

Proceeding of the
National Conference
on
Recent Innovation in Engineering

22-23, February 2017



NCRIE-2017



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ABSTRACT (EXTC ENGINEERING)

SR. NO.	TITLE OF PAPER	AUTHORS NAME	PAGE NO.
1	TOUCH SCREEN BASED AUTOMATIC MEDICINE VENDING MACHINE	1. SHREYA S. APTE, 2. APURVA A. LOHAR 3. DIKSHA A. THORE, 4. PRERANA P.UMROTKAR.	1
2	BLINDMAN STICK USING ULTRASONIC	1. ROHIT S. TAR, 2. TEJAS S. MOKAL,S 3. AMEER S. BHAGAT, 4. SIDDHESH V SATPUTE.	1
3	EMBEDDED WEB SERVER BASED BRIDGE MONITORING USING RASPBERRY-PI BOARD	1. MONIKA S.MHATRE, 2. GANESH S. JANGAM, 3. PRASHANT P.PALKAR, 4. TEJESH D. PATIL, 5. SATISH D. JADHAV,	2
4	TRAVOLUTION- COMPLETE VEHICLE DRIVE SAFETY AND SECURITY SYSTEM	1. MEHUL TONDALEKAR, 2. PAVITRA JENA, 3. SHREEKANT NADKAR, 4. ARFAT PATHAN, 5. RAEES HUSAIN, 6. S.E. GAWALI	2
5	PLC BASED AUTOMATIC MULTILEVEL CAR PARKING SYSTEM	1. VAIBHAV C. KHOT 2. MAHENDRA Y.DAPKE 3. JITENDRAJ.DANDEKAR 4. YOGESH R.DESHMUKH.	3
6	IMAGE PROCESSING BASED TOMATO MATURITY GRADING SYSTEM	1. MADHURA A. GURAV 2. SURAKSHA D. GHARAT 3. JUILI S. NAIK 4. SAYALI R. PATIL 5. SNEHAL.B.MORE	3
7	TRAIN INDICATION AND SAFETY MANAGEMENT	1. SUFIYAN S. KUPE 2. AKSHAY E. GUJAR 3. KETAN M. GAIKWAD 4. PARESH A. JADHAV	4
8	RECOGNITION OF HUMAN EMOTIONS USING SUPPORT VECTOR MACHINES AND SPECTRAL FEATURES	1. MITESH N. THAVAI 2. REKHA R. DHAWAN.	4
9	REMOTE OPERATED DOMESTIC APPLIANCES CONTROL BY ANDROID	1. PRATIK P.MUNDHE 2. AKSHAY J.PATIL 3. SAMEER B.SHINDE 4. ABHIJEET B.PATIL 5. SANJAY S. GAWALI	5
10	APPLICATION OF VEDIC MATHEMATICS IN DIGITAL SIGNAL PROCESSOR	1. SHEETAL A PANGARKAR.	5
11	AUTO POWER BACKUP SYSTEM	1. ROHIT A. MHATRE 2. PRANIT A.MORE 3. SURAJ M. SHINDE 4. VRUSHABH B. MHATRE 5. SATISH D. JADHAV,	6
12	IOT BASED ELECTRONIC NOTICE BOARD WITH WEB & SMS INTERFACE	1. SATISH D. JADHAV 2. YOGITA MISTRY.	6
13	STUDY OF VARIOUS CLASSIFIERS FOR HUMAN EMOTION RECOGNITION FROM SPEECH	1. ANURADHA.M.SALVI 2. MITESH.N.THAVAI.	7
14	WIRELESS SENSOR NETWORKING FOR INDUSTRIAL IOT	1. S. G. THALKAR 2. S. C. PANCHAL.	7
15	DESIGN AND IMPLEMENTATION OF EMBEDDED WEB SERVER USING RASPBERRY PI FOR MONITORING ENVIRONMENT OF SOLARSYSTEM	1. K.S. LONDHE 2. PROF. ASOKAN S.	8

