

**Dr B R AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY
JALANDHAR**

DEPARTMENT OF CIVIL ENGINEERING

Ref. NITJ/CED/⁹¹20/6680

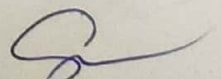
25/01/2021
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MINUTES OF THE 13th MEETING OF BOARD OF STUDIES HELD ON

21st JANUARY 2021

The 13th meeting of the Board of Studies in Civil Engineering was held on 21st January at 12.30 pm through online mode. The meeting was attended by the following:

1. Prof. S.P. Singh (Prof and Head, Department of Civil Engineering, NIT Jalandhar)
2. Prof. A.P. Singh (Professor, Department of Civil Engineering, NIT Jalandhar)
3. Prof. A.K. Agnihotri (Professor, Department of Civil Engineering, NIT Jalandhar)
4. Prof. Umesh K Sharma (Department of Civil Engineering, IIT Roorkee)
5. Er. Satish Tanwar (Regional Head, Ultra Tech Cement Ltd., Chandigarh)
6. Er. Ankush Gupta (M/s Struct LOGIX, Jalandhar)
7. Prof. Subhash Chander (Department of Mechanical Engineering, NIT Jalandhar)
8. Dr. Raman Bedi (Associate Professor, Department of Mechanical Engineering, NIT Jalandhar)
9. Dr. Hemant Chore (Associate Professor, Department of Civil Engineering, NIT Jalandhar)
10. Dr. Davinder Singh (Assistant Professor, Department of Civil Engineering, NIT Jalandhar)
11. Dr. Shailja Bawa (Assistant Professor, Department of Civil Engineering, NIT Jalandhar)
12. Dr. Senthil Kasilingam (Assistant Professor, Department of Civil Engineering, NIT Jalandhar)
13. Dr. Mrs. Rupali S. (Assistant Professor, Department of Civil Engineering, NIT Jalandhar)
14. Dr. Navdeep Singh (Assistant Professor, Department of Civil Engineering, NIT Jalandhar)
15. Dr. Rajiv Kumar (Assistant Professor, Department of Civil Engineering, NIT Jalandhar)



16. Dr. Kanish Kapoor (Assistant Professor, Department of Civil Engineering, NIT Jalandhar)
 17. Dr. Mahesh Patel (Assistant Professor, Department of Civil Engineering, NIT Jalandhar)
 18. Dr. Shashikant Sharma (Assistant Professor, Department of Civil Engineering, NIT Jalandhar)
 19. Dr. M. Abdul Akbar (Assistant Professor, Department of Civil Engineering, NIT Jalandhar)
 20. Dr. Neelam Rani (Assistant Professor, Department of Civil Engineering, NIT Jalandhar)
- *Prof. A. Mukhopadhyay, Dean (Academic) could not attend the meeting due to his preoccupation.

To start with, Prof. S.P. Singh welcomed those who participated in the meeting and initiated the proceedings.

Item 13.1: Proposal for the commencement of M.Tech. Programme in the field of Transportation Engineering in the Department of Civil Engineering.

The Head of the Department informed the meeting that the Department intends to start new PG Programme (M.Tech.) in Transportation Engineering from the ensuing academic year and placed before the Board the detailed proposal put forth by Dr. H.S.Chore in the context of the afore-mentioned Item, for consideration. The proposal was discussed at length. Er. Satish Tanwar (Ultra Tech Cement Ltd.) appreciated the proposal. *After deliberation, the proposal was approved in principle to start the M.Tech. Programme in Transportation Engineering.* The proposal has been enclosed herewith as an Annexure-A. It was also resolved that 'once the approval is endorsed at the subsequent stages, other modalities such as Teaching Scheme, Curriculum, etc. will be developed'.

