

What and Why

1° year (1° cycle) Installation of theoretical and practical historical constituents of sciences of construction, by an essentially pragmatic approach, appealing to the observation and manipulation; it utilises High school experiences after revealing the knowledge directly related to this approach. - *Sciences and life of materials - Physical of structures 1 and workshop on one existing building - Physics of ambiances 1 - Theory and history of construction 1 - Building site following.*

2° year (1° cycle) Continuation of the installation of the constituents of sciences of construction, by a theoretical and practical teaching of contemporary structures and ambiances, parallel to an elementary and experimental approach to ambiances: - *Physics of structures 2 - Physics of ambiances 2 - Theory and history of construction 2 - Directed work on a yearly architectural project, at the same time that the architectural teaching (studio).*

3° year (2° cycle) Following the 1° and 2° year teachings, this series is centralized on the mastery of ambiances: - *Physics of ambiances 3 - Physics of structures 3 - Thematic construction studios at the same time that one semester architectural project.*

4° year (2° cycle) In the progressive stepping on knowledge about structures and ambiances, this series extends on the one hand the observation of physical phenomena and the intuitive and experimental approach peculiar to the first cycle modules, on the other hand the examination at the time sensitive and rational of the parameters of the mastery of ambiances and comfort practised in the second year, by a deeper theoretical approach.

The knowledge of elaborated systems, constructed around three essential materials, steel, concrete and wood, as well as the opening on special structures, appeal to a synthesis capability by the end of this cycle.

The objective is therefore to create the basis of a research attitude capable to situate the conceptual choices in reference to the limits of the constructive feasibility in a capacity of dialogue with engineering disciplines: - *Physics of structures 4 - Theory and history of construction 3 - Thematic studios of construction in parallel with an early architectural project.*

5° year (3° cycle) It is up to the students to choose to go deeper in this general knowledge of construction in parallel with an early architectural project, integrating either the problem of urban planning and architecture in a strong historical site, or in a free implantation site and affected to property programs of housing or equipments.

It is also proposed to students to specialize in three domains by two DESS - one linked to acoustic/architecture relations and urban developments, the other linked to wood construction - and through a Master whose title is ' Built Heritage and Major Natural Risks '.

Pedagogic strategy

The basis of the pedagogic strategy is on the one hand the progression of acquisition of knowledge and on the other hand, the fact that constructive conception and architectural conception of a project must go on simultaneously.

The first cycle (1st and 2nd year) give the theoretical fundamental essential knowledge of 'materials', 'Physics' and 'Theory and History of Construction'. In the first year, directed works are done on a relatively old building to understand how it was built and how it is possible to change its structure. In the second year, construction exercises are given on yearly architectural projects.

The second cycle (3rd and 4th year) precise the fundamental knowledge of the first cycle and offer new knowledge in the field of ambiances and special structures. The teaching of calculated static and dynamical stability is given as constructability and pre-dimensioning in this cycle, that means at the moment the students need. Directed works of structure and ambiance are done at the same time that one of the four architectural projects are given to the students to choose from (one by semester).

The third cycle (5th year) gives the choice to students to go deeper in their knowledge in an yearly important project, led from the urban planning scale to the architectural and constructive complete outcome, both conceptions being developed simultaneously. Also, one possibility of going deeper is given as a choice with both DESS and one MASTER.

Relation to studio teaching

The directed works are all done at the same time that architectural projects; specific exercises, picked up from the architectural project, may allow to precise certain answers of purely constructive order.

How

- Knowledge about materials

1st year Class 1 architect

- Physics of structures

1st year Directed works 3 architects, 1 engineer, 1 eng-architect

2nd year Class 1 architect
 Directed works 4 architects

3rd year Class 1 engineer-architect
 Directed works 1 engineer-architect, 1 engineer, 2 architects

4th year Class 2 architects, 1 engineer, 1 engineer-architect
 Directed works 1 engineer-architect, 1 engineer, 2 architects

5th year Directed works 1 architect

- Physics of ambiances

1st year Class 1 doctor/sciences

2nd year Class 1 doctor/sciences
 Directed works 4 assistants architects.

3rd year Class 1 eng-archi, 1 eng, 1 doctor/sciences, 5 assist-archi
 Directed works 1 eng-archi, 1 doctor/sciences, 1 eng, 6 assist-archi

- Building site following

1st year 1 engineer

Who

- Theory and history of construction.

