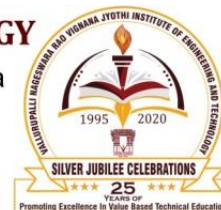




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DEPARTMENT OF CIVIL ENGINEERING

Name: **CENTER FOR SUSTAINABLE AND SMART TRANSPORTATION SYSTEMS**

Objective of Center

- The Center for Sustainable and Smart Transportation Systems (CSSTS) aims at conducting multi-disciplinary with collective participation of Engineers, Scientists, and Researchers for outreach on promoting the sustainability of transportation infrastructure.
- The CSSTS focuses on transportation systems encompassing sustainable pavement materials, and smart technologies in transportation systems engineering with a lead to smart infrastructure.

Special Interest Group – CSSTS - Transportation Engineering Faculty

GROUP 'A'

Traffic Engineering, Planning & Safety

S.No.	Name of The Faculty	Designation
1.	Dr. A. Ramesh	Professor
2.	Dr. C Naveen Kumar	Associate Professor
3.	Sri T. Naga Teja	Assistant Professor
4.	Dr. K. Sai Sahitya	Assistant Professor
5.	Ms. P Sarika	Assistant Professor
6.	K Ravindra Babu	Assistant Professor

GROUP 'B'

Pavement Materials

S.No.	Name of The Faculty	Designation
1.	Dr. A. Ramesh	Professor
2.	Dr. D Harinder	Assistant Professor
3.	G Sambasiva Rao	Assistant Professor

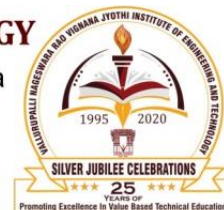
Adjunct Faculty:

The Department of Civil Engineering offers PG course in M.Tech. Highway Engineering Programme. This programme is further strengthened through industry interaction with Industry / research personal.



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Retd. Sh. K. Sitaramanjaneyulu, Chief Scientist, Pavement Evaluation Division, CSIR-Central Road Research Institute is appointment of adjunct faculty in M.Tech. Highway Engineering programme.



CSSTS TE Faculty group interaction

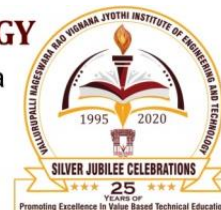
Sponsored R&D Projects carried under CSSTS:

S.No	Title	Agency	Period	Grant amount	Ongoing / Completed
1	<i>“Performance Appraisal of Polymer Modified Bitumen Binders”.</i>	Under Research Proposal Scheme (RPS) by AICTE Ref: 8023 / RID / RPS – 79/2010 -11 dt: 31.03.2011	2 years	11.25 Lakhs	Completed
2.	<i>Laboratory Investigation of Recycled Asphalt Pavements (RAP) In Predicting Its Influence on Modified Asphalt Mixture for Evaluation Of Rutting Characteristics</i>	UGC Minor research project UGC Sanction letter No: 313, F.No:4-4/2013 – 14(MRP – SEM/UGC – SERO), Hyderabad, letter dt: 17.03.2014	2Years	4.95 Lakhs	Completed



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3.	<i>Development of an Indigenous Low Cost / Light Weight Deflectometer for Structural Evaluation of Pavement</i>	Device Development Programme funded under DST scheme DST/TDT/DDP – 12/2018(G), Govt. of India, DST, letter dt: 10.01.2019	2Years	14.10 lakhs	Completed
4.	<i>Assessment of Warm Mix Asphalt (WMA) with partial replacement of recycled aggregate and inclusion of nano material</i>	Procs No. JNTUH/TEQIP-III/CRS/2019/Civil/04; dt: 22.07.2019.	1Year	2.99 lakhs	Completed
5.	<i>Investigating Self-Healing Capability and Performance of HMA Mixes Containing Steel Slag as Aggregates</i>	File Number: CRG/2022/008018, Core Research Grant, SERB	3 Years	6.31 Lakhs	On going