Item 13.2: Establishment of the Computation Laboratory

The Head of the Department informed the board that the afore-mentioned laboratory has been developed so as to facilitate the PG students and Research Scholars of the Department in their project/research work. The particulars of the same were placed before the board for consideration and approval. *The establishment of the Computational Laboratory was formally approved.* All the same, Prof. Subhash Chander suggested that the Software available with the Department of Mechanical Engineering can also be used by the Civil Engineering students (Dr. K. Senthil to follow up).

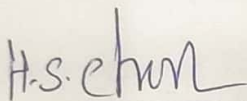


Item 13.3 To consider the proposal for the establishment of Impact Testing Laboratory, introducing new laboratory in the M.Tech. (SCE) curriculum and establishment of Non-Destructive Testing Laboratory

The proposals received in this context were placed before the board for consideration and grant of permission in principle. The proposals were discussed at length and the external expert members gave some additional inputs w.r.t. both the proposals. *It was resolved that permission be granted in principle to establish both the laboratories.* Prof. Umesh K Sharma (IITR) suggested that the Non-Destructive Testing Laboratories developed at IIT Roorkee and Noida Campus of IIT Roorkee may be visited to get the idea on latest NDT equipment (Dr. Navdeep Singh to follow up).

It was decided that the proposal of Introducing the New Laboratory of NDT in the curriculum of M.Tech. (SCE) be considered at later stage once the NDT Laboratory started functioning either partly or fully.

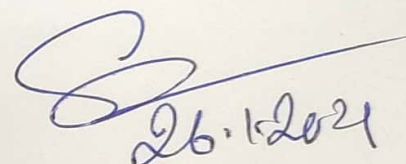
The meeting ended with vote of thanks to chair.



(Dr. Hemant Chore)

Secretary, BoS

26.01.2021



(Prof. S.P. Singh)

Chairman

Encl: Annexure-A

Dr B R AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY JALANDHAR

Department of Civil Engineering

08/01/2021

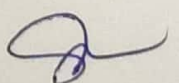
Subject: Proposal for the commencement of **M.Tech. Programme** in the field of **Transportation Engineering** in the Department of Civil Engineering.

As per the discussion taken place in the past in regard with the inception of the new Master's Programme in the field of Transportation Engineering, I hereby put forth the proposal for the said programme to be considered at the ensuing meeting of the Board of Studies in Civil Engineering.

Proposal

I. Importance of Transportation Engineering

Transportation is one of the important specializations in the broad field of Civil Engineering; very much a part of its history and heritage. The traditional field of transportation, focusing primarily on roads, now includes the study, design, and operation of large and highly complex systems of transportation networks comprising all modes that includes- roads, railways, airways and waterways- giving rise to the Highway Engineering, Railway Engineering, Airport Engineering and Water Transportation Engineering. As the field of Civil Engineering has matured and made increasing use of advanced technologies (including modeling, simulation, new materials, sensors and real-time monitoring/control), transportation engineers have seen increased opportunities and been able to address to the new challenges. Transportation research in the areas of materials, traffic, safety, control devices, transportation economics, policy, network analysis and the design of transportation infrastructure will go a long way in providing the nation with solutions to challenges, encountered in the course of providing requisite quality infrastructure. A well planned and sophisticated transportation system is a basic need for development of any Nation. The success story of a nation can largely be accredited to its infrastructural progress. The economic boom in India has, on the one hand, tremendously increased the need of infrastructure development in the country and on the other hand, created options for availability of financial resources for investment in such developments. To sustain the current economic growth and give it a further boost it is becoming critically important to give a fillip to the development of infrastructure like ports, roads and bridges, highways, railways and airports. The government of



India aims to spend billions of dollars to develop world class infrastructure and has undertaken various mega transportation projects like Prime Minister's Gram Sadak Yojana (PMGSY) and National Highway Development Project (NHDP), etc. w.r.t. highway transportation that aims at providing the connectivity to the end users. The development in the field of Railway engineering has seen the creation of the mass rapid transit system in the form of suburban trains, metro and mono rails, etc. Besides, the Government has been trying to develop the air transportation facilities and inland transportation facilities on the large scale. On this backdrop, there is a heavy demand of the experts in the field of Transportation Engineering.

