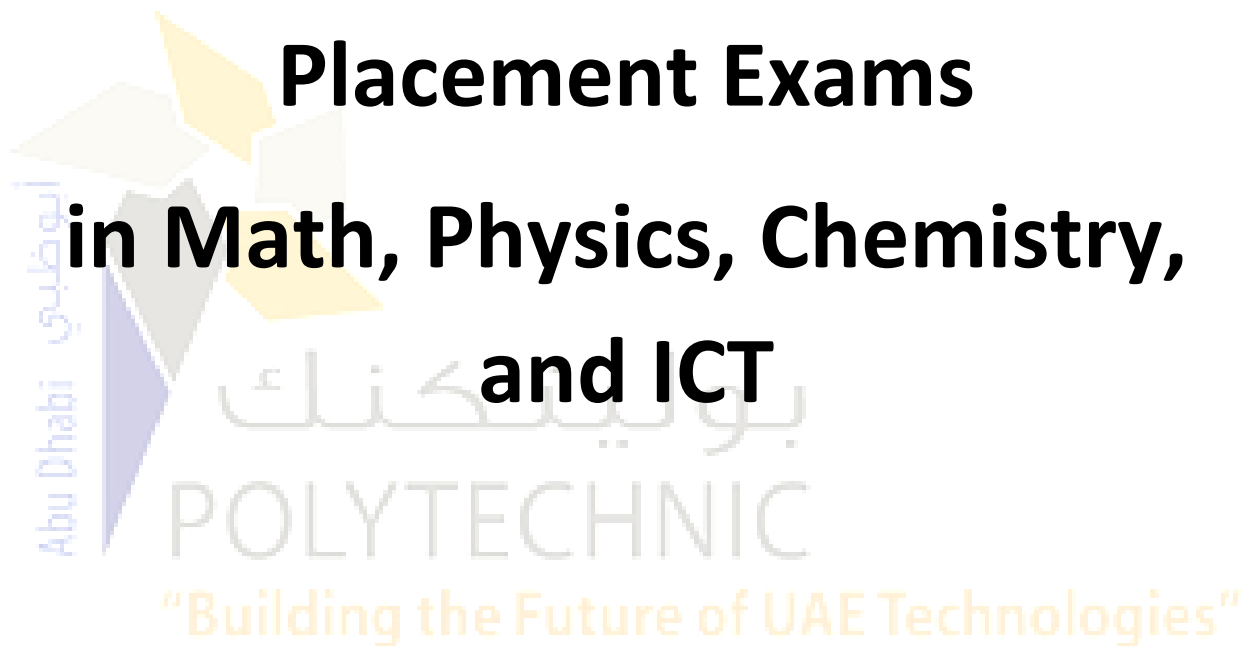


BROCHURE

Placement Exams

in Math, Physics, Chemistry, and ICT



Why and What are the Placement Exams?

The placement exam (PE) will be conducted per subject (Math, physics, chemistry, and ICT). Students who don't have EmSAT or don't meet the admission criteria will be given an exception to sit for the placement exam. Passing the PE will allow them to register for courses. Exams cover the fundamental topics of the above courses. The schedule of the exams will be communicated to you through your registered emails.

Pass Score and admission requirements: The student should score at least 700 in the Placement Exam to be eligible to join Abu Dhabi Polytechnic conditionally and register for zero-credit courses (preparatory program). The student should pass the preparatory program during the first semester or obtain the required EmSAT score in the subject to be considered for the academic programs.

