Book of Abstracts

Henri Coanda
Air Force Academy
Brasov, Romania

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Communicating across Cultures

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Conference Panels

1. Military Sciences & Management

The Sonar in the Military

Andrei Traian ADOCHIȚEI

"Henri Coandă" Air Force Academy, Brașov, România

This paper aims at illustrating the manner in which the sound manages to travel underwater and the operating principle of the sonar. Moreover, the paper gives a brief presentation of the users of this device and some of the important transducers utilized in military.

Evading the Guided Missile

Darius BĂTRÎNU

"Henri Coandă" Air Force Academy, Brașov, România

The ground-based air defense systems are the most dangerous enemy for a pilot. While an enemy pilot can be regarded as a human operating high tech piece of weaponry, the surface-to-air missile is a high-tech weapon which can operate almost on its own. This paper attempts at providing a brief history of the air defense technology and at analyzing the ways in which a pilot can survive the danger represented by the guided missiles.

Joint Countering Attack Helicopter (J-CATCH)

Radu Dumitru BÎRZĂ

"Henri Coandă" Air Force Academy, Brașov, Romania

A joint US Air Force - US Army experiment took place between 1978 and 1979 and it was defined as an exercise between attack helicopters and jet fighters. This exercise in dissimilar air combat had an unexpected result because attack helicopters proved that they can be extremely dangerous in a close range fight with guns. The attack helicopters obtained a 5 to 1 kill ratio against jet fighters and this was a worrying result for all forces that primarily counted on fixed-wing aircrafts. After this first alarming result of the exercise, the US Air Force started studying different designs for helicopter-hunting aircraft. Until the end of the J-CATCH tests, the US Air Force realized that when the jet fighters were equipped with weapons such as the AIM9-missile, which used a self guidance system, they were able to counter an attack helicopter threat.

Best Practices for Cyber-Security

Alexandru BLĂGĂU

”Henri Coandă” Air Force Academy, Braşov, Romania

One of the biggest challenges of the modern world is the evolution and impact of information technology on society. The vastness of the virtual space is already unbeatable. Cyber security must be a priority for the good operation of any organization. Therefore, the current paper aims at presenting the basics of safety in cyberspace, different types of malware attacks and practices to protect data against such attacks.

Group Cohesion

Cătălin BOBAR

”Henri Coandă” Air Force Academy, Braşov, Romania

The current paper aims to highlight the relationships between the members of a group and how the group can influence both the efficiency and the productivity of solving certain tasks. The research consisted of a survey carried out within a military institution.

Communication as a Determinant of Information Supply for Pilots During an Aerial Combat

Aleks CHOJNACKI, Daniel GAJOS

Aeronautics Faculty, Military University of Aviation, Dęblin, Poland

The aim of this article is to note that the communication is one of the most important aspects in the functioning of modern military pilots. The ability to conduct an effective aerial combat requires a wide range of information supply which is necessary to carry out an effective communication between pilots fulfilling tasks in formation and also during communication with ground control services.
Moreover, the authors of the article, after conducting numerous interviews with the experts, focus on basic problems during effective communication taking into consideration specific conditions of an air-to-air combat. They also present techniques for improving the communication during cadets and military pilots' training.

Empathy and Active Listening in Leadership

Otilia CIOBANU

”Henri Coandă” Air Force Academy, Braşov, Romania

Approaching the leadership activity from a psychological perspective arouses our interest for empathy and active listening, two dimensions indispensable to an ideal leader's profile. These two tools that are part of the leader's props facilitate his knowledge of

people and their needs, their particularities of age and individuality. These are the prerequisites for enhancing subordinates and ensuring success in their common mission.

NATO And Its Current Relevance in the International Context

Adrian CÎRLEA

"Mircea cel Bătrân" Naval Academy, Constanța, Romania

The main purpose of this paper is to take a closer look at NATO. In this respect we are going to take a look at its beginning and at the brief history of the organization. We are going to discuss the relevance of NATO in the context of the European turmoil, and the measures the European countries are taking to prepare and protect themselves against the Russian threat. We will take a closer look to the strategic importance of Romania, and the way our allies perceive our country. Furthermore, we will discuss the current joint missions that are taking place in our country.

MINUSMA and the Romanian Deployment

Andrei CURIMAN

"Henri Coandă" Air Force Academy, Brașov, Romania

Mali was affected, in January 2012, by a crisis that started with the Tuareg rebellion. Its consequences were visible as soon as the military took over the power, starting the decline of the state. The first intervention meant to rebuild the state was AFISMA's, in December 2012. Later on, MINUSMA was deployed by the UN, in April 2013, only to become, after a short time, the most dangerous UN's peacekeeping mission so far. Romania has recently joined the mission with 2 transport helicopters to carry troops and cargo. The paper provides a comparison between Romanian helicopters and the Canadian ones used in Mali. Furthermore, this paper aims to analyze some realities of this mission, in terms of their difficulties and their solutions.

Three Deadliest Plane Crashes of All Time

Ioan DAȘA

"Henri Coandă" Air Force Academy, Braşov, Romania

The present paper aims to illustrate three cases of air crashes that are considered to be the most dangerous and deadliest ones. The list of air disasters that my article contains consists of: the Iranian Air Force Ilyushun II-76, the Smolensk air crash and the Tenerife Airport disaster. The paper provides an analysis of the air disasters' backgrounds, gives evidence of how they occurred and it mentions the type of aircrafts used and also the causes which led to disaster.

The Leading Manager

Andrei Catalin DASCAL

”Henri Coandă” Air Force Academy, Brasov, Romania

bstract

The current paper aims to present some of the important qualities that all leaders need to possess. All people aspire to the status of a leader because mentally healthy people do not want to be mediocre or invisible; they seek to self-indulge, to perfect themselves. This conscious desire prompted people to ask whether it is better to be a great leader or a good manager, provided that people understand the conceptual difference between the two terms. Furthermore, the paper illustrates some of the specific traits that appear in leaders and in managers and highlights the common belief that 'leadership' refers to doing the right things, whereas, a 'manager' implies the idea of doing things right.

Evolution of the Close Air Support Concept

Mihai Luciano DRĂGUȘI

“Henri Coandă” Air Force Academy, Brașov, Romania

The paper presents the evolution of the concept of close air support from the time of the First World War to the end of the 20th century and the beginning of the 21st century. In military tactics, close air support (CAS) is defined as aerial action, such as aerial attacks of fixed or rotating aircraft, with hostile targets that are close to friendly forces and require detailed integration of each air mission with fire and the movement of these forces.

Ballistic Threats – A New Cold War?

Dragoș-Constantin DRĂGUȚU

“Henri Coandă” Air Force Academy, Brașov, Romania

The present paper intends to analyze some realities included within the Treaty on Intermediate Nuclear Forces (INF). I chose this topic because the USA officially withdrew from this treaty on the 2nd of August 2019, and now the two sides that concluded the treaty: the USA and Russia can produce and use ballistic missiles with a range of 500 to 5500 kilometers. This reality may have negative effects on Romania's security. Furthermore, the paper offers details with regard to the main periods of the Cold and the reason why the US decided to set the agreement with Russia.

Operation “Eagle Claw”

Andrei DULAN

“Henri Coandă” Air Force Academy, Brașov, Romania

The present paper aims to illustrate and analyze the details of a military operation. The Operation Eagle Claw, known as Operation Tabas in Iran, was a United States Armed

Forces operation ordered by the U.S. President Jimmy Carter in an attempt to end the Iran hostage crisis by rescuing 52 embassy staff held captive at the Embassy of the United States in Tehran, on 24 April 1980. Its failure, and the humiliating public debacle that ensued, damaged U.S. prestige worldwide. Carter blamed his loss in the 1980 U.S. presidential election mainly on his failure to secure the release of the hostages.

Security – An Amply Debated Concept

Filimon - Răducu ENACHE

"Henri Coandă" Air Force Academy, Brașov, Romania

This paper presents the need of understanding the security concept and its importance to all people, for their general well-being and development. Every field of activity (political, social, economic etc.) requires security because in its absence, the nation finds itself in a continuously state of restlessness and conflict. The paper concludes that looking at the dimensions of security, it must be understood that the individual is the main element of security which must be built around him.

Unmanned Aircraft Systems

Vlad-Octavian GABOR

"Henri Coandă" Air Force Academy, Brasov, Romania

The current paper aims to give a brief history of drones, or unmanned aerial vehicles (UAVs) that have been around since the early 1900s. Originally used for military operations, they became more widely used after about 2010 when electronic technology got smaller, cheaper and more efficient, prices on cameras and sensors dropped, and battery power improved. Where once scientists could only observe earth from above by using manned aircraft or satellites, today they are expanding, developing and refining their research thanks to drones. Furthermore, the present paper attempts to examine the problem of how drones are advancing the scientific, strategic and military research.

The Art of Skydiving the Case of Maria Perez

Robert GHERGHINIȘ

"Henri Coandă" Air Force Academy, Brasov, Romania

The paper treats an interesting subject nowadays and that is skydiving. The article is divided in two parts: the first one includes an introduction in the art of skydiving, analyzing its history and the most important parts of the development of skydiving. Thus, the paper presents the working principles of a parachute, its component parts, types of parachutes and also the dangers that may occur during parachuting. Regarding the second part of the article, it treats the curious case of Maria Perez, a skydiver with more than 150 jumps behind, who fails into landing and due to some factors that will be presented in the paper, has an unfortunate destiny and dies.

The influences of leadership at a tactical level, the officer's posture as a leader

Eduard GOREA

"Henri Coandă" Air Force Academy, Brasov, Romania

The current paper intends to provide an outlook over the influences of leadership on tactics, in general, whereas it attempts to give reasons why an officer needs to display a specific posture as a leader. As a simple definition, leadership is the art of motivating a group of people to act toward achieving a common goal. Leadership is about the essentials of being able and prepared to inspire others. This is based upon ideas, but it may not happen unless those ideas can be communicated to others in a way that engages them enough to act as the leader wants them to. The leader is the inspiration for and director of the action.

Leadership Characteristicts in Future Service

Erik GUSTIN, Linnea LINDKVIST

Military Academy Karlberg, Stockholm, Sweden

The situational leadership describes the importance of different approaches adapted to the situation. Trust, from both the subordinates and in oneself, together with stress management skills is described as fundamental characteristics for a prospective officer. Further, the contribution of active listening and feedback to reduce misunderstandings and increase productivity is discussed.

Comparative Analysis of Two Aerodynamic Profiles

Ionut MANGU

"Henri Coandă" Air Force Academy, Brașov, Romania

The present paper intends to provide a comparative analysis of two different aerodynamic profiles. Importance of various aircraft aerodynamic profile is immense, this dictating the behavior of the plane stability, speed and efficiency of controls, bearing, speed and behavior at different speeds. Shape and pattern vary depending on the need and role of the aircraft in use. We can also notice differences between commercial flight profiles, from the perspective that each profile remains the most used symmetrical predictability in behavior due to an increase in linear carrying capacity up to a critical angle, but for manufacturing simplicity.

Revolution in Military Affairs

Nicolae-Octavian PĂUN

"Henri Coandă" Air Force Academy, Brașov, Romania

The current paper highlights the importance of revolutions in military affairs and the benefits they offer to anyone who implements them. Revolutions in military affairs provide an overwhelming advantage on the battlefield by changing the military doctrine and operational concepts. The paper also includes the historical context for a better understanding of the topic and shows how it all started. The final goal of the paper is to explain why it is worth spending some time on this concept.

The Impact of Volunteering on Future Military Leaders

Andreea PETREA

"Henri Coandă" Air Force Academy, Brașov, Romania

This scientific paper analyzes the impact that volunteering activities can have on society; its effects on the society itself, the fact that it helps to improve it, but especially, the impact on those who carry out these types of activities. Furthermore, the paper illustrates that volunteer activities can be very important in the development of students of the Air Force Academy, which is reflected in the portrait of future military leaders. Such activities make them acquire or develop certain skills, capabilities needed in their career of commanders, by giving them the opportunity to be in positions of leaders of smaller or larger groups of people towards meeting certain goals and raising awareness of how difficult it is to be in the position of leader, to make decisions, to arrange things so that tasks can be accomplished.

An Investigation into the Recurrent Utilization of Improvised Explosive Devices in Afghanistan

Razvan PIELE

"Henri Coandă" Air Force Academy, Brașov, Romania

Mortality in Afghanistan was mainly caused in recent years by the improvised explosive devices. It is to be noted that the current paper's aim is to examine in great depth the social context in which the events occur and to identify and highlight potential reasons for local citizens to join the extremist groups. Hence, the information presented throughout the paper details the context from the perspective of local people who utilize such harming devices and also from the standing point of insurgents who help new joiners adapt and learn to utilize these devices.

Hybrid Warfare

Eduard PINTILIE

"Henri Coandă" Air Force Academy, Brașov, Romania

The present paper approaches a controversial subject, a concept that does not have a definition accepted unanimously, and that is war, under its hybrid form. More precisely, the paper focuses on the new approach to deployment, development and performance of the hybrid warfare, based on the analysis of the annexation process of Crimea to Russia. So, the paper encompasses some conceptual delimitation regarding the hybrid warfare and the means addressed in the new deployment of it, taken the example above-mentioned: the annexation of Crimea.