DESIGN PATENT – Industrial under CSSTS

- Title of the design **A Non-Invasive Device for Modulus Measurement of Pavement Layers** File no. 353540-001; Date of publishing 22/11/2021; **Date of grant 19/01/2023**
- Title of the design **Automatic Water Dispenser**, File no. 369341-001; Date of publishing 18/08/2022; **Date of grant 23/05/2023**

Department domines for collaboration:

- Civil Engineering Department
- Electronics and Instrumentation Engineering Department
- Computer Science Engineering

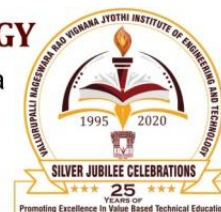
CSSTS Collaboration:

1. National Institute of Technology, Meghalaya
2. Birla Institute of Technology & Science, Pilani - Hyderabad Campus
3. National Institute of Technology, Warangal



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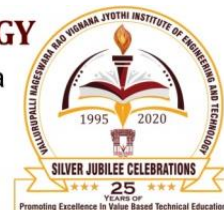
Consultancy Projects under CSSTS

S.No	Title	Agency	Period	Sanctioned Amount	Ongoing / Completed
1.	Traffic Census survey on NH –5	NHAI	2006	2.00 Lakhs	Completed
2.	Bituminous Mix Design	VMC	2006	0.5 Lakhs	Completed
3.	DPR for PMGSY roads	PMGSY – Nakrekal Sub Division	2006	0.2 Lakhs	Completed
4.	Boundary Survey at Gagilapur	Vignana Jyothi Society	2008	---	Completed
5.	Total Station Training	WALMTARI	2010 – 2011	1.2 Lakhs	Completed
6.	Boundary survey at Dr. D. Rama Naidu Vignana Jyothi Institute Rural Development	Vignana Jyothi Society	2011	---	Completed
7.	<i>Benkelman Beam Deflection Studies</i>	Spectrum Engineering	2012	1.5 lakhs	Completed
8.	Axle load surveys	Spectrum Engineering	2012	0.5 Lakhs	Completed
9.	Resilient Modulus for bitumen mixes	SOMA constructions	2013	0.6 Lakhs	Completed
10.	Total Station Training	WALMTARI	2013	0.4 Lakhs	Completed
11.	Stone Polishing Value for Road Aggregate	KDM Engineers (India) P Ltd	2014	0.9 Lakhs	Completed
12.	Total Station Training	WALMTARI	2014	0.9 Lakhs	Completed
13.	Institute Boundary Plan	Vignana Jyothi	2014	---	Completed

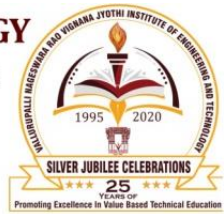


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14.	Stone Polishing Value for Road Aggregate	M/s.Eclat Engineering Consultants, Hyd.	2015	0.3 Lakhs	Completed
15.	Rutting characteristics	M/s.M. Mahender, Engineer & Contractor,	2016	0.35 Lakhs	Completed
16.	Contour & Boundary map for Institute Hillock	VNR VJJET	2016	----	Completed
17.	Resilient Modulus for bitumen mixes	SOMA	2016	0.5 Lakhs	Completed
18.	Mix Design	JNTU H	2016	0.2 Lakhs	Completed
19.	Mix Design, Core cutting	JNTUH, R & B	2017	0.2 lakhs	Completed
20.	Resilient Modulus for bitumen mixes	Samarth Infra Engineering	2018	0.5lakhs	Completed
21.	Road material testing	TPQC, GHMC	2019	--	Completed
22.	Road material testing	CRMP, TPQC, GHMC	2020	--	Completed.
23.	Resilient Modulus for bitumen mixes	Samarth Infra Engineering	2021	0.3 lakhs	Completed.
24.	Resilient Modulus for bitumen mixes	BVSR Construction	2021	1.0 lakhs	Completed.
25.	Quality Control test	GHMC	2018 – till date	10.00 lakhs	Ongoing
26.	Third party quality test	CRMP, GHMC	2020 – till date	12.00 lakhs	Ongoing



