

भारतीय प्रौद्योगिकी संस्थान मण्डी
कमांद- 175075, हिमाचल प्रदेश

INDIAN INSTITUTE OF TECHNOLOGY MANDI
KAMAND – 175075, HIMACHAL PRADESH



कार्य सूची
AGENDA

अभिशासक परिषद्
BOARD OF GOVERNORS

बैठक सं०	:	छत्तीसवीं
MEETING NO.	:	THIRTY SIXTH
स्थान	:	सभा कक्ष, सी. वी. रमन अतिथि गृह, आई. आई. टी. मण्डी
VENUE	:	CONFERENCE ROOM, C. V. RAMAN GUEST HOUSE, IIT MANDI
दिनांक	:	26 अक्टूबर 2022
DATE	:	26 th OCTOBER, 2022
समय	:	02:30 अपरान्ह
TIME	:	02:30 P.M.

**INDIAN INSTITUTE OF TECHNOLOGY MANDI
KAMAND, HIMACHAL PRADESH**



**36th MEETING OF THE BOARD OF GOVERNORS
WEDNESDAY, 26th OCTOBER, 2022**

AGENDA

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Item No.:

BoG-36.1.0 PROCEDURAL

Item No.:

BoG-36.1.1

To confirm the minutes of the 35th meeting of the Board of Governors held on 14/06/2022.

The minutes of 35th meeting of the Board of Governors held on 14/06/2022 approved by the Chairperson, BoG were circulated to all Board members through email on 27/06/2022 for comments. No comments have been received on the minutes.

The Board may consider to confirm the said minutes (enclosed as **Annexure-1; Page No. 39 to 48**).

Item No. BoG-36.1.2: To note Action Taken Report (ATR) on the minutes of previous meetings of the Board of Governors (BoG).

Item No.	Name of work	Decision/ observation of Board	Awarded Amount and Date of Award/ Release of Funds	Date of Completion as per Agreement	Present Status	Likely date of Completion	Remarks
15.2.5	Water supply scheme of IIT Mandi at Kamand.	Approved in 15 th BoG Meeting held on 22.08.2016 Revised approval amounting to Rs.3,76,11,802/- has been accorded in 26 th BoG meeting held on 30.08.2019 vide item no.26.2.8	29.09.2017	28.09.2018	95% completed. Installation and Testing of automation system is still to be done.	November, 2022	Scheme is functional w.e.f. Feb., 2020. Installation & testing of automation system is yet to be commenced. There was requirement of funds from I&PH Department which stands released. Present cost is within sanction.
20.2.5	i) Augmentation of existing 1x16/20 MVA, 132/33 kV Power Transformer to 1x25/31.5 MVA at 132/66/33kV Sub-Station Bijni along with 33 kV feeder bay to meet with the load of IIT Mandi at Kamand amounting to Rs.489 Lakhs.	Approved in 20 th BoG Meeting held on 16 th Feb. 2018, amounting to Rs.489 Lakhs	28.02.2018		i) Work of power transformer (Three phase) 132kV, 25/31.5 MVA along with online de-hydration plant, 33kV VCB Circuit Breaker, 33 kV Feeder Bay Control and Relay panel, 33kV Bus Coupler Control and Relay panel, 33 kV Isolator with Earth Blade, 33 kV	November, 2022	i) Funds of Rs. 489 lakhs were deposited with HPSEBL on 28-02-2018. Only erection work of 33kV outgoing side and control cabling is pending, cable has been procured. As per HPSEBL the execution work has not still been taken up due to shortage of funds. HPSEBL is demanding additional 33 lacs to complete the work, meeting is being scheduled with HPSEBL to discuss the matter and justification from HPSEBL is being obtained for the cost

Item No.	Name of work	Decision/ observation of Board	Awarded Amount and Date of Award/ Release of Funds	Date of Completion as per Agreement	Present Status	Likely date of Completion	Remarks
					<p>Isolator without Earth Blade, 33 kV Multi core Multi Ratio Current Transformers, 33 kV Lightning Arrestor, 220V DC Distribution Board, 132 kV SF-6 Gas Circuit Breaker, 132 kV Multi Core Multi Ratio Current Transformer, 132 kV Control and Relay Panel for Transformer stands completed.</p> <p>In Progress:</p> <p>Only erection work of 33kV outgoing side and control cabling is</p>		<p>escalation as per direction of B&WC held on 14.10.2022.</p>

Item No.	Name of work	Decision/ observation of Board	Awarded Amount and Date of Award/ Release of Funds	Date of Completion as per Agreement	Present Status	Likely date of Completion	Remarks
	<p>ii) To provide supply of power (SOP to IIT Mandi North Campus at Kamand in Elect. Sub-Division, HPSEBL, Kataula under Electrical Division HPSEBL,</p>	<p>Approved in 20th BoG Meeting held on 16th Feb. 2018, amounting to Rs.546 Lakhs</p>		<p>Tender for dedicated line from Pandoh to Nandli Sub-Station awarded during Sept, 2020 with completion</p>	<p>pending, cable has been procured. As per HPSEBL the execution work has not still been taken up due to shortage of funds. HPSEBL is demanding additional 33 lacs to complete the work, meeting is being scheduled with HPSEBL to discuss the matter.</p> <p>ii) Work completed during Sept. 2022</p>	<p>Work completed during Sept. 2022</p>	<p>For work at Sr. No. ii) an amount of Rs. 546 lakhs were deposited with HPSEBL on dated 28-02-2018.</p> <p>Dedicated H.T. line work which was earlier from Bijni Sub-Station, now has been provided from Pandoh to</p>

Item No.	Name of work	Decision/ observation of Board	Awarded Amount and Date of Award/ Release of Funds	Date of Completion as per Agreement	Present Status	Likely date of Completion	Remarks
	Mandi amounting to Rs.576.549 Lakhs.			period of 1 year.			Nandli Sub-Station. Work stands completed as intimated vide letter No. 11007 dated 26-09-2022 and final bill is being prepared. Now electricity to IIT Mandi is being provided from Pandoh.
29.2.1	To consider the proposal for the construction of a Dining hall cum Student activity centre near S-11 building in North Campus.	Approved in 29 th BoG Meeting held on 23 rd June, 2020, amounting to Rs.12,99,01,382/-	Rs.9,56,73,034/ - dated 29.12.2020	08.01.2022	70%	November, 2022	Work stands awarded to M/s Kuldeep Contractor with completion period of 12 months. Date of completion as per agreement is Jan., 2022. This building was located nearer to hill, due to slide from hill side, it was decided to construct retaining wall for protection, which was designed by Architect consultant thereafter construction of retaining wall started. Due to construction of retaining wall approximately 5 months was lost. There was also delay due to COVID-19 pandemic. Present progress is 70%. Completion is likely by Nov., 2022. NBCC has been asked to submit working programme

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							of balance work indicating material & position of manpower required to complete the work as per revised dates given by NBCC.
29.2.3	<p>Consideration for construction of a double lane bridge connecting North Campus from Ghoda Farm on Kataula Khad and Cycle Track connecting North and South Campus.</p> <p>a) Construction of a double lane bridge connecting North Campus from Ghoda Farm on Kataula Khad.</p> <p>b) Construction of Cycle Track Connecting North and South Campus.</p>	<p>Approved in 29th BoG Meeting held on 23rd June, 2020, amounting to Rs.20,31,01,900/-</p> <p>Approved in 29th BoG Meeting held on 23rd June, 2020, amounting to Rs 9,16,21,989/-</p>	---	---	---	---	<p>In 30th Finance Committee meeting held on 19th March, 2022 discussion was held about alternate proposal to integrate North and South campus. Finance Committee advised to present cost benefit analysis of proposals so as to have more effective and efficient solution including intangible benefits for movement between North and South campus. Accordingly, the current proposal was deferred.</p> <p>In 37th B&WC meeting held on 25th April, 2022 alternate proposal was presented. Committee member agreed, appreciated the alternate proposal and suggested to prepare a detailed project report (DPR) on higher priority by appointing a consultant for preparation of plan for comprehensive internal road system and internal</p>

Item No.	Name of work	Decision/ observation of Board	Awarded Amount and Date of Award/ Release of Funds	Date of Completion as per Agreement	Present Status	Likely date of Completion	Remarks
							connectivity among land parcels to minimize time weighted travelling distance and DPR shall also include qualitative and quantitative benefits to use. Based upon B&WC approval tender for hiring of consultant was floated & consultant was appointed. Consultant has submitted DPR which was presented in 38 th B&WC meeting held on 14 th Oct., 2022. B&WC recommended the proposal to FC/BoG for approval. Item is being presented in FC meeting.
29.2.5	To consider proposal for Diversion of public road passing through IIT Mandi Campus (additional item by circulation)	Approved by BoG in its 29 th BoG meeting held on 23.06.2020.	---	---	---	---	Alignment as finalized during 29 th BoG meeting sent to HPPWD in July 2020 for the preparation of detailed Project Report. Executive Engineer HPPWD Padhar Division Distt. Mandi has revised the preliminary estimate amounting to Rs. 17.78 Cr. and Rs. 11.03 Cr. and further forwarded to Superintending Engineer Joginder Nagar Circle HPPWD, Joginder Nagar Distt. Mandi vide letter No.

