ACSEC
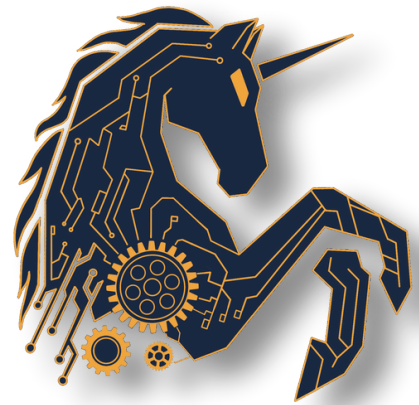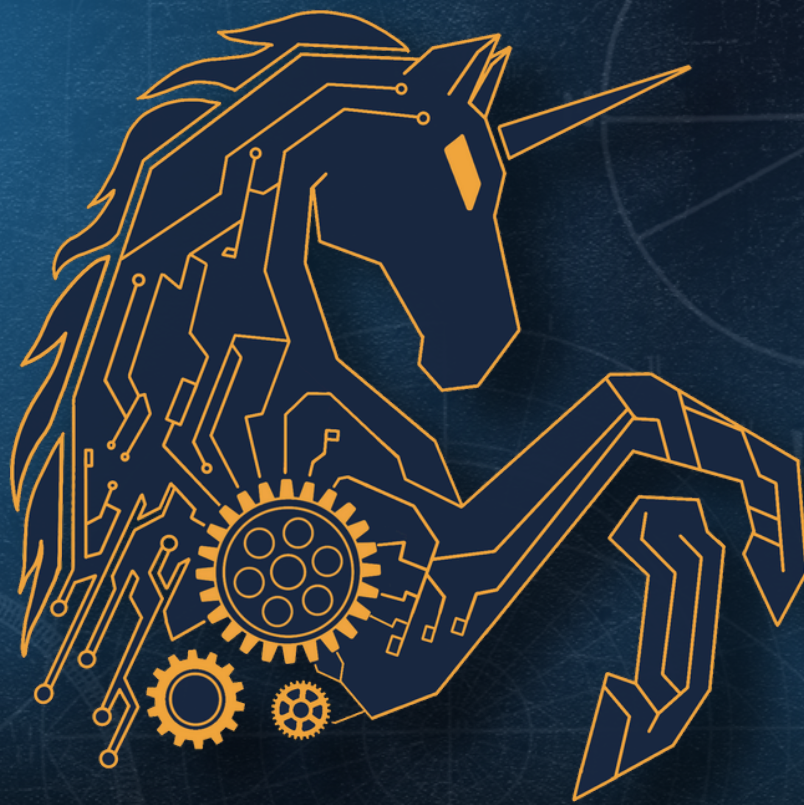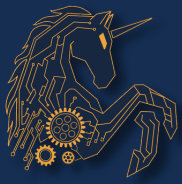## IX

acsec.pk

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INTRODUCTION

The Aitchison College Science Society (ACSS) takes immense pride in announcing the ninth iteration of the Aitchison College Science and Engineering Concept (ACSEC), scheduled to take place from October 24th to October 26th, 2024.

The ACSS is determined to present an exceptional and indelible experience this year. ACSEC IX is dedicated to delivering three days of unparalleled learning and innovation that will test even the most accomplished individuals to their utmost potential in the expansive realms of science and technology. The primary objective of ACSEC is to ignite fervour for science among all participants while delving into the extensive applications and multifaceted dimensions of each subject. The event boasts 13 distinctive categories, each presenting its own set of challenges.

This year's edition of ACSEC aims to not only foster a profound comprehension of science but also to spark creativity for practical, real-world implementations.

Dear Sir/Madam,

It brings me immense joy to announce that Aitchison College will be hosting its annual Science and Engineering Concept from the 24th to the 26th of October. On behalf of the ACSEC Team, staff, and student body of Aitchison, I am pleased to invite you to the ninth edition of ACSEC.
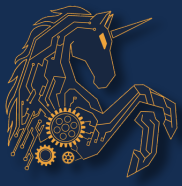
Aitchison College is one of the most prestigious educational institutions of its kind in South Asia and a member of the G20 group of schools. Our extensive facilities and societies encourage students to discover their potential. It has retained its character over the years by maintaining the public school tradition of providing quality education that uses academic, sports, and co-curricular activities as tools for character development. Today, our students represent all areas of Pakistan and truly reflect the demographic mix of our nation.

