



**MINISTÉRIO DA EDUCAÇÃO**  
**Fundação Universidade Federal do ABC**  
**Reitoria**

Avenida dos Estados, 5.001 . Bairro Santa Teresinha – Santo André – SP  
CEP 09210-580 · concursos@ufabc.edu.br

**Descriptive of the Strategic Research Units at UFABC**

**Nanomedicine Unit (NANOMED)**

**Name in Portuguese: *Núcleo de Nanomedicina***

Nanomedicine is a Nanotechnology subarea that uses its principles for applications in the health area. It is fundamentally an interdisciplinary field that applies the knowledge from traditional sciences such as Medicine, Biology, Chemistry, Physics, Mathematics, and Computing to build the border knowledge that allows several advancements in preventing, treating and diagnosing diseases.

Thus the Nanomedicine Research Unit (NANOMED) at UFABC has the objective to establish and develop this area at the University and make it possible to arise collaborations between its researchers from different areas, and these with other centers in Brazil and in the world, creating a network of excellence aiming at the development of Nanomedicine.

The different areas of integrated knowledge in NANOMED are represented by three pillars with researchers divided and integrated in three fields of research, such as: (a) development and characterization of nanostructured systems; (b) evaluation of applications and biological activities of synthesized nanostructured systems; (c) theoretical and computing studies to direct the synthesis of nanostructured systems or to help elucidating the action mechanisms exercised by them in biological systems. This integrated network provides support to the scientific and technological development of the area generating basic and applied knowledge thru the development of products, processes and services in the Health area.

**Biochemistry and Biotechnology Unit (NBB)**

**Name in Portuguese: *Núcleo de Bioquímica e Biotecnologia***

The Biochemical and Biotechnology Unit works in its area thru an interrelated studies network involving researchers from the 3 UFABC centers applying researches and spreading knowledge. Its main goal is to promote biochemistry and biotechnology areas, which have significant impact to several human activity segments, including feeding, pharmacy, medicine, water treatment, solid waste management, carbon emission reduction, among others. Biotechnology uses biological systems, living organisms and its derivatives for certain purposes, its borders expands in synchronized with the biochemistry expansion since biomolecules and its properties are always present in these two fields of science that are totally integrated. The Unit follows UFABC principles of focusing its activities in Teaching, Research and Outreach, with innovative projects developed with interdisciplinary cooperation and integration among the 3 UFABC centers. The extension activities apply its results in incubated companies, exchange events and scientific divulgation disseminating the knowledge of the area.

Further information available at: [nbb.ufabc.edu.br](http://nbb.ufabc.edu.br)



**MINISTÉRIO DA EDUCAÇÃO**  
**Fundação Universidade Federal do ABC**  
**Reitoria**

Avenida dos Estados, 5.001 . Bairro Santa Teresinha – Santo André – SP  
CEP 09210-580 · concursos@ufabc.edu.br

**Strategic Studies on Democracy, Development and Sustainability Unit (NEEDS)**  
**Name in Portuguese: *Núcleo de Estudos Estratégicos sobre Democracia, Desenvolvimento e Sustentabilidade***

The Strategic Studies on Democracy, Development and Sustainability Unit (NEEDS) is a space for integration and applied academic production. Objectives:

A) Strategic: propose and produce starting with an interdisciplinary approach of teaching, research and outreach about integrated democracy, development and sustainability.

B) Research: 1. To map the current state of the main questions to be faced regarding the three themes – democracy, development and sustainability -, and in the three territorial scales – global, national and regional -, from the empiric and theoretical point of view; 2. To identify and analyze in each of the three themes and scales representatives experiences of facing or equation of these questions placed by literature and empirical reality; 3. Evaluate the interdependences, restrictions and possible intervention fields about and among those themes and questions; 4. Improve and propose guidance for strategies and public and private policies towards greater efficiency and social, economic, political, and environmental equity.

C) Institutional: 1. Support the internationalization at UFABC, of its faculty and researchers, and of its academic production; 2. Create horizontal (among programs and centers), and vertical (among undergraduate, graduate and outreach programs) integration mechanisms; 3. Strengthen UFABC's visibility thru a consistent academic publications program in Brazil and in international journals of known penetration into manages and researchers; 4. Strengthen UFABC's bounds with social organizations and power jurisdictions; 5. Contribute to the creation of new programs (undergraduate and graduate ones).

