SYLLABUS/FISA DISCIPLINEI

1. Data about the program of study

1.1	Institution	The Technical University of Cluj-Napoca
1.2	Faculty	Faculty of Constructions
1.3	Department	Civil Engineering and Management
1.4	Field of study	Civil Engineering
1.5	Cycle of study	Bachelor of Science
1.6	Program of study/Qualification	Civil Engineering
1.7	Form of education	Full time
1.8	Subject code	56.20

2. Data about the subject

2.1	Subject name			Performant technologies in constructions			
2.2	Subject area			Civil Engineering			
2.3	Course responsible/lecturer			Lecturer. Eng. PhD Roman-Pintican Maria-Nicoleta – nicoleta.roman@ccm.utcluj.ro			
2.4	Teachers in charge of seminars			Lecturer. Prof. Eng. PhD Maier Dorin – dorin.maier@ccm.utcluj.ro			
2.5 Year of study	IV	2.6 Semester	2	2.7 Assessment	E	2.8 Subject category	DS DOP

3. Estimated total time

3.1 Number of hours per week	3	3.2 of which, course:	2	3.3 applications:	1
3.4 Total hours in the curriculum	42	3.5 of which, course:	28	3.6 applications:	14
Individual study					hours
Manual, lecture material and notes, bibliography					36
Supplementary study in the library, online and in the field					20
Preparation for seminars/laboratory works, homework, reports, portfolios, essays					30
Tutoring					-
Exams and tests					2
Other activities					-

3.7	Total hours of individual study	88
3.8	Total hours per semester	130
3.9	Number of credit points	5

4. Pre-requisites (where appropriate)

4.1	Curriculum	Passing the exam „Technology of constructions (I), Technology constructions (II)”
4.2	Competence	No need

5. Requirements (where appropriate)

5.1	For the course	Classroom with blackboard, video-projector. Students will participate to courses and applications without opened mobile phones. Moreover, phone-calls will not be tolerated during courses, nore leaving the class for answering personal phone-calls. Class attendance is not mandatory, but it will be a plus for the final grade.
5.2	For the applications	Classroom with computers, software packages (for estimations and planning the construction works). The timeline for delivering the application project is mutually established with the students. Class attendance is mandatory.

6. Specific competences

Professional competences	**C3.1** Description of technological processes for the construction of civil, industrial and agricultural constructions. After completing the discipline students will know: for the cranes used in construction, the criteria for comparing the technical-functional parameters; construction technology on cold weater; special methods of concreting; climbing formworks technology; slinding formworks technology; special formwork technology; the technology of accelerating concrete hardening; grownd anchor technology the technology of closures and partitioning; how to achieve and implement the Self-Compacting Concrete; how to make the tender specifications. **C3.3** Designing technological processes specific to different phases of construction of civil, industrial and agricultural constructions for construction reasons. After completing the discipline students will be able to develop the technological process for: - technology on cold weater; - technology for special methode of concreting; - technology for climbing formworks; - technology for slinding formworks; - technology for special formwork; - technology for accelerating concrete hardening; - technology for grownd anchor technology; - technology of closures and partitioning; - technology for Self-Compacting Concrete; - how to make the tender specifications. How to choose the cranes used in construction, comparing the technical-functional parameters **C3.5** Transposition of selected technologies into the technological project for civil, industrial and agricultural construction.
Cross competences	**CT1** Apply effective responsible, punctuality, seriousness and personal responsibility strategies based on the principles, norms and values of professional ethics. Drafting and presenting a technical report in accordance with specific technical regulations; **CT2** Apply efficient teamwork techniques, on various hierarchical levels. Achieving a technological project in team with respect to the technical - scientific content.