In 2013, the Aitchison College Science Society delivered Pakistan's first STEM Olympiad, ACSEC. The Society later revamped this event in February 2018. In its ninth version, we intend to set a benchmark for future STEM Olympiads in Pakistan.

This three-day event is a STEM Olympiad, in which students can grapple with innovation and logical advances. They will enhance their analytical capacities as they solve the most multifaceted riddles and puzzles, design the tallest rockets, and solve forensic cases. Delegates will participate in different categories that are being managed and run by our most capable students. We welcome all schools to ACSEC IX and wish for the success of this astounding project.

Yours Sincerely,
Dr. SM Turab Hussain
Principal Aitchison College

Dear, Sir/Madam

It is with great pleasure that I extend a warm invitation to you for the ninth Aitchison College Science and Engineering Concept (ACSEC), scheduled to take place from October 24 to 26, 2024. This three-day Olympiad is poised to deliver an unparalleled experience, setting the stage for a thrilling exploration of science and engineering.

ACSEC offers 13 diverse categories, each designed to challenge a unique set of skills and knowledge. Whether you're nurturing the next generation of engineers, doctors, or future detectives, this Olympiad is brimming with opportunities for those passionate about STEM and those eager to expand their horizons in a dynamic and enjoyable setting.
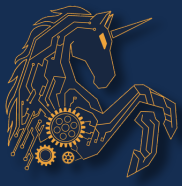
Guided by our esteemed Deputy Headmaster, Dr. Muhammad Kamran, the exceptional team of students—Rayaan Wasay Iftikhar, Umer Farooq, Zarar Haroon, and Muaaz Humayun—has meticulously crafted these 13 categories for our sixth fully physical event by the Aitchison College Science Society (ACSS). Drawing inspiration from global competitions like the World Robotics Olympiad and the International Young Physicists Tournament, ACSEC aims to elevate awareness and enthusiasm for STEM among high school students through hands-on participation. We are particularly excited to introduce a new Computer Science category this year, further cementing ACSEC's reputation as the largest high-school level STEM Olympiad in Southeast Asia.

We look forward to your school joining us for an enriching experience in these exhilarating categories.

Regards.
Ms. Amina Kamran,
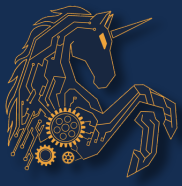Headmistress Senior School, Aitchison College

Dear Sir/Madam,

As the Deputy Headmaster of Senior School at Aitchison College and the Staff Advisor of the Aitchison College Science Society (ACSS), I cordially invite you to the 9th edition of our flagship event, the Aitchison College Science and Engineering Concept (ACSEC). The event is spearheaded by the society's members and is supervised directly by myself. I hope to see all of you this October to witness the product of our perseverance and hard work.

Aitchison's rich scientific history boasts distinguished figures and innovators among our alumni. ACSS, a prominent society at Aitchison, comprises three segments: the Robotics Club, the Astronomy Club, and the Aerospace Division. ACSEC, held in 2013, marked the society's inaugural independent event and achieved considerable success. Back then, as a teacher rather than the staff advisor, I observed the event. Witnessing ACSEC II in February 2018 and ACSEC III in October 2018, after a 5-year hiatus, filled me with pride. I saw dedicated students shaping the event to their vision while ensuring its appeal to delegates.

ACSEC V, under a new executive council, surpassed expectations and drew over 700 delegates nationwide, elevating the school's standing in the STEM Circuit. ACSEC VI introduced the college's inaugural hybrid event, attracting over 1200 global delegates. This departure from fully physical or online formats proved immensely successful, upholding the event's legacy. This year's ACSEC offers 13 categories, spanning biology, engineering, mathematics, psychology, and research skills. With a commitment to delighting all attendees, the event caters to diverse skill sets. Join us this October for an outstanding science Olympiad.

Regards,
Dr. Muhammad Kamran,
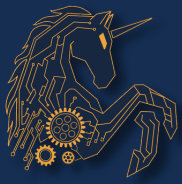Deputy Headmaster Senior School, Aitchison College.

I, Rayaan Wasay Iftikhar, President of the Aitchison College Science Society, am pleased to extend an invitation to the 9th edition of the Aitchison College Science and Engineering Concept (ACSEC). This three-day event celebrates the wonders of science in all its forms, with 13 diverse categories designed to captivate participants from various fields of interest and expertise.