PRODUCT DEVELOPMENT AT CSSTS

Title of Project: Development of An Indigenous Low-Cost /Light Weight Deflectometer for Structural Evaluation of Pavement

Ref: D.O.No. DST/TDT/DDP-12/2018 dt: 11.04.2019 - Device development

Amount stationed: Rs.14,10,600/-

Field Test device description

The developed indigenous Low-Cost /Light Weight Deflectometer consists of a loading device, base plate, and geophone sensor's one provided at the center of the plate and two other sensors provided in the radial direction. During the test, falling weight is dropped down along the guide rod and hits a shock absorber and the compressive force is transferred to the loading plate (250mm dia.). This falling weight produces a load pulse in the range of 1 – 15 kN in about 15– 20 ms. The geophone sensor which is attached at the center of the loading plate and along the radial distances (30 and 60mm) records the pavement surface / layer deflection. The measured deflection at the center of the plate and radial shall be used to calculate the dynamic deformation modulus of thin pavement layers. This Indigenous light falling weight deflectometer will be used as quality control/quality assurance devices for testing sub-grades, base courses, and compacted pavement layers.

Field testing process



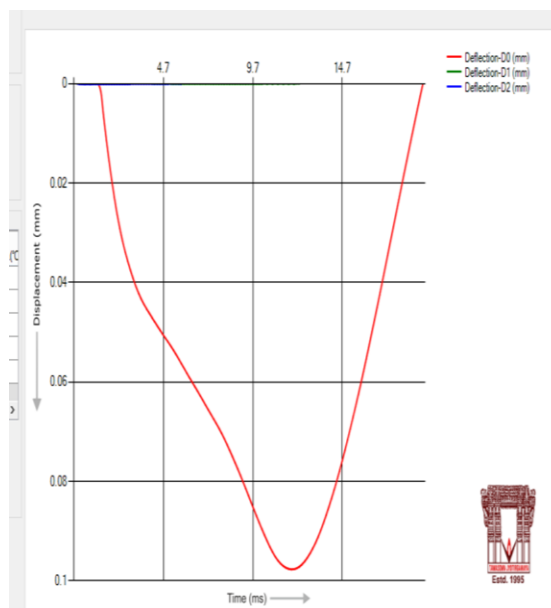
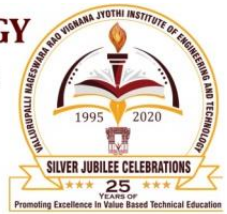
Field testing - LWD designed developed apparatus

Field testing was performed on the project of four-laning of NH-161 from Kandi (NH-65) to Ramsanpalle in Telangana state.



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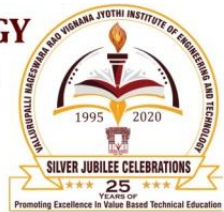


LWD Instrument setup on Study location



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DELIVERABLE OUTCOMES FROM THE PROJECT:

Indian Design patent: - GRANTED

Title "A non-invasive device for modulus measurement of pavement layers"

File no. : 353540-001, IPI, Govt. of India

Status: GRANTED

Publications from the project:

1. Aditya Raj M, **Ramesh A**, Venkat Ramayy V, Harinder D (2022) *Assessment and Prioritization of highway stretch deploying functional and structural characteristics*, Jordan Journal of Civil Engineering (Accepted), WoS, SCI
2. Rajkumar M, Ramesh A, Kumar M, (2022), A comprehensive investigation of Pavement evaluation through field and Laboratory and prioritization in Recent Advances In Traffic Engineering, Springer Procedia (Accepted)
3. Raj Gunde, **Ramesh Adep**, Pranavi Rachakonda, Nageshwar Rao Ch Laboratory evaluation of an indigenous developed light weight deflectometer as a quality control tool for pavement construction, Mater. Today Proc. 52 (2022)