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							1375-77 dated 09-05-2022. These amounts are required to be sanctioned by State Govt. so that diversion of public road passing through IIT Mandi campus can be taken by HPPWD. Matter was also taken up with Hon'ble CM of H.P. during his visit to IIT Mandi.
30.2.1	To consider the proposal of Govt. of Himachal Pradesh for acquiring the forest land for the purpose of Research Park and Research Science Park (Science and Technology Outreach Park). A. Acquisition of land for the purpose of Research Park.	Approved by BoG in its 30 th BoG Meeting held on 27.08.2020.	---	---	---	---	Principal ITI has been appointed as Nodal Officer for acquisition of land. A. Latest status for 10 Acres (4.15 ha) land at Kamand is as under:- Land is forest land and case for diversion of forest land has been uploaded in Forest Department site on dated 07-03-2022. There were certain observations which are being attended. Forest department is asking for plan of the land which is being prepared and shall be submitted to

Item No.	Name of work	Decision/ observation of Board	Awarded Amount and Date of Award/ Release of Funds	Date of Completion as per Agreement	Present Status	Likely date of Completion	Remarks
	B. Acquisition of land for Research Science Park (Science and Technology Outreach Park).						them. Rest of the observations are being attended by Forest department. B. Latest status for 28 Acres (11.41 ha) land at Bhiuli Mandi:- Land is forest land and case for diversion of forest land has been uploaded in Forest Department site on dated 07-03-2022. There were certain observations which are being attended. Forest department is asking for plan of the land which is being prepared and shall be submitted to them. Rest of the observations are being attended by Forest department.
33.3.7	To consider the proposal for construction of Boundary of the Institute.	Approved in 33 rd BoG meeting amounting to Rs.7,54,79,771/- held on 16 th Sept., 2021	---	---	---	---	Estimate for Rs. 1.08 Crore has been prepared where boundary is essentially required and tendering is being done. Rest of the work shall be taken up as per availability of funds.
33.3.8	To consider the proposal for construction of Building for	Approved in 33 rd BoG meeting amounting to Rs.2,49,18,760/-	Rs.3,51,820/- dated 03.01.2022 for developing plan,	07.02.2022	100% (Consultancy Service work which includes	31 st March, 2022	Work for Selection of architect/design consultant for developing plan, providing architectural

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	Construction Material Laboratory (GF/FF) in LP-3 area of North campus.	held on 16 th Sept., 2021	providing architectural design, structural design, electrical works and all other consultancy services only.		architectural drawings, design, structural drawings, MEP drawings have been completed)		design, structural design, electrical works and all other consultancy services for Construction Material Laboratory in land parcel 3 of IIT Mandi at Kamand was awarded on 03-01-2022 to M/s. Avinash Khosla & Associates for an amount of Rs. 3,51,820/- Work stands completed. Tender for construction was invited with date of opening as 21-04-2022. Tender has now been opened and cancelled due to administrative reasons. Tender re- invited as per revised estimate with date of opening 31-08-2022. As no bid was received, tender was re-invited with date of opening 20-09-2022. Again no bid was received and tender shall be re-invited. The current proposal is being reviewed by internal faculty members and Institute Planning & design Cell. Tender shall be re-invited after the finalization of revised proposal.
34.3.1	Proposal for creation of Hostel Facilities consequent to implementation of	Approved in 34 th BoG Meeting amounting to Rs.	---	---	---	---	Proposal has been sent to Ministry of Education for sanctioning of funds under HEFA vide letter No. IIT

Item No.	Name of work	Decision/ observation of Board	Awarded Amount and Date of Award/ Release of Funds	Date of Completion as per Agreement	Present Status	Likely date of Completion	Remarks
	reservation policy for Economically Weaker Section (EWS) and to consider funding through HEFA term loan to IIT Mandi for Rs.63.47 Crore.	63.47 Cr. held on 19 th March, 2022					Mandi/F&A/HEFA/2022-23/1729 dated 26 th May, 2022. Proposal sent to Ministry for sanction of fund under HEFA for an amount of Rs. 333.72 Cr. which included item No. 34.3.1, 1 & 2.
Item No. 1 of Special Meeting of the Board held on 11.05.2022	To consider the proposal for creation of hostel and academic facilities to accommodate future expansion of IIT Mandi.	Special meeting of BoG held on 11 th May, 2022 amounting to Rs. 230,82,77,539/-	---	---	---	---	Proposal has been sent to Ministry of Education for sanctioning of funds under HEFA vide letter No. IIT Mandi/F&A/HEFA/2022-23/1729 dated 26 th May, 2022. Proposal sent to Ministry for sanction of fund under HEFA for an amount of Rs. 333.72 Cr. which included item No. 34.3.1, 1 & 2.
Item No. 2 of Special Meeting of the Board held on 11.05.2022	To consider the proposal for creation of lecture hall complex (LHC) to cater future expansion of IIT Mandi.	Special meeting of BoG held on 11 th May, 2022 amounting to Rs.39,42,13,241/-	---	---	---	---	Proposal has been sent to Education Ministry for sanctioning of funds under HEFA vide letter No. IIT Mandi/F&A/HEFA/2022-23/1729 dated 26 th May, 2022. Proposal sent to Ministry for sanction of fund under HEFA for an amount of Rs. 333.72 Cr. which included item No. 34.3.1, 1 & 2.

Item No.	Name of work	Decision/ observation of Board	Awarded Amount and Date of Award/ Release of Funds	Date of Completion as per Agreement	Present Status	Likely date of Completion	Remarks
35.2.1	To ratify the decisions / actions taken by the Chairperson, Board of Governors on the recommendations of the Director/designated Committee, on behalf of the Board of Governors.	Ratified in the 35 th BoG Meeting held on 14.06.2022	----	----	----	----	Noted by the BoG.
35.2.2	To note other developments at the Institute.	Ratified in the 35 th BoG Meeting held on 14.06.2022	----	----	----	----	Noted by the BoG.
35.3.1	To consider addendum of designation in the BoG approved norms for Research Staff in funded projects.	35 th BoG Meeting held on 14.06.2022	----	----	----	----	Communicated to the Dean (SRIC & IR) for implementation.
35.3.2	To consider the policy for Intellectual Property Rights (IPR) and Entrepreneurship.	35 th BoG Meeting held on 14.06.2022	----	----	----	----	The Board resolved to defer the agenda item with the advice to route the proposal through the Finance Committee (FC). The item is to be presented in the FC / BoG meetings to be held on 26.10.2022. This item is being taken

Item No.	Name of work	Decision/ observation of Board	Awarded Amount and Date of Award/ Release of Funds	Date of Completion as per Agreement	Present Status	Likely date of Completion	Remarks
							up under item no. 36.3.1 (BoG).
35.3.3	To consider the recommendations of the Committee for Academic Organization / Structure of the Schools.	35 th BoG Meeting held on 14.06.2022	---	---	---	---	Communicated to the Dean (Academics) for implementation.
35.3.4	To consider a proposal to establish an Indian Knowledge System and Mental Health Applications Centre (IKSMHA Centre).	35 th BoG Meeting held on 14.06.2022	---	---	---	---	Communicated to Dr. Varun Dutt, Associate Professor for implementation.
35.3.5	To consider a proposal to start a new MBA programme from Academic Year 2022-23.	35 th BoG Meeting held on 14.06.2022	---	---	---	---	Communicated to the Dean (Academics) for implementation.
35.3.6	To consider the revision in scholarship/Fee waiver for UG women Students.	35 th BoG Meeting held on 14.06.2022	---	---	---	---	Communicated to the Dean (Academics) for implementation.

