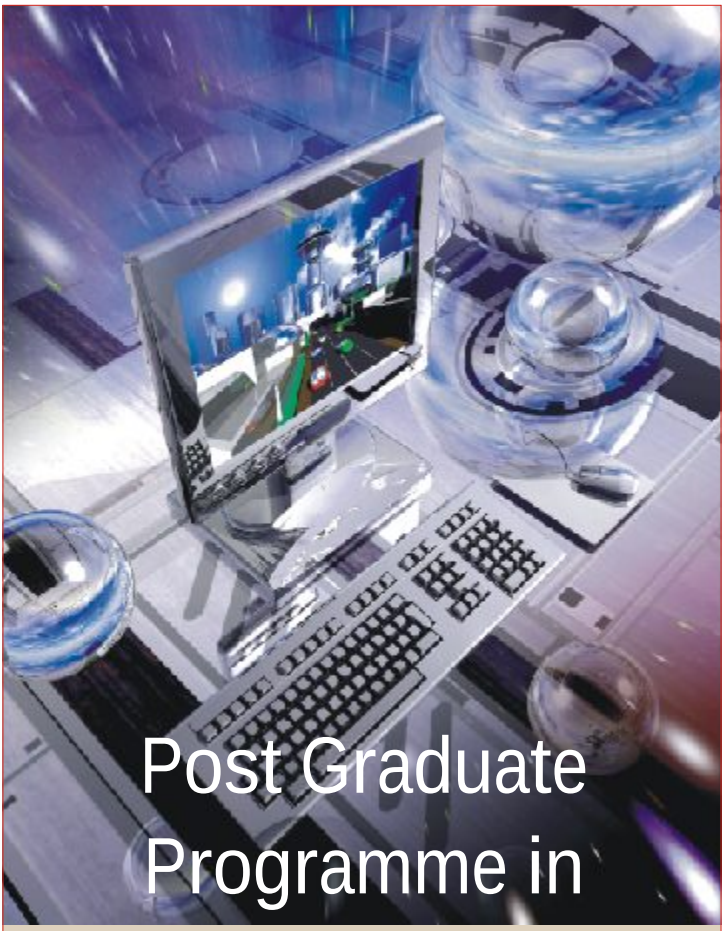

Post Graduate Programme in

Structural Engineering

BIRLA VISHVAKARMA MAHAVIDYALAYA
VALLABH VIDYANAGAR
WORK IS WORSHIP

ISTAR
॥ तेजस्विनावधीतमस्तु ॥

BVM Engineering College/ ISTAR
Vallabh Vidyanagar

The Campus and Institutes

Two of the chief social reformists Bhailalbhai an engineer and Shri Bhikhabhai -an educationist volunteered for a stupendous task of establishing an educational township where the entire spectrum of education right from primary education to the highest of doctoral and post-doctoral studies would be available in the serene rural set up. Sardar Patel not, only heartily approved it, but also managed to get blessing of Mahatma Gandhi under the Trust named as Charutar Vidya Mandal (CVM) since 03.03.1946.

Birla Vishvakarma Mahavidyalaya (BVM) Engineering College and Institute of Science and Technology for Advanced Studies & Research (ISTAR) are managed by Charutar Vidya Mandal (CVM) which is the registered Charitable education trust which manages 38 Institutes from primary level to doctoral level. The BVM is the first degree Engineering college of the Gujarat State, inaugurated on 14th June 1948, which is completing 60 years of its existence during this academic year. It has produced more than 16,000 graduates.

ISTAR is offering various PG courses in Science and Technology wherein Engineering PG programmes are run jointly with BVM .

The institutes are committed to train the mind of budding engineers for mastering the skill in the area of engineering and technology for harnessing the technology to produce

competent, creative, imaginative engineers and techno-managers towards profitable and productive processes of economic growth and social well-being in context of present scenario of world trade and globalization. The PG Programmes offered in Engineering and Technology are recognized by AICTE and affiliated to Sardar Patel University Vallabh Vidyanagar.

Master of Engineering in (1) Environmental (2) Structural Engineering (3) Construction Engineering & Management (4) Machine Design (5) Computer Engineering & Master of Technology (6) Transport System Engineering.