II. Necessity of Post Graduate Programme

The rapid development of transportation infrastructure needs more and more expert technical manpower. Challenges like heavy traffic congestion on the roads, urban sprawl, landing and take-off delays at airports, accessibility through hazardous terrains, providing smart vehicle parking, traffic safety, planning of pedestrian and bicycle facilities, optimizing operation and economy, pavement durability and construction methodologies in adverse terrain and weather conditions, and environment impact need customized solutions by well trained transportation professionals and through cutting edge research. At local level, establishing proper accessibility and providing good quality pavements still remain the areas of high priority. Taking this aspect into consideration, the Department of Civil Engineering of Dr. B. R. Ambedkar National Institute of Technology Jalandhar proposes to start a four-semester Post Graduate Programme (Master of Technology) in Transportation Engineering which is envisaged to evolve as a programme for higher learning and research in the field of Transportation Engineering.

III. Main Objectives

The main objectives of the programme are to:

- (i) Promote learning and research at higher level in the various fields of Transportation Engineering.
- (ii) Offer consultancy services in different areas related to Transportation Engineering.
- (iii) Undertake sponsored research projects as a part of research and development activities in the emerging areas of technology.
- (iv) Provide a platform for exchange and upgradation of knowledge in the field of Transportation Engineering through seminars, conferences, workshops, training courses etc.



IV. Current Scenario of PG Programme in Transportation Engineering in the nearby vicinity

In the nearby vicinity, NIT Hamirpur, NIT Kurukshetra, NIT Hazaratbal Srinagar are running the M.Tech. Programme in the field of Transportation Engineering. Further, some of the IITs (Ropar, Mandi, Jammu and Jodhpur) established in the recent past in the nearby vicinity do not have M.Tech. Programme in the field of Transportation Engineering. This indicates that the inception of such programme at NIT Jalandhar will be a promising endeavour.

V. Current Scenario of Academic Programme in CED at NITJ

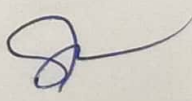
The Department of Civil Engineering of the Institute has been running B. Tech. Programme in Civil Engineering with the present intake of 120 and M.Tech. Programme in the specialization of Structural and Construction Engineering with the present intake of 53 (35 under CCMT + 18 under Self-Sponsored Category). Besides, M.Tech. Programme in the specialization of Geotechnical and Geo-environmental Engineering has been incepted w.e.f. the academic year 2019-20 with an intake of 25 (18 under CCMT + 7 under Self-Sponsored Category).

VI. Availability of the Expertise in the Core Field and Supporting Specializations

The Department has got the faculty members specialized in almost all the fields of civil engineering. At present, there are four faculty members with the expertise in the field of Transportation Engineering. Besides there are many faculty members having specialized in the field of Structural/ Structural and Construction Engineering and Geotechnical Engineering. Few are working on the interface problems of structural engineering and geotechnical engineering. In addition to this, few faculty members have specialized in the field of Environmental and Water Resources Engineering.

VII. Justification along with Scope

The existing PG programmes of the Department deals with structural and construction and geotechnical aspects of the Buildings and Infrastructure. The field of Transportation Engineering is common with the fields covered under the existing PG Programmes. Still, the domain of Transportation Engineering is vast in itself and some of the parts are not included in the spectrum of the existing PG Programmes of the Department. In last two –three years, many students admitted for PhD Programme are working for their research in the field of Transportation Engineering. The state-of-the-art Structural including Concrete Laboratory and the Geotechnical Engineering Laboratory of the Departments are being used by the students pursuing their research in the field



of Rigid Pavement and Transportation/ Pavement Geotechnics. Moreover, the Impact Testing Facility which is being developed on the spur of this moment will be useful for the students working in the field of pavement dynamics. Yet, there are few areas which need few specialized laboratories for carrying out research in the field of characterization of bituminous materials and traffic engineering/ transportation planning. The Master's level programme in the field of Transportation Engineering will add to the research environment amongst the research scholars. It will pave the path for the creation of some specialized and dedicated laboratories for the research scholars working in the concerned field.