Migration

Sanda-Nicoleta POPESCU, Luciana TIMIȘ

Military Technical Academy "Ferdinand I"

The present paper aims at illustrating a complex perspective which studies the cause-effect phenomena of migration throughout time. Furthermore, it contains a brief analysis referring to the opinions of specialists and the mass media information.

The importance of employee evaluation

George Octavian Racoceanu

"Henri Coandă" Air Force Academy, Brașov, Romania

Performance evaluation helps to discover the potential, but also the weaknesses and training needs. To evaluate employee performance, we must first determine performance criteria and standards.

Power vs. Influence

Connor SHAW, Jack JOHNSON, Andrew PUSEMAN

United States Air Force Academy, Colorado Springs, United States of America

The current paper aims at providing an analysis of power in relation with influence. Two of the fundamental components of leadership and managerial practice itself are the power and the influence that one has over the other. Occasionally used interchangeably, these two characteristics are quite different and are necessary for any leader to understand.

The Principle of Concentrating Effort on the Decisive Place and the Right Time in Military Actions

George-Daniel SIHLEANU

"Henri Coandă" Air Force Academy, Brașov, România

The present paper focuses on the principle of concentrating effort on the decisive place and the right time in military actions due to the fact that concentrating the effort through a unitary action, carrying out smaller groups targets, from different departments, on convergent or parallel directions is the optimal solution for the future military conflicts.

Hybrid War. Security Threats to States on Eastern Border of NATO

Raul ȘIPOȘ

"Henri Coandă" Air Force Academy, Brașov, România

The present paper focuses on the analysis of security threats to states on the eastern border of NATO. The 21st century brought to the attention of military strategists the challenge of anticipating future military conflicts, both from the point of view of the introduction of new equipment into combat, but especially from the point of view of updating the old tactics in the context of the globalization of military conflicts. Essentially, the military conflicts had and will have as a basic element the control of the economic resources, and in the context of the economic globalization it is becoming increasingly important to adapt the military forces to the challenges and threats of the future wars.

Close Air Support

Horia STOICA

"Henri Coandă" Air Force Academy, Brașov, România

This paper will give the reader a brief insight about the typical Close Air Support Mission. Close Air Support is one of the best-known types of missions performed by the Air Force. Besides it being famous, the Close Air Support is rather infamous for those who are its target. Because CAS is capability vital for every Army and Air Force around the world, it is very important that people involved have a basic understanding of how CAS started, how it evolved and how it affects the battlefield of the 21st century.

War of Vietnam – FALL OF SAIGON

Teodor TATULEA

"Henri Coandă" Air Force Academy, Brașov, România

The Vietnam War has radically changed the relationship between the American people and the government, but for this the successive mistakes of five presidents and 58,000

dead soldiers were needed. In this paper we will refer strictly to the US intervention in this conflict area and not to the Indochina War that stretched between 1955 and 1975. In principle, the war was waged for the reunification of Vietnam, temporarily separated by the decisive defeat in 1954 of the French colonial army. In this conflict, the two great communist powers (USSR and China) were also competing for influence in Southeast Asia, and the US was trying to prevent the spread of communism in the fragile countries of Asia, which had recently become independent. Notions such as asymmetrical war, media manipulation, religious crises, drug trafficking, arms trafficking are also focused on in this paper.

Fundamental Dimensions of the Military Leader

Florin-Marian TUDOR

"Henri Coandă" Air Force Academy, Braşov, Romania

This paper aims to develop some defining dimensions of the military leader. The authentic leader is self-in-control and continually concerned about the evolution of the entire team and the successful performance of the mission. The leader's test power is to motivate people, focus them on common purposes, which is also the premise of group cohesion.

2. Weapons & Defense Technology

Weapons System of GDF-103 AA

Dorinel-Antonel ADAM

"Henri Coandă" Air Force Academy, Braşov, Romania

The current paper aims to illustrate the evolution of the anti-aircraft artillery for our national army. The acquisition of the Romanian army has outstanding performances firstly due to modern types of ammunition which have very diverse destroying effect. Air defense systems have known a wide development process over time due to rapid modernization of technology and also to appearance of increasingly dangerous and powerful aircraft types. One of the most effective anti-aircraft systems is GDF-103 AA OERLIKON. This system was developed in the late 1950s knowing a lot of upgrades ever since. This weapon still represents, for many countries, such as Austria, Germany, Switzerland, United Kingdom, a powerful weapon able to combat air targets. GDF-103 AA Oerlikon system was acquired by the Romanian army in late 1990's as a means of anti-aircraft artillery.

Aerodynamic Characteristics of Missile Components

Larisa-Andreea ANDRONACHE

"Henri Coandă" Air Force Academy, Braşov, Romania

The current paper presents some of the building elements of a missile that assure it with aerodynamic characteristics. The missile's body, wing and tail are calculated by using analytical methods to predict its drag and normal forces. The total drag of the body is computed by using the parasite drag, wave drag, skin friction drag and base drag. The wing surface normal force coefficient $(C_N)_{Wing}$ *is a function of Mach number, local angle of attack, aspect ratio, and the wing surface plan form area* $(C_N)_{Wing}$*, based on the missile reference area, decreases with increasing supersonic Mach number and increases with angle of attack and the wing surface area. When the wing surface area is reduced the total weight of the missile and drag are reduced thereby increasing the lift and achieve excessive stability. Aerodynamic configuration sizing and system engineering parameters have a high impact on missile requirements.*

Mobile Combat Platforms

Raul-Cristian AURAR

"Henri Coandă" Air Force Academy, Braşov, Romania

The current paper aims to analyze the advantages of using modern technology in armed conflicts. In contemporary armed conflicts, air defense artillery is able to achieve enormous strategic effects through its capabilities and operations holding decisive

influence on the result of armed conflicts. One important factor is given by mobile combat platforms that increase mobility in armed conflicts. Mobile combat platforms can become the basic technical means by providing research troops with a desanting, harassment and interventions in the depth of the battle space enhancing their performance by borrowing elements from modern tanks (multi-layer armor; increased engine power; driving in all types of terrain thanks to the special wheel equipment).

The Evolution of the "S" Surface to Air Missile System

Eugen-Nicolae BOGOVICI

"Henri Coandă" Air Force Academy, Brașov, Romania

The present paper intends to present a brief history of the surface-to-air missiles. SAMs, or GTAMs, is a missile designed to be launched from the ground to destroy aircraft or other missiles. It is one type of antiaircraft system; in modern armed forces, missiles have replaced most other forms of dedicated antiaircraft weapons, with anti-aircraft guns pushed into specialized roles. SAM have evolved tremendously ever since the World War I, only to reach, through the 1960s and 1970s, to modern systems that are man-portable. Ship-borne systems followed the evolution of land-based models, starting with long-range weapons and steadily evolving toward smaller designs to provide a layered defense that have pushed gun-based systems into the shortest-range roles.

OTO MELARA 76 mm Naval Gun

Cezar BULGARU

"Henri Coandă" Air Force Academy, Brașov, Romania

The current paper intends to provide a brief history of one of the missiles equipping military ships. The OTO Melara 76 mm gun is a naval gun built and designed by the Italian defense company Oto Melara. It is based on the Oto Melara 76/62C and evolved toward 76/62 SR and 76/62 Strales. The system is compact enough to be installed on relatively small warships. Its high rate of fire and the availability of several types of ammunition make it capable for short-range anti-missile point defense, anti-aircraft, anti-surface, and ground support. Ammunition includes armor-piercing, incendiary, directed fragmentation effects and a guided round marketed as capable of destroying maneuvering anti-ship missiles.

Explosively Pumped Flux Compression Generator

Rareș CARBARĂU

"Henri Coandă" Air Force Academy, Brașov, Romania

High Power Electromagnetic Pulse generation techniques and High Power Microwave technology have matured to the point where practical E-bombs (Electromagnetic bombs) are becoming technically feasible, with new applications in both Strategic and Tactical Information Warfare. The development of conventional E-bomb devices allows their use

in non-nuclear confrontations. This paper discusses aspects of the technology base, weapon delivery techniques and proposes a doctrinal foundation for the use of such devices in warhead and bomb applications.

Tactical Missile Guidance Laws

Georgiana-Daria CISMARU

"Henri Coandă" Air Force Academy, Brașov, Romania

This paper presents an overview of missile guidance and control laws. Two basic guidance concepts will be discussed: the homing guidance system, which guides the interceptor missile to the target by means of a target seeker and an onboard computer; homing guidance can be modeled as active, semi-active and passive; and command guidance, which relies on missile guidance commands calculated at the ground launching (controlling) site and transmitted to the missile.

A Comparison of Missile Characteristics

Cătălina-Gabriela DUCA

"Henri Coandă" Air Force Academy, Brașov, Romania

The current paper intends to compare and contrast some of the missile characteristics that are mainly important for the effectiveness of such technological devices. Aerodynamic configuration sizing is conducted to develop the configuration geometry and the size of the missile. The output of aerodynamic configuration sizing includes the missile diameter, length, stabilizer size and geometry and the control surface size and geometry. These are areas that also receive primary emphasis, because of their strong impact on aerodynamic configurations sizing and aerodynamic stability and control, aerodynamic flight performance, propulsion, structure and weight.

The Early Use of US Navy Embarked Helicopters

Adrian-Gabriel DUCU

"Henri Coandă" Air Force Academy, Brașov, Romania

The development of operational rotorcraft amongst naval procedures has certainly grown in the past decades, allowing a whole new set of concepts and capabilities to be born and performed during both civilian and military actions. This paper aims to bring up the progress made in the navy's early stages while focusing on the technological evolution, the expansion of the whole mission spectrum and the historical key-points and figures that made the desire to fly over the sea completely achievable. The paper will illustrate the way in which the embarked helicopter was used to lessen the hardships of achieving economic growth, functional health services and airspace security over the sea, while remaining a highly reliable and efficient airship.

F-22 Raptor

Gabriel ENACHE

"Henri Coandă" Air Force Academy, Brașov, Romania

The paper intends to provide a brief history of one of the top ten aircraft used by the military and to illustrate the superior capabilities of the F-22 Raptor fighter aircraft, known as the best fighter aircraft in the world. By analyzing some of its characteristics, we can see what makes it significantly superior to other aircraft of the same type.

Guidance and Control Modeling for Missile Flight Simulation

Bogdan-Ionuț GĂITĂNARU

"Henri Coandă" Air Force Academy, Brașov, Romania

The current paper intends to present a description of an intermediate fidelity seeker model useful for analyzing the effects of multiple track points within the seeker field of view. Since simulation methodology depends on the type of missile guidance system being simulated and on the objectives of the simulation itself, specific computational methods are given to meet different modeling requirements. The guidance and control functions considered are seekers, guidance processors, autopilots, and control systems. Methods of modeling optical and radio frequency (RF) seekers are given for a wide range of fidelity levels. Lower levels of seeker fidelity are represented by perfect tracking and by accurate tracking but with a time lag.

Chemical Warfare Agents: Classification and Mechanism of Action

Ana-Cristina GEICĂ, Aurelian DASCĂLU

"Mircea cel Batran" Naval Academy, Constanta, Romania

Over the time, chemical agents known as chemical weapons were used both on the battle field and against civilian population in terrorist attacks. The purpose of this paper is to present the main chemical weapons that have been developed in the last century (synthetic toxic elements and biologic poisons) and their mechanisms of toxic action. The chemical agents are responsible for generating free radicals and derived reactants with cytotoxicity effects which could induce neurologic symptoms and damage in different human organisms. Furthermore, it is important to highlight that some potential chemical warfare agents are used as large scale intermediates in chemical industrial process or some others are used for water disinfection (e.g. chlorine), for cosmetic (botulinum toxin) or therapeutic application.

Weapon Systems and Defense Technologies: Comparison Between Past and Present

Caterina GENNARELLI, Maria CONVERTINI

Aeronautical Academy, Pozzuoli (Naples), Italy

History teaches us that we need to know the past to learn to comprehend better the present. This is the reason why this work focuses on the historical evolution of weapons, from their first evidence as rudimentary means through the necessities that led to the creation of the most innovative war systems. The improvement of these technologies has guaranteed greater power to certain Nations instead of others, due to land forces or the air force capable of exploiting ever more performing ground or flying machines. But power is not always something good because the increased strength of armies and their technological advancement have led to the creation of weapons of mass destruction, such as nuclear weapons or chemical weapons. In fact, the way of waging war has changed over time along with the invention of these armaments. If, on one hand the world is saddened by the escalation of the cruelty and dangerousness of the war, on the other hand the same world rejoices in the technological advances and inventions that have made history and that for this reason they deserve to be mentioned properly in this paper.

OERLIKON SKYSHIELD Air-Defence System

Catalin GROZEA

"Henri Coandă" Air Force Academy, Brașov, Romania

The present paper aims to illustrate the evolution and current use of a modern piece of military technology. RAM stands for rockets, artillery and mortar. These widely available weapons are used by asymmetric attackers or terrorist groups. Their intent is to bring the most devastating effects by attacks against vital assets of nations' strategic interests. The Oerlikon Skyshield System is the air defense solution to counter this challenge. It is a re-locatable ground-based air defense system that can protect any civilian or military vital assets from RAM attacks under the spectrum of military operation other than war or even full-scale war scenario.

