SATHYABAMA
INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
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SCHOOL OF BUILDING AND ENVIRONMENT
DEPARTMENT OF CIVIL ENGINEERING

BOARD OF STUDIES MEETING - Academic year 2018-2019

The periodic Board of studies meeting for the Department of Civil Engineering, School of Building and Environment will be held on 11.11.2018 at 10.00 am

Internal members

1. Dr.S.Packialakshmi, Head and Associate Professor, Department of Civil Engineering
2. Dr.R.Padmapriya, Associate Professor, Department of Civil Engineering
3. Mrs. C. S Danee Joycee, Associate Professor, Department of Civil Engineering
4. Mrs. A. Annadurai, Associate Professor, Department of Civil Engineering

External members

1. Dr. Arul Jayachandran, Structural Engineering Division, IIT Madras, India.
2. Dr. K. Gunasekaran, Associate Professor, Division of Transportation Engineering, Anna University
3. Dr. S.T. Ramesh, Associate Professor, NIT Trichy
4. Dr. V. Balakumar, Senior Consultant at Simplex Infrastructurs Ltd
5. Ar. Rajan Venkateshwaran, Head, centre for Excel & Future Development, L&T

Agenda:

1. Review of Curriculum of both UG and PG programmes
2. Introduction of Elective Course Non-linear Analysis of Structures for PG programme

(S. PACKIALAKSHMI)

HOD/CIVIL

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DEPARTMENT OF CIVIL ENGINEERING

Minutes of the BOS Meeting - Academic year 2018-2019

The periodic Board of Studies Meeting for the Academic Year 2018-2019 (both UG and PG programme) is held on 11.11.2018 at 10.00 am at CADD Lab - I, Civil Engineering Dept.

Members Present

1. Dr. Arul Jayachandran, Structural Engineering Division, IIT Madras, India.
2. Dr. K. Gunasekaran, Associate Professor, Division of Transportation Engineering, Anna University
3. Dr. S.T. Ramesh, Associate Professor, NIT Trichy
4. Dr. V. Balakumar, Senior Consultant at Simplex Infrastructures Ltd
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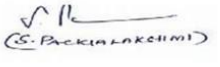
8. Mrs. C. S Danee Joycee, Associate Professor, Department of Civil Engineering
9. Mrs. A. Annadurai, Associate Professor, Department of Civil Engineering

The discussion of Board of Studies meeting were pointed as follows:

- The members of the Board of Studies reviewed the curriculum for both the UG and PG programmes for the upcoming semester and concluded that the curriculum met the needs of industry.
- As per the suggestions given from Dr. Arul Jayachandran. Professor, Division of Structural Engineering, IIT Madras, Chennai, the Elective Course Non-linear Analysis of Structures must be included to learn the students to understand the behaviour of Structures.



HOD/CIVIL **EXPERT MEMBERS**

SCIA7012	NON LINEAR ANALYSIS OF STRUCTURES	L	T	P	Credits	Total Marks
		3	0	0	3	100

COURSE OBJECTIVE

- To study the concept of nonlinear behaviour and analysis of elements and simple structures.

UNIT 1 INTRODUCTION **9 Hrs.**

Introduction- Types of Non-Linearities-Non-linear Governing equations for Beams-Geometrically non linear beams for various supports- vibrations of Beams with various boundary conditions-forced vibrations of Beams-Post buckling of Colunm- Behaviour of Beams with Material Non linearity.

UNIT 2 RECTANGULAR PLATES **9 Hrs.**

Governing Non linear equations of Plates-Boundary conditions –Large deflections of Rectangular plates- Free and forced vibration of Rectangular plates- Free and forced vibration of Non Rectangular plates-Large deflections of Rectangular, Non Rectangular plates- Post buckling of Plates- Effects of Transverse Shear Deformation.

UNIT 3 SHELLS **9 Hrs.**

Non linear analysis of Shells-Circular Cylindrical shells-Shallow Spherical shells-Non Circular Cylindrical shells-Forced Non-linear vibration of shells-Post buckling of shells.

UNIT 4 TRUSSES AND FRAMES **9 Hrs.**

Non linear analysis of curved beams-trusses-frames- Three Dimensional Mechanism-Large and small deformation and large angle of rotation- classical linear theory- Non linear material properties – finite element method- stiffened structures.

UNIT 5 COMPOSITE MATERIAL **9 Hrs.**

Non linear analysis of composite materials- composite beams- non linear vibrations- Post buckling behavior- composite plates governing equation-laminated plates cylindrical bending- laminated plates large amplitude vibration.

Max. 45 Hrs.

TEXT / REFERENCE BOOKS

1. Fertis, D.G., "Nonlinear Mechanics", CRC Press, 1999.
2. Reddy.J.N., "Non linear Finite Element Analysis", Oxford University Press, 2008.
3. Sathyamoorthy M., "Nonlinear Analysis of Structures", CRC Press, 2010.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

Max. Marks: 100 **Exam Duration: 3 Hrs.**

PART A: 5 Questions of 6 Marks each – No choice **30 Marks**
PART B: 2 Questions from each unit of internal choice, each carrying 14 Marks **70 Marks**