DELIVERABLE OUTCOMES FROM THE CRS TEQIP – III PROJECT:

Project Title: Assessment of Warm Mix Asphalt (WMA) with partial replacement of recycled aggregate and inclusion of nano material

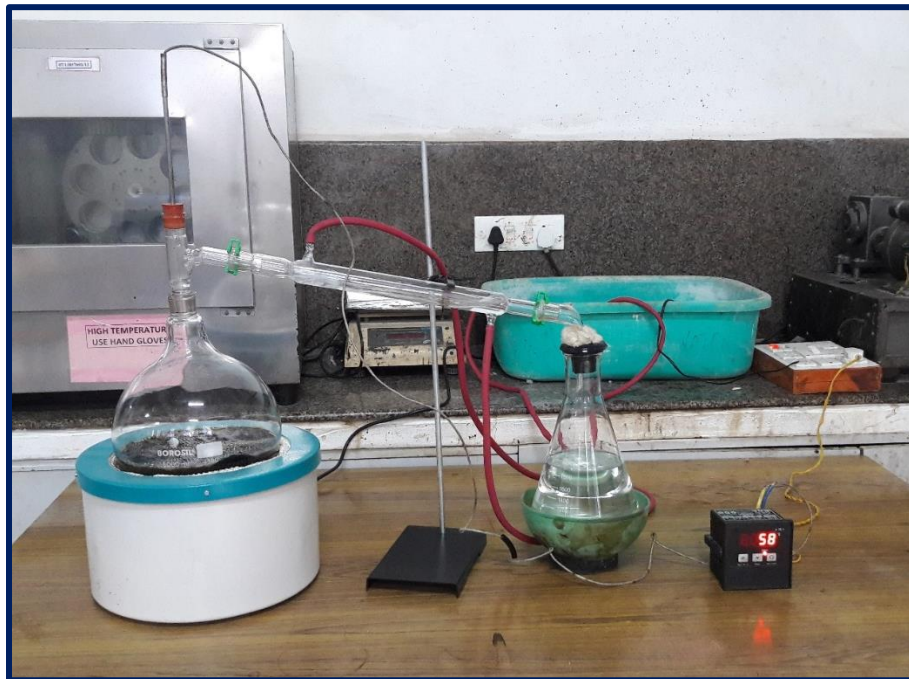
Sanction Letter No.: JNTUH/TEQIP-III/CRS/2019/Civil/04

Publications:

1. **A. Ramesh**, V Venkata Ramayya A Mamatha, V. Vinayaka Ram (2023), Fracture studies on basalt fiber reinforced asphalt mixtures with reclaimed asphalt pavement derived aggregates and warm mix additives, *J. Construction and Building Materials* 386, 131548(SCI, Scopus)
2. **A Ramesh**, V Venkata Ramayya Gottam Sandeep Reddy, V. Vinayaka Ram(2022) Investigations on fracture response of warm mix asphalt mixtures with Nano glass fibres and partially replaced RAP material, *Construction and Building Materials* 317 (2022) 126121(SCI)

3. R.G. Sandeep, **A. Ramesh**, V Venkata Ramayya(2021) Effect of Nano-Modified Binder on Fracture Properties of Warm Mix Asphalt Containing RAP, Intentional Journal Pavement Research and Technology (Accepted) <https://doi.org/10.1007/s42947-021-00133-y> ISSN 1996-6814(Scopus)
4. G. Kalyan, **A. Ramesh**, V.V. Ramayya, Performance evaluation of warm mix asphalt mixture with partial inclusion of reclaimed asphalt pavement materials, Mater. Today Proc. 38 (2021) 2919–2926.
5. E. Rochishnu, **A. Ramesh**, V.V. Ramayya, Sustainable pavement technologies-performance of high RAP in WMA surface mixture containing nano glass fibers, Mater. Today Proc. 43 (2021) 1009–1017.