Math topics

Topics Covered in the Math Part

1. Algebraic operations on numbers
2. Algebraic operations on mathematical expressions
3. Geometrical shapes: circles, and solid figures
4. Functions and their graphs using a rectangular coordinate system.
5. Properties of basic trigonometric functions and their plots
6. Linear equations and their graph
7. Product and factoring of mathematical expressions.
8. Mathematical operations of vectors.
9. Basic statistical terms
10. Trigonometric functions
11. Logarithmic functions

How to Prepare for the Math Part of the Exam

- **Resources**
Students are encouraged to look for online resources: Suggested online resources are:
 1. Khan Academy: <https://www.khanacademy.org/math/algebra>
 2. <https://www.khanacademy.org/math/geometry>
 3. <https://www.khanacademy.org/math/algebra2>
 4. <https://www.khanacademy.org/math/trigonometry>
 5. World Center of Mathematics: <https://www.youtube.com/user/CenterofMath>
- **Reference books:**
 1. Wallace, T. (2010) *Beginning and Intermediate Algebra*,
<http://wallace.ccfaculty.org/book/book.html>

Topics Covered in the Physics Part

1. Kinematics: motion in a straight line. Motion with uniform acceleration. Free fall. Relative velocity in a straight line. Motion in a plane. Projectiles. Relative velocity in a plane.
2. Dynamics: Newton's first law, Mass, Newton's second law & third law, Friction, Applications of Newton's laws.
3. Work and energy: Work. Kinetic energy. Gravitational potential energy. Elastic potential energy. Principle of conservation of energy. Work-energy theorem.
4. Linear momentum and impulse: Conservation of linear momentum principle and applications.

How to Prepare for the Physics Part of the Exam

- Resources

Suggested online resources are:

1. Khan Academy: <https://www.khanacademy.org/science/high-school-physics>

- Reference books:

1. Sears and Zemansky's College Physics, 9th edition, Hugh D. Young, 2011
2. <https://study.com/academy/course/high-school-physics-textbook.html>

Topics Covered in the Chemistry Part

1. Units, definitions, and basic concepts. Atomic structure and nomenclature of simple compound. Periodic Table of Elements. Units of measurements used in chemistry.
2. Counting Atoms and Molecules. Elements and compounds. Write basic chemical formulas and equations, nomenclature of chemical compounds.
3. Balance chemical reactions and performing stoichiometric calculations.
4. Different types of chemical reactions and solubility rules.
5. Gas laws. Pressure, gas laws of Boyle, Charles, Avogadro and Ideal Gas Law, gas stoichiometry, and Dalton's law.
6. Atomic Structure and Periodicity. Bohr Model, Quantum Numbers, Electron Spin and the Pauli Principle and Aufbau Principle, Periodic Trends in Atomic Properties.
7. Bonding: General Concepts. Types of Chemical Bonds and Electronegativity, Bond Polarity and Dipole Moments, Electron Configurations and Sizes, Covalent Chemical Bond, Lewis Structures.
8. Localized Electron Model, Lewis structure, Resonance, and Valence Shell Electron Repulsion Model (VSEPR).

How to Prepare for the Chemistry part of the Exam

- **Resources**

Suggested online resources are:

1. <https://www.khanacademy.org/science/ap-chemistry-beta>

- **Reference books:**

1. Zumdahl S. and Zumdahl S. (2013), Chemistry, 9th Edition or newer, Brooks Cole, USA.
2. <https://study.com/academy/course/high-school-chemistry-textbook.html>

Topics Covered in the ICT Part

1. Computer Hardware
2. Digital Logic Design
3. Computer Networks
4. Computer Security
5. Computer Software
6. Problem Solving
7. Basic Programming

How to Prepare for the ICT part of the Exam

- Resources

Suggested online resources are:

1. Khan Academy: <https://www.khanacademy.org/computing/computer-programming>
2. https://teacher-network.in/OER/images/9/9a/ICT_student_textbook.pdf

- Reference books:

1. Docter, Q. (2016). CompTIA IT Fundamentals Study Guide: Exam FC0-U51. John Wiley & Sons.

Calculator

The scientific calculator (Casio FX-991ES Plus, or Similar) is the standard tool for math/physics/chemistry/ or ICT exams.



- What Happens after the end of the Exams?

Students' final decision of acceptance will be based on their results of the exam. The admission office will inform you about the results of your exams and what happened next.