Types of Seekers for Surface-to-Air Missile Systems

Monica-Andreea HOINARU

"Henri Coandă" Air Force Academy, Brasov, Romania

This paper describes the general terms of a missile and the important functions for the missile flight. The guidance and control functions considered are seekers, guidance processors, autopilots, and control systems. Methods of modeling optical and radio frequency (RF) seekers are given for a wide range of fidelity levels. Lower levels of seeker fidelity are represented by perfect tracking and by accurate tracking but with a time lag.

An intermediate fidelity seeker model useful for analyzing the effects of multiple track points within the seeker field of view is described.

History and Evolution of Unmanned Aerial Vehicles in the Military

Dionisie-Sebastian MARTIN

"Henri Coandă" Air Force Academy, Brasov, Romania

This paper illustrates the history and the process of evolution of unmanned aerial vehicles (UAV) as part of the armed forces and a new element used in the military operations. An unmanned aerial vehicle is an aircraft without a human pilot on board, being operated from the ground by an operator using a remote control or autonomously by onboard computers. The UAV, the ground-based controller and the system of communication between these two are the components of an unmanned aircraft system (UAS). This kind of system is originally used for missions that present high risks for the manned aircraft, representing a better and safer solution for the operation success.

Organization and Classification of Cannons

Andrei-Eugen MIHAITA

"Henri Coandă" Air Force Academy, Brasov, Romania

The current paper presents in a nutshell the organization and classification of cannons. Anti-aircraft warfare or counter air defense is defined as "all measures designed to nullify or reduce the effectiveness of hostile air action". They include surface based, subsurface and air-based weapon systems. It is used to protect naval, ground, and air force in any location. The essence of air defense is to detect hostile aircraft and destroy them. Different cannons have been used in World War I and they have become powerful over the years.

Propulsion Considerations in the Missile Design and Air Defense System

Paul-Cristian MIRICA

"Henri Coanda" Air Force Academy, Brasov, Romania

The missile propulsion considerations that are addressed in this paper emphasize conceptual design methods, design trades, and the technologies for rocket, ramjet, and turbojet propulsion. Consideration is given to propulsion system alternatives, limits on turbojet compressor and turbine temperature, fuel alternatives, rocket propellant weight fraction required to achieve an incremental velocity, solid propellant rocket specific impulse and thrust prediction, solid propellant grain alternatives, solid propellant composition tradeoffs, storage and propellant aging.

Anti-Aircraft Guns

Laurean MÎRZA

"Henri Coanda" Air Force Academy, Brasov, Romania

The paper describes two anti-aircraft guns that detect and trek air targets up to 20 km and compute firing data. These two anti-aircraft guns are called: OERLIKON 35 mm twin cannon and Gepard. The paper further analyzes the design, development, ammunition, cannon, mobility and accessories of these two anti-aircraft guns.

Fire Management System Gun Star Night

Robert-Stefan NECULACHE

"Henri Coanda" Air Force Academy, Brasov, Romania

The present paper analyzes the fire management system Gun Star Night. The "OERLIKON" anti-aircraft artillery system can combat attack helicopters flying at very small and very high altitudes, air-to-ground missiles and aircraft with or without pilot, as well as lightly armored ground targets. Fire management system gun star night it is intended for the discovery and the three-dimensional pursuit of the aerial targets that evolve at low altitude, in the zone of close defense, with maximum speeds of 350 m/s during day or night and the calculation and transmission of the firing elements to pieces.

Comparison Study Between SA-2 "Guideline" Missile System and MIM-104 "Patriot" Missile System

Ionuț Iulian PISCUREANU

"Henri Coandă" Air Force Academy, Braşov, Romania

The purpose of the present paper is to achieve a comparison between two missile systems, namely the SA-2 and the Patriot missiles. With the advent of new generation fighter aircraft, air defense has been forced to develop new missile systems that can fight the target at large, medium and small distances, regardless of speed, or height at which they fly. This new American missile system is called Patriot which will be compared to an older Russian system SA-2.

KUB MISSILE 2K12/SA-6

Pitișciuc ȘERBAN

"Henri Coandă" Air Force Academy, Braşov, Romania

The purpose of this paper is to analyze the main features of a Soviet-made missile. The 2K12 KUB mobile surface-to-air missile system is a low to medium-level system designed to protect ground forces from air attack. Each 2K12 battery consists of a number of similar tracked vehicles, one of which carries the 1S91 (SURN vehicle, NATO designation

"Straight Flush") 25 kW G/H band radar (with a range of 75 km (47 mi)) equipped with a continuous wave illuminator, in addition to an optical sight. The battery usually also includes four triple-missile transporter erector launchers (TELs), and four trucks, each carrying three spare missiles and a crane. The system has a very good mobility even in demanding cross-country conditions. The tracked platform assures that it can be relocated to any positions in defense of key installations. In its tracked form, the chassis makes use of six double-tired road wheels with the drive sprocket at the rear of the hull. The crew is entirely sealed in their armored vehicle while the traversing launcher - fitting the three missiles - sits atop the hull roof.

Company Level C-UAS Actions

Alexandru-Constantin PREDA

"Henri Coandă" Air Force Academy, Brașov, România

The present paper intends to analyze some of the actions meant to assist company level commanders in developing C-UAS techniques. It discusses actions to be taken when anticipating or encountering possible UAS threats while on the battlefield, it contains information about the technical-tactical characteristics of low-high drones and how they act for the purpose of their recognition and their actions in the fight.

A Comparative Study of Efficiency Shooters for Surface to Air Missile Defense Systems against Different Types of Targets

Alexandru Marian RĂDOI

"Henri Coandă" Air Force Academy, Brașov, Romania

The focus of the present paper is on comparing the efficiency of SAMs against various targets. Missile defense has been described as an evolving effort for the last decades. The first missiles to be used operationally were a series of missiles developed by Nazi Germany in World War II which used a mechanical autopilot to keep the missile flying along a pre-chosen route. Today they are the main weapon for attack and defense keeping evolve. The great powers of the world have developed nuclear missiles during The Cold War. The problems in military modernization that have led to its focus on missile forces, the limits to its air capabilities, the developments in its missile forces, and the war fighting capabilities provided by its current missile forces, its ability to develop conventionally armed precision-strike forces, and its options for deploying nuclear-armed missiles.

Ground Based Air Defense Systems' Possibilities of Targets Engagement

Adriana Mihaela RISTEA, Karina-Teodora CRISTIAN

"Henri Coanda" Air Force Academy, Brasov, Romania

The current paper aims at analyzing the development of air defense systems. Surface-to-air missile systems, high-powered, are some of the basic pillars of airspace defense. Their production was the basis of the events of the World War II. They have in the principle ground based, small, medium and large shotgun systems, associated sensor systems, airborne systems, multi-level command and control points. Following the detailed analyzes of the mode of action of the air enemy on the troops and air defense objectives the evolution of the targets includes the characteristics of a Poissonian flow. Referring to the last decades following the evolution of air defense systems, we affirm that they have been developed considerably.

Low Probability of Intercept Radars

Valer ROB

"Henri Coanda" Air Force Academy, Brasov, Romania

The purpose of the present paper is to provide an analysis of the Low Probability of Intercept Radars, as they are very important for the evolution of military battle. In nowadays battlefield realities, radar operations face serious threats from electronic counter-countermeasure (ERM), anti-radiation missiles (ARM) and many more. As a result LPI (Low Probability of Intercept) radars have created a need for the modern weapons category to develop equipment, strategies and technique. These radars are very useful because they have a powerful ability to detect while they are not easily detected by enemy reconnaissance equipment. Furthermore, this article aims to investigate the LPI impacts of radar and radar characteristics, principle, waveforms and performances.

AWACS Surveillance Radar

Mădălina ROCA

"Henri Coanda" Air Force Academy, Brasov, Romania

The present paper intends to provide a brief history of airborne surveillance radars. Airborne Warning and Control System (AWACS) aircraft have been used by major air forces for decades. In recent years the capability has become more widespread, with several smaller air forces acquiring AWACS aircraft. Today, AWACS is widely accepted as a fundamental asset for scenarios ranging from all-out war to peacekeeping.

CYBER TERRORISM AND ITS EFFECTS

Ștefan ROȘALĂ

"Henri Coanda" Air Force Academy, Brasov, Romania

The purpose of the present paper is to highlight some of the features of cyber terrorism. Cyber terrorism is perceived as the new way of waging war. It constitutes one of the latest techniques by which terrorists carry out their activities. The term "cyber-terrorism" refers to the use of tactics and techniques of computer warfare by terrorist organizations, affecting cyber-space. The goal of the cyber terrorist is to do propaganda, plan and coordinate terrorist attacks or lead psychological warfare. There are different methods by which a cyber terrorist can affect certain organizations or the population, methods as damage to public transport or actions on electricity sources.

The Effects of Weather Conditions on the 2x30 mm Cannon and on its Crew

Andreea-Maria SAUCIUC

"Henri Coanda" Air Force Academy, Brasov, Romania

The purpose of the present paper is to highlight some of the features of cyber terrorism. Cyber terrorism is perceived as the new way of waging war. It constitutes one of the latest techniques by which terrorists carry out their activities. The term "cyber-terrorism" refers to the use of tactics and techniques of computer warfare by terrorist organizations, affecting cyber-space. The goal of the cyber terrorist is to do propaganda, plan and coordinate terrorist attacks or lead psychological warfare. There are different methods by which a cyber terrorist can affect certain organizations or the population, methods as damage to public transport or actions on electricity sources.

The Analysis of Wheeled Armored Carriers with Configuration 4x4

Patrik ŠELINGER

Armed Forces Academy of General Milan Rastislav Štefánik,
Liptovský Mikuláš, Slovak Republic

The main purpose of my paper is to analyze some of the armored vehicles 4x4, which are part of the Slovakian (OS SR) and other armies, and also armored vehicles coming to the military market in the near future. In the first chapter I will introduce each vehicle and their basic technical-tactical data. The following part will be focused on comparison of each vehicle according to the chosen method. The selected parameters will focus on the mobility and vehicles, and then they will be sorted by comparison results. The purpose of my work is to get acquainted with the current development trends in armored vehicles with configuration 4x4 and also a comparison according to the chosen method of selected vehicles.

Propulsion Systems

Ioana Mihaela TANASE

"Henry Coanda" Air Force Academy, Brasov, Romania

This paper provides a general description of propulsion systems suitable for missiles. These systems are solid- and liquid-fuelled rockets, liquid-fuelled ramjets, solid fuel ducted rockets (ram rockets), and scramjets. Concise summaries about testing are also given, and mention is made of a scramjet test facility developed by the Defense Research and Development Laboratory (DRDL) in Hyderabad, India. This facility is part of the DRDL hypersonic program entitled 'Hypersonic Technology Demonstrator Vehicle' (HSTDV).

Analysis of the 2x30 mm Anti-Aircraft Cannon

Dragos-Alexandru TANASE

"Henri Coanda" Air Force Academy, Brasov, Romania

The complexity of land forces' action is manly determined by a multitude of factors specific to the operational confrontation environment that affects missions' accomplishment. The airspace responsibility as a dimension of the operational environment is the active component of air defense artillery structures in the joint units. Due to the difference of the force ratio and the technological gap between the air and the air defense factors, there have been significant changes in terms of the design of air combat. Regarding these conditions, there have been designed different artillery pieces in many countries, for instance the 2x30 Romanian anti-aircraft cannon. Within the space constraints of this article, the current paper will mainly refer to the 2x30 Romanian anti-aircraft cannon.

Tracking Point Precision Guided Firearm

Ionel-Mihaita TESLARU

"Henri Coanda" Air Force Academy, Brasov, Romania

This paper intends to provide an analysis of the "Tracking Point" technology. Tracking Point is an applied technology company based in Austin, Texas. In 2011, it created a long-range rifle system that was the first precision guided firearm. Those firearms are called Precision-Guided Firearms (PGF) and they constitute a comprehensive, purpose-built weapon system that leverages the same tracking and fire-control technology found in advanced fighter jets. The Tracking Point PGF system is the first and only rifle optics system to offer the advanced technology that guides the release of ordnance. Known as Trigger Link, this fire control system virtually eliminates human error caused by misaiming, mistiming, and central nervous system jitter.

Skydiving - the Sport with the Most Sensations

Bogdan TRIFA

"Henry Coanda" Air Force Academy, Brasov, Romania

The present paper aims to provide a brief history of parachutes and their connection with the extreme sport of skydiving. Skydiving is part of the category of dangerous sports, for which it is necessary to obtain a patent, following some courses on theoretical and practical training. Even folding a parachute requires the assimilation of some knowledge. Defective bending, but also incorrect handling during the fall, can lead to accidents, most often fatal. At first the parachutes were made of linen, then silk. Currently, modern, more durable synthetic materials, such as nylon, often covered with silicone, are used to enhance performance and increase durability.