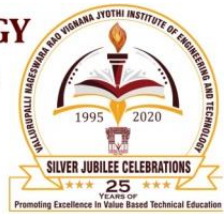
CSSTS Equipment's Developed - Institute Support





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Distillation Apparatus Developed for Binder and Toluene Separation



Developed soxhlet Apparatus

Used for binder extraction – solvent method as per IS 13826 part 7 : 1993



Developed separation of asphaltenes and maltenes fractions apparatus

SARA fraction - binder composition

CSSTS Road Safety Awareness Campaigns:

The *Center for Sustainable and Smart Transportation Systems (CSSTS)*, the Department of Civil Engineering, VNR Vignana Jyothi Institute of Engineering and Technology has campaigned for the **32nd National "Road Safety Week"** observed during 11th - 18th January 2021 as decided by the Ministry of Road Transport and Highways, Government of India and Government of Telangana.

రహదారి భద్రతపై అవగాహన



రోడ్డు భద్రతపై అవగాహన కల్పిస్తున్న పీఎన్ఆర్ విజేవీటీ కాలేజీ విద్యార్థులు. అధ్యాపక బృందం

నిజాంపేట: బామపల్లిలోని పీఎన్ఆర్ విజ్ఞాన జ్యోతి ఇనిస్టిట్యూట్ ఆఫ్ ఇంజనీరింగ్ అండ్ టెక్నాలజీ (పీఎన్ఆర్ విజేవీటీ) విద్యార్థులు, అధ్యాపకులు గురువారం రోడ్డు భద్రతా వారోత్సవాల్లో పాల్గొన్నారు. ప్రతి ఒక్కరూ ట్రాఫిక్ సిబ్బంది నలను పాటిస్తూ ప్రమాదాల బారిన పడకుండా జాగ్రత్త వహించాలని వాహనదారులకు అవగాహన కల్పించారు. అంతే కాకుండా తాము

రోడ్డు నియమాలు పాటించడమే కాకుండా తమ కుటుంబ సభ్యులతో సైతం పాటించజేస్తామని ప్రతిజ్ఞ చేశారు. తమ కళాకాలంలో హెల్మెట్ ధరించని ద్విచక్ర వాహనదారులకు ప్రవేశాన్ని నిషేధించామని, ట్రాఫిక్ పోలీసుల సహకారంతో కళాకాలం వెలుపల ట్రాఫిక్ సిగ్నల్స్ వ్యవస్థను ఏర్పాటు చేశామని కళాకాల ప్రధానాధికారి డాక్టర్ నాయుడు తెలిపారు.

రోడ్డు భద్రతపై 'విజ్ఞాన జ్యోతి' అవగాహన

బామపల్లి పీఠ భిమ్మ నాపేట ముందర కామ్రేట్ యూనివర్సిటీలోని రోడ్డు భద్రతా వారోత్సవ కార్యక్రమంలో పాల్గొన్న విద్యార్థులు, అధ్యాపకులు, పోలీసులు కలిసి రోడ్డు భద్రతా వారోత్సవ కార్యక్రమంలో పాల్గొన్నారు. ప్రతి ఒక్కరూ ట్రాఫిక్ సిబ్బంది నలను పాటిస్తూ ప్రమాదాల బారిన పడకుండా జాగ్రత్త వహించాలని వాహనదారులకు అవగాహన కల్పించారు. అంతే కాకుండా తాము



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ROAD SAFETY AWARENESS CAMPAIGN
రహదారి భద్రత
అవగాహన ప్రచారం
 Stay Alert. Stay Safe అప్రమత్తంగా ఉండండి, సురక్షితంగా ఉండండి
 DON'T DRINK AND DRIVE

