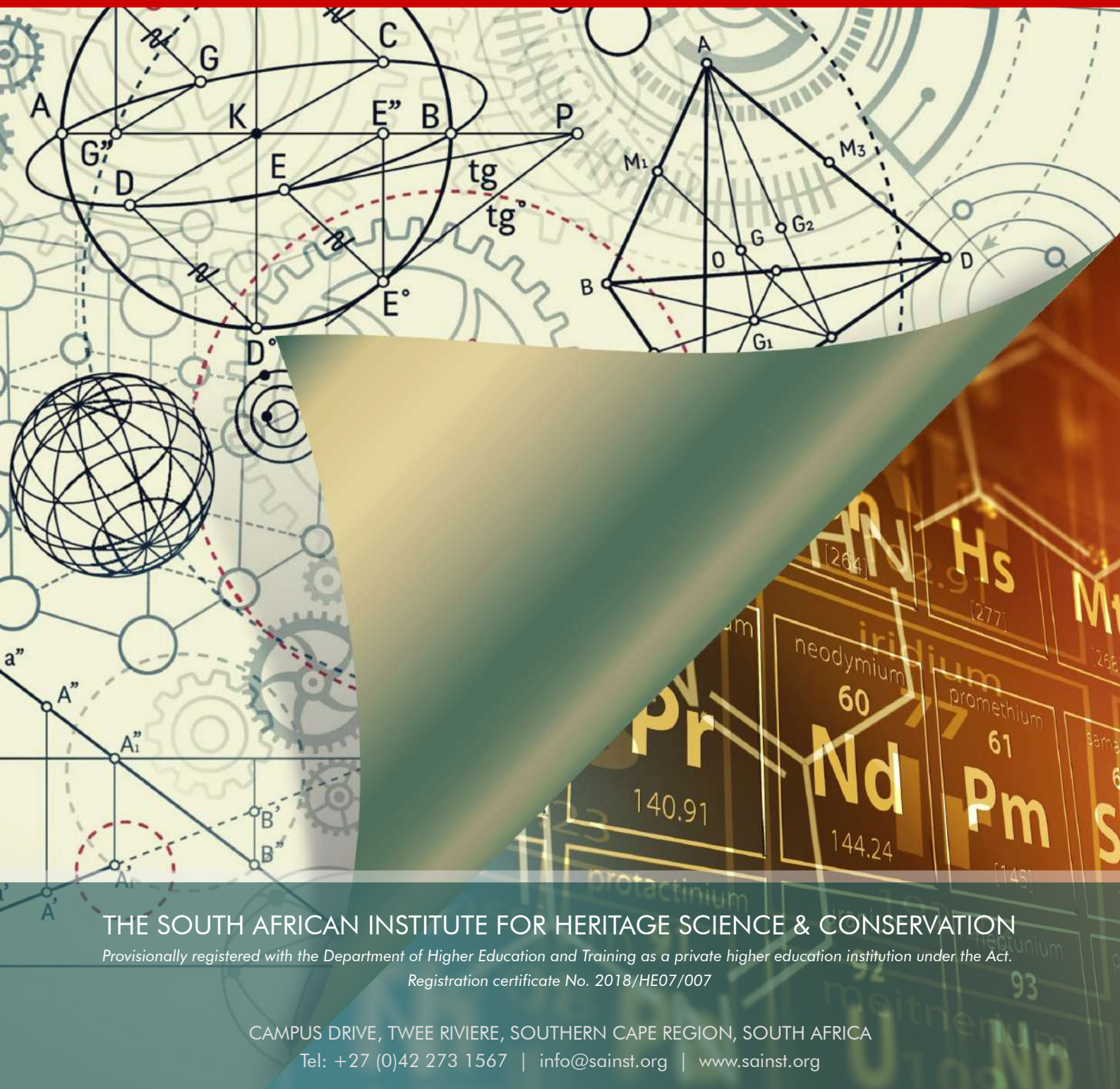
MODULE: PHYSICS & CHEMISTRY FOR CONSERVATION (BLENDED LEARNING MODE)

CHEM06PGD (10 Credits)

Recommended duration for completion:
3 WEEKS Theory (distance learning) + 3 DAYS Resident, Practical Contact session



THE SOUTH AFRICAN INSTITUTE FOR HERITAGE SCIENCE & CONSERVATION

Provisionally registered with the Department of Higher Education and Training as a private higher education institution under the Act.
Registration certificate No. 2018/HE07/007