1st year	Class	1 architect
2nd year	Class	1 architect
4th year	Class	1 architect
5th year	Class	1 architect

Further information: Teaching staff composition construction (800 students)

- With title	Structures:	2 architects, 1 engineer,	3
	Ambiances :	1 Doctor/sciences	1
- Under contract	Structures:	1 engineer	1
	Ambiances:	1 engineer	1
- Associated (limited contract for 6 years max.)	Ambiances:	1 engineer-architect	1
- Contracted in 160h/year limits max.	Structures:	4 architects	4
	Ambiances:	6 architects	6

**When and
to What Extent**

- Timing and teaching hours

Year	Cycle	Knowledge	Sequence	Class	DW
1	1	Sciences and life of materials	Semester	14	
		Physics of structures 1	Semester		65
		Physics of ambiances 1	Semester	2	12
		Building site following	Year		2h/student by year
		Theory and history of construction	Semester		28
2	1	Physics of structures 2	Semester	16	38
		Physics of ambiances 2	Year	2	12 + 28
		Theory and history of construction	Semester	28	
3	2	Physics of structures 3	Semester	16	4
		Physics of ambiances 3	Semester	62	22
4	2	Physics of structures 4	Semester	38	24
		Theory and history of construction 3	Semester	28	
3/4	2	Projet construction/architecture	1 semester		120
5	3	Project construction/architecture	year	6	250
		(option free choice)			
		+ Possibility with free choice, integrated in the course:			
		- Dess bois	2-years		(500)
		- Dess acoustique	2-years		(500)
		+ no integrated in the course (post-graduate)			
		- Master patrimoine et risques naturels majeurs	2-years		(500)

Virtual Reforms

- School's mission statement: co-coordination of construction teachings.

- Propositions about 3/5/8

1st cycle of 3 years	1st year	Without change on what exists in present 1st year of 1st cycle.
	2nd year	Without change on what exists in present 2nd year of 1st cycle.
	3rd year	Without change on what exists in present 1st year of 2nd cycle but with one semester (120 h) of DW on an architectural project.
2nd cycle of 2 years	1st year	Without change on what exists in present 2nd year of 2nd cycle, but with one semester (120 h) of DW on an architectural project.
	2nd year	Without change on what exists in present 1° year of 3° cycle.
3rd cycle of 3 years	1st year	Elaboration of personal work to the architectural degree with equivalence DEA in the present form of university teaching.
	2nd & 3rd year	Professional stage + Elaboration on choice of a professional Doctorate

- Photographs, sketches and so on... Are available on the Internet of 'Ecole d'Architecture et de Paysage de Bordeaux, on modules MA.P4 et PA.4.

1 - WHAT AND WHY

1st year (1st cycle) Installation of theoretical and practical historical constituents of sciences of construction, by an essentially pragmatic approach, appealing to the observation and manipulation; it utilises High school experiences after revealing the knowledge directly related to this approach : - **Sciences and life of materials** - **Physical of structures 1 and workshop on one existing building** - **Physics of ambiances 1** - **Theory and history of construction 1** - **Building site following.**

2nd year (1st cycle) Continuation of the installation of the constituents of sciences of construction, by a theoretical and practical teaching of contemporary structures and ambiances, parallel to an elementary and experimental approach of ambiances : - **Physics of structures 2** - **Physics of ambiances 2** - **Theory and history of construction 2** - **Directed work on a yearly architectural project, at the same time that the architectural teaching (studio).**

3rd year (2nd cycle) Following the 1st and 2nd year teachings, this series is contralized on the mastery of ambiances : - **Physics of ambiances 3** - **Physics of structures 3** - **Thematic construction studios at the same time that one semester architectural project.**

4th year (2nd cycle) In the progressif stepping on knowledges about structures and ambiances, this series extend for one side the observation of physical phenomena and the intuitive and experimental approach peculiar to the first cycles modules, for the other side the examination at the time sensif and rational of the parameters of the mastery of ambiances and confort practiced in 2nd year, by a deeper theoretical approach.
The knowledge of elaborated systems, constructed around three essential materials, steel, concrete and wood, as well as the opening on special structures, appeal to a synthesis capability by the end of this cycle. The objectif is therefore to create the basis of a research attitude capable to situate the conceptual choices in reference to the limites of the constructive feasibility in a capacity of dialogue with ingeniering disciplines : - **Physics of structures 4** - **Theory and history of construction 3** - **Thematics studios of construction at the sometime that an early architectural project.**

5th year (3rd cycle) It is up to the students to choose to go deeper in his general knowledge of construction at the same time that a early architectural project, integrating either the problem of urban plan and architecture in a strong historical site, or in a free implantation site and affected to property programs of housing or equipments.
It is also proposed to students to specialize in three domains by 2 DESS - one linked to acoustic/architecture relations and urban developments, the other linked to wood construction - and through a Master whose title is 'Built heritage and major natural risks'.

2 - HOW

- **Pedagogic strategy** : The basis of the pedagogic strategy is on one side the progression of acquisition of knowledges and on the other side, the fact that constructive conception and architectural conception of a project must go on simultaneously.

