


FISA DISCIPLINEI
1. Date despre program

1.1	Institutia de invatamint superior	Universitatea Tehnica din Cluj-Napoca
1.2	Facultatea	Constructii
1.3	Departamentul	Constructii Civile si Management
1.4	Domeniul de studii	Inginerie civila
1.5	Ciclul de studii	Licenta
1.6	Programul de studii/Calificarea	Constructii civile, industriale si agricole/inginer
1.7	Forma de invatamint	IF
1.8	Codul disciplinei	49.00

2. Date despre disciplina

2.1	Denumirea disciplinei	CIVIL BUILDINGS III									
2.2	Aria tematica (subject area)	Civil Engineering									
2.3	Responsabil de curs	Asist. eng. Sebastian Palacean									
2.4	Titularul disciplinei	Asist. eng. Sebastian Palacean									
2.5	Anul de studii	IV	2.6	Semestrul	1	2.7	Evaluarea	Examen	2.8	Regimul disciplinei	DS/DOB

3. Timpul total estimat

An/ Sem	Denumirea disciplinei	Nr. sapt.	Curs			Aplicații			Stud. Ind.	TOTAL	Credit		
			[ore/săpt.]			[ore/sem.]							
				S	L	P		S				L	P
IV/1	Constructii civile (III)	14	3	-	-	2	42	-	-	28	60	130	5.0

3.1	Numar de ore pe saptamina	5	3.2	din care curs	3	3.3	aplicatii	2
3.4	Total ore din planul de inv.	70	3.5	din care curs	42	3.6	aplicatii	28
Studiul individual								Ore
Studiul dupa manual, suport de curs, bibliografie si notite								16
Documentarea suplimentara in biblioteca, pe platformele electronice si pe teren								-
Pregatire seminarii/laboratoare, teme, referate, portofolii, eseuri								36
Tutoriat								4
Examinari								4
Alte activitati								-
3.7	Total ore studiul individual	60						
3.8	Total ore pe semestru	130						
3.9	Numar de credite	5.0						

4. Preconditii (acolo unde este cazul)

4.1	De curriculum	
4.2	De competente	

5. Conditii (acolo unde este cazul)

5.1	De desfasurare a cursului	
5.2	De desfasurare a aplicatiilor	



6 Competente specifice acumulate

Acquired competences	Theoretical knowledges (What the student should	The conformation of the main type of reinforced concrete structures for buildings (frames and diaphragms), and their behaviour under loading, stress and sectional efforts and behaviour of the elements, reinforcement and the design rules.
	Practical knowledges (What the student is able to do)	After acquiring the subject matters, the students will be able to: <ul style="list-style-type: none"> - evaluate permanent and variable actions that act upon the building elements - calculate sectional efforts: M, N, V - verify and reinforce the characteristic section of reinforced concrete elements. design methods for obtaining optimal solution
	Prior demands	After completing the discipline, students will be able to: <ul style="list-style-type: none"> - to conceive resistance structures with walls made of dual reinforced concrete monolithic type (frames and diaphragms) and of civil buildings prefabricated panel, according to architectural design and technological requirements of execution; - - to design reinforced concrete structures for buildings
Competențe transversale	Applying the techniques of effective team work on different hierarchical levels. Applying effective and responsible strategies work, punctuality, responsibility and personal accountability based on principles, norms and values of professional ethics. Documentation in Romanian and in a foreign language, for professional and personal development, through continuous training and effective adaptation to new specifications.	

7 Obiectivele disciplinei (reiesind din grila competentelor specifice acumulate)

7.1	Obiectivul general al disciplinei	Calculation of structures with reinforced concrete walls
7.2	Obiectivele specifice	1. Dimensioning through calculation methods used in civil construction for reinforced concrete walls subjected to vertical and horizontal loads. 2. Elaboration of technical documentation necessary for the execution of buildings with reinforced concrete walls