MEADS Medium Extended Air Defense System

Marian TURI

"Henry Coanda" Air Force Academy, Brasov, Romania

The purpose of this paper is to analyze the MEADS (Medium Extend Air Defense System), a mobile Air and Missile Defense System that is easily transportable, tactically mobile and uses the hit-to-kill PAC-3 MSE Missile to defeat tactical ballistic missiles, cruise missiles, unmanned aerial vehicles and aircraft, providing full 360-degree engagement. MEADS is the first air and missile defense (AMD) system that provides continuous on-the-move protection for maneuver forces. MEADS also provides area defense, homeland defense, and weighted asset protection. Because it has no blind spots against the evolving threat and offers improved range, interoperability and mobility, MEADS improves capability to defend troops, friends and allies in critical areas around the globe.

Flakpanzer Gepard

Alexandru-Gabriel VRABIE

"Henri Coanda" Air Force Academy, Brasov , Romania

The purpose of the present paper is to highlight the importance of one of the AA guns. The Flakpanzer Gepard is a heavily armored, all-weather capable self-propelled anti-aircraft gun (SPAAG). Developed and manufactured in the 1960s by Krauss-Maffei Wegmann (KMW) , based in Munchen , Germany, was delivered to the armed forces of Belgium, Germany and Netherlands. It constituted the cornerstone of the air defense for the German Army (Bundeswehr) and a number of other NATO countries. The Gepard has served non-stop since its introduction and has only started to see retirement in 2010. It has served with a number of countries.

3. HUMANITIES & SOCIAL SCIENCES

D-Day in Cinematography: A Comparative Analysis of Three Major Cinematic Representations

Mihai-Alexandru ANDRIES

"Henri Coanda" Air Force Academy, Brasov , Romania

The article is an exploration of the way in which cinematography left its mark on today's cultural, collective representations of the famous day of June 6th, 1944, also known as D-day *or* Operation Overlord*. A link between three major movies on the topic* – The longest day *(1962),* Overlord *(1975) and* Saving Private Ryan *(1998) – will be established, along with the elements that contribute to their considerable impact. The aim is to analyze the way in which we perceive the events that took place on 6th of June 1944 through cinematography. The complexity, the meaning and the impact of the invasion will be taken into consideration.*

Peer-to-Peer Marketplace

Victor-Mihai BĂBĂNEAȚĂ

"Henri Coanda" Air Force Academy, Brasov , Romania

The present paper aims to analyze a new reality – Peer-to-Peer marketplace. Marketplace advancing, or peer-to-peer (P2P) lending, is getting more and more popular all across the globe. It is a completely new segment in financial services which mixes together innovation and technology to provide an improved lending experience, potentially involving millions of borrowers all over the world. However, the larger dynamism that surrounds this new segment makes it very difficult to distinguish opportunities, emerging business models and the potential risks in the Peer-to-Peer space. P2P is unique on the aspects of how it is founding its capital from online investors and the potential for interaction between lenders and borrowers in a direct way, whereas cost efficiency is not exclusive to the P2P model.

The Death of Europe – The Erosion of European Values in a Multicultural World

Răzvan BOJICA

"Henri Coandă" Air Force Academy, Brașov, Romania

The purpose of the present paper is to analyze some of the contributing factors to the erosion of European values in a multicultural world. Europe is experiencing a

phenomenon heralding its end. What once defined the Old Continent is gone. The fire with which our once proud civilization created a society ruled not by fear, but by law, not by dictators, but by the voice of the people and not by promises of glory, but by promises of peace is gone. As all great civilizations, Europe will die a slow death that will last centuries. Like ancient Rome herself, no one will notice that our Lady Europe is no more until another civilization sits on her throne under the bright Western sun.

The Competition between Airbus and Boeing Ensues in Deaths

Alexandru-Gabriel BOTAȘ

"Henri Coandă" Air Force Academy, Brașov, Romania

The current paper aims to analyze some of the drawbacks resulted from the competition between two airliner producers. Boeing and Airbus companies are in a fierce rivalry being the holders of first places in world ranking of aircraft manufactures. According 2016 Commercial Aviation Fleet & MRO Forecast, Boeing was ranked on 1st place with 38% of market share and Airbus has 28% of the same industry. Thereby the dominance over large jet airliners market since early 1990. So, these days, if one chooses to fly, one will do it either in an Airbus or a Boeing. However, the hurry resulted from this competition led to a significant mistake which cost over 300 lives because of the attempt to save money and time.

Decision Making for Pilots

Andrei COMAN

"Henri Coandă" Air Force Academy, Brașov, Romania

The present paper aims at analyzing some of the factors that may affect the pilots' capacity to make decisions. The numbers speak for themselves. Poor decision making is the root cause of many—if not most—aviation accidents. Year after year, the NTSB (National Transportation Safety Board) attributes approximately 75 percent of all aircraft accidents to pilot error, with a very large number the direct result of poor decisions. In the first instance, aircraft pilots operate in a highly complex environment, and in single-pilot operations the situation is especially critical. The second problem relates to inadequate information. Third, pilots are goal-oriented by nature (Adams & Paync, 1992). Finally, another limiting factor is that of habit. Habitual reactions free pilots from having to concentrate on the mechanical aspects of flying. The difficulty areas when pilots convert to different types of aircraft in which the originally learned habits are no longer appropriate. Under panic situations this can be, and has been, catastrophic.

Leadership Aspects and its Applicability in the Military Life

Ioana-Daiana COVRIG

"Henri Coandă" Air Force Academy, Brașov, Romania

Leadership has been the subject of interest for many researches that, over time, have tried to provide a general guideline of how a good leader must act to reach high performance at all levels of an organization. This paper gives an introductory perspective of how leadership influences military life and it questions the fact of which type of leadership, transactional or transformational, is more suitable to this type of institution. Furthermore, it discusses general aspects of leadership, how they may be present in the military and how it must be adapted to today's challenges. Finally, this study provides a better understanding on the differences between the main leadership styles and an answer to the question of which are the characteristics that a commander must possess in order to become a true military leader.

Happy New Fear! Public Speaking and its Avatars

Georgiana-Catalina CRISTEA, Denisa-Maria DULEA, Laura CIZER

"Mircea cel Batran" Naval Academy of Constanta, Romania

The purpose of this paper is to introduce and ponder a worldwide known problem: the fear of public speaking, also called glossophobia, and to answer several questions that have been asked multiple times over the time. This fear reduces self-confidence, limits the efficiency of the activity to perform and, in severe cases, it can make social interactions really difficult. The reason why we have chosen this particular topic is because it is really important to know how to overcome this fear since in our capacity of future officers, we will find ourselves in the position of frequently delivering speeches in front of larger or smaller audience. This paper contains a short description of this phenomenon, its causes and few helpful ways to cope with glossophobia. In conclusion, the questions that have been asked in the beginning will find their answer(s), not just because we need to handle speaking in public, but because 75% of the worldwide population needs it, according to statistics.

Expertise and Age Differences in Pilot Decision-Making

Teodor DAN

"Henri Coandă" Air Force Academy, Brașov, Romania

The present paper intends to analyze some of the pilots skills and how age can affect pilots in their decision making process. Furthermore, the paper illustrates a case study conducted several years ago, from which conclusions were established by the experts. Experts also spent more time reading critical information in the complex scenarios, which may reflect time needed to develop elaborate situation models of the problems. Expertise

comprehension benefits were similar for older and younger pilots. Older experts were especially likely to elaborate the problem compared to younger experts, while older novices were less likely to elaborate the problem and to identify appropriate solutions compared to their younger counterparts. The findings suggest age invariance in knowledge-based comprehension relevant to pilot decision making.

The Concept of Safety

Sonia-Ruxandra DELIMAN, Roxana Iuliana SAVIN

"Henri Coandă" Air Force Academy, Brașov, Romania

Ever since humans have inhabited the world, all human activities have been based on the concept of "safety". For both, the primitive man and the modern one, safety was the number one priority. The aviation industry is a complex and safety-critical field. Even though the aviation system cannot be entirely free of hazards and risks, its main purpose is to eliminate aircraft accidents and incidents. This paper shows the importance of the Safety Management System, which was introduced by the International Civil Aviation Organization, known as ICAO. This new system, together with Annex 19, published in 2013, kept safety risks at an appropriate level, with a balance between production or services and protection. This paper highlights that identifying hazards and managing flight risk factors are the "key" related to security. Furthermore, the Safety Management System is adopted by many others threatening industries such as nuclear or petrochemical industries.

Compromise as the Central Element of Politics. Different Types of Compromise that Are Suitable to Solve Different Types of Conflicts

Julian DOHMEN

German Air Force Officer School, Fürstenfeldbruck, Germany

One characteristic feature of western democracies is the persistent dissent between individuals and groups of the most diverse political, ideological or religious orientation. This begins at the smallest level of regional politics and simultaneously takes place up to diplomatic relations on a supranational level. Joint political decision-making is always faced with the challenge of joint decisions on action. Rarely enough, however, all parties involved in the decision-making process share the same objectives. Parties must meet each other on the path to decision-making. This requires compromises which again require concessions from all parties. Especially in the field of foreign and security policy and within the political development of international relations, decisions on action sometimes determine the development of entire political systems. The EU, the UN and NATO are excellent examples of bodies in which compromises are essential to day-to-day policy. But what constitutes a compromise as such? What phenotypes can compromise assume? This paper is intended to give the reader an overview of the most important

forms of compromise. In particular, it is intended to provide an understanding for a normative evaluation of various compromises found at the political level.

The Multicultural Dimension in the Current Battlefield

Ionuț-Ciprian DUCA

"Henri Coandă" Air Force Academy, Brașov, Romania

The current paper intends to analyze the role of the multicultural dimension in the accomplishment of military missions. Today, cooperation between members of different nations is vital because problems of political, ecological, military, sanitary nature do not stop at national borders. The world is full of confrontations between people and groups, who behave, think and feel differently. In order to facilitate intercultural cooperation, it is necessary to understand the different mentalities specific to each people.

The Factor of Stress in Air Traffic Control

Ioana-Cristina DUMITRAȘ

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The current paper aims to highlight the possible outcomes of stress in the field of air traffic control. Stress is associated with a state of pressure on the body that forces it to cope and adapt to new demands. Occupational stress derives from the complexity or the degree of responsibility with the risk of the activities. According to the latest studies in the field, air traffic control is the most stressful job in the world. It is an extremely demanding area, which requires very high levels of responsibility, with inherent stress due to its nature and the complexity of the tasks involved. The responsibility towards people is the most soliciting form of stress.

The Importance of Personal Development and Growing Emotional Intelligence

Diana GALATESCU (DURDUREANU), Theodora Bianca GEORGESCU

Ovidius University, Constanta, Romania

The present paper aims to illustrate the interconnection between the emotional intelligence growth and personal development, which represent the foundation of all of the other abilities in every field or every domain a person chooses to improve itself. Intelligence is a choice, a way of being rather than a title. Emotional intelligence helps in understanding the abilities needed to become a high performer, to manage better every segment of the life. Associations are related to interpersonal aspects of emotional intelligence such as better social interaction, and also to intrapersonal aspects, such as sympathy, relation management and mood adjustment.

Stress and Its Implications in Everyday Life

Cristian-Pavel EFREM

"Henri Coandă" Air Force Academy, Brașov, Romania

A current issue of today's everyday life, that influences the entire world, is represented by the complex psychosocial phenomenon we call stress. In connection to this, there is a long history of attempts to define and fully understand this phenomenon. There is no precise definition of stress, but there are different approaches presenting its main characteristics. The emergence of stress as a widespread, defining feature of human life dates back about a century ago, in the 20th century, with a strong impact on people's personal development and professional performance. The low productivity of employees involves significant losses for organizations. In this case, different research programs have been initiated in order to find methods to enable stress prevention, reduction and elimination. For some people, stress means suffering, ultimately leading to depression and suicidal thoughts. The purpose of the present paper is to analyze stress as a phenomenon in evolution and pinpoint the causes and effects of stress on everyday life.

April 14th, 1994: Analyzing the Sikorsky Helicopter Crash

Liviu GAVANEANU

"Henri Coandă" Air Force Academy, Brașov, Romania

Air crash investigations and the identification of the causes having led to the event are highly difficult, because most often than not, there is no single problem, but several, inter-conditioned and intertwined factors, which lead to such an accident. The present paper focuses on the Sikorsky helicopter crash of April 14, 1994 as a case study of both the event itself and the related investigation. Conducting safety investigations of aviation accidents and incidents promptly improves aviation safety and helps prevent the occurrence of further problems. But in order to establish the truth and the criminal liability of the persons responsible – if any – a thorough and complete investigation of the crash scene and a complex, well-prepared team to conduct and document it are essential.

The Mass-Media and Terrorism – the Terrorist Attack of World Trade Center (1993)

Ioana-Teodora GEANĂ

"Henri Coandă" Air Force Academy, Brașov, Romania

Modern forms of terrorism, despite the normative acts and anti-combat laws, are aimed at the civilian population. Civilians are an easy and effective target for terrorists, as the randomness of such attacks typically causes a general feeling of anxiety. The basic message of the terrorists is: anyone, anywhere, anytime can be the target of the next attack – a threat undermining the ability of the civilian population to lead normal,

peaceful lives. The present paper presents a case study on the connections between the media and terrorism, touching upon such key issues as the principle of mutual interest, and the impact this relationship has on civilians' security. The real life event analyzed here from the said perspective is the 1993 World Trade Center terrorist attack.

