



NAAB International Certification

Appendix 1: Template for Course Descriptions [limit 1 page per course]

Number & Title of Course (total credits awarded):

TECH402 - Innovation in Infrastructures and Buildings (Arch) - Semester 8 - ECTS 6 - Cycle/Profile: 2nd.
Cycle/Integr. Arch. - Scientific Area: TAUD-Technologies of Architecture, Urbanism and Design

Course Description (limit 25 words)

The course fuses architectural design with advanced construction technologies, emphasizing sustainability, biomimicry, and digital innovation in environmental interaction, to provide an understanding.

Course Goals & Objectives (list):

1. Understand the importance of innovation in architecture and the challenges and opportunities it presents. Explore new materialities and innovations in building.
2. Explore advanced infrastructural technologies for buildings and understand how these systems can be effectively and aesthetically stimulatingly integrated.
3. Investigate specialized construction systems and discuss how they can be used in different contexts.
4. Explore how the principles of biomimicry and morpho-ecology can inspire innovative architectural solutions.
5. Understand the principles of sustainable and responsive architecture, and how they can be applied in practice.
6. Explore the impact of digital technology on architecture, including generative design, BIM, 3D printing, among others.

Student Performance Criterion addressed (list number and title):

Primary - B.6 Environmental Systems; B.8 Building Materials and Assemblies; C.3 Integrative Design; Secondary - B.9 Building Service Systems; C.1 Research;

Topical Outline (include percentage of time in course spent in each subject area):

Lecturing:35%

Tutoring: 35%

Critics: 5%

Investigative Work:25%

Prerequisites:

It does not have;

Textbooks/Learning Resources:

Addington, M., & Schodek, D. (2004). Smart materials and new technologies: For architecture and design professions. Architectural Press.

Beesley, P., Hirose, S., Ruxton, J., Trankle, C., & Turner, C. (Eds.). (2006). Responsive Architectures: Subtle Technologies. Riverside Architectural Press.

Benyus, J. M. (2002). Biomimicry: Innovation Inspired by Nature. Harper Perennial.

Holm, I. (2006). Ideas and Beliefs in Architecture and Industrial design: How attitudes, orientations, and underlying assumptions shape the built environment. Oslo School of Architecture and Design.

Kieran, S., & Timberlake, J. (2004). Refabricating Architecture: How Manufacturing Methodologies are Poised to Transform Building Construction. McGraw-Hill.

Offered (semester and year):

4th Year - Spring;

Faculty assigned (list all faculty assigned during the two academic years prior to the visit):

Alexandrino José Basto Diogo; Augusto Miguel Gama Antunes Albuquerque; Francisco Carlos Almeida do Nascimento e Oliveira; Francisco Manuel Camarinhas Serdoura;