

[1985/MT/IITK/1](#)

**Static and Free Vibration Analysis of Single Piles in Lateral Direction**

*[Udaya Bhatta Halabe; August 1985; Supervised by Sudhir K. Jain]*

[1987/MT/IITK/2](#)

**Dynamic Analysis of Multistorey Buildings with End Walls**

*[Vikrant Vasant Joshi; January 1987; Supervised by Sudhir K. Jain]*

[1987/MT/IITK/3](#)

**Dynamic Response of Setback Buildings with a Flexible Floor Diaphragm**

*[Rajiv Sharma; May 1987; Supervised by Sudhir K. Jain]*

[1988/MT/IITK/4](#)

**Study of Seismic response of Tall Chimneys**

*[Brijesh Kumar Gupta; September 1988; Supervised by Sudhir K. Jain]*

[1988/MT/IITK/5](#)

**Dynamics of Horizontal Setback Buildings with Flexible Floor Diaphragms**

*[Utpal Kumar Mandal; September 1988; Supervised by Sudhir K. Jain]*

[1988/MT/IITK/6](#)

**Analysis of Under Water Pipelines during Installation**

*[M. V. Ramarao; December 1988; Supervised by Sudhir K. Jain]*

[1988/MT/IITK/7](#)

**A Study on Provisions of Indian Standards for Aseismic Design of Buildings**

*[Anil Kumar Patnaik; December 1988; Supervised by Sudhir K. Jain]*

[1989/MT/IITK/8](#)

**Seismic Analysis of Bhakra and Lakhwar Dams**

*[J. Rajasankar; January 1989; Supervised by Sudhir K. Jain]*

[1989/MT/IITK/9](#)

**Experimental Study on Brick Masonry Infilled Reinforced Concrete Frames under Lateral Load**

*[Achintya; January 1989; Supervised by Sudhir K. Jain]*

[1990/MT/IITK/10](#)

**A Study on Seismic Analysis and Design of Elevated Water Tank Stagings**

*[Sajjad Sameer U.; March 1990; Supervised by Sudhir K. Jain]*

[1991/MT/IITK/11](#)

**Experimental and Analytical Studies on Dynamics of 140 m Stack at Narora**

*[Arvind Shrivastava; May 1991; Supervised by Vinay k. Gupta and Sudhir K. Jain]*

[1993/MT/IITK/12](#)

**On Gust Factors for Wind-Excited Building Response**

*[K. V. S. Chandra Sekhar; April 1993; Supervised by Vinay K. Gupta]*

[1993/MT/IITK/13](#)

**Stochastic Response of Torsionally Coupled Multistoreyed Buildings**

*[Pavan Agarwal; April 1993; Supervised by Vinay k. Gupta]*

[1993/MT/IITK/14](#)

**Assessment of Seismic over strength in Reinforced Concrete Frames**

*[Rahul Navin; June 1993; Supervised by Sudhir K. Jain]*

[1993/MT/IITK/15](#)

**Dynamics of Separable Multistorey Buildings with Flexible Floor Diaphragms**

*[Chandrashekar K. Jain; June 1993; Supervised by Sudhir K. Jain]*

[1993/MT/IITK/16](#)

**Curvature Ductility of RC Sections With and Without Confinement**

*[Parthasarathi Mandal; August 1993; Supervised by Sudhir K. Jain]*

[1994/MT/IITK/17](#)

**A Study of Strong Motion Accelerograms Form Himalayan Earthquakes**

*[Navin N. Chandak; January 1994; Supervised by Sudhir K. Jain]*

[1994/MT/IITK/18](#)

**A Study on Ordered Peaks in Seismic Damage Analysis**

*[Biswajit Basu; March 1994; Supervised by Vinay K. Gupta]*

[1995/MT/IITK/19](#)

**Modelling Seismic Response of Unreinforced Masonry Infilled Reinforced Concrete Moment Resisting Frames**

*[Amit Nagar; January 1995; Supervised by C. V. R. Murty]*

[1995/MT/IITK/20](#)

**Improvements in the Consideration of Secondary Effects in the Design of Frame Columns**

*[Aparna Sengupta; February 1995; Supervised by C. V. R. Murty]*

[1995/MT/IITK/21](#)