A Double (Romanian vs. American) Perspective on Navy Traditions, Customs and Courtesies

Robert-Bogdan ICHIM

"Mircea cel Batran" Naval Academy, Constanța, Romania

Military traditions, customs, and courtesies develop a sense of pride in the military service and establish strong bonds of professional and personal friendship. Most military customs and courtesies evolve from long-standing practices or have some historical significance. Firstly, this paper will point out the definitions of key terms such as: tradition, custom and courtesy. *Secondly, it will present the most important military traditions, customs, and courtesies in the Navy. Brief comparisons between the American Navy and Romanian Navy will also be made. The first comparison will concern the Navy Flags, followed by the origins of the Navy. Then, mentions will be made on the famous Navy Oath of Enlistment and what it means for the military, and on the uniforms of the American and Romanian Navies. Moreover, the paper will include a presentation about the origins of military salutes and the ways to address to a military member. Last but not least, the paper will illustrate some of the most famous and important ceremonies and celebrations in the Navy, such as the withdrawal torch march and burials at sea. In the end, this paper will highlight the importance of traditions, customs and courtesies in the Navy, and show that the Navy is more than just another uniformed service.*

The Role of Mass-Media in Countering Terrorism

Dana-Ștefana IFRIM

"Henri Coandă" Air Force Academy, Brașov, Romania

Specialized research papers highlight the fact that, with the emergence and evolution of democracy, terrorism has also gained a certain moral legitimacy and, with this, the number of attacks has proportionally increased. Based on the freedom of expression of the media, the admission that terrorism may become a permanent, natural feature of our everyday lives leads to its development from all points of view. This relationship is based on the principle of mutual interest – an apparently paradoxical connection, since terrorist propaganda is based on the denial of communication and not on its recognition. Terrorism does not favor interaction, but shock, it wants publicity, but fears information. For this reason, most of the times, the real meaning of the terrorist act remains unknown to the public opinion and the press, decipherable only for the political leaders who hold the key to the attack. This paper analyzes the relationship between the mass-media and terrorism and contains a brief case study on the terrorist attacks at the World Trade Center and the media coverage of the events.

Militainment: A Modern Way of Propaganda

Daniel – Constantin IVAN

"Mircea cel Bătrân" Naval Academy, Constanța, România

The term 'militainment' itself shows a new perspective of two different terms combined in one, to render a whole new meaning. Thus, the present paper will describe the way in which this term appeared, how it has been used over time, and will discuss its "cause and effect" principle, which is a visibly modern action able to influence global economy, war and morals. Furthermore, this paper highlights the manner in which video games developed and captivated a significant audience, men and even women who want to enjoy and "live" a new sensation, get a bit of action or even succumb to the propaganda implemented in war games. Another important category of militainment discussed here are the movies. The military movie industry increases exponentially and still produces a lot of movies and many more series. Last, breaking news and talk shows are the latest components of militainment propaganda, and can be defined as a "heavy" drug for the audience.

Positive Thinking

Andreea-Ramona IORDACHE

"Henri Coandă" Air Force Academy, Brașov, Romania

Almost everyone says they want to be successful, but not everyone knows what it takes to get there. Without the power of positive thinking and without fully believing in yourself, it seems almost impossible to achieve much of anything in this life. Maybe the only way to make things happen is to will them to happen. No one will fight for you harder than you. As leaders, we have a responsibility not only to find the good, but to make the good. Positive thinking may not only light up your own life, but allow you to be a light for others.

Climate Changes in Romania

Aniela – Sorana IȘOIU

"Henri Coandă" Air Force Academy, Braşov, Romania

This article will examine the climate changes having occurred within the climatic regime of Romania. The climate is in a process of permanent change. Although research shows that the weather has been less positive over time, nothing certifies that it will continue to change in the future. Climate changes, in the form of persistent droughts or delays in the annual monsoon rains, can adversely affect the life of the entire ecosystem. Studies and scientific articles address this issue from two perspectives. The first one argues that climate change is caused by natural causes and is transformed very slowly due to the non-periodic variability of the weather. According to this perspective, change is only visible over thousands of years, enough time for humanity to adapt. The second viewpoint refers to the fact that climate changes are deviations from the normal climate and are caused

by the human factor – and in this light, the consequences will be visible in a very short time.

Motivation - The Key to Success

Alexandru ISTRATE

"Henri Coandă" Air Force Academy, Brașov, Romania

Motivation is the basis of behaviors and activities and must be provided to individuals in groups in accordance with specific requirements. If the work one does can be related to, motivation can offer professionals a sense of their special role. Depending on the way in which one cares about their work, the social value of the work is realized (seen, understood and practiced) to different degrees, and in the social context, this involvement generates a feeling of self-actualization and consequently produces further motivation. But another aspect to consider is the fact that motivation is based on needs, which form the infrastructure of most human activities and behaviors. The paper analyzes motivation as a key to success by analyzing its main traits and functions.

Explaining North Korea's Nuclear Ambitions: Power and Position on the Korean Peninsula

Jaap KOOPMAN

Royal Netherlands Air Force

This paper will assess the article "Explaining North Korea's Nuclear Ambitions: Power and Position on the Korean Peninsula" by Anderson, N.D. Furthermore, this paper critically analyses the arguments made in the article to bring out any inconsistencies and invalidity. All of this will be done in an attempt to answer this paper's pertinent research question: What would incentivize North Korea to undertake peaceful, irreversible and complete denuclearization?

The Maritime World: Ghost Ships and Their Haunted Stories

Iulia LUP, Irina GHERHEȘ

"Mircea cel Bătrân" Naval Academy, Constanța, Romania

Unfortunately, being at sea involves interesting experiences, but also quite a number of accidents. Several such accidents remain unexplained because the ship and its crew suddenly disappear. Therefore, our purpose is to unlock some of these mysteries. Firstly, some information and details about this topic will be provided. After that, explanations and definitions of the keywords will follow. Secondly, there will be a presentation of four of the most famous ghost ships of the maritime world and their weird stories. The first tale, and probably the most famous one of these four, is about "The Mary Celeste" ghost ship. Its story has repeatedly been complicated by false detail and fantasy. The second

one will be about "Sea Bird", the ghost ship which has two survivors on board-a dog and a cat. The last but one ship is "The Flying Dutchman", whose legend says that the crew which was on board has been cursed to sail the oceans for eternity. Last but not least, there will be "The Lady Lovibond" and its amazing story of love, jealousy and betrayal.

Threats to National and NATO Security

Denisa-Ioana MĂLUŢAN

"Henri Coandă" Air Force Academy, Braşov, Romania

The contemporary security environment is subject to new challenges and changes. The evolution of society demands the appearance of new threats, risk and vulnerabilities to national security. This paper illustrates the types of threats which are known to the current NATO and national security, but also those which are not publicized, as well as the role of the great global powers that influence other states.

The Unforeseen Benefits of Gaming on the Human Brain

Răzvan-Laurențiu MARICA

"Henri Coandă" Air Force Academy, Brașov, Romania

The purpose of the article is to show the importance of gaming and the beneficial effects it has on our brain and our well-being. The media tends to show the negative influence that video games have on our health, but there are studies that inform us of the opposite, positive effects. Hence, this approach seeks to answer the question: "Is gaming a bad habit or it can actually help improve various cognitive functions?", based on a review of recent studies in medicine and neuroscience. Thus, the present study first explores the possible importance of gaming in certain medical domains. Then, it focuses on how the brain has been shown to benefit from gaming on the cognitive level and how certain video games could further hone Air Force pilots' attention and coordination skills. Eventually, it sets out to draw some conclusions in accordance with the current scientific findings it showcases.

Crew Resource Management in Flight Training

Cristian MIHAI

"Henri Coandă" Air Force Academy, Braşov, Romania

This research is related to the main topic of for my bachelor's degree final project. This paper refers to crew resource management in the context of flight training, and first discusses safety management systems, decisions, risk management, physiological factors, and communication. For the second part, it analyzes an aviation accident the cause of which is CRM.

The Mass-Media and Terrorism – The 2015 Baga Terrorist Attack

Livia Adriana MIHAI

”Henri Coandă” Air Force Academy, Braşov, Romania

One of the most dangerous and present threats of our globalized world is terrorism, which can have devastating effects on both the security of states and their citizens. In recent years, the media has become a method, but also an efficient means of communication, through which they are able to negotiate and spread ideologies, information or terror. The present paper is an analysis of the connections between the media and terrorism, based on the “principle of mutual interest” and highlights, as a case study, the said relation’s impact on Nigeria's security in the context of the 2015 Baga terrorist attack.

The Role of Personality in Crisis Decision Making

Atila MUSTAFA, Victor-Dumitru SPIRESCU, Alexandru SĂRĂCIN

Ovidius University, Constanta, Romania

Every once in a while, people around the world may find themselves ripped away from the comfort of daily routine and into extreme, potentially life-threatening crisis situations in which intuitive decision making may be critical to a preferable outcome for those involved. This project’s purpose is to assess the differences in decision making found among the various NERIS Type Explorer personality types and among individuals who share their personality type.

Social Psychology - The Dynamic of Groups

Sebastian MUNTEANU

”Henri Coandă” Air Force Academy, Braşov, Romania

The article focuses on the psychology of groups, aiming to enhance the understanding and optimizing of group processes, to help discover and develop leadership, and teamwork-related skills, as well as communication and decision-making skills in a group. The paper contains information regarding the theory of groups (definition, classification, characterization and dynamic), the leading of groups (concepts, definitions, leadership models), group activities (performance, social loafing, the productivity factors of groups) and concludes on some key psycho-social elements governing the dynamic of groups.

STUXNET: The 'Olympic Games Operation'

Adrian-Constantin MURGU, George IONESCU

"Mircea cel Bătrân" Naval Academy, Constanța, Romania

This paper presents the first offensive cyber sabotage operation, used against Iran's nuclear program, by the United States and Israel, to delay the development of nuclear weaponry. For the first time in history, it became clear that cyber weapons can be used as offensive weapons, not just for defense. This operation was called 'Operation Olympic Games' and it was a hidden and yet unknown campaign of sabotage through cyber disruption that used a virus called 'STUXNET'. The main body of this paper will include the meaning of this operation and its virus, the way in which it was born, its purpose, functioning, and in the end a narrative of what happened will be shown, when it was discovered and of course, the conclusion.

Introduction to Aviation Psychology

Bogdan MUSCALU

"Henri Coandă" Air Force Academy, Braşov, Romania

In this article I tried to introduce aeronautical psychology into the discussion. This topic is as complex as it is interesting. The article is part of the introduction of my license work, which is why the subject is treated very superficially. My goal is to create a general idea and to arouse curiosity about a known subject, but omitted for various reasons.

The Effects of Video Games on the Mind

Atila MUSTAFA, Irina OBRETIN

Ovidius University, Constanta, Romania

While video games have a lot of benefits, like increasing happiness, increasing the player's learning ability, teaching life skills and increasing one's potential for success, they can also lead to addiction, social inadequacy and violent tendencies. A video game is created in such a manner that it predisposes the player to addiction by stimulating the brain. While playing a game, the brain releases large amounts of dopamine, which in time leads to permanent changes in brain structure. This paper aims to highlight the influential factors for which people play video games, both for their beneficial and negative effects.

The Challenges and Opportunities of Multiculturalism: A Comparative Analysis between Germany and France

George-Daniel NISTOR, Cristian-Marius NISTOR

"Mihai Viteazul" National Intelligence Academy, Bucharest, Romania

Multiculturalism is an aspect which impacts every facet of our everyday lives and today's society is almost a synonym of multiculturalism in countries like Germany and France. But the main issue is the way in which we have adapted to this ubiquitous phenomenon and, if we haven't adapted, the way in which we could adapt to it. Adapting to multiculturalism and the process of immigrants' integration imply significant efforts and resources allocated in order to attain this goal. Thus, this paper aims to generally describe the phenomenon of multiculturalism and, particularly, to provide a comparative analysis between Germany and France regarding their education policies, school education and language skills of the immigrants.

Judgment and Decision-Making in the Case of Pilots

Petru Octavian NIȚĂ

"Henri Coandă" Air Force Academy, Brașov, Romania

The ability to make a good decision in a very short time based on a good judgment are skills that a pilot should not lack. They can be learned. Poor judgment and incorrect decisions, or even indecision, are the major causes of airplane incidents and accidents, rather than the pilot's poor flying skills. A faulty decision to continue flying under bad weather conditions over dangerous terrain is much more likely to be the cause of serious accidents than the pilot's inability to land the aircraft. A pilot must often make spontaneous decisions, whether it is risky or not, but what if they do not make the right one? A possible answer is to be provided by means of a comparison between a risky decision and a hesitant decision.

The Role of Teaching in Military Training

Ömer ÖÇAL

"Henri Coandă" Air Force Academy, Brașov, Romania

This paper aims to highlight the importance of teaching in any formative environment and especially in the military. The underlying concepts of teaching, its peculiarities, the beneficial effects it has on a group are present, the methods to be used in order to achieve the desired results are similar, but not identical. This is why the main focus of the present approach will be on the way in which teaching contributes to the formation of a military leader, as the ensemble of a leader's competencies is rendered in the model of the graduate.