Item No.	Name of work	Decision/ observation of Board	Awarded Amount and Date of Award/ Release of Funds	Date of Completion as per Agreement	Present Status	Likely date of Completion	Remarks
35.3.7	To consider a proposal for modification in Fee Structure.	35 th BoG Meeting held on 14.06.2022	---	---	---	---	Communicated to the Dean (Academics) for implementation.
35.3.8	To consider the proposal for renaming Master of Science by Research (M.S. (R)) degree programme to Master of Technology by Research [M.Tech. (R)] degree programme.	35 th BoG Meeting held on 14.06.2022	---	---	---	---	Communicated to the Dean (Academics) for implementation.
35.3.9	To consider the recommendations for the expenditure for International Conference, National Conference and Field Trips etc.	35 th BoG Meeting held on 14.06.2022	---	---	---	---	Communicated to the Dean (F&A) for implementation.

Item No.: ROUTINE MATTERS
BoG-36.2.0

Item No.: To ratify the decisions / actions taken by the Chairperson, Board of
BoG-36.2.1 Governors on the recommendations of the Director/designated
Committee, on behalf of the Board of Governors:

Recommendation of the Standing Faculty Selection Committee /Selection Committee
Meetings for appointment on Teaching Positions (Faculty):

S. No.	Name of the Post	School	Pay Level / Consolidated Emoluments	Selection Process held on	Standing Faculty Selection Committee (SFSC)/ Selection Committee Recommendations	Category
1.	Associate Professor	Erstwhile School of Engineering	As per rules.	17.06.2022 & 30.06.2022	<ul style="list-style-type: none"> • Dr. Kaustav Sarkar • Dr. Kala Venkata Uday • Dr. Rajneesh Sharma • Dr. Subhamoy Sen • Dr. Satvasheel Ramesh Powar • Dr. Mrityunjay Doddamani • Dr. Pradeep Kumar • Dr. Himanshu Pathak 	<ul style="list-style-type: none"> • Gen • Gen • Gen • Gen • Gen • OBC • Gen • Gen
2.	Assistant Professor	Erstwhile School of Engineering	As per rules.	16.06.2022 & 30.06.2022	<ul style="list-style-type: none"> • Dr. Abhishek Ghosh Dastinder • Dr. Dhanya J • Dr. Thainswemong Choudhury • Dr. Harshad Vijay Kulkarni • Dr. Sarthak Nag • Dr. Deepak Sachan 	<ul style="list-style-type: none"> • Gen • Gen • ST • Gen • Gen • OBC
3.	Assistant Professor	School of Computing & Electrical Engineering	As per rules.	18.06.2022, 22.08.2022, 23.08.2022, 24.08.2022 & 25.08.2022	<ul style="list-style-type: none"> • Dr. Rohit Saluja • Dr. Dinesh Singh • Dr. Abhik Jana • Dr. Sandeep Vidyapu • Dr. Sneha Singh • Dr. Parimala Kancharla • Dr. Siddharth Panwar • Dr. Gopal Rawat • Dr. Robin Khosla • Dr. Naveen Sisodia • Dr. Ankit Dalal • Dr. Priyatosh Mahish • Dr. Naga Brahmendra Gorla • Dr. Venkata Ratnam Vakacharla • Dr. Abhinoy Kumar Singh • Dr. Padmini Singh • Dr. Kaushik Halder 	<ul style="list-style-type: none"> • Gen • OBC • Gen • Gen • Gen • OBC • Gen • ST • Gen • SC • Gen • Gen • OBC • Gen • Gen • EWS • SC
4.	Associate Professor	School of Computing & Electrical Engineering	As per rules.	18.06.2022, 23.08.2022 & 24.08.2022	<ul style="list-style-type: none"> • Dr. Aditya Nigam • Dr. Rahul Shrestha • Dr. Narsa Reddy Tummuru 	<ul style="list-style-type: none"> • Gen • Gen • Gen
5.	Adjunct Associate Professor	School of Humanities & Social Sciences	Remuneration and travel reimbursement will be	25.07.2022	<ul style="list-style-type: none"> • Extension of contract of Dr. Ingrid Shockey for a period of two years. 	Foreign National

			decided time to time on the basis of actual visits at IIT Mandi and work allotted by the School.		
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Recommendation of the Selection Committee Meetings for appointment on Non-Teaching Positions:

S. No.	Name of the Post	Pay Level	Selection Process held on	Selection Committee Recommendations
1.	Medical Officer	10	28.06.2022	None found suitable.
2.	Technical Officer (Workshop Superintendent)	10	03.06.2022	None found suitable.
3.	Assistant Registrar	10	23.07.2022	<ul style="list-style-type: none"> • Mr. Dushyant Sharma • Mr. Mayank Sharma

Recommendation of the Director regarding other items:

1.	MoU between MoE and IIT Mandi for the F.Y. 2022-23.
2.	Approval of Annual Accounts of IIT Mandi for the F.Y. 2021-22 for subsequent Audit, Certification and issue of Separate Audit Report (SAR) by C&AG of India.
3.	Continuation of services of Advisor (F&A) and financial authorization – Consequent to the resignation of Mr. Vinod Malik, Deputy Registrar (F&A), services of Mr. J. R. Sharma working as an Advisor (on per diem @ Rs.4500/-) were extended for a period of 6 months or until a new person join, whichever is earlier, so as to take over the responsibilities earlier handled by DR (F&A).
4.	Inclusion of Prof. Samit Ray Chaudhuri, Dept. of Civil Engineering, IIT Kanpur in the BoG approved panel for faculty selection.
5.	Approval for the USA visit of the Director, IIT Mandi.
6.	Extension of tenure of Dr. Venkata Krishnan as Dean (SRIC & IR) and Prof. Rahul Vaish as Dean (Academics) for a period of 6 months i.e. up to 24.02.2023 and 18.04.2023 respectively.
7.	Appointment of Dr. Viswanath Balakrishnan as Dean (F&A) for a period of two years w.e.f. 26.08.2022.
8.	Extension of tenure of Dr. Manoj Thakur as Dean (Students) up to 30.09.2022 or till the appointment of a new Dean (Students), whichever is earlier.
9.	Appointment of Dr. Hitesh Shrimali as Dean (Students) for a period of two years from the date of assumption of charge.
10.	<p>Withdrawal of Offer for the post of Assistant Registrar in r/o Mr. Mayank Sharma:</p> <p>On approval of the minutes of the Selection Committee by the Chairman, BoG the Offers of Appointment for the post of Assistant Registrar were issued to two (02) candidates namely, Mr. Dushyant Sharma and Mr. Mayank Sharma on 02.08.2022.</p> <p>Accordingly, Mr. Mayank Sharma reported on 23.07.2022. At the time of joining, while scrutinising the documents, it was revealed that Mr. Mayank Sharma does not possess the required experience of five (05) years in pay level -07. On further scrutiny, it was revealed that he has submitted deficient and misleading information in his application form based on which he was shortlisted.</p> <p>Mr. Mayank Sharma was asked to produce the required documents of eligibility which he failed to produce as he did not possess the required experience. Thus, it is established that Mr. Mayank</p>

	<p>Sharma is ineligible for the post of Assistant Registrar as his experience in pay level -07 is lesser than the essential eligibility criteria.</p> <p>Based on above, the Offer of appointment of Mr. Mayank Sharma for the post of Assistant Registrar has been withdrawn with the approval of Chairman, BoG.</p> <p>The matter is placed for necessary ratification by the BoG.</p>
11.	Appointment of Prof. Satinder Kumar Sharma as Registrar In-charge from 16.09.2022 (A/N) till further orders.
12.	Inclusion of Prof. Sandeep Kumar, IIT-BHU in the BoG approved panel for Faculty Selection.
13.	Inclusion of Prof. A. R. Harish, IIT Kanpur in the BoG approved panel for Faculty Selection.
14.	Inclusion of Prof. Nitin Chandrchoodan, IIT Madras in the BoG approved panel for Faculty Selection.
15.	Inclusion of Prof. Siddharth Mukhopadhyay, IIT Kharagpur in the BoG approved panel for Faculty Selection.
16.	Inclusion of Prof. Debasish Ghose, IISc Bangalore in the BoG approved panel for Faculty Selection.