Further information available at: <http://needds.ufabc.edu.br>

**Interdisciplinary Center for Applied Neuroscience (NINA)**  
**Name in Portuguese: *Núcleo Interdisciplinar de Neurociência Aplicada***

The Interdisciplinary Center for Applied Neuroscience (NINA), is a strategic unit whose objective is to establish a dialogue between researchers of neuroscience with the other areas of society as the areas of technology, health, education and public policy, among others. Following the basic principle of UFABC - excellence in scientific research, extension and interdisciplinary teaching - the NINA adopts the strategy to encourage academic activities involving undergraduate and graduate students, scientific research and initiatives aimed at the community.

Further information available at: <http://neuro.ufabc.edu.br/ncsc-2/>



**MINISTÉRIO DA EDUCAÇÃO**  
**Fundação Universidade Federal do ABC**  
**Reitoria**

Avenida dos Estados, 5.001 . Bairro Santa Teresinha – Santo André – SP  
CEP 09210-580 · concursos@ufabc.edu.br

**Sustainable Technologies Unit (NUTS)**

**Name in Portuguese: *Núcleo de Tecnologias Sustentáveis***

The Sustainable Technologies Unit was created with the purpose to promote the organization and grouping of UFABC faculty who work with Synthetic Chemistry, Catalysis, Processes development, Green Chemistry, Research in Chemical Conceptualization, and Scientific Education, aiming to develop and improve the process that use biomass, industrial waste to the possible creation of innovative initiatives and new business.

Among NuTS objectives, the highlights are: to promote technological progress in the use of renewable sources of energy, as the optimization of existing processes; to promote the sustainable use of natural resources and the reuse of waste; to study new catalysts with industrial application potential; to maximize the fund raising; enhance the interaction of researchers with other national and international research centers.

The current NuTS' research lines are: a) use of heterogeneous bifunctional catalysts for conversion of biomass and derivatives; b) conversion of biodiesel industrial products by etherification, esterification, hydrogenolysis, oxidation and acetalization; c) valorization of catalysis nature products; d) conversion of carbohydrates and glycerol into imidazolines of high value added; e) synthesis of furfural derivatives; f) study of catalysts reactivity used in raw materials transformation by multinuclear nuclear magnetic resonance (NMR); g) application of heterogeneous mesoporous catalysts for photochemical cracking of asphaltenes and for carbon capture; h) Multipurpose pilot plant.

**Residues Revalorization Unit (Revalores)**

**Name in Portuguese: *Núcleo de Revalorização de Resíduos***

The Residues Revalorization Unit (Revalores) has the objective of promoting, in an interdisciplinary perspective, the production and divulgation of scientific and technology knowledge of several types of residues, focusing on its revaluation, energetic recovery or less impact degradation of the environment.

As a consequence of the Revalores Unit's strategy there will be high level human resources training, creation of innovative technologic solutions and contribution to a more sustainable society.

As specific objectives, the Revalores Unit promotes the development of new materials, simulation models, manipulation methods, modifications, treatments and energetic recovery processes of a great variety of residues: urban, industrial, agroindustrial, radioactive, and organic solid residues, among others. In addition to assure a discussion forum for researchers which will facilitate an advance in existing investigations, it will promote an extension of views – the group is made of professionals from different backgrounds and experiences – and of existing researches at UFABC, which will lead to new approaches to the residues field.

The Revalores Unit is structured in 7 lines of research: Advanced Materials; Mechanisms of chemical, photochemical and enzymatic materials degradation; Characterization and processes of energetic conversion of residual biomass; Valorization of environmental residues; Solid Residues and contaminated areas;



**MINISTÉRIO DA EDUCAÇÃO**  
**Fundação Universidade Federal do ABC**  
**Reitoria**

Avenida dos Estados, 5.001 . Bairro Santa Teresinha – Santo André – SP  
CEP 09210-580 · concursos@ufabc.edu.br

Simulation and Modelling of New Materials and Energy; and Management and treatment of radioactive waste.

**Virtual Universes, Entertainment and Mobility Strategic Unit (NUVEM)**  
**Name in Portuguese: *Núcleo de Universos Virtuais, Entretenimento e Mobilidade***

The Virtual Universes, Entertainment and Mobility Strategic Unit (NUVEM) consist of 18 professors who work in an interdisciplinary manner in Computer Science, Information Engineering and Human and Social Sciences, in addition to undergraduate and graduate students.

The goals of NUVEM are producing knowledge, developing high-level human resources and generating innovative and interdisciplinary solutions to information and Communications Technologies (ICT) and their interfaces to society's demands, such as the improvement of the quality of life of citizens and sustainability.

NUVEM's activities are developed by five research groups: Virtual Sensations; Connected Mobility; Smart Societies; Extreme Computing; and Integrated Universes.

Further information available at: <http://nuvem.ufabc.edu.br>