**CEng3112 – Reinforced Concrete Structures II**

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| **Department of Civil Engineering** |
| Course Number | CEng3112 |
| Course Title | Reinforced Concrete Structures II |
| Degree Program | B.Sc. in Civil Engineering |
| Module | MCEng3101, Concrete Structures |
| Course Coordinator | Name: . |
| Office location . |
| Mobile: . ; e-mail: . |
| Consultation Hours:  |
| Lecturer | Name: Gonfa lamecha . |
| Office location . |
| Mobile: 0965702613 . ; e-mail: lamessagonfa1234@gmail.com . |
| Consultation Hours:  |
| Credit points | 3 |
| ECTS Credits | 5 |
| Contact Hours | Lecture | Tutorial | Practice orLaboratory | Homestudy | Total Hour |
| 35 | 50 |  | 50 | 135 |
| Course Objectives & Competences to be Acquired | **Objective**This course is designed to introduce students to the design of reinforced concrete components such as slabs and columns.**Outcome**Students will be able to design reinforced concrete of* Columns
* Flat slabs,
* Two way slab using yield line method
* Torsion
* Special structures studying
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| Course Description |  |
| Course Outline | **Chapter 1. Columns*** Short columns
* Combined axial force and bending
* Interaction diagrams, biaxial bending.
* Design aids.
* Slender columns.

**Chapter 2 Design of Flat slabs*** - Introduction
* - Load transfer in flat slabs
* - Distribution of moments in flat slabs
* - Practical analysis of flat slabs
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|  | - - Design of flat slabs as per EBCS 2**Chapter 3 Yield Line Theory for Slabs*** Introduction
* Upper and lower bound theorems
* Methods of yield line analysis
* Moments along skewed line
* Effects of restrained corners

**Chapter 4 Torsion in Reinforced Concrete members Chapter 5 Introduction to Pre-stressed Concrete Structures*** Introduction
* Basic concepts of pre-stressed concrete
* Analysis and design of pre-stressed members as per EBCS 2

**Chapter 6 Special Structural Elements*** Introduction
* Behavior of deep beams
* Strut and tie models for the design of deep beams
* Design of deep beams as per EBSC 2
* Behavior of corbels
* Strut and tie models for the design of corbels
* Design of corbels as per EBSC 2
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| Pre-requisites | CEng3111 – Reinforced Concrete I |
| Semester | II |
| Status of Course | Compulsory |
| Teaching & Learning Methods | Lecture TutorialsConstruction Site Visit Group Discussion Home Works |
| Assessment/Evaluation & Grading System | **Continuous Assessment (60%)**Tests……………………………………..20 Mini Project………………………………15% presentation……………………………….5%  Assignments……………………………..10% Site visiting and report …………………...5% Class Attendance…………………………5%**Final Exam (40%)** |
| Course policy | All students are expected to abide by the code of conduct of students and the Senate Legislation of the University throughout this course. Academicdishonest including cheating, fabrication, and plagiarism will not be tolerated |



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|  | at any stage during your studies and will be reported to concerned bodies for action.While team work is highly encouraged, dependence and copying ones work and submitting other’s work is considered as serious act of cheating and shall be penalized.If you are having problems with the assignments or tests, contact the instructor as soon as possible.Students are expected to attend class regularly. A student who misses more than 20% of the semester class is not eligible to sit for final exam. Punctuality is equally important.If you must bring a cell phone to class, make sure that it is absolutely silent and does not disturb any one. The teaching-learning process shall be disrupted by no means. |
| Literature | 1. Arthur H Nelson, Design of concrete structures, McGraw-Hill, 14th Edition, 2010
2. James Macgregor Reinforced Concrete Mechanics and Design, 5th Edition.
3. W.H. Mosley, R. Hulse, J.H Bungey, Reinforced Concrete Design, Palgrave Macmillan, 2007
4. Jack C. McCormac, Design of Reinforced Concrete, McGraw-Hill, 2005
5. Ethiopian Building Code Standard 2 (EBCS 2), 1995
6. Any Related Book
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| Approval Section | Name of course Instructor Signature date Name of course team leader . Signature date Name of department head Signature date  |