Department of Civil Engineering and Department of Structural Engineering are offering following PG Programmes with Number of seats

(a) Master of Engineering in
- Environmental Engineering 18
- Structural Engineering 18
- Const. Engineering & Management 18

(b) Master of Technology in.
- Transport System Engineering 18

Post Graduate Programme in structural Engineering

1. Eligibility Criteria

- B. E. (Civil)
- Min. 50% marks or CPI 5 to 10 point scale

2. Important features of the Programme

- Approved by A I C T E & affiliated to S.P. University, Vallabh Vidyanagar.
- Present Intake: - 18 students.
- Duration:- 4 semester (Minimum 2 years).
- 100 percent placement so far.
- Many softwares are available which gives the students an extra edge.

3. Unique Features of the Programme

- The programme is continuously updated and is made in tune with the requirement pertaining to all aspects of the Structural Engineering.
- The Machine Foundation, vibration Isolation and soil-structure interaction are some of the unique features of the programme besides being trained in all the professional courses.

4. Career Development Opportunities

- As a consultant, one can peruse his career independently.
- They are needed and preferred in any field and execution works.
- Design of Industrial machines and vibration Isolation is an added advantage.

Course Curriculum

Subject Covered In First Semester, (Total Credit 24)

- SE 551 ADVANCED STRUCTURAL MECHANICS

This subject contains Analysis of framed structures: Gravity, Wind & Seismic loads on frames, Flexibility, Stiffness matrix Methods: Applied to beams, Frames, Grids, Stiffness Matrix Methods for non-prismatic members, curved members, Analysis of beams on elastic foundation, Application of Stiffness matrix methods due to shear distortion, Stiffness Computer Software applications: STAAD PRO, STRUDS etc.

- SE 552 STRUCTURAL SAFETY AND STABILITY

This subject contains Structures An overview, Classification based on Geometry, Structural Elements- Fundamental behavior of various types, Parameters of Safety and Stability: from, function, strength and stiffness, Analysis and design of structural elements, Codal provisions for safety and stability, Buckling of columns in torsion and flexure, Lateral stability of beams for different end conditions and loading in elastic lateral buckling.

- SE 553 STRUCTURAL DYNAMICS

This subject contains Free and Forced vibration of single degree of freedom (SDOF) system, response to Harmonic, periodic, impulsive and general dynamic loading on an element. Response of SDOF to earthquake, Free vibration of lumped, multi-degree of freedom (MDOF) system Approximate methods for obtaining natural frequencies and mode shapes, Time domain and frequency domain analysis of MDOF system, Shear building analysis.

- SE 554 THEORY OF ELASTICITY AND PLASTICITY

This subject contains Theory Stresses: State of stresses and strain at a point in two and three dimensions, stress and strain invariants, Hook's law, Plane stress and plain strain problems, Equations and Equilibrium, boundary conditions, compatibility conditions, Airy's stress functions, Two dimensional problems in Cartesian and polar coordinates, Saint Venant's principle, solutions pf beam problems,Plastic stress- strain relations. Theories of failure and strength. Two dimensional plastic flow problems and their structural applications and solutions, Plastic yield Analysis for steel structures in flexural. Yield line theory of RC slab plates.

- SE 555 STRUCTURAL STEEL DESIGN

This subject contains Design of steel bridges, Design of water tanks, Design of braced domes, Cable suspended structures, Design of connections, Plastic Design.

• SE 556 SEMINAR I

Seminar I will mainly consist of topics of “Modern Structural materials and their applications” including presentation.

• SE 557 FEM FOR STRUCTURES

This subject contains Concept and solution procedure for finite element method, Matrix techniques, solutions of large system of algebraic equations, Computations of element properties using generalized co-ordinates for one and two dimensional elements, Beam bending, plate bending and axis symmetry problems, Isoparametric elements, Langragian and Hermitian interpolation function, Application of finite element method in structural mechanics, Dynamic programming organization of FEM problem,Pre and Post processing introduction to FEM packages like NISA etc.

• SE 558 STRUCTURAL CONCRETE DESIGN

This subject contains Flat slabs, Grid floor, Portal Frames,Multi storied Buildings, Bridge deck systems, Domes & Shells, Water Tanks

• SE 559 THEORY OF PLATES AND SHELLS

This subject contains General theory of bending of plates and shells, Solution of bi-harmonic equation by Navier's and Levy's methods, Particular cases or solution for rectangular and circular plates of different boundary conditions under uniformly distributed loads, Energy methods,Anysotropic plates, Folded plates analysis and design. Classification of shells, structural behavior of shells with different boundary conditions, Membrane and bending analysis of cylindrical shells, Membrane analysis of doubly cured shells and shells of revolution Hyperbolic and Elliptical shells and spherical domes.