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PHYSICS & CHEMISTRY FOR CONSERVATION

Content & Themes

Video lectures, guidance & mentorship, demonstrations and practical sessions:

- Applications of Redox Chemistry as related to Conservation;
- Physics and Chemistry as related to colour observation;
- Chemical names, structures and properties of inorganic compounds, organic solvents and other organic compounds (isomers);
- The relevance of chemical equilibrium, acidity and alkalinity to Conservation;
- Science as related to solubility and solutions;
- Science as related to cleaning;
- Polymerisation and characteristics of polymeric materials;
- Physics and Chemistry relating to the use of adhesives;
- Physical and chemical changes leading to degradation;
- Physics and Chemistry as related to coatings and consolidants;
- Analytical techniques;
- Lab safety.

Module Purpose

The module, *Physics & Chemistry for Conservation,* is designed to address aspects of chemistry and science which are fundamentally and specifically related to heritage preservation - and therefore pertinent to teaching the underlying chemical and physical attributes of the materials from which heritage objects and installations are composed, as well as vectors contributing to their deterioration. Scientific and chemical analysis and investigation of both the material and its deterioration will be taught to a sufficient degree to allow students to effectively prescribe storage environments, handling prerequisites, as well as considerations for display and interventive methods.

Furthermore, the student will be instructed to a sufficiency of depth of knowledge to communicate accurately and effectively with scientists, chemists and technologists in related fields, permitting feasible collaboration and joint advances within the field of heritage preservation. Students receive instruction to a level which may allow authorship, co-authorship and functional access to publications in this regard.

Modules linked specifically to this subject are *Advanced Paper Conservation, Advanced Metals Conservation, Conservation in the Built Environment,* as well as the associated postgraduate programme's *Research Project*.

Learning Outcomes

On completion of this module, the student should be able to:

1. determine the causes of deterioration & risk exposure to heritage materials through chemical and physical vectors by being able to extrapolate and relate the impact of chemical reactions of specific materials to the physical deterioration, damage and loss of that material or composite material.
2. understand the supporting chemistry and science of the treatments and materials employed in conservation, in order to be able to maximize the material, use, performance and treatment methodology employed, so enhancing material stabilization, performance and longevity.
3. remain compliant with all health and safety regulations, not only by being informed of statutory requirements but also comprehending the chemical reactivity of various chemicals and reagents - whether being employed or merely stored in proximity.

PHYSICS & CHEMISTRY FOR CONSERVATION

PRESCRIBED MODULE STUDY MATERIAL (provided):
Ashley-Smith, J. and Wilks, H. (eds) (1997) Science for Conservators Volumes 1,2 & 3. The Conservation Unit of the Museums & Galleries Commission in conjunction with Routledge.

RECOMMENDED READING:

- Materials for Conservation: Organic Consolidants, Adhesives and Coatings by V. Horie
- Chemistry Counts by G. Hill
- Cleaning painted surfaces by R Wolbers
- The Museum Environment. (2nd ed) by G Thomson
- Material Characterisation tests for objects of art and archaeology by N. Odgaard, S. Carroll and W. Zimmt
- Analytical techniques in Conservation; Winterthur Museum

TEACHING & LEARNING METHODS:

On-line: Synchronous, online video conference meetings shall feature - during which lectures and tutorial feedback shall be presented, resulting in interaction between tutors and student. Ongoing direction and instruction shall follow, requiring reading, self-study and assignments to be submitted. The formative coursework shall account for 40% of the total mark.

Contact block session (3 days): Presented on-campus at the Institute's conservation laboratory, these sessions shall provide for practical execution and implementation of theoretical content.

A final summative assessment shall conclude this Physics & Chemistry for Conservation module. The summative coursework shall account for 60% of the total mark.

The pass mark for Physics & Chemistry for Conservation is 55%

In the case of candidates meeting the enrolment prerequisites for the Postgraduate Diploma "Technical Conservation Studies", credits achieved upon completion of Physics & Chemistry for Conservation may, upon application, successfully transfer towards attainment of a future graduation.

COURSE DETAILS

Enrolment prerequisites	• Chemistry, at least on 1st year level OR an approved Chemistry bridging course, successfully completed. • Successful completion of the following modules: Conservation Theory & Skills (CTS01PGD); at least one specialist conservation module on foundational level.
Course fee	**R12 400.95** (VAT Exempt)
Prescribed textbooks	R2 909.87 (excl. VAT) (excl. shipping)
Tuition Tool-kit	Not Applicable

A progress report will follow upon completion.