7. Discipline objectives (as results from the *key competences gained*)

7.1	General objective	Development of skills on how to achieve (technological processes and optimum machineries) of special constructions
7.2	Specific objectives	Assimilation of knowledge on specific technologies: special formwork, Self-Compacting Concrete; accelerating concrete hardening; special methode of concreting; on time cold;

8. Contents

8.1. Lecture (syllabus)	Teaching methods	Notes
1. Tower crane - qualitative faetures: technical and functional parameters(I)	Presentation, discussions	Video-projector
2. Tower crane - qualitative faetures: technical and functional parameters (II)		
3. Installation of metal constructions Special formworks		
4. Special formworks		
5. Climbing formworks		
6. Special methode of concreting(I)		
7. Special methode of concreting(II)		
8. Self-Compacting Concrete		
9. Influence of climatic factors on concrete technology		
10. Accelerating concrete hardening		
11. Grownd anchor technology (I)		
12. Grownd anchor technology(II)		
13. Technology for the execution of closures and partitioning		
14. Tender specifications		

Bibliography

1. Domşa, J., Ionescu, A. – Utilaje, echipamente tehnologice şi procedee performante de betonare, Editura OID.ICM, Bucureşti, ISBN 973-9187-11-0, 1994
2. Domşa, J., Vescan, V., Moga, A. – Tehnologia lucrărilor de construcţii şi tehnologii speciale, vol.I, Institutul Politehnic Cluj-Napoca, 1988
3. Trelea, A., Popa, R., Giuşcă, N., Domşa, J., Gheorghiţă, S., ş.a. – Tehnologia construcţiilor, vol.I, Editura Dacia, Cluj-Napoca, ISBN 973-35-0603-6, 1997
5. C16-84 - Normativ pentru realizarea pe timp friguros a lucrărilor de construcţii şi instalaţii

8.2. Applications/Seminars	Teaching methods	Notes
1. For a multistory *building* determine Q_{nec}, H_{nec}, R_{nec}. Will choose from a qualitative point of view an optimal tower crane, in items of technical and functional parameters: a) medium lifting capacity compared to the minimum and the maximum;	Presentation, discussions	
2. b) using area support and the useful area, calculate K_1, K_1^*, K_1^{**}; c) the limits of using load moment, calculate k_2; d)the efficient of use engine power for displacement mechanism		

and lifting mechanism, calculate k_3, K_4, K_4^*. For the optimal variant will draw vertical and horizontal work areas.		
3. For a multistory *building* determine Q_{nec}, H_{nec}, R_{nec}. Will choose from a qualitative point of view an optimal crane, in items of technical and functional parameters: a) medium lifting capacity compared to the minimum and the maximum;		
4. b) using area support and the useful area, calculate K_1, K_1^*, K_1^{**}; c) the limits of using load moment, calculate k_2; d)the efficient of use engine power for displacement mechanism and lifting mechanism, calculate K_4, K_4^*. For the optimal variant will draw vertical and horizontal work areas, and specify: Q_{max}/Q_{min}, H_{max}/H_{min}, R_{min}/R_{max}.		
5. For the superstructure of a building will do the tender specifications. (I)		
6. For the superstructure of a building will do the tender specifications. (II)		
7. Delivery of the project.		
Bibliography 6. NE-012 - Normativ pentru producerea betonului şi executarea lucrărilor de construcţii din beton, beton armat şi beton precomprimat , partea 1/2007 - producerea betonului şi partea 2/2010 - executarea lucrărilor din beton 7. IPC (Institutul de proiectare pentru construcţii industriale), Bucureşti – proiect 7417/86, Catalogul general al mijloacelor tehnice necesare ramurii construcţiilor, vol.2 şi vol.4, Mijloace de ridicat şi manipulat. 10. Ghid privind elaborarea caietelor de sarcini pentru execuția lucrărilor de structuri din beton armat, COCC, mai 2003		

9. Bridging course contents with the expectations of the representatives of the community, professional associations and employers in the field

The acquired competencies will be required for employees who operate in engineering and execution-based companies (site, concrete plants).

10. valuation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
10.4 Course	Grid test, and one subjects of theory.	Written test (theory	70%
10.5 Applications	Delivery of the project.	Project evaluation	30%
10.6 Minimum standard of performance			
• Project evaluation: Evaluation of the project has to be minimum 5. • Solving two subjects of theory for minimum 5.			

Date of filling in:		Title Surname Name	Signature
	Lecturer	Lecturer Eng. PhD Maria-Nicoleta ROMAN-PINTICAN	
	Teachers in charge of application	Lecturer. Eng. PhD Dorin MAIER	

Date of approval in the department ……..

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Head of department
Conf.dr.ing. Claudiu ACIU

Date of approval in the faculty ……

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Dean
Conf.dr.ing. Nicolae CHIRA