ABSTRACT (COMPUTER ENGINEERING)

SR NO.	TITLE OF PAPER	AUTHOR	PAGE NO.
1	DIGITAL ORDERING SYSTEM FOR RESTAURANT USING WINDOWS	1. ABHISHEK SHARAD MAHADIK 2. PRIYANKA GAJANAN BHUSANE 3. VIRAL PRAFULLA TANNA 4. PROF.RAGHVENDRA SINGH 5. TANUJA NARENDRA PATIL 6. JAYASHREE RAJU LINGANNA	9
2	E-LIBRARY FOR OFFLINE DOWNLOADING USING MAC	1. ASMA A.MAJID CHILWAN 2. MRUDULA UMESH DESHMUKH 3. PRIYANKA SITARAM PATIL 4. PRANITA GAJANAN JOSHI 5. PROF.ROHIT.S.KULKARNI	10
3	DETECTION AND ELIMINATION OF WORMHOLE ATTACK WITH ENERGY LEVEL	1. DHIRAJ S. JAYSWAL 2. BHAVESH N. MHATRE 3. CHAITANYA D.PATIL 4. PROF.VISHVAS KSHIRSAGAR 5. ADARSH R. MHATRE	11
4	MAXIMIZING ENERGY EFFICIENCY IN MULTIPLE ACCESS	1. HARSHAL VASANT NEHE 2. AJIT MILIND GANDHE 3. PROF.VISHVAS KSHIRSAGAR	11
5	SURVEY ON SECURITY ISSUES AND INFLUENCES ON SOCIETY OF DIGITIZATION USING BIG DATA	1. PROF.RAJKUMAR B. PAWAR 2. PROF.AKSHAYA A. BHOSALE 3. PROF.GANDHALI G. DORLEKAR	12
6	INTELLIGENT SURVEILLANCE SYSTEM	1. SUMIT BALARAM PATIL 2. SANKET SANDEEP PINGALE 3. HITESH CHANDRAKANT SHINE 4. PRERANA UMESH PUJARI 5. PROF. PANKAJ KUNEKAR	12
7	IMPLOSION DETECTION BASED ON ROUND TRIP DELAY AND PATHS (ID-RTDP) FOR SENSOR NODE IN WSNS	1. JAYESH N. PATIL 2. DR.ASHOK KANTHE	13
8	DEFENSE MECHANISMS FOR DDOS ATTACKS	1. MRS.METHA KADAMBARI RITESH 2. MRS.DIKHA KALE.	13
9	MULTI SMS BANKING	1. MS. MANASI S. SHETYE 2. MS. SAYALI M.BHELSAIKAR	14
10	COMPARITIVE STUDY OF PERFORMANCE OF DATA MINING CLASSIFICATION ALGORITHMS IN WEKA	1. NIKHIL NANDKISHOR SALVITHAL	14