Rise and Fall of the Islamic State

Ștefan ONEA

"Mircea cel Bătrân" Naval Academy, Constanța, Romania

Terrorism is undoubtedly a subject of great importance in today's society. In fact, the topic is critical for the modern world's history, especially in the aftermath of all the tragic events having succeeded each other during the last decades. The Islamic State is one of the world's most powerful terrorist groups, with an extraordinary story. It has come from nothing at a time at which a war was causing serious damage in Iraq and has risen to the scale of the world's biggest militant forces, having a great number of members across the world. They are one of the most mysterious forces to have emerged, apparently rising from nothing and inspiring fear everywhere, but falling tragically, like any other great empires in history.

The Internet and New Media Evolution

Alexandru PARTENE

"Henri Coanda" Air Force Academy, Brasov, Romania

The interaction between the mass media and society gets new attributes at the moment. The consequences of the new information and communication technologies are continuously brought into discussion. This paper will focus firstly on the fact that the said technologies not characterized any longer by the "mass" determiner; therefore, the theories founded on the old premises of "mass society" or "mass distribution" should be reviewed starting from the new realities. Secondly, the presentation will focus on the powerful global trend to make the switch from the modern industrial society – based on energy, capital, work – to the "information society" – based on information and knowledge.

Women and Military Careers between Past, Present and Future

Daniela PETRAS , Laura (STANCIU) SERBAN

Ovidius University, Constanta, Romania

This paper refers to the women in the military who, together with their male colleagues, defend and protect the country and get to lead important battles in conflict zones, departments and ministries and do not forget to be women, mothers, wives, and daughters. The historical achievements of women in the military, who have stood out, rely on a combination of motivation, self-confidence, and courage, determination in every action and mission, at every moment of their lives, able to lay solid foundations for a better future for those who will choose a military career. In this specific field, women continue to command respect through work and tenacity, ambition and struggle to continue to be both professional and personal role-models. The portraits presented in the

paper illustrate an increase, during these last years, of the number of women who pursue a military career but at the same time, provide a clearer image of the problems they face, and certain solutions are highlighted as applicable in this direction.

The Psychological Profile of Military Aircraft Pilots

Mirela-Daniela PETRE

Ovidius University, Constanta, Romania

This paper provides information about the psychological profile of military pilots, the difference between movies and reality, shows how it all started in the twentieth century and how it evolved up to present-day realities. The main focus is represented by the attack and utility pilots and their personality features. Based on the results of the present research, military aviators do not fit the stereotypical movie profile in terms of personality, they are more emotionally stable and calm under pressure and more committed to following standard operating procedures rather than engaging in reckless behaviors.

Study Regarding the Level of Professional Satisfaction Among Students

Raluca PETRESCU, Cosmin TIMPAU

''Nicolae Balcescu'' Land Forces Academy, Sibiu

The concept of professional satisfaction is the most studied subject in the field of organizational behavior. One of the oldest discoveries regarding organizational psychology is refers to the level of productivity and satisfaction at work, which are related to the conformity between the individual characteristics and job requirements. It is probable that a person would start looking for a job that allows them to perform tasks which they are best suited for and this might provide them with maximum enjoyment in order for them to reach a high level of professional satisfaction. In order to validate or invalidate this idea, we conducted a comparative analysis between military and civil students.

The Relationship between Burnout and Self-Acceptance in Organizations

Dorina REVICI

Ovidius University, Constanta, Romania

The profession of police officer is associated with psychosocial danger. Burnout, stress and a low self-esteem often affect policemen and can affect the functioning of the organization, as well as public safety, these variables altering work-related emotions. While negative emotions have been studied extensively,

the role of positive emotions at the workplace is relatively unknown. It is known that police officers experience traumatic events daily. Whether these events are physically experienced by the officers or they witness of the consequences, each critical incident can have a lasting effect. The purpose of the study is to identify the relationship between burnout and unconditional self-acceptance, applied on a sample of 40 male officers, from the urban area, aged between 30 and 47 years old.

The SHELL Model

Roxana Iuliana SAVIN, Sonia-Ruxandra DELIMAN

"Henri Coandă" Air Force Academy, Brașov, Romania

The SHELL Model is one of the most used models for analyzing the interfaces between the human factor and other elements, such as: equipment, weather, rules, procedures, machines, etc. The components of the SHELL model are: Software, Hardware, Environment and Liveware. The impact of human factors in the areas concerning the health of the operational staff and system efficiency determined its need in the system. This model also suggests that the human factor is the main cause of accidents and the factors which interact with human operators affect the performance of these operators. The most important tasks regarding human factors are in the area of preventing the errors made by people and managing them through the education of human factors.

Study on the Role of Facial Micro Expressions in Interpersonal Relationships Specific to Staff-Officer Students

Raluca-Maria ȘERBAN

"Henri Coandă" Air Force Academy, Brașov, Romania

Micro expressions are facial expressions that occur within a fraction of a second. This involuntary emotional leakage exposes a person's true emotions. Micro expressions are important because they occur in everyone, often without their knowledge, there is no way to prevent them from occurring and learning to detect this leakage is critical for emotional intelligence and deception detection. Communication is the key in our society.

Weapons that Do Not Kill

Ionela Nicoleta TECUȚĂ

"Henri Coandă" Air Force Academy, Brașov, Romania

This article contains information about how people's way of thinking can be influenced by what they see, listen or read without even noticing and how much they can be determined to operate in accordance with other people's wishes. Also, the factors specific

for the process of influencing someone's way of perceiving the world are presented, as well as the repercussions of this action.

Fact or Fiction: A Discussion around Conspiracy Theories

Raul-Sebastian TRAICA, Mihnea-Alexandru MOISE

"Mircea cel Bătrân" Naval Academy, Constanța, Romania

Conspiracy theories are a part of the world because people have different perspectives on some events that occurred and believe that someone or something is behind them. Firstly, this paper will point out four of the most popular conspiracy theories: the assassination of JFK, the Apollo 11 mission, the 9/11 tragedy and the Coronavirus. Secondly, the paper will show some information about each event and will try to unravel the truth on what happened, pointing out the arguments for and against several hypotheses. In the end, the authors of this paper will synthesize a personal opinion on the matter.

Fragility versus Aggression as a Factor of Professional Selection within Police Structures

Simona TRIFU, Ana Alice ȚARĂLUNGĂ, Antonia Ioana TRIFU

Medical Military Institute, Bucharest, Romania

We propose some psychodynamic explanations on the different groups of defense mechanisms (more primitive or more mature) needed at various times of the professional activity, together with their connection with the personality structure of the employee, with age, experience, possible personal and professional psycho-traumas. We will consider a cumulative vision of the factors that may amplify in a negative manner the passages to the act, the descent of the impulsive-explosive potential in an inappropriate and uncritical manner, as well as the management directions of such crisis situations that can be isolated or can generate similar "in chain" manifestations.

Regime Security and the Battle of Ideas: The Discourse of 'Cultural Invasions' in the Security Thought of Iran and Russia

Laura ULATOWSKI

German Air Force Officer School, Fürstenfeldbruck, Germany

According to the official rhetoric of the governments of the Islamic Republic of Iran and the Russian Federation, contemporary warfare takes place on the ideational-normative sphere. The primary competition is over political ideas between the two regimes and 'the West' that takes place on the domestic level for ideological hegemony. These views are reflected in the official rhetoric of the Iranian and Russian leadership, which both create the narrative and myth of 'cultural invasions' that are perceived to threaten the very

national identity of the Russian Federation and the Islamic Republic of Iran. Through these discourses, notions of ideology, culture and values are securitised and embedded in the sphere of national security thinking and society is seen to be in the need of protection from the expansion of 'foreign' ideas and values. The aim of this paper is to analyse these discourses which the Iranian and Russian regimes seek to instrumentalise as a tool to reinforce their ideological hegemony.

The Influence of Stress on the Performance of Pilots in Aviation

Iulian UNGUREANU

"Henri Coandă" Air Force Academy, Brașov, Romania

Most aviation accidents are caused by the presence of a human factor, since human beings can cause errors. These human errors can occur in the case of pilots as well, and therefore can easily lead to accidents. A cause for pilot error can be stress. This contribution reviews articles related to this topic to discuss the findings of the literature in order to prompt reflection on the main effects of stress and the possibilities to avoid human errors due to stress in the case of pilots. This study summarizes the current state-of-the-art regarding the influence of stress on the performance of pilots in aviation.

The Ethical and Moral Perspectives on Leadership

Minas VAIRAMAKIS, Neonilli GKIOULI

Hellenic Air Force Academy, Athens, Greece

This paper aims to emphasize the importance and necessity of military ethics, much needed in any decision including the use of lethal power, and especially in the most difficult conditions imposed by the asymmetric operational environment. The paper discusses military ethics, in relation to jus ad bellum *and* jus in bello*, as well as the impact that the laws of war have on leaders. As a result of their decisions, they may be considered heroes, while others may be labeled as war criminals. Thus, ethical training is of utmost importance, especially in contemporary societies where decisions have monumental implications which are felt on a global scale.*

Burials at Sea

Vlad Ionut VIRLAN

"Mircea cel Batran" Naval Academy, Constanta, Romania

Burial at sea is the disposal of human remains *in the ocean, normally from a ship or boat. It is regularly performed by navies, but is also performed by private citizens in many countries. Firstly, this paper will detail the definition of the key phrase: burials at sea. Secondly, it will consider the extent at which a burial at sea is customizable, since it is determined by the religion and country of the deceased. The analysis will be based on examples that will highlight the variety of real-life situations. In addition, this paper will*

point out several cases in which a particular event impacts on the burial at sea ceremony. In the end, this paper will conclude about the strong connection between the life of the person to be buried and the burial itself.

Terrorist Groups Connected to Suicide Terrorism

Alex-Andrei VOLOȘEN

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The phenomenon of suicide attacks cannot be fully understood without setting it within its broader historical context. Self-sacrifice in the interest of a broader cause is not unusual in human history. According to definitions provided by trusted general dictionaries such as the Merriam-Webster, a suicide attack is any violent attack in which the attacker accepts their own death as a direct result of the method used to harm, damage, or destroy the target. Suicide attacks tend to be more destructive and deadly than other terror attacks because they supply their perpetrators the capacity to hide weapons and make last-minute adjustments. Members of pre-modern organizations without access to dynamite did not have the certainty of their own demise, nor could they expect publicity for their attacks, but they did engage in deliberate, calculated self-sacrifice in the act of killing civilian targets for symbolic effect. The main role of this article is to present a few terrorist groups connected to suicide terrorism and their effect on humanity.

4. Fundamental Sciences & Engineering

Humidity And Temperature Measurement Using Arduino

Iulia-Elena ANISCA

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The objective of this paper is to achieve a functional system in terms of hardware and software to measure temperature and humidity. In this respect, we use an Arduino nano board with a sensor interfacing, placed in local environment to measure temperature and humidity. The paper aims to reach the following goals: achieving a functional system in terms of hardware and software to allow measuring temperature, humidity; using a development board for the communication with the sensor; implementation of a program that allows requirements. In this paper we are going to measure temperature and humidity which will be beneficial for balancing the environment to increase the productivity.

Comparative Analysis of the Characteristics of Transport Helicopter Fuselages

Sebastian ALEXĂ

”Henri Coandă” Air Force Academy, Brasov, Romania

The Bell-Boeing V-22 Osprey Program is one of the most ambitious aviation acquisition programs in history. The challenge of integrating three new or relatively new technologies (ie. tilt-rotors, all composite airframe, and fly-by-wire digital controls), makes the V-22 Program one of our 'highest tech' aviation acquisition programs. To date, the Osprey's tilt-rotor technology has yet to be integrated successfully into either a commercial or military aircraft.

The ubiquitous CH-47 Chinook was developed to meet a US Army requirement. It first flew back in 1961.This utility helicopter became operational in 1962. Since then over 1 160 have been built, including models license-produced in Italy and Japan. It has been exported all over the world. Upgraded Chinooks are planned to remain operational with the US Army beyond 2060, or over 100 years after it first entered service.

XFLR5 is an analysis tool for airfoils, wings and planes operating at low Reynolds Numbers.

Study About Airbus H-135`S Horizontal Stabilizer

Cristian ANDRONACHE

”Henri Coandă” Air Force Academy, Braşov, Romania

Although almost imperceptible, the horizontal stabilizer of the helicopters have a very important role, both in terms of aerodynamics and in terms of stability of the helicopter. This invention thus succeeding in constructively using the air flow from the load-bearing rotor to contribute permanently to the control of the aircraft.

The Enchanting Shows of the Sky

Denisa-Ana BALEA

“Henri Coandă” Air Force Academy, Brașov, Romania

The sky is visually a limit, but artistically, it can be a stage, where great shows are held every day. Getting to admire, study and understand such phenomena and processes was, is and will be a pleasure for both basic observers and specialists. From dawn to dusk, we are amazed by the optical atmospheric phenomena the sky is pleased to offer us, while during the night, we look for the perfect spots in order to capture and count as many ‘shooting stars’ as possible. This paper is meant to provide a systematic approach to a series of charming optical atmospheric phenomena, but also to emphasize two different types of special meteor showers. Moreover, the main purpose of this article is to briefly describe each process and, at the same time, to make it easier to understand.