**Water Surface Profile Computation in Channel Networks**

*[Jyotheeswara B. Naidu; April 1995; Supervised by Vinay K. Gupta]*

[1996/MT/IITK/22](#)

**Effect of Joint Panel Zones on Seismic response Steel Moment Resisting Frames**

*[Kintali Sankara Narayana Gupta; April 1996; Supervised by C. V. R. Murty]*

[1996/MT/IITK/23](#)

**Stochastic Response of Multiply-Supported secondary Systems to Earthquakes**

*[Aparna Dey; April 1996; Supervised by Vinay K. Gupta]*

[1996/MT/IITK/24](#)

**Seismic Response of Gravity Columns in Buildings with Shear Walls**

*[Varsha Agarwal; May 1996; Supervised by Sudhir K. Jain]*

[1997/MT/IITK/25](#)

**Damage-Based Life of Structures in Seismic Environment**

*[R. Pradeep Kumar; June 1997; Supervised by Vinay K. Gupta]*

[1997/MT/IITK/26](#)

**Preliminary Models for Scaling Power Spectral Density Function of Earthquake Ground Motions**

*[Bidisha De; June 1997; Supervised by Vinay K. Gupta]*

[1997/MT/IITK/27](#)

**Ambient Vibration Survey of Reinforced Concrete Moment Resisting Frames with Unreinforced Brick Masonry Infills**

*[Jaswant N. Arlekar; July 1997; Supervised by C. V. R. Murty]*

[1997/MT/IITK/28](#)

**Seismic Drift Capacity of Gravity Columns Using Nonlinear Monotonic Analysis**

*[G. G. Srinibas Achary; July 1997; Supervised by Sudhir K. Jain]*

[1997/MT/IITK/29](#)

**Comparison of Experimental Cyclic Response of RC Frames With and Without Brick Masonry Infills**

*[Neeraj Kumar Vasandani; December 1997; Supervised by C.V. R. Murty and Sudhir K. Jain]*

[1998/MT/IITK/30](#)

**Secondary Effects Including Shear Deformations in Design of Frame Columns**

*[Manoj Kumar Garg; May 1998; Supervised by C. V. R. Murty and Ashwini Kumar]*

[1998/MT/IITK/31](#)

**Incorporating Contribution of Higher Modes in Equivalent Static Lateral Force Procedure in Seismic Design**

*[Reeta Jha; May 1998; Supervised by C.V.R. Murty]*

[1998/MT/IITK/32](#)

**Considerations in Seismic Design of Steel Moment-Resisting Frames**

*[Sudip Paul; June 1998; Supervised by C. V. R. Murty and Sudhir K. Jain]*

[1998/MT/IITK/33](#)

**Ambient and Low-Level Forced Vibration Tests on a RC MRF Building with URM Infills**

*[Sandeep S. Rajpathak; June 1998; Supervised by C. V. R. Murty]*

[1998/MT/IITK/34](#)

**Cyclic Response of RC MRFs with Brick Masonry Infills**

*[Rakesh Kumar Saxena; June 1998; Supervised by C. V. R. Murty and Sudhir K. Jain]*

[1998/MT/IITK/35](#)

**On Scaling of Strength Reduction Factors for Horizontal Earthquake Ground Motions**

*[Arun Kumar Tiwari; June 1998; Supervised by Vinay K. Gupta]*

[1998/MT/IITK/36](#)

**Mode Acceleration Approach to Seismic Response of Secondary Systems**

*[V. Surya Chandra Rao; June 1998; Supervised by Vinay K. Gupta]*

[1998/MT/IITK/37](#)

**Implementation of Torsional Provisions in Buildings with Rigid and Flexible Floor Diaphragm**

*[Dhiman Basu; July 1998; Supervised by Sudhir K. Jain]*

[1999/MT/IITK/38](#)

**Experimental Investigation of Brick Masonry Infill Walls in RC Moment Resisting Frames for Earthquake Resistant Design**

*[Kiran Jagannadharao Akella; June 1999; Supervised by C. V. R. Murty and Sudhir K. Jain]*

[1999/MT/IITK/39](#)

**Experimental Investigation of Welded Beam-to-Column Connections in Steel Structures for Earthquake-Resistant Design**

*[Mukul Pant; June 1999; Supervised by C. V. R. Murty]*

[1999/MT/IITK/40](#)