SR NO.	TITLE OF PAPER	AUTHOR	
11	CREDIT CARD FRAUD DETECTION TECHNIQUES	1. OMKAR MORE 2. RISHIKESH TAMBAT 3. YOGESH PATIL 4. MANOJ SURVE	15
12	PACE OF ADOPTION OF CLOUD BY STARTUPS TO BOOST BUSINESS VALUE	1. PROF.P.R.KUNEKAR 2. PROF.V.H.KSHIRSAGAR 3. MR. VIPUL MASAL	15
13	SAVING BATTERY OF MOBILE STATION & RESPONSE TIME BY SERVER WITH COMPRESSION	1. ROHIT KULKARNI 2. RAGHVENDRA SINGH	16
14	PREVENTING ANONYMOUS NETWORK FROM ABUSIVE USER(PANAU)	1. PROF. SACHIN S. KASARE	16
15	VIRTUAL DRESSING ROOM USING NEWTON'S MECHANICS	1. BHALEKAR SOURABH 2. CHITTE DARSHAN 3. DHAMAL HEMANT 4. GANESHWADE PRIYANKA 5. RANKHAMBE JAYASHRI	17
16	PLACEMENT HUB	1. HARSHADA JAYAWANT CHAVAN 2. SHRUTIKA SANTOSH TATKARE 3. SUARABH SHARAD JADHAV 4. PROF. PANKAJ R. KUNEKAR	18
17	PERSPECTIVE ON THE MANAGEMENT OF SECURITY IN CLOUD COMPUTING	1. SIDDHESH JADHAV 2. MOHAN PRAMOD PATIL	18
18	SECURE MULTIHOP INTELLIGENT TRANSMISSION (SMIT) FOR WIRELESS NETWORK	1. SUMIT SHIVAJI DALVI 2. DR. ASHOK KANTHE	19
19	EXECUTION OF APRIORI ALGORITHM FOR FINDING FREQUENT ITEMSETS USING CANDIDATE GENERATION	1. PROF.S.K.THAKUR	19
20	SMARTCRAWLER: A TWO-STAGE CRAWLER FOR EFFICIENTLY HARVESTING DEEP-WEB	1. TAHURA HANIF TULVE 2. OMKAR JAIDAS NAWALE 3. VRUSHALI BALKRUSHNA BHOSLE 4. PROF . RAGHVENDRA SINGH 5. SANKET SANTOSH PAWAR	20
21	FAULT TOLERANCE IN THE MOBILE AD HOC NETWORK FOR NETWORK SURVIVABILITY	1. PROF. VISHVAS KSHIRSAGAR 2. MS. SONALI P. MULIK 3. PROF. PANKAJ R. KUNEKAR	20

ABSTRACT(CIVIL)

SR. NO.	TITLE OF PAPER	AUTHORS	PAGE NO.
1	BEHAVIOUR OF RC OVERHEAD WATER TANK UNDER DIFFERENT STAGING PATTERNS	1. A.H. SHRIGONDEKAR 2. G.D. PARULEKAR 3. V.R. KASAR	21
2	EXERCISING LEAN TECHNIQUES TO REDUCE WASTE & IMPROVE PERFORMANCE OF MUNICIPAL PROJECT DELIVERY IN MUMBAI	1. HARESH S. PALVE, 2. DR. SAHAJANAND KAMAT	21
3	REPLACEMENT OF COARSE AGGREGAT BY USING NATURALLY AVAILABLE MATERIALS	1. KAUSHIK RAHATE, 2. SUDHAKAR SINGH, 3. RAHUL KELKAR 4. MAYURESH KHAJANWADKAR	22
4	PRODUCTIVITY ANALYSIS OF PILE DRIVING EQUIPMENT	1. PRAKASH H. PANDA, 2. DR. SAHAJANAND KAMAT	23
5	COMPARATIVE AND COST ANALYSIS OF CONVENTIONAL & MIVAN FORMWORK A CASE STUDY	1. AFIF KARDEKAR, 2. CHAITALI PATIL, 3. KARAN PATIL, 4. SHARAD VISHWAKARMA, 5. S. A. RAUT 6. U. W. MATE	23
6	IMPACT ORIENTED TECHNIQUES FOR IMPROVEMENT OF GROUND – A REVIEW	1. AJEET KUMAR, 2. NANCY SONI, 3. ANKITA R. BHOIR, 4. MANOHAR T. KHANDEKAR,	24
7	OPTIMUM UTILIZATION OF CONSTRUCTION EQUIPMENTS ON BUILDING SITE.	1. D.B. PHADATARE, 2. DR. S.B.CHARHATE	24
8	DESIGN OF ELEVATED PARKING SYSTEM IN KOLHAPUR CITY	1. ROSHAN R. BHOJANE, 2. PAYAL P. MAHAJAN, 3. ANKITA A. SHIGAVAN, 4. NEHA C. SURVE	25
9	DESIGN AND DEVELOPMENT OF GUI FOR RATE ANALYSIS OF BUILDING CONSTRUCTION USING VISUAL BASIC	1. DIGVIJAY B. LOKHANDE, 2. A. R. KHAMBEKAR	25
10	STUDY OF CELLULAR LIGHT WEIGHT CONCRETE BLOCKS	1. ASHWINI SHINDE, 2. AISHWARYA KANTAK, 3. PRASHALI PATIL, 4. DARSHANA JAVARAT, 5. MANOHAR KHANDEKAR	26
11	USE OF PLASTIC BOTTLES GRANULES FOR SOIL STABILIZATION AND DESIGN OF FLEXIBLE PAVEMENT	1. PRAVIN BHOIR, 2. KALPESH SURTE, 3. AKASH TETGURE, 4. SWAGAT THAKUR, 5. ATULYA PATIL	27
12	A STUDY ON VALUE ENGINEERING IN BUILDING CONSTRUCTION	1. RITESH GHARAT, 2. MAHESH RATHOD, 3. SUSHANT SHINDE, 4. AKSHAY TOPALE, 5. Y.R.GALINDE, 6. A.P.PATIL,	28