The 1st cycle (1st and 2nd year) give the theoretical fundamental essential knowledge into ' materials ', ' Physics ' and ' Theory and story of construction '. In 1st year, directed works are done on a relatively old building to understand how it was built and how it is possible to change its structure. In 2nd year, constructions exercises are given on yearly architectural projects.

The 2nd cycle (3rd and 4th year) precise the fundamental knowledge of 1st cycle and give new one in the field of ambiances and special structures. The teaching of calculated static and dynamical stability is given as constructibility and pre-dimensionning in this cycle, that means at the moment the students need. Directed works of structure and ambience are done at the same time that one of the 4 architectural projects given in choice of students (1 by semester).

The third cycle (5th year) gives the choice to students to go deeper in their knowledge in an yearly important project, led since the urban plan until the architectural and constructif complete outcome, both conceptions being developped simultaneously. Also, one possibility of going deeper is given as a choice with both DESS and one MASTER.

- **Relation to studio teaching** : The directed works are all done at the same time that architectural projects ; specifics exercises, picked up from the architectural project, may allow to precise certains answers of purely constructif order.

3 - WHO

- Knowledge about materials

1st year Class 1 architect

- Physics of structures

1st year Directed works 3 architects, 1 engineer, 1 eng-architect

2nd year Class 1 architect

Directed works 4 architects

3rd year Class 1 engineer-architect

Directed works 1 engineer-architect, 1 engineer, 2 architects

4th year Class 2 architects, 1 engineer, 1 engineer-architect

Directed works 1 engineer-architect, 1 engineer, 2 architects

5th year Directed works 1 architect

- Physics of ambiances

1st year Class 1 doctor/sciences

2nd year Class 1 doctor/sciences

Directed works 4 assistants architects

3rd year Class 1 ing-archi, 1 engineer, 1 doctor/sciences, 5 assistants-architects

Directed works 1 eng-architecte, 1 doctor/sciences, 1 engineer, 6 assistants-archi

- Building site following

1st year 1 engineer

- Theory and history of construction

1st year Class 1 architect

2nd year Class 1 architect

4th year Class 1 architect

5th year Class 1 architect

Further information : Teaching staff composition construction (800 students)

- **With title** Structures : 2 architects, 1 engineer, 3
Ambiances : 1 doctor/sciences 1

- **Under contract** Structures : 1 engineer 1
Ambiances : 1 engineer 1

- **Associated** Ambiances : 1 engineer-architect 1
(limited contract for 6 years max.)

- **Contracted** Structures : 4 architects 4
in 160h/year limits max. Ambiances : 6 architects 6

4 - WHEN AND TO WHAT EXTENT

- Timing and teaching hours

Year	Cycle	Knowledge	Sequence	Class	DW	Year	Cycle	Knowledge	Sequence	Class	DW
4	2	Physics of structures 4	Semester	38	24	4	2	Physics of structures 4	Semester	38	24
		Theory and history of construction 3	Semester	28				Theory and history of construction 3	Semester	28	
1	1	Sciences and life of materials	Semester	14		3/4	2	Projet construction/architecture	1 semestre		120
		Physics of structures 1	Semester	65				Project construction/architecture	Year	6	250
		Physics of ambiances 1	Semester	2	12			(option free choice)			
		Building site following	Year	2h/student by year							
		Theory and history of construction	Semester	28							
2	1	Physics of structures 2	Semester	16	38			+ possibility with free choice, integrated in the cursus :			
		Physics of ambiances 2	Year	2	12 + 28			- Dess bois	2-years		(500)
		Theory and history of construction	Semester	28				- Dess acoustique	2-years		(500)
3	2	Physics of structures 3	Semester	16	4			+ no integrated in the cursus (post-graduate)			
		Physics of ambiances 3	Semester	62	22			- Master patrimoine et risques naturels majeurs	2-years		(500)

5 - VIRTUALS REFORMS

- **School's mission statement** : co-coordination of construction teachings

- Propositions about 3/5/8

1st cycle of 3 years 1st year Without change on what exists in present 1st year of 1st cycle
2nd year Without change on what exists in present 2nd year of 1st cycle
3rd year Without change on what exists in present 1st year of 2nd cycle but with one semester (120 h) of DW on an architectural project

2nd cycle of 2 years 1st year Without change on what exists in present 2nd year of 2nd cycle, but with one semester (120 h) of DW on an architectural project
2nd year Without change on what exists in present 1st year of 3rd cycle

3rd cycle of 3 years 1st year Elaboration of personal work to the architectural degree with equivalence DEA in the present form of university teaching
2nd or 3rd year Professional stage + Elaboration on choice of 0 professional doctorat

- **Photographs, sketches and so on...** Are available on the internet of Ecole d'architecture et de paysage de Bordeaux, on modules MA.P4 et PA.4