Item No.: To note other developments at the Institute.

BoG-36.2.2

(i) To report status of filling up of backlog vacancies in teaching cadre.

The Ministry of Education, Department of Higher Education has intimated all the IITs to implement Central Educational Institutional (Reservation in Teacher's Cadre) Act 2019. Further, the Ministry vide DO Letter No.33-2/2021-TS-III (Pt.I) dated August 24, 2021 has instructed all IITs regarding filling of backlog vacancies in a mission mode.

The process of recruitment for getting the best candidates from reserved categories is taken up in mission mode through Special Recruitment Drive (SRD) as well as Standing/Specific advertisement mode in which some of the selection process has been completed and few are under process.

The current status of Faculty recruitment is as under:	
Sanctioned positions (10:1 Students:Faculty ratio)	201
Faculty in positions on Regular pay Scale	140
Vacancy	61

Faculty Recruitment has been conducted in the Month of June 2022 and August 2022 respectively, details are given below:

Date of conducting the Selection Process	June 2022
Total no. of offer letter issued	19

Out of 19, offer letter issued in Reserved Category	04 [OBC-03, ST-01]
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Date of conducting the Selection Process	August 2022
Total no. of offer letter issued	15
Out of 15, offer letter issued in Reserved Category	06 [OBC-02, SC-02, ST-01, EWS-01]

(ii) Details regarding Global Tender Enquiry (GTE) Proposals.

There are no recent approved cases of Global Tender Enquiry (GTE) by the MoE which are to be placed before the Board. All previously approved cases had already been reported to the Board in its previous meeting held on 14/06/2022.

(iii) 35th Meeting of the Senate held on 02/06/2022.

The 35th Senate Meeting of the Institute was held on 02/06/2022 at IIT Mandi. The minutes of the meeting are enclosed as **Annexure-2; Page No. 49 to 56.**

(iv) 36th Meeting of the Senate held on 15/09/2022.

The 36th Senate Meeting of the Institute was held on 15/09/2022 at IIT Mandi. The minutes of the meeting are enclosed as **Annexure-3; Page No. 57 to 63.**

(v) 31st meeting of the Finance Committee held on 14/06/2022.

The 31st Finance Committee meeting of the Institute was held on 14/06/2022, at IIT Mandi. The minutes of the meetings are enclosed as **Annexure-4; Page No. 64 to 69.**

(vi) 37th meeting of the Building and Works Committee held on 14/10/2022.

The 37th Building and Works Committee meeting of the Institute was held on 14/10/2022 at IIT Mandi. The minutes of the meeting are enclosed as **Annexure-5; Page No. 70 to 87.**

(vii) Updates from Internal Complaints Committee (ICC).

A case has been reported to the Internal Complaints Committee (ICC) after the last update to the BoG on 14th June, 2022, summarized as under:

Case description: The respondents were involved in a conversation of amusement that contained sexually coloured

remarks in the presence of the complainant despite her expression of discomfort.

Action taken report: In process.

(viii) To consider the award of Ph.D., I-Ph.D. (Physics), M.S. (by Research), M.Tech., M.Sc., M.A. and B.Tech. degree.

The Senate in its 36th meeting held on 15th September, 2022, considered the list of students who fulfilled all the requirements for the award of the degree during 10th Convocation. The Senate further authorized the Chairman, Senate to approve the conferment of degree also on the students who complete all the requirements before seven days of commencement of the 10th Convocation. Therefore, the following number of students are recommended for the award of the degree:

Programme	No. of students
Ph.D.	41
I-Ph.D. (Physics)	4
M.S. (by Research)	20
M.Sc. in Chemistry	39
M.Sc. in Applied Mathematics	31
M.Sc. in Physics	25
M.Tech in Mechanical Engineering with Specialization in Energy Systems	9 + 1 (2019 batch)
M.Tech in Energy Engineering with Specialization in Materials	12
M.Tech in Structural Engineering	10 + 1 (2019 batch)
M.Tech in VLSI	14
M.Tech in Power Electronics and Drives	13
M.Tech in Communication and Signal Processing	3 + 1 (2019 batch)
M.Tech in Biotechnology	12
M.A. in Development Studies	10
B.Tech in Civil Engineering	20
B.Tech in Computer Science and Engineering	85 + 1 (2017 batch)
B.Tech in Electrical Engineering	59
B.Tech in Mechanical Engineering	23
Total	434

The detailed information with regard to the various degrees and qualified students are placed as **Annexure-6; Page No. 88 to 109**. Further, the Senate recommended the award of the degrees.

(ix) To consider the award of Medals and Prizes to the winners among the graduands, which are to be awarded during the 10th Convocation of the Institute.

The Senate in its 36th meeting held on 15th September, 2022, has considered to award of Medals and Prizes to the winners among the graduands in various streams as under:

Sl.No.	Roll No.	Name	Medal/Prize
1	B18077	Piyush Goyal	President of India Gold Medal
2	B18036	Vishal Kumar	Institute Silver Medal: B.Tech. Civil Engineering
3	B18077	Piyush Goyal	Institute Silver Medal: B.Tech. Computer Science & Engineering
4	B18106	Ashish Anand	Institute Silver Medal: B.Tech. Electrical Engineering
5	B18156	Abhishek Singh	Institute Silver Medal: B.Tech. Mechanical Engineering
6	B18012	Bhumanyu Goyal	Director's Gold Medal
7	B18143	Shrikha	Rani Gonsalves Memorial Medal
8	T20211	Soumya Ranjan Nayak	Institute Gold Medal: Among PG Programmes: M.Tech. Power Electronics and Drives
9	V20003	Anjali Saini	Institute Silver Medal: M.Sc. (Chemistry)
10	T20005	Rahul Dogra	Outstanding Academic Achievement Award: M.Tech. in Structural Engineering
11	T20249	Meghvern Pathak	Outstanding Academic Achievement Award: M.Tech. in VLSI
12	T20413	Snehlata Rao	Outstanding Academic Achievement Award: M.Tech. in Biotechnology
13	T20211	Soumya Ranjan Nayak	Outstanding Academic Achievement Award: M.Tech. Power Electronics and Drives
14	T20045	Premkumar M	Outstanding Academic Achievement Award: M.Tech. Energy Engineering with Specialization in Materials
15	T20042	Shubham Rodwal	Outstanding Academic Achievement Award: M.Tech. Energy Engineering with Specialization in Materials
16	A20007	Gautam Mishra	Outstanding Academic Achievement Award: M.A. in Development Studies

- (x) To consider the proposal of MoU for Joint Ph.D./M.Tech./M.Sc degrees and early admission in IIT Mandi for students of CFTIs and top 100 overall NIRF ranked Institutes.

In the 37th Senate meeting held on 7th October, 2022, Prof. Rahul Vaish, Dean (Academics) presented the proposal and suggested options for joint degrees (PGs/PhDs) with prominent foreign universities, CFTIs, and top 100 NIRF institutions in order to foster

cross-disciplinary and multi-institutional research/academic activity. Joint degree programmes will aid both institutions in reaching new heights in academics and research. It will contribute to raising PhD quality and draw talented students to research. Additionally, it will utilize opportunities and resources of partner institutions to their fullest potential.