SR. NO.	TITLE OF PAPER	AUTHORS	PAGE NO.
13	USE OF PLASTIC BOTTLE FIBERS IN CONCRETE	1. PRATHAMESH KARANJE, 2. YOGESH CHAVAN, 3. AMOL CHAVAN, 4. PANKAJ BHASALE, 5. KAMLESH MESHRAM, 6. MANOHAR KHANDEKAR	29
14	USE OF QUARRY DUST FOR SOIL STABILIZATION	1. SUSHANT KAMBLE, 2. UMESH KHARAT, 3. RAGIL NAIR, 4. ANIKET VELE, 5. MANOHAR KHANDEKAR, 6. KAMLESH MESHRAM	30
15	CHALLENGES IN THE PLANNING OF CITIES IN INDIA	1. ANKITA R.BHOIR, 2. AJEET KUMAR, 3. DARSHANA CHAVAREKAR, 4. NANCY SONI.	30
16	ANALYTICAL APPROACH TOWARDS THE EFFICIENCY OF EFFLUENT TREATMENT PLANT OF PHARMACEUTICAL INDUSTRY	1. DARSHANA CHAVAREKAR, 2. ANKITAR.BHOIR, 3. DIPIKA D. DALVI	31
17	STUDY ON USE OF RECYCLED CONCRETE AGGREGATES AND GROUND GRANULATED BLAST FURNACE SLAG IN CONCRETE	1. DIPIKA D. DALVI , 2. DR.SHRIKANT CHARHATE	32
18	STABILIZATION OF LOCAL SOILS USING COMBINATION OF LIME AND ALCCOFINE	1. YUGANDHARA R.GALINDE, 2. DR.SHRIKANT CHARHATE	32
19	EFFECT OF REPLACEMENT OF CONVENTIONAL BRICKS WITH LIGHTWEIGHT CELLULAR CONCRETE BLOCK ON COLUMN AND FOUNDATION FOR RESIDENTIAL BUILDING	1. PROF. MANOHAR T. KHANDEKAR	33
20	STUDY OF DROUGHT IN MARATHWADA AND ITS ANALYSIS	1. PAWAN SHELAVALE, 2. OMKAR KAPADI, 3. TRUPTI CHAVAN, 4. AKSHAY PATIL, 5. ATULYA PATIL	33
21	EXPERIMENTAL INVESTIGATION OF REINFORCED CONCRETE BEAMS WITH AND WITHOUT CFRP WRAPPING	1. SUCHITA MHATRE, 2. BHUSHAN MHATRE, 3. AMRUTA MHATRE, 4. AKSHAY KOTHMIRE, 5. MANOHAR KHANDEKAR	34
22	DESIGN OF FLY ASH STABILIZED FLEXIBLE PAVEMENTS AND ITS ECONOMICS	1. SWAPNIL A. RAUT, 2. DR. PRASHANT P. NAGRALE	34
23	FINANCIAL ANALYSIS OF RESIDENTIAL BUILDING	1. ABHISHEK DHAWAL, 2. SURAJ PATIL, 3. SAJAN KADU, 4. VISHNU SHELKE, 5. SWAPNIL RAUT	35
24	APPLICATION OF BOX PUSHING TECHNIQUE ON ROAD UNDER BRIDGE CONSTRUCTION.	1. TUSHAR BHOIR, 2. VINAYAK MOHITE, 3. VISHWAJEET SHARMA, 4. AASIM SHAIKH, 5. Y.R.GALINDE.	35
25	IMPROVEMENT IN CHARACTERISTIC STRENGTH OF SUBGRADE SOIL BY USING LIME AND ECONOMICAL ANALYSIS OF STABILIZED PAVEMENT	1. ATULYA PATIL, 2. DR. PRASHANT P. NAGRALE	36

