

ADVANCED CONCRETE LABORATORY

I Semester: STE								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
BSTB10	Core	L	T	P	C	CIA	SEE	Total
		-	-	4	2	30	70	100
Contact Classes: Nil		Tutorial Classes: Nil		Practical Classes: 33			Total Classes: 33	
<p>COURSE OBJECTIVES: The course should enable the students to: I. Design high grade concrete and study the parameters affecting its performance. II. Conduct Non Destructive Tests on existing concrete structures. III. Apply engineering principles to understand behavior of structural/ elements.</p> <p>COURSE LEARNING OUTCOMES (CLOs): 1. Understand the stress-strain curve of high strength concrete. 2. Determine the correlation between cube strength and cylinder strength. 3. Determine the split tensile strength of concrete. 4. Determine the modulus of rupture of concrete. 5. Determine the correlation between compressive strength and cylinder strength. 6. Know the relation between compressive and modulus of rupture. 7. Determine the Non-Destructive testing of existing concrete members. 8. Understand the behavior of beams under flexure. 9. Understand the behavior of beams under shear. 10. Understand the behavior of beams under torsion.</p>								
Week-1	STRESS STRAIN CURVE FOR CONCRETE							
Study of stress-strain curve of high strength concrete.								
Week-2	CORRELATION BETWEEN CUBE STRENGTH AND CYLINDER STRENGTH							
Correlation between cube strength and cylinder strength.								
Week-3	DETERMINTION OF SPLIT TENSILE CONCRETE							
Split tensile strength.								
Week-4	DETERMINTION OF MODULUS OF RUPTURE CONCRETE							
Modulus of rupture.								
Week-5	RELATION BETWEEN COMPRESSIVE STRENGTH AND SPLIT STRENGTH							
Correlation between compressive strength and cylinder strength.								

Week-6	RELATION BETWEEN COMPRESSIVE AND MODULUS OF RUPTURE
Effect of cyclic loading on steel.	
Week-7	NON – DESTRUCTIVE TEST (NDT)
Non-Destructive testing of existing concrete members.	
Week-8	FLEXURE STRENGTH TEST
Behavior of beams under flexure.	
Week-9	SHEAR STRENGTH TEST
Behavior of beams under shear.	
Week-10	TORSION STRENGTH TEST
Behavior of beams under torsion.	
Text Books:	
1. Concrete Technology, Shetty M. S., S. Chand and Co., 2006.	
Reference Books:	
1. Properties of Concrete, Neville A. M., Prentice Hall, 5 th Edition, 2012.	
Web References:	
http://kec.edu.np/wp-content/uploads/2017/06/Advanced-Concrete-Technology.pdf .	
E-Text Books:	
http://alphace.ac.in/downloads/notes/cv/10cv81.pdf .	