According to National Education Policy 2020, the proposal is a step in the right path toward promoting multi-disciplinarily, multi-institutional collaboration, and flexibility in higher education. After detailed discussions, the Senate approved the proposal.

(xi) To consider the proposal for establishment of Centre for Artificial Intelligence and Robotics (CAIR).

In the 36th Senate meeting held on 15th September, 2022, Dr. Amit Shukla, presented a proposal for establishment of Centre for Artificial Intelligence and Robotics (CAIR) at IIT Mandi as placed at **Annexure-7; Page No. 110 to 113**. After detailed discussions, the Senate approved the proposal.

(xii) To consider the proposal for dual degree M.Tech.(R) + Ph.D. programme.

In the 37th Senate meeting held on 7th October, 2022, Prof. Rahul Vaish, Dean (Academics) presented a proposal for M.Tech.(R) + Ph.D. (Dual Degree) programme for CFTIs B.Tech. students, it has been noted that acceptance to PhD programmes, particularly in engineering fields, is less than anticipated. The number of PhD scholars at the institutes has suffered as a result. In order to attract good quality students in the PhD, the scheme is proposed for direct entries of CFTIs engineering graduates into M.Tech.(R) +Ph.D. (Dual Degree). After detailed discussions, the Senate approved the proposal.

Following new Faculty/Staff members have joined the Institute:

A) Regular Faculty Members joined after the last BoG meeting (held on 14.06.2022) till date i.e. 07.10.2022

Faculty Members					
S. No	Name	Designation	School	Date of Joining	Last Reference
1	Dr. Shivang Shekhar	Assistant Professor Grade-II	SCENE	30.05.2022	Assistant Professor Grade-1 at Birla Institute of Technology & Science, Pilani Hyderabad
2	Dr.Narendra Kumar Dhar	Assistant Professor Grade-II	SCEE	21.06.2022	Postdoctoral Researcher at Michigan State University USA
3	Dr. Vadakkan Neethi Alexander	Assistant Professor Grade-II	SHSS	27.06.2022	Assistant Professor Grade-I at VIT-AP University Andhra Pradesh
4	Dr. Rajneesh Sharma	Associate Professor	SCENE	05.07.2022	Temporary Faculty at NIT Hamirpur

5	Dr. Kaustav Sarkar	Associate Professor	SCENE	05.07.2022	IIT Mandi
6	Dr. Kala Venkata Uday	Associate Professor	SCENE	05.07.2022	IIT Mandi
7	Dr. Aditya Nigam	Associate Professor	SCEE	06.07.2022	IIT Mandi
8	Dr. Dhanya J	Assistant Professor Grade-II	SCENE	07.07.2022	Project Associate at IIT Mandi
9	Dr. Satvasheel Ramesh Powar	Associate Professor	SMME	08.07.2022	IIT Mandi
10	Dr. Pradeep Kumar	Associate Professor	SMME	08.07.2022	IIT Mandi
11	Dr. Himanshu Pathak	Associate Professor	SMME	08.07.2022	IIT Mandi
12	Dr. Saumya Malviya	Assistant Professor Grade-II	SHSS	18.07.2022	Assistant Professor at Ahmedabad University Gujarat
13	Dr. Radhe Shyam Sharma	Assistant Professor Grade-II	SCEE	26.07.2022	Senior Engineer at Caterpillar India Engineering Solutions Private Ltd.
14	Dr. Jagadeesh Kadiyam	Assistant Professor Grade-II	SMME	01.08.2022	Postdoctoral Research Fellow at IIT Palakkad Technology IHub Foundation
15	Dr. Deepak Sachan	Assistant Professor Grade-II	SMME	11.08.2022	IIT Kanpur
16	Dr. Mrityunjay Doddamani	Associate Professor	SMME	22.08.2022	NIT Karnataka Surathkal
17	Dr. Dinesh Singh	Assistant Professor Grade-1	SCEE	01.09.2022	Post Doctoral Researcher at RIKEN Centre for Advanced Intelligence Project Japan
18	Dr. Rahul Shrestha	Associate Professor	SCEE	15.09.2022	IIT Mandi
19	Dr. Narsa Reddy Tummuru	Associate Professor	SCEE	16.09.2022	IIT Mandi
20	Dr. Venkata Ratnam Vakacharla	Assistant Professor Grade-II	SCEE	22.09.2022	Postdoctoral Fellow at University of Windsor
21	Dr. Thainswemong Choudhury	Assistant Professor Grade-II	SCENE	27.09.2022	Assistant Professor at SRM University Andhra Pradesh
22	Dr. Rohit Saluja	Assistant Professor Grade-II	SCEE	03.10.2022	Post Doctoral Researcher at IIIT Hyderabad

NOTE :

1. **SCENE:** School of Civil and Environmental Engineering
2. **SMME:** School of Mechanical & Materials Engineering
3. **SMSS:** School of Mathematical & Statistical Sciences

B) Regular Staff members joined after the last BoG meeting till date i.e. 10.10.2022

Staff Members					
S. No.	Name (Dr./Mr./Ms.)	Designation	School/Section/Department	Date of Joining	Last Reference
1	Tarun Thakur	Junior Engineer (Civil)	Construction & Maintenance Wing	24.06.2022	Jeet Kumar Gupta Contractor
2	Omjeet Thakur	Junior Engineer (Civil)	Construction & Maintenance Wing	01.07.2022	Kinvan Pharmacy

3	Gavin Dhiman	Junior Engineer (Civil)	Construction & Maintenance Wing	18.07.2022	Rajneesh Mohan Govt. Contractor
4	Nitin Singh Tomar	Junior Superintendent (Rajbhasha)	Hindi Cell	26.09.2022	Biotechnology Industry Research Assistance Council
5	Dushyant Sharma	Assistant Registrar	SRIC & IR	26.09.2022	Bharat Petroleum Corporation Ltd.

C) Temporary/Consolidated/Consultant Staff members joined after the last BoG meeting till date i.e. 10.10.2022

S. No.	Name (Dr./Mr./Ms.)	Designation	School/Section/Department	Date of Joining	Last Reference
1	Utsav Thakur	Medical Officer (GDMO)	Medical Unit	16.08.2022	-
2	Rushali	Medical Officer (GDMO)	Medical Unit	16.08.2022	-
3	Mohit	Legal Assistant	Audit & Legal	12.09.2022	Advocate - District Bar Associate, Mandi

D) The following Faculty members have resigned/relieved after the last BoG meeting till date i.e. 07.10.2022

S. No.	Name	Designation	School	Date of Relieving	Remark (if any)
Faculty Members					
1	Dr. Rameshwar Pratap Yadav	Assistant Professor Grade-I	SCEE	24.06.2022	Got employment at IIT Hyderabad
2	Dr. Deepak Prajapati	Assistant Professor Grade-II	SMSS	01.08.2022	Got employment near his hometown at IIM Lucknow
3	Prof. Subrata Ray	Visiting Distinguished Professor	SMME	01.07.2022	Contract duration over.
4	Prof. Ajit Annachatre	Visiting Professor	SMME	08.07.2022	Contract duration over.
5	Prof. Tarun Kant	Visiting Distinguished Professor	SCENE	02.09.2022	Contract duration over.

E) The following Staff members have resigned/relieved after the last BoG meeting till date i.e. 10.10.2022

S. No.	Name (Dr./Mr./Ms)	Designation	School/Section/Department	Date of Relieving	Remark (if any)
1	Puneet Kumar	Sr. Assistant Engineer (Civil)	Construction & Maintenance Wing	14.06.2022	Got higher position in other Institute.
2	Ajay Kumar Singh	Junior Superintendent	DORA	15.06.2022	Got employment near Native Place.
3	Vinod Malik	Deputy Registrar	Finance & Accounts	20.06.2022	Returned back to parent Institute completion of lien.
4	Yadvinder	Project Engineer & Estate Officer	Construction & Maintenance Wing	30.06.2022	Joined private sector on higher pay.