ABSTRACT (MECHANICAL ENGINEERING)

SR. NO	TITLE OF PAPER	AUTHORS	PAGE NO.
1	A NUMERICAL AND EXPERIMENTAL STUDY ON EFFECTIVE THERMAL CONDUCTIVITY OF EPOXY- Al ₂ O ₃ COMPOSITES - A REVIEW	1. VINAYAK G. KACHARE 2. MAHESH M. KADAM 3. PRATHAMESH P. CHOUGHULE	37
2	DESIGN AND ANALYSIS OF WINDMILL SHAFT USING COMPOSITE MATERIALS	1. AMOL SHINDE 2. DR. ASHOK KECHE	37
3	MODELING & ANALYSIS OF SHELL & TUBE HEAT EXCHANGER	1. MOMIN AMIR, 2. KAZI ZAKI, 3. KARJIKAR SHABIB 4. JAMADAR AHMED 5. PROF. PANKAJ DHONGADE	38
4	METHODS OF BALANCING FOR UNBALANCED TRANSPORTATION PROBLEM: REVIEW	1. MR.SIDDHESH KAMAT	38
5	PROGRESSIVE FAILURE ANALYSIS OF COMPOSITE FLAT PANELS WITH CIRCULAR CUTOUT USING HASHIN'S CRITERIA	1. GAUSPIRA S. MAKANDAR 2. VAIBHAV APPASO UGARE	39
6	ELECTRIC FIELD STRUCTURE ANALYSIS OF ELECTROSPINNING OF POLYMER NANOFIBERS BY ANSOFT AND ANSYS	1. PROF P.M.AUTADE 2. DR. H.N.NARASIMHA MURTHY	39
7	FINITE ELEMENT ANALYSIS OF A STIFFENED PANNEL WITH TWO BAY CRACK UNDER UNIAXIAL LOADING	1. PROF. A.R.GHADGE 2. PROF. M.M. BADADARE	40
8	DESIGN AND ANALYSIS OF FLYWHEEL FOR DIFFERENT GEOMETRY AND FOR DIFFERENT MATERIAL	1. SIDDHESH VELHAL, 2. DEEPAK GUPTA, 3. MACHINDRA MHATRE 4. TEJAS PIMPLE 5. PROF. P.M. AUTADE	40
9	DESIGN AND FABRICATION OF STIRRUP BENDING MACHINE	1. KHATIB SUFIYAN 2. PAWAR ROHAN 3. MANYAR SOHEB 4. PARKAR RAEES A. 5. PROF. I.N.MAGDUM	41
10	DESIGN AND FABRICATION OF PORTABLE AIR CONDITIONER	1. SUMIT SUNIL WARE 2. PRASAD KASHINATH PATIL 3. AKSHAY CHANDRAKANT PATIL 4. AJIT BIRENDRA MISHRA 5. PROF. AJIT KAKADE	41
11	OPTIMIZATION OF LEAF SPRING USING COMPOSITE MATERIAL	1. VIRAJ V. TAMBOLI 2. ABHISHEK D. THAKUR 3. AKSHAY J. MOKAL 4. PRASAD A. SUKAM 5. Prof. G.S.MAKANDAR	42
12	DESIGN OF PRESSURE VESSEL	1. SUMIT S. NIRKAR 2. CHINMAY K. BHOIR 3. VISHAD V. DHATAVKAR 4. PRATHAMESH R. AMBUKAR 5. PROF. A.R.GHADGE	42

