



## NAAB International Certification

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

#### Number & Title of Course (total credits awarded):

ELDGC4&503 - Introduction to Shape Grammars - Semester - ECTS - Cicle/Profile: - Scientific Area:

#### Course Description (limit 25 words)

Introduces a support design using a generative computational process in their theoretical/practical components. Introduces a paradigm of a computational process that considers visual aspects;

#### Course Goals & Objectives (list):

- (1) Introduction to shape grammars: theory and applications in architecture, urbanism and design.
- (2) Shape grammars in education.
- (3) Form, shape analysis, shape computation, transformations in Euclidean space, algebras.
- (4) Spatial relations, rules, labels, derivation, recursion, parameterization.
- (5) Colour, weight, compound and descriptive grammars.
- (6) Stylistic transformations.

#### Student Performance Criterion addressed (list number and title):

Primary - A.2 Design Thinking Skills; A.4 Architectural Design Skills; Secondary -

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

Lecturing, 50%  
Readings; 15%  
Tutoring; 15%  
Final Review; 20

#### Textbooks/Learning Resources:

Knight, T. W. (1989) Shape Grammars in Education and Practice: History and Prospects. Internet Paper.

<http://www.mit.edu/~tknight/IJDC/>

Knight, T. W. (1989) Color grammars: designing with lines and colors. Environment and Planning B: Planning and Design, 16, pp.417-449.

Knight, T. W. (1989) Transformations of De Stijl art: the paintings of Georges Vantongerloo and Fritz Glarner. Environment and Planning B: Planning and Design, 16, pp.51-98.

Stiny, G., (2006), Shape: Talking about seeing and doing. Cambridge, Mass.: MIT Press

Stiny G., and Gips J. (1972) Shape Grammars and the Generative Specification of Painting and Sculpture. C V Freiman (ed) Information Processing 71 (Amsterdam: North-Holland) 1460-1465. Republished in Petrocelli O R (ed) 1972 The Best Computer Papers of 1971: Auerbach, Philadelphia pp.125-135.

#### Offered (semester and year):

2nd Year - Fall;

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

Luís António dos Santos Romão;