5	Hardeep Kumar Singh	Junior Technical Superintendent	OAS	27.07.2022	Joined private sector on higher pay
6	Tarun Thakur	Junior Engineer (Civil)	Construction & Maintenance Wing	29.07.2022	Got regular position in State Govt.
7	Arvind Kumar Upadhyay	Assistant Engineer (Horticulture)	Construction & Maintenance Wing	10.08.2022	Contract duration over.
8	Kamal Kumar Bajre	Registrar	Office of the Registrar	16.09.2022	Returned back to parent Institute.
9	Parul Thakur	FMO (GDMO)	Medical Unit	30.09.2022	On Contract.

Item No.: BoG-36.3.0 **MATTERS DISCUSSED / RECOMMENDED BY THE STATUTORY BODIES / COMMITTEES / FUNCTIONARIES**

Item No.: BoG-36.3.1 **To consider the policy for Intellectual Property Rights (IPR) and Entrepreneurship.**

IIT Mandi has grown in student, faculty and staff strength since its establishment in 2009. Many of our students and faculty members are actively involved in translational research and entrepreneurial activities. Hence, it is important that our institute formalizes policies for handling intellectual property rights (IPR) and entrepreneurship (EP) ventures. Formalizing these policies will help channelize the efforts and utilize the potential of IIT Mandi community to a great extent. In this regard, a committee consisting was constituted by the competent authority to frame (a) Intellectual Property Rights (IPR) policy and (b) Innovation and Entrepreneurship (IEP) policy. The committee consisted of the following members.

Chair:

Prof. S.C. Jain, Senior Professor, School of Mechanical and Materials Engineering

Members:

Dr. Puran Singh, School of Humanities and Social Sciences and faculty in-charge, Catalyst

Dr. Gopi Shrikanth Reddy, School of Comp. and Elec. Engg. and faculty co-in-charge, Catalyst

Dr. Shubhajit Roy Chowdhury, School of Comp. and Elec. Engg. and faculty in-charge, DIC

Mr. Sandeep Kumar (Secretary), SRIC & IR Office

The Committee examined similar policies of sister IITs and other institutions while framing a comprehensive IPR and IEP policies for IIT Mandi. Firstly, these policy documents were presented to the Board of SRIC & IR (BoSI) for a detailed discussion. The inputs provided by BoSI members were incorporated and the policy documents were uploaded on Faculty Discussion Forum for wider inputs. Subsequently, the policy documents were presented to the Institute Standing Committee (ISC) by Dean SRIC & IR, and at the request of ISC, an open house was held to seek more inputs from all the stakeholders, including students and staff members. Then, all the

obtained inputs were incorporated in each of the policy documents at appropriate places and the policy documents were finalized. The policies are annexed as under:

- (1) Intellectual Property Rights (IPR) policy (**Annexure-8; Page No. 114 to 137**).
- (2) Entrepreneurship (EP) policy (**Annexure-9; Page No. 138 to 164**).

The item is likely to be considered by the FC in its 32nd meeting scheduled to be held on 26.10.2022. The recommendations of the FC will be placed before the Board during the meeting.

Accordingly, the matter is placed before the BoG for consideration.

Item No.: **To discuss the Separate Audit Report (SAR) on final accounts of**
BoG-36.3.2 **IIT Mandi for the F.Y. 2021-22.**

It is submitted that the Annual Accounts of the IIT Mandi for the Financial Year 2021-22 were finalized by the institute on 17.06.2022. Subsequently, the Final Accounts were submitted to the office of the CAG of India on 22.06.2022 after the approval of the Chairman, BoG for subsequent Audit, Certification of Accounts and issue of Separate Audit Report (SAR).

The CAG of India conducted the audit of the final accounts during the period 27.06.2022 to 08.07.2022 and accordingly draft Separate Audit Report (SAR) of the Accounts was received from CAG of India office in this Institute on 05.08.2022 with some minor routine observations. The reply to these observations was submitted to their office on 18.08.2022. The CAG of India considered the replies submitted by the institute over the draft Separate Audit Report and thereafter issued the Final Separate Audit Report (SAR) which has been received in this institute on 06.10.2022.

In this connection it is to also mention that there are no serious observations laid by CAG of India office on the final accounts of the institute for the f.y. 2021-22, except some routine nature observations. These observations have been noted and its compliance will be shown to the CAG of India team at the time of next audit as per past practice.

The Separate Audit Report (SAR) received from the CAG of India was submitted to the Chairman, BoG for his kind approval on behalf of the Board for subsequent submission of the final accounts duly printed 35 copies (Hindi and English version each) to Ministry of Education for which they are pressing hard.

The Chairman, BoG has approved the same for subsequent submission to the Ministry with the remarks that the SAR may be placed before the FC/BoG for further discussion and ratification. The

copy of the final SAR received from CAG of India and reply of the draft SAR submitted to their office is attached as **Annexure-10; Page No. 165 to 176.**

The Finance Committee is likely to deliberate the item in its 32nd meeting scheduled to held on 26.10.2022. The recommendations of the FC will be placed during the meeting.

Accordingly, the matter is placed before the BoG for discussion.

Item No.: To consider the proposal for creation of hostel for married
BoG-36.3.3 **research scholar cum project employees.**

IIT Mandi has completed more than 12 years of service to the nation in 2022 and is now well set to take its operation to the next level in-line with the country's vision and requirements for Aatmanirbhar Bharat to Make-in-India. To this end, the Institute plans to increase its intake for various post graduate courses. It has already started MBA and also proposed to start new PG courses in near future.

For this there shall be an additional requirement of hostel accommodation.

IIT Mandi shall be having a saving of about Rs. 11 Cr. from the already sanction Rs. 275 Cr. HEFA loan and work is proposed to be got executed from the saving of Rs. 11 Cr. **[Annexure-11; Page No. 177 to 178]**

Considering the same it has been proposed to create hostel facilities for about 80 students during the meeting of B&WC held on 14.06.2022. Building shall be 4 or 5 storey building having plinth area of 573.58 sqm. and total area of about 2868 sqm. IIT Mandi has already constructed similar type of building and same design can be adopted. The cost estimates on the basis of CPWD plinth area rates 2021, has been prepared amounting to Rs 10 Cr. which includes provision for one no. lift, DG set for lift, external lights, road, provision for furniture and is annexed as **Annexure-12; Page No. 179 to 182.** Building shall have four / five storey by incorporating the fire safety norms as per National Building Code during presentation of architectural drawings and detailed estimate.

B&WC further deliberated & recommended the proposal for approval of the FC/BoG for an amount of Rs. 10 Cr. from HEFA savings and also recommended to take construction work through Construction Wing of IIT Mandi.

The Finance Committee is likely to consider the item in its 32nd meeting scheduled to held on 26.10.2022. The recommendations of the FC will be placed during the meeting.

Accordingly, the matter is placed before the BoG.

Item No.: To consider the Proposal for construction of road connecting
BoG-36.3.4 **north and south campuses of IIT Mandi.**

30th Finance Committee meeting held on 19th March 2022 considered the selection of PMC for construction of double lane bridge connecting north campus from Ghoda Farm on Kataula Khad. During deliberation it was felt to have an alternate proposal to integrate the two Campuses. On this FC advised to present cost benefit analysis of the proposal, so as to have more effective and efficient solution including intangible benefit for movement between north and south campuses. Accordingly, the proposal was deferred.

Alternate proposal with cost analysis of original and alternative proposal was presented in 37th B&WC meeting held on 25th April, 2022. The Director IIT Mandi briefed the committee members that alternative proposal has been prepared as recently 308 Acres of forest land has been transferred to IIT Mandi, which was not available at the time of preparing original proposal. The necessity for alternative proposal arises because of recently transferred forest land and connecting various land parcels of land. Committee members in 37th B&WC meeting agreed and appreciated the alternative proposal and suggested to prepare a detailed project report (DPR) on higher priority by appointing a consultant for preparation of plan for comprehensive internal road system and internal connectivity among land parcels to minimize time weighted travelling distance and DPR shall also include qualitative and quantitative benefits to user (both direct and indirect) in financial terms.