SR. NO	TITLE OF PAPER	AUTHORS	PAGE NO.
13	DESIGN OF FLOOR WASHER	1. ROHIT Y.PATIL 2. KETAN P.PATIL 3. KALPESH G. PATIL 4. NIKHIL K. BHAGAT 5. PROF. A.R.GHADGE	43
14	IMPLEMENTATION OF POKA-YOKE TECHNIQUE FOR IMPROVING QUALITY AT HRCTL IN STEEL INDUSTRIES	1. PROF. PANKAJ M DHONGADE 2. MR. VIVEK A SHROUTY	43
15	NUMERICAL MODELING OF LAZER WELDING	1. MR. AJIT D. KAKADE 2. MR. EKNATH UGALE	44
16	DESIGN AND MANUFACTURING OF PLASTIC BOTTLES STRIP CUT MACHINE	1. ARBAZ AYUB DHOKLE 2. KUNAL PRABHAKAR BHOIR 3. AKSHAY VIJAY SUKALE 4. ALBAKSH IQBAL TAMAKE 5. PROF. SIDDHESH KAMAT	44
17	OPTIMIZATION OF PROCESS PARAMETERS OF PLASMA ARC CUTTING USING BOX-BEHNKEN DESIGN	1. INDRAJEET N. MAGDUM 2. JITESH G. BHAGAT 3. DR. M. T. TELSANG	45
18	REGENERATIVE SUSPENSION SYSTEM FOR AIR CONDITION	1. PANDIT SUJEET SHIVNARAYAN 2. KOLI ANKIT KAMALAKAR 3. JOYA LALITKUMAR KISHOR 4. MOHAPE SUNIL DHANAJI 5. PROF. SIDDHESH KAMAT	45
19	SYNTHESIS OF FE-BHA NANOCOMPOSITE AS OXYGEN CARRIER FOR CHEMICAL LOOPING COMBUSTION	1. PROF. M.M. BADADARE 2. PROF. A.R.GHADGE	46
20	DESIGN & MANUFACTURING OF SPECIAL-PURPOSE MACHINE	1. SUSHANT GHASE 2. ROHAN UBHARE 3. YUGESH MALI 4. SAMIR TUPKAR 5. PROF. M.M. BADADARE	46
21	PERFORMANCE OF CARBIDE INSERTS DURING MACHINING OF STAINLESS STEELS IN DIFFERENT CONDITIONS	1. JITESH G. BHAGAT 2. INDRAJEET N. MAGDUM 3. DR. VIKAS G. SARGADE	47
22	HEAT TRANSFER AUGMENTATION THROUGH A CIRCULAR TUBE FITTED WITH SWIRL FLOW GENERATOR	1. DR. S V. PATIL	47
23	MECHANISATION OF SUGARCANE PLANTER	1. VIJAY PATIL 2. SAMEER MHATRE 3. AKHILESH GHAVTE 4. DILIP HADAL 5. PROF.M.M.BADADARE	48
24	DESIGN AND FABRICATION OF GRAPPLING GUN	1. VISHWAM H. AREKAR 2. SHUBHAM G. DHUPKAR 3. SAURABH S. PATIL 4. SHUBHAM V. PATIL 5. JITESH G. BHAGA	48

