Simulator for SMAW		**Systematic Review on Applications of Axiomatic Design**
				A Systematic Review of Cellular Manufacturing System Approaches

Program of the 22nd International Conference on Applied Mechanics and Mechanical Engineering (AMME-22)

		8:30 – 10:15		10:30 – 12:15
Thursday 15 May 2025	Hall E6, E7	**Workshop # 2** **Manufacturing Technologies and Developments of Personal Body Armours and Clothing** * **Amr Fayed, Hany Salam, Doaa El-Gohary, Tamer Z. Wafy and Mohamed Fahmy**	Break	

*Key speaker / workshop

LOCATIONS OF CONFERENCE HALL S