This year, we are excited to host a fully in-person edition of ACSEC, building on our legacy of excellence. Reflecting on the hard work and dedication we've invested - spending days and nights in school, even throughout our summer break - I am confident that ACSEC IX will deliver an experience that equals or even surpasses the excellence of previous editions. Our goal is to cultivate an environment where scientific exploration and learning thrive.

We invite you to join us at ACSEC IX, where we promise to create lasting memories and inspire a love for science that will endure a lifetime.

Regards,
Rayaan Wasay Iftikhar,
President of the Aitchison College Science Society

Muaaz Humayun
Secretary General:

Join us to be part of the Ninth edition of the Aitchison College Science and Engineering Concept (ACSEC), a stage where young talents can present their innovative ideas across thirteen distinct STEM categories. We promise an enriching experience that not only expands knowledge but also creates lasting memories. This year's event will host an array of competitions and challenges designed to ignite passion in science, technology, engineering, and mathematics. Your journey here will be as impactful as the achievements you pursue.

Zarar Haroon
Head of Event:

Embark on an exciting journey at ACSEC IX, where we push the boundaries of scientific discovery and innovation. In this iteration, we are spotlighting cutting-edge research and technological advancements across thirteen dynamic STEM categories. ACSEC provides a platform for inquisitive minds to explore groundbreaking concepts, engage in hands-on experiments, and present their findings. Dive into a world where curiosity leads to discovery, and be part of a community that is shaping the future of science and technology.

Umar Farooq
Director General:

Experience the enrichment at the Ninth Edition of ACSEC for a unique opportunity to connect and collaborate with like-minded peers and experts from various STEM fields. Our event is designed to foster meaningful interactions, encourage teamwork, and build a network of future innovators. Engage in collaborative challenges, share ideas, and form partnerships that extend beyond the event. ACSEC is not just a competition; it is a vibrant ecosystem where networking and collaboration drive collective success and growth.

THE INSTITUTION

Aitchison College, Pakistan's most diverse school; initially focused on a narrow imperial mission, it now provides an expansive educational experience as a boarding and day school, with outstanding sports facilities, a broad co-curricular program, and various special interest clubs fostering curiosity and social responsibility.

The school's educational approach emphasises a knowledge-based method, promoting concept exploration through discussions, adjunct faculty programs, and participation in competitions where students excel. Aitchison College hosts annual conventions that feature artistic expression, business entrepreneurship, scientific investigation, debating, and public speaking.

Aitchison has retained its charisma and tradition of quality education, integrating academic, sports, and extracurricular activities to develop character. Its student body represents all regions of Pakistan, reflecting the nation's demographic diversity. As a member of the G20 schools, Aitchison College remains at the forefront of educational excellence. It continues to expand platforms like the Robotics and Astronomy Clubs and the new Aitchison College Center for Strategic Studies, offering students opportunities to present innovative ideas from an early age.

AITCHISON COLLEGE SCIENCE SOCIETY

The Aitchison College Science Society stands as one of Pakistan's most dynamic student-led organizations, with a reputation for excellence and innovation. Collaborating with prestigious organizations like SUPARCO, the Buraq Planetary Society, and the Pakistan Innovation Foundation, the society empowers its members and creates a lasting impact on both the local and international community.

Members of the society have consistently excelled in national and international STEM Olympiads, including LGS MATCH, KGSO, LGS 55 Main SCIMATICS, and LGS JT LUMINA. Their achievements even extend internationally; to the finals of the International Young Naturalist Tournament (IYNT) and World Scholars Cup (WSC) while also representing Pakistan at the World Robot Olympiad (WRO), International Olympiad on Astronomy and Astrophysics (IOAA), and CupEX.

In addition to their competitive successes, the society launched Pakistan's leading online high school magazine, The Scientifica, which covers a wide range of topics including physics, metaphysics, biology, mechanics, and chemistry. It boasts a readership in over 50 countries. Furthermore, the Aitchison College Science Society spearheaded the ACSEC initiative, which has garnered national acclaim through its impactful environmental and public health projects.

www.acsec.pk

THE
CATEGORIES

We present to you our assortment of 13 distinctive categories where you can showcase your prowess in STEM skills.

1. ROBINSON CHALLENGE (PURE SCIENCES):

Named after the college's first principal, Mr. Walter A. Robinson, this compulsory category revolves around academic themes, covering the elements of pure sciences in a highly competitive environment. It will ignite fervour for learning in participants by testing conceptual science in an entirely different manner.