EXPERIMENTAL INVESTIGATION OF REINFORCED CONCRETE BEAMS WITH AND WITHOUT CFRP WRAPPING

SUCHITA MHATRE

*B.E Students, Department of Civil Engineering,
G.M.Vedak Institute of Technology,
Tala, Raigad, Maharashtra, India
Suchitamhatre955@gmail.com*

MANOHAR T. KHANDEKAR

*Assistant Professor,
Department of Civil Engineering
GMVIT, Tala,
Raigad, Maharashtra, India
khandekar.s11@gmail.com*

AMRUTA MHATRE

*B.E Students, Department of Civil Engineering,
G.M.Vedak Institute of Technology,
Tala, Raigad, Maharashtra, India
Amruta2495@gmail.com*

AKSHAY VILAS KOTHMIRE

*B.E Students, Department of Civil Engineering,
G.M.Vedak Institute of Technology,
Tala, Raigad, Maharashtra, India
akshay.kothmire7@gmail.com*



BHUSHAN MHATRE

*B.E Students, Department of Civil Engineering,
G.M.Vedak Institute of Technology,
Tala, Raigad, Maharashtra, India
Bhushankhatre0@gmail.com*

ABSTRACT:- The focus of the present work is to compare the effect of carbon fiber reinforced polymer (CFRP) wraps on reinforced concrete beams on load carrying capacity. The experimental study consist of casting of four sets of reinforced concrete (RC) beam of grade M30 (control, U-wrap, Bottom wrap, u-wrap at 45 degree). All beams are weak in shear. First set of RC beam termed as a control RC beam (SET-I) are cast. Second set of two RC beams (SET-II) are cast; all are loaded up to initial crack after curing for 28 days and then strengthened using CFRP wrap in tension zone. Third set of two RC beams (SET-III) are cast; all are loaded up to initial crack and after curing for 28 days and then strengthen using UCFRP wrap in shear zone. Fourth set of two RC beams (SET-III) are cast and after curing for 28 days strengthened using 45 degree U wrap. All beams will be in a simply supported span and subjected to Two Point loading. The result of the experiment may show that the use of CFRP as external strengthening will be significant enhancement on ultimate load, crack pattern and deflection.

Keywords—Reinforced concrete beam, CFRP, wrapping crack, deflection, , strengthening of Concrete Structure.

DESIGN OF FLY ASH STABILIZED FLEXIBLE PAVEMENTS AND ITS ECONOMICS

MR. SWAPNIL A. RAUT

*Assistant Professor, Department of Civil Engineering,
G. M. Vedak Institute of Technology, Tala, Raigad,
Maharashtra, India.
swapnil_raut89@rediffmail.com*

DR. PRASHANT P. NAGRALE

*Professor, Department of Civil Engineering,
Sardar Patel College of Engineering
Andheri, Mumbai, India
p_nagrale@spce.ac.in*

ABSTRACT:- In India Most of the time flexible pavements need to be constructed over problematic and poor sub grade. Such sub grades have low California Bearing Ratio (CBR), which leads to more thickness of the pavement. Decrease in availability of suitable granular sub-base and granular base course materials for highway construction leads to a search for economic method of converting locally available troublesome soil to suitable construction materials. Fly ash can be effectively utilized for improving the engineering properties of the weak soil. The present research was carried out to study the effect of fly ash stabilization on Maximum Dry Density (MDD), Optimum Moisture Content (OMC) and California Bearing Ratio (CBR) of the sub grade soil. Also the pavement section has been designed as per Indian Practice Code IRC 37:2012 for different traffic intensity and construction cost estimated for 1 km pavement section resting on unstabilized and stabilized sub grade with different percentages of fly ash. The study shows that 10 percent fly ash will be more effective in material and cost optimization.

Keywords—Stabilization stabilization, flyash, california bearing ratio, economical analysis.