**Experimental Investigation of In-plane Diaphragm Action of the CBRI Precast Plank and Joist Flooring System for Earthquake-Resistant Constructions**

*[Rajesh Agarwal; July 1999; Supervised by C. V. R. Murty and R. N. Iyengar]*

[1999/MT/IITK/41](#)

**Overstrength and Ductility Capacity of Reinforced Concrete Structural Walls**

*[Ranjith Kumar Reddy Jogala; July 1999; Supervised by Sudhir K. Jain]*

[1999/MT/IITK/42](#)

**Nonlinear Push-Over Analysis of Flat Slab Buildings with and Without Seismic Retrofitting**

*[Tirandas Srikanth; July 1999; Supervised by Sudhir K. Jain]*

[1999/MT/IITK/43](#)

**Effect of Seismicity Model on Design Force Ratio Spectrum**

*[V. Srimahavishnu; July 1999; Supervised by Vinay K. Gupta]*

[2000/MT/IITK/44](#)

**Experimental Investigation of Cyclic Response of Reinforced Connections for Earthquake-Resistant Steel MRFs**

*[Aniruddha Moitra; June 2000; Supervised by C. V. R. Murty]*

[2000/MT/IITK/45](#)

**Experimental Investigation of RC Frames with Brick masonry Infills Having Central Opening Subjected to Cyclic Displacement Loading**

*[G. B. Pavan Raj; June 2000; Supervised by C.V. R. Murty and Sudhir K. Jain]*

[2000/MT/IITK/46](#)

**Experimental Investigation of Cyclic Behavior of Precast Exterior Beam-Column Joints**

*[Manoj Kumar Joshi; July 2000; Supervised by C. V. R. Murty and M. P. Jai Singh, CBRI, Roorkee]*

[2000/MT/IITK/47](#)

**Effect of Confinement on strength and Ductility of Large RC Hollow Sections**

*[Prabuddha Das Gupta; July 2000; Supervised by C. V. R. Murty]*

[2000/MT/IITK/48](#)

**Beneficial Effects of Brick Masonry Infills in Seismic Design of RC Frame Buildings**

*[Diptesh Das; July 2000; Supervised by C. V. R. Murty]*

[2000/MT/IITK/49](#)

**Wavelet-Based Characterization of Design Ground Motions**

*[Sushovan Mukherjee; August 2000; Supervised by Vinay K. Gupta]*

[2000/MT/IITK/50](#)

**Seismic Response of Multiply-Supported Secondary Systems: Uncertainties and Decoupling Criteria**

*[Samit Ray Chaudhuri; August 2000; Supervised by Vinay K. Gupta]*

[2000/MT/IITK/51](#)

**Empirical Relationships for Peak Ground Acceleration in Indian Earthquakes**

*[Roshan A. D.; August 2000; Supervised by Sudhir K. Jain]*

[2001/MT/IITK/52](#)

**Experimental Investigation under Cyclic Loading of Brick Masonry House with Pre-cast RC Channel Flooring System developed by CBRI**

*[Jayanta Dutta; August 2001; Supervised by C. V. R. Murty and Shailesh K. Agarwal, CBRI, Roorkee]*

[2001/MT/IITK/53](#)

**Scaling of Strength Reduction Factors for Degrading Elasto-Plastic Oscillators**

*[Arindam Chakraborti; August 2001; Supervised by Vinay K. Gupta]*

[2001/MT/IITK/54](#)

**Intensity Attenuation in Indian Earthquakes**

*[Sailender Kumar Chaubey; August 2001; Supervised by Sudhir K. Jain]*

[2002/MT/IITK/55](#)

**Investigation of Seismic Shear Design Provisions of IRC Code for RC Bridge Piers Using Displacement-Based Pushover Analysis**

*[Rupen Goswami; August 2002; Supervised by C. V. R. Murty]*

[2002/MT/IITK/56](#)

**Probabilistic Seismic Hazard Analysis of North-East India**

*[Sandip Das; August 2002; Supervised by Vinay K. Gupta]*

[2002/MT/IITK/57](#)

**A Study on Modelling of Unreinforced Masonry Infilled Rc Frames For Seismic Response**

*[Santosh Kumar; December 2002; Supervised by Sudhir K. Jain]*

[2002/MT/IITK/58](#)