2. LANGLAND'S RESEARCH PRIZE (ENVIRONMENT):

Dedicated to the late Major Langland, our second compulsory category will have delegates present innovative solutions for and debate on modern environmental problems, ranging from global warming to climate change and loss of natural habitat. This will allow awareness to be created around growing environmental concerns.

3. FIBONACCI'S TRIALS (MATHEMATICS):

Mathematics is the highest form of pure thought. It is with this in mind that we have designed this mathematics category. From proving age-old theorems to designing their problems, delegates will experience pure mathematics to the fullest extent. The concepts tested here will be focused more on interesting problems that will encourage delegates to think outside the box and put their mental prowess to the test.

4. ICARUS (CONSTRUCTION AND ENGINEERING):

Centred on creativity and the practical application of theoretical science, this category delves into aeronautical, electrical, and mechanical engineering, focusing on real-life model design. Extensive teamwork will be required to effectively produce some of the most complex designs the delegates will ever come across. From Rube Goldberg machines to aerodynamic modules, this category will demand deep thinking to optimise designs.

5. MYSTERY OF PIPAL AVENUE (CRIME AND FORENSICS):

ACSEC's signature crime category will require delegates' application of deductive and critical reasoning backed up with lab chemistry. Be it interrogating the most tenacious criminals, cracking ciphers, connecting the dots to one focal point, or analysing each aspect of the dilemma at hand while also facing the twists and turns thrown at them, delegates will undoubtedly experience an enthralling ride as they try to bring the criminal to justice.

6. ASIMO'S APEX (ROBOTICS):

This category will test delegates' knowledge of technology, programming, and electrical circuitry. More than theoretical tests, Asimo's Apex will rigorously test delegates' design ingenuity as they acquire essential laboratory skills such as drilling, soldering, and circuit-building.

7. R.A.C.E. (FANDOM):

R.A.C.E. is the only event at ACSEC that takes a break from the field of STEM and provides delegates with a platform to put to use the hours they have spent watching their favourite TV shows and reading their favourite comics. This event would feature a plethora of quizzes as delegates are compelled to compete in the field they love.

8. WOLF OF TECH STREET (ENTREPRENEURSHIP):

While theoretical science may be engrossing, practicality takes preference in the real world. In line with this belief, Wolf of Tech Street will set a platform for the young thinkers and innovators of the future. The category will not only require delegates to explain the science behind their products but also package them in a way that can be profitable, appeal to investors, and inculcate business skills that last a lifetime.

9. COSMIC CORONA (ASTRONOMY AND AEROSPACE):

Cosmic Corona, in its iteration, will revolve around two major space-centred themes: aerospace engineering and astronomy. This category will be focused on testing delegates' concepts of the workings of various celestial features, from Mars' geography to neutron stars, and on how well this astronomical know-how is executed to produce practical results.

10. TURING'S LAIR (LOGIC AND CRYPTOGRAPHY):

Turing's Lair will be the place to go for masterful thinkers. Merging the themes of logical reasoning and cryptographic skills, this category will set a gruelling atmosphere for the delegates as they battle with tedious encryptions and try to wrap their minds around mind-boggling problems.

11. GENETIC ENIGMA (BIOLOGY AND MEDICINE):

Keeping up with the times, Genetic Enigma will focus mostly on synthetic biology and nanobiology, along with a few aspects of chemistry. The category will put special emphasis on finding biochemical solutions to real-world problems, effectively testing participants' knowledge, thinking, and practical skills at the same time.

12. SIGMUND'S PSYCHE (PSYCHOLOGY):

Delving into the intricate workings of the human mind, ACSEC also features a captivating psychology category. Designed for enthusiasts of the mind and behaviour, this category embraces the realms of cognitive science, psychoanalysis, and social psychology. Attendees can explore the fascinating complexities of human emotions, thoughts, and behaviours, unravelling the mysteries of the psyche.

13. Error 418 (Computer Science and Coding):

In a constantly evolving world where computer science becomes more prevalent in our lives, ACSEC presents its first ever fully fledged computer science category. This is your chance to showcase not only your problem-solving skills but also your ability to make a real-world impact with AI. Expect your ability to think algorithmically, solve unseen problems, and decipher cryptic digital clues to be tested, all while under ticking time pressure.