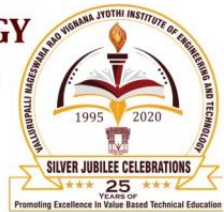


The Center for Sustainable and Smart Transportation Systems (CSSTS), the Department of Civil Engineering, VNR Vignana Jyothi Institute of Engineering and Technology has campaigned for the 34th National "Road Safety Week" observed during 11th - 17th January 2023 as decided by the Ministry of Road Transport and Highways, Government of India and Government of Telangana. The theme of this year is " Swachhata Pakhwada



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NBA Accredited: CE, CSE, ECE, EEE, EIE, IT, ME; JNTUH-Recognised Research Centres: CE, CSE, ECE, EEE, ME
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Seminar organized under *Center for Sustainable and Smart Transportation Systems (CSSTS)*

- Organized a 3-day National Workshop on “*Urban Traffic And Transportation Planning Perspective For Smart Cities*” Under TEQIP – II during 20th – 22nd January 2016
- Organized AICTE One-week National Workshop on “*Traffic and Transportation Planning for Smart Cities*” during 20 – 25 November 2017.
- Organized two-day national conference on “*Transportation Research Efforts for Ecological Sustainability*” during 28th - 29th September 2018
- Organized Online one-week short term training programme on “*Emerging Tools for Design and analysis of Sustainable roads (ETDASR 2020)*”, July, August and December 2020 for three series.

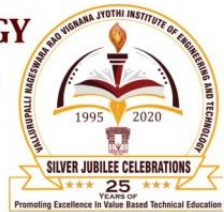


Inaugural session of AICTE One week National Workshop on Traffic and Transportation Planning and Smart Cities (TTPSC 2017) during 20 – 25 Nov, 2017. Dr. CSRK Prasad



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Professor, CED, National Institute of Technology, Warangal was chief guest for the inaugural session

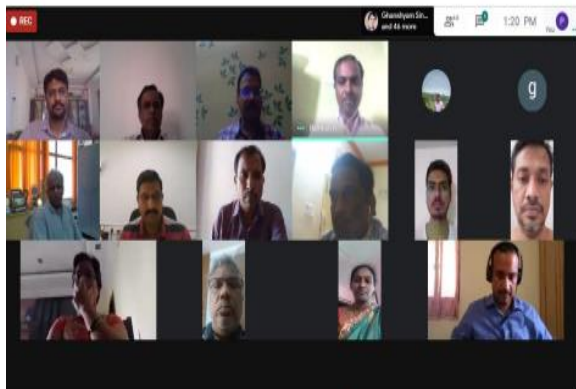
Valedictory function of AICTE One week National Workshop on Traffic and Transportation Planning for Smart Cities (TTPSC 2017) during 20 – 25 Nov, 2017, Dr. M. Kumar, Professor, CED, UCE, OU, Hyderabad was chief guest for the function.

AICTE Sponsored - One Week Online Short-Term Training Program on **Emerging Tools for Design and Analysis of Sustainable Roads (ETDASR 2020)**

Series 1: Insights into the development of sustainable road materials and traffic systems; 27.07.2020 – 01.08.2020

Series 2: Computational tools used in the development of sustainable road materials and traffic systems; 24.08.2020 – 29.08.2020

Series 3: Computational design tools used for planning and maintenance of sustainable road network; 07-12-2020 to 12-12-2020



Screen Shot of Series 1 ETDASR 2020



Screen Shot of Series 3 ETDASR 2020

Student activities:

Center for Sustainable and Smart Transportation Systems (CSSTS) during in- house pavement construction using upcycled materials



PG Student participation in Pavement Design with 100% recycled aggregate @VNR VJIIET

PG Internship:

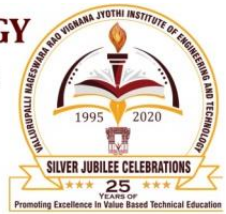
National Highways Authority of India (NHAI) and VNR Vignana Jyothi Institute of Engineering & Technology (VNRVJIIET) *Center for Sustainable and Smart Transportation Systems (CSSTS)* had entered with MoU on 19th February 2021.