• SE 560 ADVANCED PRESTRESSED CONCRETE

This subject contains Transfer of prestress in pretensioned Members, Transmission of prestressing force by bond.etc.,Anchorage zone stress in post tensioned members, Limit State Design criteria for prestressed concrete members, Design etc.,Composite construction of prestressed and insitu concrete, Statically intermediate structures continuous beams Concordant and Non concordant cable profiles,Prestressed concrete poles, sleepers, pressure vessels and pavements.

• SE 561 ADVANCED FOUNDATION ENGINEERING

This subject contains Shallow foundations Safety criteria, Analysis and Design, Field tests and their interpretations,

Deep foundations, Machine Foundations, Earth retaining structures, Recent advances in Foundation Engineering and modern methods of foundation modeling Centrifuge Modeling

• SE 562 SEMINAR II

Seminar II will mainly consist of case studies in Structural Engineering including presentation.

• SE 651 SEISMIC DESIGN OF STRUCTURES

This subject contains Introduction to IS codal provisions on Earthquake Engineering, Performance of Building: Behavior of various types of building in past earthquakes, Modes of failure, influence of unsymmetry, infill walls, foundation, soft-storey and detailing of reinforcement in buildings, Philosophy of Earthquake resistant design: Design philosophy, Ductility Redundancy and over strength, Damping, Centers of mass and stiffness, Reduction Factor and Lateral Force distribution, Design Spectrum, Elastic and Inelastic Response spectrum and analysis, Pushover Analysis and Time History Analysis, Seismic Design, repair, restoration and strengthening of masonry and framed structures, Shear Walls, Ductile detailing of RCC structures, Introduction to Base Isolation Techniques.

• SE 652 COMPUTER AIDED DESIGN AND DETAILING

This subject contains Design of Multistorey Building, shear walls, effect of torsion, Soft storey, drift, bracing and infill walls, Ductile detailing of concrete members, beams, columns, beam column joints as per relevant codes, Modelling analysis and design of a multistory building by professional software such as STRUDS, STAAD.Pro, Analysis, design and detailing of RCC ESR manually and using professional software such as SEPL-ESR GSR

• SE 653 SOIL STRUCTURE INTERACTION

This subject contains Flexible methods of Analysis of Shallow and Deep Foundations, Foundation vibration Dynamic tests for evaluation of soil parameters, Earthquake effects on soil foundation systems, liquefaction, sand boiling etc.- their mitigation, Various methods for Reinforced Earth Designs, installation and applications, Application of Geosynthetics in foundations and other structures, Foundation for offshore structures, Recent advances and case studies of soil foundation structure interaction.

• SE 654 DISSERTATION PART-I

• SE 655 DISSERTATION PART-II

Faculty involved in teaching

Name	Designation	Specialization
Prof.B.S. Patel	Prof. & H.O.D & Co-ordinator	Analysis of structure
Prof.A.K.Verma	Professor	Foundation Engg., geosynthetic & Soil-Structure interaction
Prof.A.N. Desai	Asst.Professor	Analysis of structure
Prof.B.R. Dalwadi	Asst.Professor	Geotechnique Engineering
Smt.B.K. Shah	Sr.Lecturer	Concrete technology
Smt.E. George	Sr.Lecturer	Concrete technology
Shri S.B. Patel	Sr.Lecturer	Design of structures & Earthquake engineering
Smt.D.R. Bhatt	Sr.Lecturer	Design of steel structure
Smt.D.A. Sinha	Sr.Lecturer	Concrete technology
Shri S.V. Mevada	Lecturer	Earthquake engineering
Dr.B.B. Mistry	Professor	Analysis of structure
Shri V.N. Patel	Lecturer	Analysis of structure
Prof.N.J. Pamnani	Asst.Professor	Design of structures
Prof.I.N. Patel	Sr. faculty of BBIT	Design of structures
Prof.B.G. Rajgor	HOD, Applied Mechanics BBIT	Design of structures
Prof.D.M. Yagnik	Lecturer	Analysis of structure
Prof.D.G. Panchal	Prof.& HOD, Civil Eng. DDIT, Nadiad	Design of steel structure

Contact

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