**Investigation of IS Code Provisions on Seismic Design of RC Structural Walls**

*[Kaustubh Dasgupta; August 2002; Supervised by C. V. R. Murty and Shailesh K. Agarwal; CBRI, Roorkee]*

[2003/MT/IITK/59](#)

**Lateral Stiffness of Unreinforced Brick Infilled RC Frame with Central Opening**

*[Goutam Mondal; July 2003; Supervised by Sudhir K. Jain]*

[2003/MT/IITK/60](#)

**Battened Double-Channel Beam-Columns under Cyclic Load**

*[Diptiranjan Sahoo; December 2003; Supervised by Durgesh C. Rai]*

[2004/MT/IITK/61](#)

**Effect of Soil Structure Interaction on Strength and Ductility Demands of Shaft Supported Elevated Water Tanks for Earthquake Loads**

*[Bhumika Singh; May 2004; Supervised by Durgesh C. Rai]*

[2004/MT/IITK/62](#)

**Design Spectrum-Based Scaling Of Strength Reduction Factors**

*[Debasis Karmakar; July 2003; Supervised by Vinay K. Gupta]*

[2004/MT/IITK/63](#)

**Forced Vibration Study of a Reinforced Concrete Building**

*[Lt. Col. Sanjay M. Adsar; September 2004; Supervised by Sudhir K. Jain]*

[2004/MT/IITK/64](#)

**Experimental Investigation of Inelastic Cyclic Buckling of Aluminium Shear Panels**

*[Sachin Jain; September 2004; Supervised by Durgesh C. Rai]*

[2004/MT/IITK/65](#)

**Seismic Response of RC Frame Buildings on Stilts**

*[Perwez Ahmad; October 2004; Supervised by Sudhir K. Jain]*



[2004/MT/IITK/66](#)

**Wavelet-Based Generation of Spatially Correlated Accelerograms**

*[Kaushik Sarkar; July 2003; Supervised by Vinay K. Gupta]*

[2005/MT/IITK/67](#)

**Response of Buried Continuous Pipeline to Permanent Ground Deformation**

*[Suresh Ranjan Dash; May 2005, Supervised by Sudhir K. Jain]*

[2005/MT/IITK/68](#)

**Statistical Study of Inelastic Displacement Ratio Spectrum for Existing Structures**

*[Abhishek Banerjee; May 2005; Supervised by Vinay K. Gupta]*

[2005/MT/IITK/69](#)

**Review of Blast Resistant Buildings and a Case Study of Library Building at IIT Kanpur**

*[Lt. Col. Jasinder Singh Sodhi, June 2005, Supervised by Sudhir K. Jain]*

[2005/MT/IITK/70](#)

**In-Plane Lateral Resistance of Masonry Confined By Grid Elements**

*[Samaresh Paikara; September 2005; Supervised by Durgesh C. Rai]*

[2005/MT/IITK/71](#)

**Enhancement of Flexural Capacity of Undamaged RC Column by a Composite Steel Caging Technique**

*[Pasala Naga Prasad, October 2005, Supervised by Sudhir K. Jain and Durgesh C. Rai]*

[2005/MT/IITK/72](#)

**Control of Out of Plane Deformation of Inelastically Buckling Aluminium Shear Panels**

*[Saikat Banerjee, October 2005, Supervised by Durgesh C. Rai]*

[2005/MT/IITK/73](#)

**Improved Seismic Coefficient Method to Incorporate Deformation Types and Higher Mode Effects**

*[Subhatosh Nandi, December 2005, Supervised by C. V. R. Murty]*

[2006/MT/IITK/74](#)

**Seismic Vulnerability of Buildings and Population in India with a Case Study of Kanpur**

*[Chakresh Jain; March 2006; Supervised by Sudhir K. Jain]*

[2006/MT/IITK/75](#)

**Response of Buried Segmented Pipelines Subjected To Liquefaction Induced Permanent Ground Deformation**

*[Amit R. Hirani; July 2006; Supervised by Sudhir K. Jain]*

[2006/MT/IITK/76](#)

**Some Observations on Seismic Response of Bridges on Well Foundations**

*[Anil Agarwal; July 2006; Supervised by Sudhir K. Jain]*

[2006/MT/IITK/77](#)

**Effect of Confinement Schemes on In-Plane Behaviour of URM Walls under Cyclic Lateral Loads**

*[Debashis Mukherjee; August 2006; Supervised by Durgesh C. Rai]*

[2006/MT/IITK/78](#)