CSSTS of M.Tech. HE students had carried internship programme **on NH – 44** at Kallakal (Km. 454.000) to GundlaPochampally (Km. 471.000) (Nagpur- Hyderabad) for three months period as approved by NHAI



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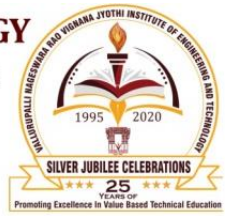


Traffic volume count photos (videographic method) on NH – 44 Km 454.000(Old 447.000) at Kallakal in Medak District and terminates Km 471.000(Old 464.000) in Ranga Reddy district of Telangana.



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भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(राष्ट्रक परिवहन और राजमार्ग मंत्रालय, भारत सरकार)
NATIONAL HIGHWAYS AUTHORITY OF INDIA
(Ministry of Road Transport & Highways, Government of India)

क्षेत्रीय कार्यालय - हैदराबाद

REGIONAL OFFICE - HYDERABAD

First Floor, New Building, Administrative Staff College of India, Road No.3, Banjara Hills, Hyderabad - 500034, Telangana.

☎ / Tel: 040-29802147 / 48 6-96 / Email: rshyderabad@nhai.org / rshahydr@gnail.com

NHAI/RO-HYD/Adoption of NHs/2022/2569

Date:26/12/2022

To
The Project Director
National Highways Authority of India
Project Implementation Unit
Kamareddy.

Sub: NHAI, RO - Hyderabad- PIU-Kamareddy- National Highways Authority of India and VNR Vignana Jyothi Institute of Engineering & Technology MoU Collaboration - Submission of Internship report -Release of stipend - Reg.

Ref: 1) NHAI, RO- Hyderabad and VNR Vignana Jyothi Institute of Engineering & Technology MoU dated: 19.02.2021
2) Regional Office, Hyderabad Ir no. NHAI/RO-HYD/Adoption of NHs/2021/2411 Date:09/12/2021
3) PD, PIU, Kamareddy Ir no. NHAI/PIU-KMR/Admn./Internship/2022/1134, Dt:14.10.2022

Sir,

Please refer your letter vide reference 3rd cited above, wherein, it was requested approval to release stipend of Rs.8,000/- month to M/s. VNR Vignana Jyothi Institute of Engineering & Technology, PG students (6 No's) mentioned below for internship carried out as per MoU:

Sl. No.	Reg. No	Name of the Student	Contact Number
Highway Engineering			
1	20071D8701	P Abhinav	9951778419
2	20071D8702	B Mounika	8919758836
3	20071D8704	Ballem Chandu	9550037218
4	20071D8706	M Rajkumar	7032077612
5	20071D8709	M Aditya Raj	9912021796
6	20071D8710	Ms. Imran Baba	8500494872

2. As per the MoU entered with M/s. VNR Vignana Jyothi Institute of Engineering & Technology on Dt:19.02.2021 and based on recommendations 3rd cited approval is hereby given to release Rs.72,000/- stipend for above (6 No's) PG students at Rs.8,000/- per month per student considering effective duration as 45 days.

4. Further, Project Director may directed to obtain the acknowledgement of the receipt of the internship fee from the students through the institute, please

Yours faithfully,


(G.M. Bhamesena Reddy)
Dy. General Manager (Tech.)
for Regional Officer, Hyderabad




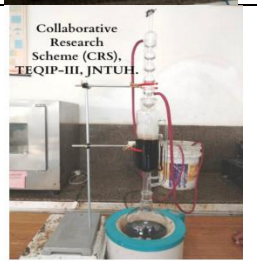

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Membership

S.No.	Name of the Association / Organization	Membership No.	Status
1.	Member ASCI Association Life Membership	Prg/13- 14/3/169/52034	In force
2.	Member Eastern Asia Society for Transportation Studies	RM-17-19-0109	In force
3.	Member Institute of Transportation Engineers, USA	--	In force
4.	Member Indian Road Congress	EML - 102270	In force
5.	Member Indian Institute of Concrete	13100	In force