Analysis of the Characteristics and Performance of Tail Rotors

Alexandru BUTEREZ

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The tail rotor is a necessary component for helicopters because it compensates the torque of the main rotor along with providing authority in the yaw axis. The thrust that the tail rotor produces acts on a longitudinal arm about the main rotor shaft. In terms of power requirements, the tail rotor will typically consume 5-10% of the available power and this figure can sometimes go up to 20% at the extremes of the flight envelope. However, the tail rotor itself is considered a handicap because it requires the transfer of power over a long distance from the engine. This paper’s objective is the theoretical improvement of tail rotors using performance analyses performed on scale models of different constructive anti-torque solutions.

Study on the Mechanisms Used in Aviation Technique

Alexandru CÂMPAN

"Henri Coandă" Air Force Academy, Brașov, Romania

To fly means, in essence, the free will of traveling in the airspace, in any direction. Becoming a successful pilot requires desire and determination, preparation and training, and last but not least a well-built aircraft. Therefore, the aviation industry is continuously developing new systems and technologies for making the aerial vehicles more efficient and safe both for the pilots and for the passengers. Given that perfection is a relative concept and people still make mistakes, some instruments and constructive parts are not as precise as they should be and wrong information, given or transmitted, could be lethal in an emergency situation. The article aims to provide an analysis of the mechanisms used in the construction of helicopter on-board instruments.

Automation in Air Traffic Control Systems

Marian-Claudiu CARCEANU

"Henri Coandă" Air Force Academy, Brașov, Romania

With the development of aviation industry and the aircrafts' intense use for long-haul operations, as well as with the spread of unmanned aerial vehicles and prototypes for commercial space travel comes a lot of pressure on the people designated with air collision avoidance – namely, air traffic controllers. The mental resources of a human being are limited so the occurrence of errors in the decision making process are unavoidable. Automation is supposed to come to the aid of the controller, in the sense of allowing them to delegate repetitive tasks to computer programs and thus setting the controller free to deal with decisions which require a greater amount of mental power. But automation has its limitations regarding flexibility and its operation in highly adaptive systems. The ideal situation is the cooperation between human factors and computers to provide a safe flight environment along with the possibility of expansion and extension to meet growing demand.

The Speed Variation of an Aircraft Based on Its Altitude and Outside Temperature

Tudor Ioan CARP

"Henri Coandă" Air Force Academy, Braşov, România

This paper describes the whole process of speed variation of an aircraft based on its altitude and outside temperature, and includes detailed schemes and rules in reference to the said oscillations. The main focus is on speed optimization, and to this purpose several possible solutions are analyzed. Samples of data before and after the project's optimization and samples of data tested through different defuzzification methods are therefore provided and compared.

Meteorological Hazards

Andrei CAZAC

"Henri Coandă" Air Force Academy, Brașov, România

Meteorological phenomena are at the root of one of the most dangerous dimensions of flying. Although many of them are predictable and pilots are trained to deal with what the weather throws at them, nature must still be treated with due respect. In this paper, I will analyze the ways in which pilots should address the dangers posed by adverse weather, and the facts will be presented from a pilot's point of view.

Analysis of Attack Typologies on Websites and Databases

Loredana-Cristina CEAMPELEA

"Nicolae Bălcescu" Land Forces Academy, Sibiu, Romania

The evolution of the Internet has greatly changed users' preferences and behaviours. Now, the Internet is a fundamental element for sending and receiving information and performing transactions in any commercial branch, as its rise is a new way of caring for businesses, consumers communicating and interacting with one another. Nonetheless, the Internet makes personal data easier to generate, collect and store – companies use the data gathered from IoT devices to improve products and services, but also to earn extra revenue. All these, according to statistics, resulted into an increase, which was considered dramatic, in the number and complexity of threats that are affecting users. The aim of this paper is to present a general image of a web attack and to present what influenced certain changes in it, making a comparison between 2018 and 2019. The research methodology is based on studying open source information.

Thermovision in Brake Diagnostics

Filip CHROMEK

Armed Forces Academy of General Milan Rastislav Štefánik, Liptovský Mikuláš, Slovak Republic

Thermal imaging is not a very widespread tool that can be encountered in a common diagnostic workshop. The main focus of this article is on new trends in the usage of thermal imaging systems in diagnosing anomalies in braking systems. Some of these usages are demonstrated on measurements that have been focused on the brake disc temperature changing. These measurements point to the usefulness of these diagnostic tools in practice and to simplify the work of controlling thermal stressed parts of braking system. In the event of a fault, it simplifies the specification of the fault and helps to explain the cause of the problem.

Mechanical Jointings Used for Fixing Rotor Blades in Turbojet Engines

Vlăduț-Constantin CIOFU

”Henri Coandă” Air Force Academy, Braşov, Romania

The construction of aircraft turbojet engines comes with issues generated by the pressures and temperatures of the gases inside the chambers. This means that not only the materials used must be able to withstand these extreme parameters, but also proper methods of attachment of the components which come in contact with the highly compressed air or exhaust gases must be used. This paper will focus on issues related to fixing the blades of the compressor and turbine of the jet engine, and will review the methods used and the calculations made for the optimal functioning of the engine.

5G, a Controversial Technology

Constantin COLCEAG

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In the last four decades, mobile phones, more than any other technology, have quietly changed our lives forever. 1G, the first generation of telecom networks (1979), allowed us to talk to each other and be mobile, 2G permitted us to send messages and travel (with roaming services), 3G brought about the mobile Internet experience, 4G networks brought all-IP services (Voice and Data), a fast broadband Internet experience, with unified networks architectures and protocols. Now, 5G networks expand broadband wireless services beyond the mobile internet to IoT (Internet of Things) and critical communications segments. This is a ultra-fast network that brings unbelievable speeds, incredible latency. But equally, 5G also raised many questions: How healthy is it? What dangers do they present? How fast is it? How effective is it? *Finally,* how good or how bad is it for us? *The paper attempts to address these questions and bring further insight into the little reliable information we possess in the field.*

Aérospatiale Alouette III Helicopter Main Rotor Blades

Mircea CORPODEAN

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The Aérospatiale Alouette III *(company designations SA 316 and SA 319) is a single-engine, light utility helicopter developed by French aircraft company* Sud Aviation*. During its production life, it proved to be a rather popular rotorcraft: including multiple licensed manufacturers, more than 2,000 units were built.*

Helicopter Anti-icing and De-icing Systems

Alin Dănuț CURILĂ

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Despite new technologies, training and procedures developed to address the problem of helicopter icing, accidents related to icing conditions continue to occur. De-icing is the procedure performed after the occurrence of ice on the surface and can be realized on the ground or during the flight. Anti-ice systems help to prevent the accumulation of ice using electric heat or hot bleed air extracted from the compressor section of the turbine engine.

Aspects Regarding the Determination of the Geometry of the Elastic Membranes in the Manometric Capsules of Altimeters

George DIMA

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During flight the pilot must know his position both vertically and horizontally, so the altimeter is used to measure heights. The altimeter is an instrument that measures the altitude of the land surface or any object such as an airplane. Since it is an essential instrument in aviation, the present paper will focus on aspects regarding the determination and configuration of the geometry of elastic membranes which function as components in the manometric capsules of altimeters.

Analysis of the Icing Accretion

Sabin DOCUZ

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The present paper has the purpose of analyzing the conditions in which ice accretion is possible and the formation of ice in relation with the aerodynamic effects on airfoils.

Characteristics and Performances of the Innovative Helicopters Airbus Eurocopter X3

Sebastian GĂBRIAN

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This project presents possibilities of changing a flight envelope of a light helicopter with an additional propeller. Using the propulsion propeller enables to reduce the power required for the main rotor driving in high speed flight conditions. The results of simulating calculations for the conventional helicopter and for the version with the additional propeller are compared. The simulation of the helicopter being equipped with additional propellers is made and presented by using XFLR and certain charts meant to

illustrate the main aerodynamic differences between a regular helicopter and an innovative one.

Helicopter Forward Flight Performance

Fatih GHIȚĂ

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A helicopter is a type of rotorcraft in which lift and thrust are supplied by rotors. This allows the helicopter to take off and land vertically, to hover, and to fly forward, backward, and laterally. These attributes allow helicopters to be used in congested or isolated areas where fixed-wing aircraft and many forms of VTOL (vertical takeoff and landing) aircraft cannot perform. A helicopter's main rotor or rotor system is the combination of several rotary wings (rotor blades) and a control system that generates the aerodynamic lift force that supports the weight of the helicopter, as well as the thrust that counteracts aerodynamic drag in forward flight. The blade pitch is typically controlled by a swashplate connected to the helicopter's flight controls. This article illustrates helicopter main rotor performance in forward flight by providing a numerical and theoretical analysis.

Aerodynamic Analysis of Sikorsky UH-60 Rotary Wings

Andrei GOGA

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Modern helicopters have seen a substantial improvement over the years. Missions of all types were assigned to this type of aircraft and the necessity for helicopters increased, so they need to be as advanced as possible. The Sikorky UH-60 Black Hawk is a very good example of multirole helicopter used by a lot of countries all over the world. This paper provides 3D simulations of several variants for the main rotor blades by exposing performance analysis generated by means of a software tool on an equivalent model.

Microcontrollers in Modern Technology

Alexandra Mădălina IONIȚĂ

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This paper focuses on microcontrollers and their current development. The circumstances in which we find ourselves today in the world of microcontrollers have had their beginnings in the development of integrated circuit technology. This development made it possible to store hundreds of thousands of transistors in a single chip. This was a premise for the production of microprocessors and the first computers made by adding peripherals such as memory, input-output lines, timers and more. The next increase in volume of the capsule led to the creation of integrated circuits. These integrated circuits contain both the processor and peripherals. This was how the first chip containing a microcomputer, or

what would later become known as a microcontroller, came into being. But what is a microcontroller? What is the difference as compared to a microprocessor? And why do we need microcontrollers in the first place? The present paper aims to answer these research questions and to show why a microcontroller is a revolutionary element.

Augumented Reality

Alexandru IORGA

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This paper exhibits a diagram of the essential parts of Augmented Reality (AR) and the main concepts related to this innovation. It identifies the main fields in which AR is applied nowadays and inventories significant AR gadgets. A few qualities of Augmented Reality frameworks will be discussed and this paper will provide an outline in this respect. Possible future development trends are also discussed.

Moving Platform for Autopilot Hardware-in-the-Loop Testing

Milan KOVÁŘ

University of Defence in Brno, Czech Republic

Today, the most pilots are being tested on training simulators which are based on a moving platform. This allows us to create the closest environment to the real airplane in the atmosphere. This paper is focused on idea of testing autopilots very similar way. In the flight simulator we will set a coordinates, which a plane must pass. The telemetry data will be sent via TCP/IP protocol to a microcontroller. Then the airplane attitude values will be transferred in inner calculation to the PWM which will set a servo arm to the appropriate angle so the platform attitude is identical to the plane attitude in the simulator. The sensors on the autopilot will sense the real physical change of the attitude. The autopilot will do the corrections of flight and send the data back to the simulation. Therefore the loop will be complete and this is why this way of testing is called Hardware-in-the-loop testing.

The Verification Calculus of the Driving Wheel of the Extraction Machine at the Old Pit With a Skip – the Lonea Mining Plant

Dumitru-Valentin RAUT, Marius LUPU

University of Petroşani, Romania

Extracting coal from the underground from the Mining Plant Lonea is made by using the extraction installation with a skip, which includes an extraction machine located in the tower of the old pit, having two skips of 8 tons each. Any malfunction of the extraction

machine can lead to important production losses and to the endangerment of the state of security and safety of both the deposit and the working staff. Over the years, in the case of the wheel of the extraction machine, we had fissures in the welding chain of the pap and fissures of the stiffening ribs of the braking disc, which have evolved in time in what regards dimensions and number. To eliminate these fissures, we undertook operations of reparation, by removing and restoring the welding chains in the affected areas of the wheel. In order to determine the causes of the cracking of the welding chains, and in order to guarantee the good functioning of the extraction machine, we undertook a study to check the solicitation of the drive wheel. In this paper, we present the results of the calculus of verification for the drive wheel and the technical solution to improve its construction and functioning.

Aspects Regarding the Aerodynamic Analysis of Rotating Lifting Surfaces

Robert-Adrian MĂCINIC

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IAR-316 is a single-engine helicopter, with three blades, provided with an antitorque rotor, whose mechanical energy is supplied by a turbomotor type "ARTOUSTE III B" manufactured by "TURBOMECA". The paper will focus on certain aspects concerning the aerodynamic analysis of rotating lifting surfaces as illustrated by an application involving the IAR-316 helicopter.

Aerodynamic Analysis of Helicopter Fuselage: the EC135 vs. the EC120 Colibri

Robert MARIN

"Henri Coandă" Air Force Academy, Braşov, Romania

As the world's no.1 helicopter manufacturer, Airbus provides the most efficient civil and military helicopter solutions to organizations who serve, protect, save lives and safely carry passengers in highly demanding environments. Airbus helicopters are deployed on missions worldwide for diverse aerial duties. Therefore, the present article provides an aerodynamic analysis of two such helicopters' fuselage, made in XFLR freeware.

Helicopter Hydraulic System

Mircea Alexandru MARIN

"Henri Coandă" Air Force Academy, Braşov, Romania

This project will focuse on the helicopter hydraulic system, generally will present way of operation and I will follow to understand the publics which is the concept of the hydraulic system.The introduction of this system is composed of the acronyms and symbols.