**Effect of Configuration of Transverse Ties on Confinement of RC Columns**

*[Sudeshna Ghosh; September 2006; Supervised by C. V. R. Murty and K. K. Bajpai]*

[2006/MT/IITK/79](#)

**Influence of Wall Flexibility on Seismic Behavior of Steel Frame with Unstiffened Steel Plate Shear Walls**

*[Dhiraj Kumar Tiwary; October 2006; Supervised by C. V. R. Murty]*

[2006/MT/IITK/80](#)

**Design of Shear-Link Braced Frame and Development of High-Force Yielding Shear-Link**

*[Dhritiman Banerjee; October 2006; Supervised by Durgesh C. Rai]*

[2006/MT/IITK/81](#)

**Flexural Behaviour of GFRP Reinforced Concrete Beams**

*[T. V. V. S. S. Padmanabha Rao; October 2006; Supervised by C. V. R. Murty and K. K. Bajpai]*

[2007/MT/IITK/82](#)

**A Response Spectrum Method for Peak Floor Accelerations In Multistoried Buildings**

*[Rashmi Kumari; January 2007; Supervised by Vinay K. Gupta]*

[2007/MT/IITK/83](#)

**Effect of Steel Truss Superstructure Flexibility on Seismic Design of Substructure and Superstructure Connections of a Multi-Span Simply Supported Railway Bridge**

*[Ashish Kumar; January 2007; Supervised by C. V. R. Murty]*

[2007/MT/IITK/84](#)

**Ordered Peak Response under Multicomponent Ground Motion via Modal Combination Rule and Its Correlation with Nonlinear Response**

*[Ayan Sadhu; July 2007; Supervised by Vinay K. Gupta]*

[2007/MT/IITK/85](#)

**On Time and Frequency Dependence of Apparent Velocity of Propagation and Lagged Coherency for Spatially Varying Ground Motions**

*[Riya Catherine George; August 2007; Supervised by Vinay K. Gupta]*

[2007/MT/IITK/86](#)

**Shaking Table Studies of Shear-Link Braced Frame Annam**

*[Praveen Kiran Annam; November 2007; Supervised by Durgesh C. Rai]*

[2009/MT/IITK/87](#)

**Out-of-Plane Seismic Behaviour of Brick Masonry Infilled Panels with Prior In-Plane Damage**

*[Srinaganjaneyulu Komaraneni; January 2009; Supervised by Durgesh C. Rai]*

[2009/MT/IITK/88](#)

**Effect of Foundation Flexibility on Ductility Reduction Factor**

*[Siddharth Yadav; January 2009; Supervised by Sudhir K. Jain]*

[2009/MT/IITK/89](#)

**Analysis of Buried Pipelines Subjected To Reverse Fault Motion**

*[Shantanu Sudhir Joshi; July 2009; Supervised by Sudhir K. Jain]*

[2009/MT/IITK/90](#)

**Estimation of Residual Displacement for Horizontal Ground Motions**

*[M. G. Harikrishnan; August 2009; Supervised by Vinay K. Gupta]*

[2009/MT/IITK/91](#)

**Characterization of Near-Fault Forward-Directivity Ground Motions**

*[Suparno Mukhopadhyay; August 2009; Supervised by Vinay K. Gupta]*

[2009/MT/IITK/92](#)

**Evaluation of Masonry Materials and Half-Dome Structure of Lucknow Monuments for Seismic Resistance**

*[Dhanapal S.; August 2009; Supervised by Durgesh C. Rai]*

[2009/MT/IITK/93](#)

**Seismic Analysis of Bridge Abutment-Soil Systems**

*[Chinmoy Kolay; August 2009; Supervised by Sudhir K. Jain]*

[2009/MT/IITK/94](#)

**Effect of Reinforcing Bar Characteristics on Flexural Behavior of Beams Suitable For Earthquake Loads**

*[Diwaker Katiyar; August 2009; Supervised by Durgesh C. Rai]*

[2009/MT/IITK/95](#)

**Probabilistic Seismic Hazard and Risk Analysis: A Case Study for Ahmedabad City**

*[Raushan Kumar Singh; August 2009; Supervised by Sudhir K. Jain]*

[2009/MT/IITK/96](#)