Infrastructure facilities at Center for Sustainable and Smart Transportation Systems (CSSTS)

a) Binder characterization

S.No	Name of the Equipment	Make & Model	Amount (Rs.)	Date of Purchase	Remarks
1.	Viscosity Testing Equipment	EIE Instruments & Indian Make	1,34,662/-	25.03.2013	 Absolute Viscosity Performed on Base binder
2.	Brookfield Rotational Viscometer	PSI & US Make	2,93,625/-	30.10.2006	 Rotational Viscosity test for Base binder
3.	Rolling Thin Film Oven & its Accessories – Dry air pressure	AIMIL & UK make	8,16,106/-	16.07.2007	
4.	Loss on Heating & its Accessories	AIMIL & Indian make	373,900/-	16.07.2007	
5.	RAP binder extraction	Soxhlet extraction Developed in the laboratory as per ASTM		2020	 Collaborative Research Scheme (CRS), TEQIP-III, JNTUH
6.	Asphalt Binder composition	Developed in the laboratory as per ASTM		2019	

7.	Asphalt distillation process	Developed in the laboratory as per ASTM		2019	
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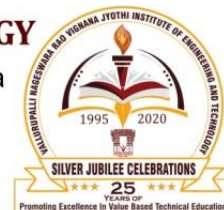
b) Asphalt Mixes characterization / Performance studies



S.No	Name of the Equipment	Make & Model	Amount (Rs.)	Date of Purchase	Remarks
8.	Marshall Mix Design – Automated - DAQ	PSI	1,00,000/- (50,000 + 50,000)	2006 & 2010	
9.	Automatic Compactor	AE&C & US Make	5,68,125/-	01.09.2012	
10.	In-direct tensile test and Tensile strength ratio test	Sree Vani Tech Enterprises	125,000/-	24.01.2017	
11.	Resilient modulus – Cyclic load test	Spranktronics & Indian make	13,47,202/- (947,002 + 4,00,421)	01.12.2011	
12.	Immersion type Wheel Rutting Equipment	GEOTRAN & Indian Make	722,912/-	03.06.2015	
13.	Roller Compactor	GEOTRAN & Indian Make	2,65,640/-	27.11.2015	




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14.	Accelerated Polishing Apparatus & its Accessories	AIMIL & UK make	13,50,003/-	16.07.2007	
15.	Plate Bearing Apparatus & its Accessories	AIMIL & Indian Make	2,14,908/-	15.06.2007	

S.No	Name of the Equipment	Make & Model	Amount (Rs.)	Date of Purchase	Remarks
16.	Servo Controlled Testing Digital loading frame – Fracture properties of asphalt mixes (Semi -circular bending test).	HEICO	4,25,353/-	18.07.2020	

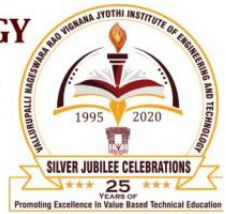
c) Pavement Evaluation



S.No	Name of the Equipment	Make & Model	Amount (Rs.)	Date of Purchase	Remarks
17.	Pavement Core cutting apparatus	HILTI	2, 88,660/-	08.01.2021	




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18.	Indigenous Light Weight Deflectometer for Structural Evaluation of Pavement	Developed in the laboratory under DST project	3,00,000/-	2021	
19.	Deflection studies and MERLIN studies	PSI		2006	

d) Traffic Safety:

S.No	Name of the Software	Make & Model	Amount (Rs.)	Date of Purchase	Remarks
20.	VISSIM & VISUM Software	Sunovatech - PTV	420,002/-	01.05.2013	
21.	HDM IV 10 License	TRL, USA	90,548/-	18.12.2018	