8. Continuturi

8.1. Curs (programa analitica)		Metode de predare	Observatii
1	Structures with structural reinforced concrete walls. Types of buildings and floor. Reinforced concrete structural walls – Definition. Advantages & Disadvantages. Diaphragms classification	Expunere	Video-proiector
2	Preliminary design requirements. Determination of the structural walls area sizes: walls and connecting beams. Determination of the geometric characteristics – Walls & Connecting beams		
3	Vertical loads assessment – Uniformly distributed loads & Concentrated loads. The effect of vertical loads eccentricity. Preliminary verification of structural walls sections. Preliminary verification of the structural walls sections based on ductility		
4	Characteristic level. Rigidity of the structural walls – General notions and Definition. Lateral displacement and rigidity for solid and structural walls with openings.		
5	Horizontal load distribution on levels – wind & seism. Seismic force distribution to structural walls – the effect of displacement. Mass and rigidity center – definition & determination.		
6	The action of torsion moment. Possible cases . General torsion effect. Additional load determination. Total seismic loads distributed on walls. Seismic distribution in the case of structural walls arranged in different directions		
7	General principles in determination of the sectional efforts from horizontal loads. Static calculus of structural walls. Distorsions – definition.		
8	Distorsion rigidity of a wall and connecting beams. The influence of wall axial deformation.		
9	Determination of bending moments on equivalent frame		
10	Solving the equivalent frames with coefficients, transmission and distribution method of unbalanced moments. Sectional efforts (M,N,V) from horizontal loads.		
11	Eccentric compression calculus. Connecting beams reinforcement.		
12	Eccentric compression calculus.		
13	Connecting beams reinforcement.		
14	Shear force calculus. Constructive requirements.		
8.2. Aplicatii (seminar/lucrari/proiect)		Metode de predare	Observatii
1	Design tasks : Blocks of flats with reinforced concrete diaphragms structure.	Expunere si aplicatii	Calculator, softuri AutoCAD, Allplan Inginerie Starter, MathCad
2	Constructive details (walls, floors, basement wall) – Current floor plan.		
3	Diaphragms geometric characteristics – Cross section		
4	Loads evaluation: self weight, imposed loads for buildings, snow loads		
5	Loads evaluation: wind loads, seismic load		
6	Diaphragms preliminary verifications		
7	Diaphragms and connecting beams geometric characteristics		
8	Diaphragms and connecting beams rigidity. Equivalent moments of inertia		
9	Mass and rigidity center. Seismic load distribution.		
10	Calculus of diaphragms with medium openings with equivalent frame method.		
11	Calculate sectional efforts: M, N, T for walls and connecting beam		
12	Calculation of reinforcement in diaphragms (for eccentric compression and shear) and connecting beam		
13	Plans with diaphragms reinforcement and characteristic details.		
14	Project verification.		



Bibliography

1. ***** Cod pentru proiectarea constructiilor cu pereti structurali din beton armat, Indicativ CR2-1-1.1-2013.
2. ***** Cod de proiectare seismică - Partea I - Prevederi de proiectare pentru clădiri, Indicativ P100/1-2013.
3. ***** SR EN 1992-1-1, Eurocode 2: Proiectarea structurilor de beton. Partea 1-1: Reguli generale si reguli pentru cladiri
4. Marusciac Dumitru si colectiv, Proiectarea structurilor etajate pentru constructii civile, Editura tehnica, Bucuresti, 2000.

Programe:

1. AutoCAD, Student Version
2. Allplan Inginerie Starter, Student Version

9. Coroborarea continuturilor disciplinei cu asteptarile reprezentantilor comunitatii epistemice, asociatiilor, profesionale si angajatori din domeniul aferent programului

Competentele achizitionate vor fi necesare angajatilor care-si desfasoara activitatea in cadrul firmelor de executie si proiectare de constructii civile.

10. Evaluare

Tip activitate	10.1	Criterii de evaluare	10.2	Metode de evaluare	10.3	Pondere din nota finala
Curs		Raspunsuri pentru 5 intrebari din teorie		Proba scrisa – durata evaluarii 90 minute		66.67%
Aplicatii		Finalizarea notelor de calcul si a partii desenate		Sustinere proiect – durata 15 min.		33.33%
10.4 Standard minim de performanta						
Nota examen E≥5; Nota proiect P≥5						

Data completarii

27.09.2017

Titularul de Disciplina

Asist.ing. Sebastian Palacean

Responsabil de curs

Asist.ing. Sebastian Palacean

Data avizarii in departament

27.09.2017

Director departament

Conf.dr.ing. Claudiu Aciu