

To the candidates attention

1st Cycle of International and Intercultural GENERALIST ENGINEERING Program Entrance Examination

Recruitment Campaign 2018

I) Application Form

Candidates must submit their complete application form **on or before**

Friday 11th may 2018 (1st Entrance Examination)

Tuesday 14th August 2018 (2nd Entrance Examination).

II) Entrance Examination dates:

The entrance exams will take place on **Saturday 19th May** and **Friday 17th August 2018**

III) Interviews

The list of successful candidates will be pasted in various examination centers and will be available online: www.ucac-icam.com on the **14th June – 24th August 2018**.

They will be summoned to two interviews. These interviews are intended to verify the motivations of candidates and to address the questions related to the tuition fees. They are, thus, very determinant for final admission.

IV) Registration

After the interviews, the jury will publish a list of admitted candidates on **Friday 13th July, 2018**, for the first exams session and on **Friday 31st August 2018**, for the second session. To confirm his/her registration, the candidate must:

- 1) For the first entrance examination, pay before the **27th July 2018** an amount of 600 000 CFAF representing a deposit on tuition non-refundable in case of withdrawal. **NB:** For the second entrance examination, the dates will be communicated later.
- 2) Provide the duly completed payment form **signed** by the family
- 3) Provide a **result slip** attesting success to the GCE A/L.



1st Cycle of International and Intercultural GENERALIST ENGINEERING PROGRAM Entrance Examination

Candidate must submit the following documents :

1. A handwritten application addressed to the Director of Ucac-Icam Institute indicating the reasons for choice of program. The jury will pay a great attention and will appreciate the writing quality: structure and argumentation.
2. The Application Form ("**Form A**", to be downloaded on the web site or to be withdrawn from an exam center). On it, paste a recent passport size photograph taken on a white background.
3. A detailed **curriculum Vitae**: studies undergone since the secondary, certificates obtained, co-curricular activities, sporting activities and leisure.
4. For GCE A/L holders: a copy of the document attesting to the success of the GCE A/L (photocopies transcripts, result slip,) obtained before submission date: the original must be presented during registrations.
5. A photocopy of the National Identity Card or of the School Identity Card.
6. A certified copy of the birth certificate.
7. Two recent colored passport size photographs, one with full names written behind to be pasted on **Form A**.
8. **20.000 FCFA** cash.
9. An A4 envelop, on which the candidate writes his name and first name.

The **Form A** is available in our examination centers, or to be downloaded on the website:

www.ucac-icam.com

Submission deadline for applications is set for **Friday 11th may 2018**.

1st Cycle of International and Intercultural GENERALIST ENGINEERING PROGRAM

SUBJECTS TO PREPARE

1.0 General Exam Structure

The entrance examination shall consist of three subjects i.e. Mathematics, Physics and Chemistry condensed into two papers. The first paper shall be solely made of Mathematics which shall carry the same weight as the second paper made of Physics and Chemistry.

○ The Syllabus

I. MATHEMATICS

I.1.1 Calculus/Analysis

- a. Limits, Continuity and Differentiability of basic polynomial, exponential and trigonometric functions.
- b. Differentiation (exponential, linear, trigonometric functions).
- c. Integration
 - Fundamental Theorem of Calculus.
 - Trigonometric and hyperbolic substitutions.
 - Recurrent integrals.
- d. Differential Equations.
 - Linear Differential Equations
 - Complimentary functions for auxiliary equations
 - Particular solutions, homogenous solutions and general solutions.

I.1.2 Trigonometry

- a. Sine and Cosine Rules.
- b. Manipulating Trigonometric functions.
- c. Proving and using trigonometric identities.
- d. Manipulating Trigonometric functions with multiple angles.

I.1.3 Algebra

- a. Functions (exponential, Natural Log, polynomials, trigonometric functions)
- b. Sequences and Series
 - Recurrent Sequences
 - Sum to infinity
 - Convergence and divergence tests (Ratio Test, n^{th} Root Test, Sandwich Test, Comparison Test).
 - Taylor and McLaurin Series expansions of e^x , $\ln(1+x)$, $\sin x$, $\cos x$, $\sinh x$, $\cosh x$.
- c. Complex Numbers
 - Modulus and Argument of a Complex number.
 - De Moivre's Theorem.

I.1.4 Geometry

- a. Curve sketching

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- Vertical, horizontal and oblique (slant) asymptotes.
- Sketching of parametric curves on the xy plane.
- b. Vectors
 - Vector algebra
 - Vector Geometry

II. PHYSICS - CHEMISTRY (75 % of entire exam)

SECTION ONE: Mechanics

- Units & Measurement
- Kinematics
- Work and Energy
- Impulse and Momentum
- Newton's Laws of Motion
- Rotational Motion

SECTION TWO: Fields

- Gravitation Field
- Electric Field
- Magnetic Effect of Current
- Electromagnetic Induction

- Modern Physics

SECTION THREE: Waves

- Waves
- Geometrical Optics

SECTION FOUR: Energetics

- Heat and Thermodynamics
- Current Electricity

SECTION FIVE: Material Science

- Mechanics of Solids and Fluids
- Oscillations

CHEMISTRY (25% of entire exam)

SECTION ONE: Physical Chemistry

- Basics of Chemistry
- States of Matter
- Atomic Structure
- Chemical Bonding & Molecular Structure
- Chemical Thermodynamics, Solutions & Equilibrium
- Redox Reactions & Electrochemistry
- Chemical Kinetics and Surface Chemistry

SECTION TWO: Inorganic Chemistry

- Classification of Elements and Periodicity
- General Principles and Process of Isolation of Metals
- Hydrogen, Block Elements
- Coordination Compounds
- Environmental Chemistry

SECTION THREE: Organic Chemistry

- Purification and Characteristics of Organic Compounds
- Basic Principles of Organic Chemistry
 - Hydrocarbons



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- Organic Compounds containing Halogens, Oxygen and Nitrogen
- Polymers and Bio Molecules
- Principles Related to Practical Chemistry and Chemistry For Everyday Life.

III. **FRENCH:**

IV. **LOGIC:**

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