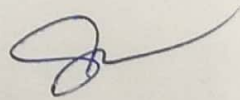
The NIT Jalandhar has entered into the Memorandum of Understanding (MoU) with National Highways Authority of India (NHAI), recently. It envisages the support from NHAI in regard with the research and development activities in the field of Highway Engineering including development of some of the laboratories. Moreover, NIT Jalandhar, is conveying its willingness to enter into the Memorandum of Understanding with the Indian Roads Congress and Ministry of Road Transport and Highways (MoRTH) to impart training on Road Safety and Safety Audit. Such association of NIT Jalandhar with the apex bodies working in the field of Transportation Engineering will pave the way for NIT Jalandhar for getting the projects of national importance in regard with the consultancy and NIT Jalandhar can become a center of excellence in the field of Transportation Engineering in the future with the support of expertise from the Geotechnical and Structural Engineering being available additionally.

As mentioned in *Item IV*, NIT Jalandhar is the only NIT in this region which does not run the PG Programme in Transportation Engineering. The NIT Hamipur, which started functioning around the same time as that of this NIT, runs PG Programme in Transportation Engineering. On this backdrop, the separate Master's level Programme is justified.

VIII. Possible Thrust Areas

Some of the areas covered under the domain of Transportation Engineering that may be dealt with for the purpose of research, consultancy and development with the help of the available expertise in the field of transportation engineering and the allied specializations such as geotechnical and structural engineering are mentioned below.

- Transportation Geotechnics including ground improvement and soil stabilization for transportation projects
- Evaluation and characterization of pavement materials
- Analysis, design and evaluation of pavements
- Forensic structural and geotechnical investigation of pavements and highway structures.
- Sustainable pavement materials and pavement technology
- Bridge engineering and highway drainage structures

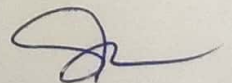


- Transportation planning and design
- Traffic engineering, operation, control and management
- Road traffic safety and traffic congestion
- Rural and low volume roads
- Economic evaluation of transportation projects
- Environmental impact analysis of transportation projects

IX. Tentative Courses

Some of the courses that can be included in the curriculum of the proposed programme are mentioned below, but not limited to this.

- Transportation Geotechnics and Materials
- Analysis and Design of Pavement
- Highway Construction, Rehabilitation and Maintenance
- Low Volume Roads
- Finite Element Method
- Structural Analysis of Transportation Structures
- Design of Bridge and Highway Drainage Structures
- Advanced Soil Mechanics
- Geotechnical Investigations and Ground Improvement for Roads
- Traffic Engineering and Management
- Geometric Design of Highways
- Transportation Planning
- Traffic and Road Safety
- Economic Evaluation of Transportation Projects/ Transportation Economics
- Environmental Impact Analysis of Transportation Projects
- Railway Engineering
- Airport Planning and Design
- Water Transportation Engineering
- Prestressed Concrete
- Earth Retaining Structures
- Pavement Management System
- Low Volume Roads
- Intersection Analysis and Design
- Geographical Information Systems in Transportation Engineering
- Statistics and Optimization Techniques
- Rural Road Transportation Planning



The list of the courses indicated above is tentative and final curriculum can be framed with changes in the nomenclatures of some of the courses after obtaining approval in principle from the authorities. Even there may be addition/ omission of some of these titles at the time of finalization of the curriculum once the proposal is approved.

Hence, it is requested that the proposal for the M.Tech. (Transportation Engineering) programme be considered in the meeting of BoS of the Department and be forwarded to the competent authorities for the approval in principle.

H.S. chore

(Dr. Hemant S. Chore)

Associate Professor

H.S. chore

26/01/2021

Dr. Hemant S. Chore
26-1-2021.