**Spectral Amplification Factors of Indian Earthquake Ground Motions**

*[Rahul Sharma; October 2009; Supervised by Sudhir K. Jain]*

[2010/MT/IITK/97](#)

**Comparative Performance of Seismic Design of Bridge Piers Using Various Codes**

*[Sunil Shinge; January 2010; Supervised by Sudhir K. Jain and Durgesh C. Rai]*

[2010/MT/IITK/98](#)

**On Interaction between Out-of-Plane Strength and In-Plane Damage of Unreinforced Masonry Walls**

*[Pawan Agnihotri; June 2010; Supervised by Durgesh C. Rai]*

[2010/MT/IITK/99](#)

**Fragility Estimates and Safe Design Limits for RC and Pt Flat Slab Subjected To Lateral Drifts**

*[A. R. Vijaya Narayanan; June 2010; Supervised by Durgesh C. Rai]*

[2010/MT/IITK/100](#)

**Effect of Scouring on Seismic Response of Well Foundation**

*[Shriharsh Satish Modak; June 2010; Supervised by Sudhir K. Jain and Durgesh C. Rai]*

[2010/MT/IITK/101](#)

**Ductility Reduction Factors for Masonry Infilled Rc Frames - Effect of Hysteretic Model Parameters**

*[Manish Kumar; July 2010; Supervised by Sudhir K. Jain]*

[2010/MT/IITK/102](#)

**On Nonstationarity-Related Errors in Modal Combination Rules**

*[Shashank Pathak; August 2010; Supervised by Vinay K. Gupta]*

[2010/MT/IITK/103](#)

**Effect of Residual Displacement and Sequence of Events on Design Force Ratio Spectrum**

*[Pampa Dey; August 2010; Supervised by Vinay K. Gupta]*

[2010/MT/IITK/104](#)

**On Estimation of Seismic Damage from Linear Response Peaks**

*[Satya Kiran Raju Alluri; August 2010; Supervised by Vinay K. Gupta and Samit Ray Chaudhuri]*

[2010/MT/IITK/105](#)

**Characterization of Existing Masonry Using In-Situ Tests and Laboratory Tests on Recreated Masonry Sub-Assemblages**

*[Alok Singh Tomar; August 2010; Supervised by Durgesh C. Rai]*

[2010/MT/IITK/106](#)

**Significance of Fatigue Analysis for Concrete Wind Turbine Tower Shafts**

*[Sanjukta Chakraborty; September 2010; Supervised by Durgesh C. Rai]*

[2010/MT/IITK/107](#)

**Thermal Stress in Mass Concrete of Heavily Reinforced Slabs at Early Ages**

*[Piyus Raj; December 2010; Supervised by Durgesh C. Rai]*

[2011/MT/IITK/108](#)

**Effect of Compressive Force on Hysteretic Behaviour of Aluminium Shear-Yielding Damper**

*[Mohd. Naseem; January 2011; Supervised by Durgesh C. Rai]*

[2011/MT/IITK/109](#)

**Aluminium Shear Yielding Damper for Passive Control of Seismic Response of Truss Moment Frames**

*[Ankit Sachan; May 2011; Supervised by Durgesh C. Rai]*

[2011/MT/IITK/110](#)

**Performance Evaluation of Elastomeric Pads as Bridge Bearings under Earthquake Loads**

*[Nirav Thakkar; July 2011; Supervised by Durgesh C. Rai]*

[2011/MT/IITK/111](#)

**Near-Fault Fling-Step Ground Motions: Characteristics and Simulation**

*[Kshitij kumar Yadav; August 2011; Supervised by Vinay K. Gupta]*

[2011/MT/IITK/112](#)

**Elongation Demands on Reinforcing Bars in Flexural Members**

*[Anil Pathrikar; August 2011; Supervised by Durgesh C. Rai]*

[2011/MT/IITK/113](#)

**Full Scale Testing For Seismic Upgradation of Open Ground Storey RC Buildings Using Aluminium Shear-Yielding Damper**

*[Kaustubh Ashokkumar Mehta; September 2011; Supervised by Durgesh C. Rai]*

[2011/MT/IITK/114](#)

**Pseudo-Dynamic Test on Medium-Scaled Models of Steel Braces and Frames with Hysteretic Dampers**

*[Raghav Sharma; November 2011; Supervised by Durgesh C. Rai]*