

## **Report on Five day online STC “Prospects of Sustainability in Pavement Construction in India” held between 14-18 July, 2020 in CED, NITJ**

### **Theme of the STC**

The Civil Engineering Department has organized an online five day Short Term Course on the topic “Prospects of Sustainability in Pavement Construction in India” during July 14-18, 2020. The main objective of the course is to provide knowledge about the prospects of using new techniques in pavement construction, maintenance, and rehabilitation in India to make it sustainable.

Scientists, academicians, Research Scholars and masters level students from academia of reputed NITs and IITs as well as scientific organizations participated in this STC.

For the ease of beginners, the program was divided into two phases with their following respective objectives:

- The first phase of the short term course emphasized on introducing the basic concepts, guidelines, and specifications regarding design, construction, and rehabilitation of the pavements using various types of pavement materials. Following themes were covered under this phase:
  - (i) Pavement structure and role of various layers
  - (ii) Design of pavements as per IRC 37 and IRC 58
  - (iii) Materials used in various layers and their properties
  - (iv) Defects and failure of pavement and its evaluation
  - (v) Strengthening/overlaying of pavementsFlexible and Rigid pavement was dealt with separately, on alternate days. One full day was devoted to each.
  
- The second phase of the course focussed on the differences between the prevalent scenario in India and advanced techniques of construction, maintenance & rehabilitation brought out by the ongoing research in academia and Industry. Efforts towards making the pavement construction

sustainable in the Indian scenario by using modern techniques and equipment was the goal. Following themes were covered under this phase:

- (i) Advancement in the design and construction techniques of pavement
- (ii) Newly introduced materials in the pavement construction: their advantages and limitations
- (iii) Development of new maintenance & rehabilitation strategies as well as techniques.

One day was allotted for each theme, where in half day for rigid pavement and half for flexible pavement was devoted.

### **Itinerary of the STC:**

#### **First day:**

On the first day the STC was inaugurated by the Honourable Director of Dr. B.R.Ambedkar NIT Jalandhar as its chief guest. The organising team of the STC, Dr. Shailja Bawa and Dr. Shashi Kant Sharma were present along with Dr.S.P.Singh, Head of Civil Engineering Department. As the Guest of Honour, Dr. Praveen Kumar, Director NIT Delhi was felicitated by the organising team.

Dr. Kumar gave inaugural speech on the importance of Transportation system and its development necessitated with changing times.

Dr. L.K. Awasthi, the worthy Director of Dr. B.R. Ambedkar NIT Jalandhar laid views on the importance of sustainability in India.

After inauguration Dr. Praveen Kumar delivered expert lecture on the topic “Non-conventional Materials for Road Construction”. He showcased the use of non-conventional materials in pavement construction by citing various researches in the sphere of bitumen modification, alternate aggregate materials etc.

In the afternoon session, Dr Surender Singh from IIT Madras delivered lecture on the topic “Design Fundamentals of Cement Concrete Pavements”.

#### **Second day:**

In the morning session of day two, Dr Nikhil Saboo from IIT BHU talked on the most important topic of “Design of Flexible Pavements as per IRC 37” A lot of participants appreciated and acknowledged the efforts and knowledge shared by Dr. Saboo.

Continuing the morning session further, Dr Maninder Singh from P.U. Patiala delivered an essential lecture on the topic “Reclaimed Asphalt Pavement”, which is the need of this century as lot of flexible pavements need to be reclaimed to avoid wastage of construction of material.

Dr Anush K Chandrappa from IIT Bhubaneswar showcased the principles of the design of rigid pavements. He delivered lecture on “Rigid pavements: Construction Design and Maintenance”.

### **Third day:**

Morning session of day three was honoured by Dr Surender Singh from IIT Madras who delivered lecture on “Mix Proportioning of Concrete Layers in Pavement”. He highlighted the precautions and specifications to be followed while designing concrete pavements.

Dr. Manoranjan Parida from IIT Roorkee continuing the session further delivered lecture on “Strengthening of Flexible Road Pavements using Benkelman’s Beam Deflection Technique as per IRC 81”. This is an important technique which determined the thickness of overlay to be provided for strengthening of flexible pavement.

Afternoon session was illuminated by the presence of an eminent speaker, Dr. Ankit Gupta from IIT BHU who delivered lecture on “Application of Waste Materials as Filler in Bituminous Mixes”.

### **Fourth day:**

In the morning session of fourth day, Dr Surender Singh from IIT Madras delivered lecture on Sustainability in Concrete Pavements through Recycled Waste Materials. Continuing further, Dr. Ankit Kathuria from IIT Jammu delivered lecture on Maintenance & Rehabilitation Strategies/Techniques of Pavements.

Afternoon session marked the lecture on Pavement Distresses and their Remedies by Dr Umesh Sharma, PEC Chandigarh. Dr. Sharma highlighted the causes and symptoms of pavement distresses as well as their remedies. He gave various examples and showcased case studies conducted on removal of distresses from pavements.

**Fifth day:**

On the morning of fifth day, Dr Animesh Das from IIT Kanpur delivered lecture on Principles of Structural Design of Bituminous Pavements in the morning session. He focussed on the parameters to be studied for determining the performance of pavement.

In the afternoon session Dr Anush K Chandrappa from IIT Bhubaneswar delivered lecture on Pervious Concrete Pavement and its Construction. The participants were informed of the design and construction of pervious concrete for pavements and sidewalks.