The Verification by Calculus of the Transmission of the Extraction Machine's Reducer at the Old Pit with Skip – the Lonea Minig Plant

Danut-Ilie MATEI, Oana-Denisa BOANTA

University of Petroşani, Romania

The extraction machine includes as components a cylindrical reducer with two steps, between the two electrical engines of 500 kW and the drive wheel. At the level of the revolution gear of the extraction machine, in time, damage to the gears' teeth has appeared, a phenomenon which manifests continually, without having a specific cyclicality, but permanently evolving. The breaking of the teeth of the gear's gears in the extreme areas of the dentition – areas that before breaking had a wear accented by contact usury (pitting) - is a deterioration phenomenon that depends on many factors, such as: the material of the gears, the size and the geometrical and kinematic elements of the dentition, the characteristics of the flanks' surface, the mechanical solicitations, the oiling and the quality of the lubricant. These problems that appeared regarding the exploitation of the reducer of the extraction machine lead to the decrease of functioning safety, and even to its halting. In this paper, we present the calculus for verifying the transmission of the extraction machine's gearbox the conclusions that can be drawn from it.

Analysis of GPS and Glonass

Alin Florin MONE

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GPS and GLONASS are radio navigation systems based on satellite technology. Their fundamental technique involves measuring the ranges between the receiver and a few simultaneously observed satellites, and the positions of the satellites are forecasted and broadcasted along with the GPS signal to the user. GPS is widely used in aviation today as a source of area navigation. From basic navigation and position data to airspeed, tracking and airport locations, GPS is a precious tool for aviators. Having deciphered the position of the aircraft, the GPS unit processes many useful navigational outputs such as speed, direction, bearing to a waypoint, distance traveled, time of arrival, and more. These can be selected to display for use. Waypoints can be entered and stored in the unit’s memory. Terrain features, airport data, VOR/RNAV and approach information, communication frequencies, and more can also be loaded into a GPS unit. Most modern units come with a moving map display capability. A main benefit of GPS use is its immunity from service disruption due to weather, but errors appear while the carrier waves travel through the ionosphere. A comparison of GPS and GLONASS navigation systems and their possible benefits for aviation is the main focus of the article.

Software Instruments for Helicopters

Cătălin-Alin MORARU

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The H120 integrates technologies more advanced than any other light single-engine helicopter in its class in the world. These advances help make the aircraft easier to fly, safer and more cost-effective. Designed with simplicity in mind, the H120 is one of the most user-friendly aircraft available. The H120 is the first single-engine helicopter to meet the requirements of the new JAR 27 safety regulations (crashworthy fuel systems, energy attenuating fuel structure and seats). The H120's outstanding characteristics are the cumulative result of 50 years of experience in designing, manufacturing and supporting light single-engine helicopters. To date, the 660 H120 helicopters delivered worldwide in 55 countries have completed nearly 1,000,000 flight hours. Delphi is an integrated development environment (IDE) for rapid application development of desktop, mobile, web, and console software, developed by Embarcadero Technologies. It is also an event-driven language.

Helicopter Main Rotor Aerodynamics

Sorin MUȘALĂ

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The evolution of helicopters has seen a great step forward. Nowadays, better and better models of helicopters appear in the aeronautic industry. This paper proposes a study of Aerospatiale SA330 Puma with standard blades as compared to a SA330 Puma model with modified blades that have the same total area, using a 1:1 model of the rotor modeled in a software tool.

Ergonomic Design of Helicopter Cockpit

Virgil NEAGOE

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In the view of the current cockpit information interaction, facilities and other characteristics are increasingly multifarious; the early layout evaluation methods based on single or partial components often cause comprehensive evaluation unilateral, leading to the problems of long development period and low efficiency. The ergonomic design of the cockpit is of great importance to the efficiency of flight crew operation and has a major impact on flight safety. In this work, the ergonomic design elements in the cockpit are analyzed. The elements are collected from airworthiness regulations and industry standards. Meanwhile, an aircraft cockpit ergonomic layout evaluation model will be established.

Aspects on Engines with Turbofan Aviadvigatel PD-14 Type Reaction

Andrei PALADE

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A jet engine (or reactive engine) is an engine that releases a rapid flow of fluids to generate back pressure in accordance with Newton's third law of motion. This broad definition includes turboprops, turboprops, turbochargers, pulsoreactors, stator reactors and rocket engines, but usually refers to a gas turbine used to produce a high-speed gas jet for propulsion. This paper aims to present the technical characteristics of the turbocharged jet engine AVIADVIGATEL PD-14 and its evolution with the aircraft holders.

Geometrical Parameterization of Helicopter Anti-Torque Rotor Constructive Solutions

Alin-Valentin PAVEL

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In this paper several variants of tail rotors are sutdied in order to perform a comparative analysis of the parameters resulting from the simulation of the models. At this moment there are several constructive variants for anti-torque rotors, and each proposes a different approach from a constructive point of view, all results serving basically the same end, but by means which are adapted to the needs for which each helicopter is designed.

Antennas

Dan CORCHEȘ

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The current paper aims to illustrate some aspects related to the evolution of antennas as we perceive them today. Two great personalities of the science world contributed largely to the development of modern antennas. Heinrich Rudolf Hertz focused more on the experimental part of the laboratory discovery and in 1887 developed a system that produced and detected radio waves, whereas Guglielmo Marconi put into practice, outside the laboratory, what Hertz discovered in the laboratory. Marconi’s most important experiment was the transatlantic transmission from the United Kingdom to Canada. The paper also includes general notions about antennas, their classifications and some of their electrical parameters.

Considerations Regarding Helicopter Landing on a Combat Ship Helipad

Eduard PLĂCINTĂ

”Henri Coandă” Air Force Academy, Braşov, Romania

The capability of modern combat ships to operate with a helicopter on board is a very important tactical ability. The helicopter can be used to perform a lot of actions like carrying troops, cargo or even surveillance. The biggest problem in this situation is the landing of the helicopter on the moving platform, in the middle of a very turbulent and high speed air movement around the deck. This paper is a research into understanding the air movement around the ship and the problems and solutions of helicopter takeoff and landing on the helipad aboard.

Jet Stream and Its Impact on Aviation

Iulia PLIAN

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Jet streams act as an invisible director of the atmosphere and are largely responsible for changes in weather across the globe. In this paper, I tried to highlight that a jet stream is essentially an atmospheric highway that guides storms west to east. If it were not for jet streams, the weather would change very little from one day to the next. Some areas might never get any rain, while other areas may never see the sun. That is why jet streams are so important for aviation.

Aeromechanical Analysis of Eurocopter EC 135 Portant Rotor Blades

Paul Beniamin POP

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The aim of this work is to firstly give a brief description of the Eurocopter *fleet and then to gradually present a comprehensive analysis of a specific type of military helicopter characteristics. The present contribution provides a clear structure of arguments regarding a main rotor blade analysis in terms of blade materials, dimensions, shape, weight and the differences that appear when we put all of them together to have a comparison. The purpose is to obtain simple expressions by using a free software, namely SolidWorks 2013.*

Kinematics of the Landing Gear Systems

Vlad POPA

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The mechanisms best represented in aircraft design are the bar mechanisms. They are mostly part of the landing gear and of the command systems for aircraft space positioning and for changing flying conditions. The current article is a review of bar mechanisms with reference to the landing gear of aircraft as well as a software-assisted kinematics functional analysis.

Helicoper Use in Search and Rescue Missions

Marius-Alexandru ROGOJINĂ

”Henri Coandă” Air Force Academy, Braşov, Romania

In the last fifteen years, what truly changed search and rescue operations dramatically is the development and refinement of SAR helicopters. Over the years, helicopters have become the most important element in these types of missions. This project will present the helicopters that are used in this type of missions – such as the EC725, the EC 225 Super Puma, the S-92 and many others – and make a useful comparison between them.

Electromagnetic Radiation and Health

Răzvan ROȘEȚ

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The aim of this paper is to discuss electromagnetic radiations in what concerns the negative effects they may have on people's health. During the day, people are exposed to different radiations and the human body absorbs energy from devices emitting radiofrequency electromagnetic radiations. In the environment, electro-smog often disturbs the biological balance and the world's population often complains of electromagnetic sensitivity or electromagnetic field intolerance. Knowing what type of radiation people might be exposed to will help them decide whether or not it is necessary to protect themselves from its negative effects. There are a lot of health problems which can be associated with electromagnetic waves which have been remarked and explored by various scientists in academic studies referring to the biological changes caused by this type of phenomenon.

Horizontal Stabilizer Prototype for the H215 Super Puma

Nicolae RUSU

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A horizontal stabilizer is used to maintain the aircraft in longitudinal balance, or trim: it exerts a vertical force at a distance so the summation of pitch moments about the center of gravity is zero. Another role of a horizontal stabilizer is to provide longitudinal static stability. This maintains a constant aircraft attitude, with unchanging pitch angle relative to the airstream, without active input from the pilot. Ensuring static stability of an aircraft with a conventional wing requires that the aircraft center of gravity be ahead of the center of pressure, so a stabilizer positioned at the rear of the aircraft will produce lift in the downwards direction.

Tactical and Strategic Missile Guidance

Evelina SAUCIUC

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The history of tactical guided missiles started in Germany, during World War II, when the Henschel Company created the Hs.298, one of the series of German air-to-air guided missiles. The Hs.298, which was radio-controlled from the parent aircraft, was to be released either slightly above or below the target. This paper will show how the guidance techniques work and it will also investigate some properties of the guidance law that must be observed and derived. At the same time, these classical guidance laws represent the basis of more advanced techniques of interceptor guidance.

Target Tracking in Azimuth Using CW Radar and Arduino

Andrei Gabriel SEVERIN

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Tracking objects is most frequently realized by means of using various applications with the new available technologies. In the examples showcased in this paper, object tracking is made possible using an IR sensor and Arduino. In order to investigate the object detected, a servo motor is used for rotating the IR sensor to capture the object. In principle, there is an option for implementing both single and multi-object tracking, but here, a single object is being tracked with real time values.

Lightning and Aviation

Ioan-Eusebiu SPÎNU

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This paper focuses on the interaction between the natural phenomenon called lightning and aircraft. Even if lightning strikes to aircraft occur frequently, their harmful effects are rare due to the current all-metal aircraft structure, which offers natural shielding against strong electrical fields. Usually, lightning occurs with thunderstorms (also called electrical storms) accompanied by strong wind, heavy rain and sometimes hail. The electrical activity is a unique property of thunderstorms, which results from space charge generation and separation during the updraft stage of the cumulonimbus.

Aerodynamic Heating

Eduard SUFLEA

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Aerodynamic heating is the heating of an object in a very high-speed flow due to compression and friction within the boundary layer around the object. This matter is extremely important for high-speed vehicle design in terms of the thermal protection of a vehicle. This is why the paper will detail aerodynamic heating and its impact in aviation.

Aspects of New Aeronautical Technologies and Their Impact in a Possible Modern War

Gheorghe-Laurențiu TUDOR

”Henri Coandă” Air Force Academy, Braşov, Romania

People have always been curious to find out who is the winner of the title of best weapon in its section. Whether we are talking about the best gun, the best assault weapon, machine gun, fighter aircraft, tank or intercontinental missile, the desire to possess the best killing tool has led not only to the an arms race, but also to the real technological, strategic and military challenges. As for the interception and attack helicopters, until recently the Americans had the supremacy in the field with the variants of the already famous Apache. But today, its position is about to be challenged by a new death emissary from Russia. With its frightening silhouette and enviable technical data, the "Hokum Ka 50 Ciornîia Akula" helicopter, or the Black Shark, as it is called in the specialized media, seems to be the best combat helicopter in the world. But is this perception exact?

Software-Controlled Constant Current Discharge

Jan VIRGALA

University of Defence in Brno, Czech Republic

The main goal of this work was the realization of an optimized connection of constant current discharge devices of various types of accumulators, especially Lithium-Ion, Nickel-Cadmium and Lead-Acid for the needs of UAV systems. Our equipment enables constant current discharge in the range of 0.1 to 5 A with an adjustment accuracy of 0.5%. Our equipment has been tested to compare batteries and their properties for efficient battery selection for UAV applications. Attention was also paid to the principles of proper discharge and charging of batteries. The conclusion is devoted to the analysis of measured results when discharging batteries. Further questions are outlined for possible future work in the design of the device for controlled discharge and charging of modern Lithium-Polymer (Li-Pol) batteries.

Hydraulic System for the IAR-330

Aurelian-Gabriel VOICA

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The hydraulic drive system is a physical drive system consisting of a generator (pump), an engine and attachments. Due to the occurrence of heavy-duty airplanes, supersonic airplanes, the commissioning tasks of helicopters such as the IAR-330 have increased greatly. Efforts to be applied in this case to the bumper and the cross bar have begun to overcome the pilot's physical possibilities, even in the event of a very large aerodynamic compensation. One of the ways of mechanization is the introduction of hydraulic installations. FluidSIM unites an intuitive circuit diagram editor with detailed description of all components, component pictures, segmented animations and video sequences. As a result, FluidSIM is perfect for use not only in lessons but also for pilot training and individual study programs.