REGISTRATION
DETAILS

All teams will be required to register via the Online Registration Form and fill out the Waiver of Liability and the Institutional Consent forms available at acsec.pk. Registration guidelines are also posted on the website.

- Each team will be led by a Head Delegate. All information must be filled out on the Online Registration Form to complete the first step of registration.

- After receiving confirmation of online registration via email, payments can be made via physical payment at the College's Accounts Office in cash or Bank Drafts.

- If outstation teams choose to courier their bank drafts, the tracking number of their courier must be sent to the Registrations Team via email to ensure security concerning payments.

- In the case of a physical payment, the fee in cash has to be submitted to the Senior School Accounts Office.

- Once the 2 steps have been completed, the Head Delegate will be sent an email confirming their spot at ACSEC IX.

- The deadline for the Early Bird Discount is the 16th of September 2024.

- All institutions are required to register their teams by the registration deadline, the 11th of October 2024.

Aitchison College holds the right to make amendments to the registration process at any time.

REGISTRATION	DELEGATE FEE	DELEGATION FEE
EARLY BIRD SEPTEMBER 16 2024	Rs 7000	N/A
REGULAR OCTOBER 11 2024	Rs 7000	Rs 6000
INTERNATIONAL OCTOBER 11 2024	45 USD	40 USD

The modes of payment will be as follows:

- Bank Draft
- Physical payment to the school's account office

In the case of a bank draft, teams will be required to submit their tracking number to the registration team

GENERAL DETAILS

- Event Date: 24th-26th October 2024

- Team Size: 5-8 members including a Head Delegate

- If a team registers prior to the event it can not cancel its delegation due to any emergency and/or logistical issues.

- Each team will participate in a total of 4 to 6 categories.

- The first 2 categories, Langland's Research Prize and Robinson Challenge are compulsory.

- Each team will opt for 2-4 optional categories.

- Categories have limited spots and will be allocated on a first-come-first-serve basis.

- Once the fees are paid the ACSEC team is not liable for any refunds.

- A security deposit of Rs. 10,000 will be taken from every team, which will be returned to the participants after the event has concluded.

- However, if any of the ensuing clauses are not complied with, as well as the terms of the waiver of liability, then a fine may be charged (from the security deposit).

- The Best Team award, the Sir Charles Aitchison Science Medal, will be decided by the accumulation of points of an individual team.

- The Best Delegation award will be decided by the accumulation of all individual team points of an institution.

CHARTER OF
DISCIPLINE

Inability to refrain from the following may result in the disqualification of the whole team:

- Use of vulgar language or disorderly conduct with the ACSEC administration or other delegates.

- The use of unfair, foul, and unjust methods to gain an advantage or preference over other delegates.

- Noncompliance with the judges' decisions. The choices of the judges are deemed to be final and will not be argued over.

- Smoking, vaping, use of liquor, or the use of drug-related substances during the event.

- The portrayal of obscenity and hostile material.

- The inability to refrain from the following may result in the disqualification of the whole team:

Additionally, a security deposit of Rs. 10,000 will be taken from every team, which will be returned to the participants after the event has concluded. These rules are applicable for all delegates. However, if any of the preceding clauses are not complied with, as well as the terms of the waiver of liability, then a fine may be charged (from the security deposit).

DRESS CODE

Any delegate's inability to follow the following dress code will result in denial of entry into the premises of Aitchison College:

All clothing worn by the delegates must be clean, neat, and in good condition.

Clothing with inappropriate, suggestive, obscene, or derogatory pictures/phrases is not to be worn.

Jewellery or accessories that may be deemed inappropriate for the learning environment may be subject to review by the administration. Accessories and jewellery meaning:

A. Personal ornaments, such as (but not limited to), necklaces, rings, and bracelets.

B. Containers, such as (but not limited to), bags, purses, and briefcases.

Participants must wear formal/semi-formal Western or Eastern clothing. Formal/semi-formal meaning:

A. Collared shirts with jeans/trousers

B. Shalwar kameez, formal tops etc.

Any and all clothing must not be see-through, or at least be buffered by another article of clothing following the criteria of all guidelines.

Shirts, kameez, and other tops must be of appropriate length, and cover appropriate amounts of the body, meaning:

A. Covering the entirety of the torso,

B. Covering the entirety of the body from the navel to the knees

C. Covering both shoulders and forearms.

CONTACT INFO

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