Based upon the approval from B&WC tender for hiring of consultant was floated however in the meantime IIT Mandi established a design and planning cell and it was deliberated in the meeting that as IIT Mandi has established design and planning cell so design of bridge can be done internally which shall save consultancy fee (consultancy fee is usually 2% to 3% of project cost) and consultancy service for road work may be done through hiring consultant as is being done by Himachal Pradesh Public Works Department for preparing for PMGSY roads. Cost involved shall be around 3 lacs only.

Based upon the deliberation tender for appointing consultant was floated for preparing road work DPR and work was awarded. Scope of the work includes:

1. Alignment of the road in consultation with IIT Mandi.
2. Plan, cross section at 15 meter interval, L section of the road.
3. Estimate of earth work, retaining structure, cross drainage works and metalling/ tarring work.
4. Location of bridge, preparation of hydraulic data for bridge and GAD drawings.

Consultant has prepared detailed project report based upon alignment finalized by IIT Mandi. Alignment of the road is starting from start point of north campus to south campus thus connecting land parcel -2 with motorable road (new hostel is being proposed in this land parcel) which was not earlier accessible, land parcel -5 where lecture hall complex have been planned, few of the flat land in the recently transferred 308

Acres forest land and other flat land which was not earlier accessible, where future expansion may be planned.

Followings are the Salient features of the proposed road from north to south campus:-

1. Total length of road is 3.610 kms with 7 meter tarred width.
2. GSB of 200mm, WMM 225mm, BM 50mm and bituminous concrete 30mm.
3. U-shape and V-shape drains in a length of 1083 mts and 2527 mts.
4. Retaining wall/ breast wall has been considered as per site condition and marked on the plan.
5. Hume pipe culverts and RCC slab culverts have been considered for cross drainage work as per site.
6. W-metal crash barrier in a length of 1125 mts and cement concrete parapets in the remaining length along with safety/ warning sign.
7. Provision of lights along road.

Based upon alignment finalized quantities of earth work, surfacing, CD work, retaining wall/breast wall and railing etc. has been worked out and amount has been worked out on DSR 2021 and morth data book which comes to Rs. 25,37,21,820/- including 3% contingency charges. Provision of 5% for street lighting & utility services has been kept. Cost estimate is attached as **Annexure-13; Page No. 183 to 212.**

Similarly, consultant has provided Hydraulic data and General Arrangement Drawings on the basis of alignment of road fixed/ hydraulic data. Salient points of the bridge proposed to be constructed are as under:-

1. Span	:	50 mts C/C of bearing.
2. Type	:	PSC Box Girder bridge in M40
3. Loading	:	IRC Class A double lane
4. Carriage way	:	7.5 mts and 1.5 mts footpath
5. Substructure	:	RCC substructure in M35
6. Seismic Parameter	:	Seismic Zone – V

Cost of the superstructure of the bridge has been worked out on the basis of structural drawings of 50 mts span pre-stressed box girder bridge constructed in Mandi town and drawings are attached for reference.

Sub structure has been designed by Design and planning section of IIT Mandi based upon hydraulic data submitted by consultant and for designing abutment bearing capacity of 15 t/m² towards Mind Tree school side and 25 t/m² towards RSS side has been considered which can be verified at the time of execution and if required design can be modified. Similarly design of structure can be checked before execution if desired. Estimate for sub structure and super structure as stated above has been worked out amounting to Rs. 5,44,93,793/- based upon standard data book of Ministry of Surface Transport by

considering present market rates and is enclosed as **Annexure-14; Page No. 213 to 241.**

Cost of road work and bridge work is summarized below:-

Sr. No.	Particular	Amount (in Rs.)
1	Road work	25,37,21,820
2	Bridge work	5,44,93,793
	Total	30,82,15,613/-
	Say	30.82 Cr.

Cost benefit analysis:-

- Unification of entire campus, eliminating the segregation between south and north campus community.
- Complete end to end connection in all land parcels for rapid development (as shown in Fig.-3).
- Providing all season motorable road, allowing all stake holder to commute with ease between academic administrative and residential blocks.
- Students will have more time for their academic and extracurricular activities.
- Internal connectivity will save time for administrative processes.
- Campus residents will be moving safely within campus boundary, as traffic on the public road on which IIT community presently is commuting has increased many fold and rash driving has been witnessed.
- There will be less transport requirement to commute between the campuses which will result in less fossil fuel consumption.
- The unification will encourage campus resident to opt for walk cycle tracking through scenic meadows between the campuses.
- This dedicated road for IIT Mandi community will also save time by avoiding frequent traffic congestion.
- This unification will provide several view point for visitors.
- Future expansion on the allotted land parcel on the hill will be connected with less expense as, recently transferred land is inaccessible. To make this land useable, road access will be required which will involve a tentative cost of 13 to 14 Cr (Fig.-5).

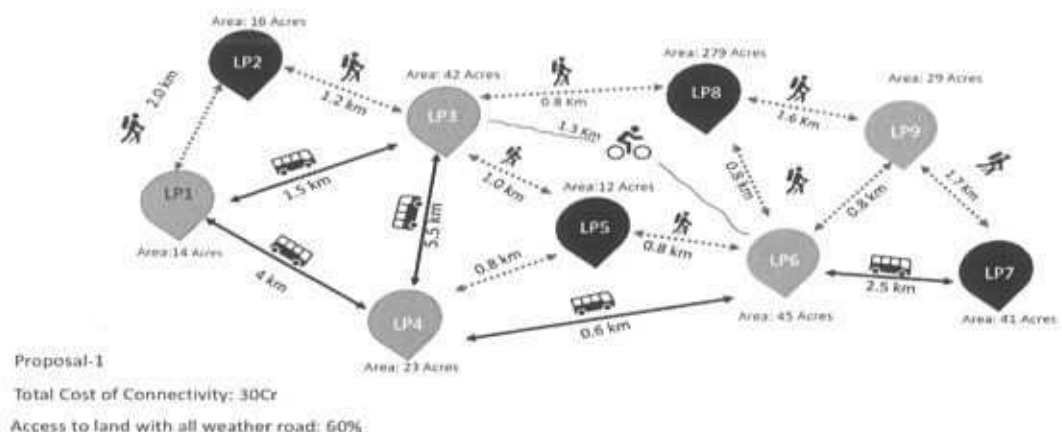


Fig.-1 Tentative Distance and mode of commuting as per proposal no.-1



Fig.-2 Tentative alignment of motorable path as per proposal no.-1

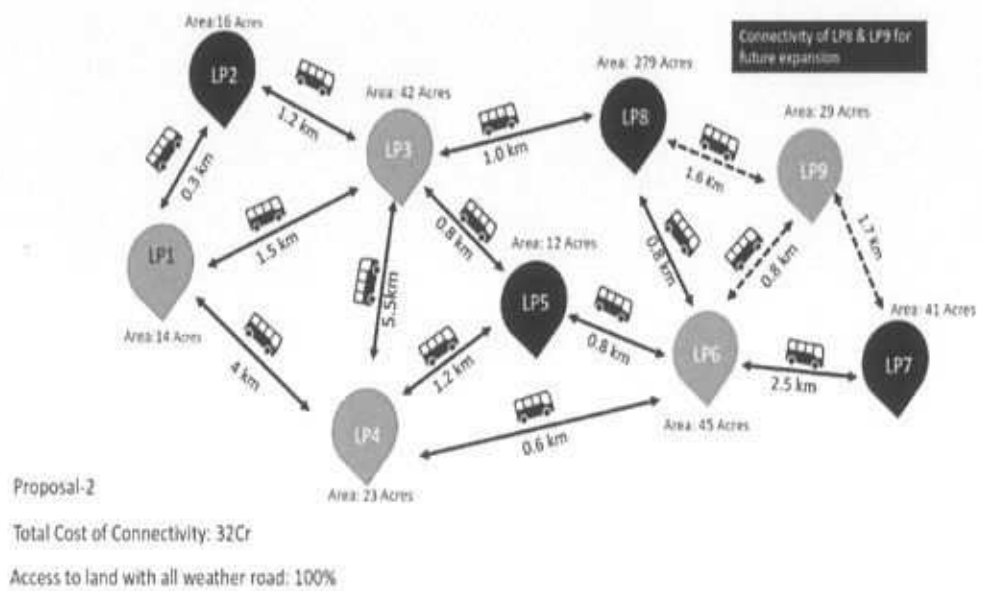


Fig.-3 Tentative distance and mode of commuting as per proposal no.-2



Fig.-4 Tentative alignment of moterable path as per proposal no.-2

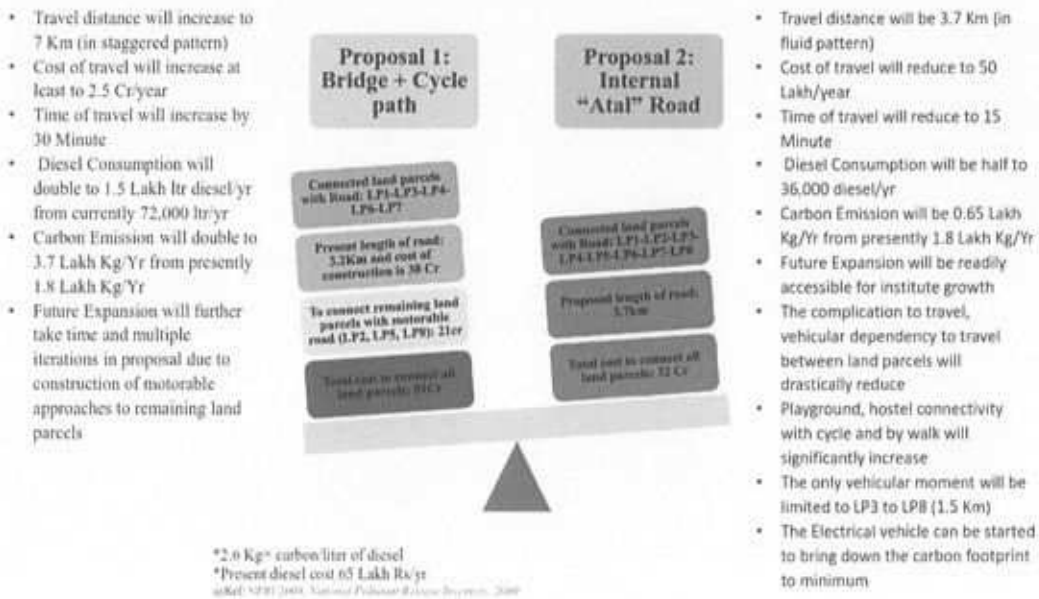


Fig.-5 Qualitative and Quantitative Benefits

Funds of Rs. 29.55 Cr. is available under Rs. 275 Cr. HEFA loan & balance 1.27 Cr. can be met out from OH 35.

The B&WC members appreciated the proposal no. 2 (as shown in Fig No. 3 & 4) as the road proposed is exclusively for IIT Mandi; it will serve the further expansion requirement of IIT Mandi. Committee members raised their concern about the soil slope stabilization after the fresh cutting of hill slope, and advised to take necessary technical measures during the construction of proposed road, to which special invitee of committee explained that internal faculty members has discussed the proposal in detail, the proposal is finalized based upon the contour data collected with the help of Drone Survey and Geological report of the area obtained from Geotechnical section of IIT Mandi & added that further necessary soil stabilization can be taken

after cutting work is completed. Members also suggested proper lighting all along the road from security considerations.

B&WC deliberated upon the proposal, recommended the estimate for approval to FC/BoG for an amount of Rs. 30,82,15,613/- based upon latest DSR 2021 and standard data book of MORTH, which includes provision of 5% for utility / lighting of roads. Further, it was also recommended to take up construction through Construction Wing of IIT Mandi by inviting separate tender for road and bridge work respectively.

The Finance Committee is likely to deliberate the item in its 32nd meeting scheduled to held on 26.10.2022. The recommendations of the FC will be placed during the meeting.

Accordingly, the matter is placed before the BoG for consideration.

Item No.: **To consider the proposal for construction of undergraduate student hostel to accommodate future expansion.**
BoG-36.3.5

IIT Mandi has already completed hostels facilities for 2360 students and these hostels shall be fully utilized after admission/ start of first semester for B.Tech students.

IIT Mandi has completed more than 12 years of service to the nation in 2022 and is now well set to take its operation to the next level in-line with the country's vision and requirements for Aatmanirbhar Bharat to Make-in-India. To this end, the institute plans to increase its intake by starting new B.Tech courses for the next year. There shall be requirement of about 150 students undergraduate hostel.

Plan of the proposed hostel has been prepared and it is proposed to have 4 or 5 storey building having area of about 768 sqm for each storey. Total area thus comes to 3839 square meters. The cost estimates on the basis of CPWD plinth area rates 2021, has been prepared amounting to Rs 14,18,84,101/- which includes 14 rooms on ground floor, 18 rooms in the remaining 4 floors. Total capacity thus comes to 172 students considering 2 students per room. Estimate is enclosed as **Annexure-15; Page No. 242 to 246.**

Chairman of the B&WC has explained the committee members about the necessity for construction of new hostel block to meet the future expansion requirements and work can be taken up from the funds available under OH-35. After deliberation committee members suggested to have four/ five storey building by incorporating the fire safety norms as by National Building Code during preparation of architectural drawings & detailed estimate & recommended the proposal for approval to FC/BoG for an amount of Rs. 14,18,84,101/-. It was also recommended to construct the building through Construction Wing of IIT Mandi.

The Finance Committee is likely to deliberate the item in its 32nd meeting scheduled to held on 26.10.2022. The recommendations of the FC will be placed during the meeting.

Accordingly, the matter is placed before the BoG for consideration.

Item No.: **To consider the proposal for re-organization of Academic**
BoG-36.3.6 **Structure.**

In the 37th Senate meeting held on 7th October, 2022, Prof. Rahul Vaish, Dean (Academics) presented a proposal for Academic Structure as placed at **Annexure-16; Page No. 247 to 248**. After detailed discussions, the Senate recommended the proposal to the BoG.

The item is placed before the Board for consideration.

Item No.: **To consider the inclusion of Director or his nominee in the**
BoG-36.3.7 **existing committee composition for Faculty Performance Review Process.**

BoG in its meeting held on 13.12.2019, approved the Faculty Performance Review process, which included service related matters such as Probation Confirmation, Service Regularization, Placement in higher pay level etc. As per the policy, Performance Review of Assistant Professor, Associate Professor and Professor or equivalent positions is being conducted Annually, Biennially and Triennially respectively and an Introductory Review Meeting is being conducted within 3 months of joining of a Faculty in the Institute (**Annexure-17; Page No. 249 to 250**).

As per the guidelines, Director is the Chair for all the committees, therefore to comply with the rules of the policy, a proposal is enclosed (**Annexure-18; Page No. 251 to 253**) and following are proposed for consideration of the BoG:

- **Director or his Nominee** to be included as Chair for Periodic Review Committee (Annually/ Biennially/ Triennially).
- **Director or his Nominee** to be included as Chair for the Review for Probation Confirmation.
- Rest of the review processes shall be chaired by the Director as per the existing policy.

The item is placed before the Board for consideration.

Item No.: **To consider the revision / inclusion of provision for per diem**
BoG-36.3.8 **remuneration in approved guidelines for appointment of Honorary/ Visiting/ Adjunct/ Distinguished/ Emeritus/ Joint Practice Faculty Members.**

BoG in its meeting held on 31.03.2021, approved the guidelines for appointments of Honorary/ Visiting/ Adjunct/ Distinguished/ Emeritus/

Joint/ Practice Faculty Members. The guidelines include the designation, eligibility, salary/remuneration & other norms (***Annexure-19; Page No. 254 to 259***).

The engagement for some of the positions is for short duration i.e. few days/months or years and remunerations are either on per diem basis or on a consolidated salary. Whereas, there is no provision to appoint an outstanding academician on per diem basis and it may not be feasible to offer such distinguish academician a lower position. Therefore, following is proposed vide the enclosed proposal for consideration of the BoG:

- ***Provision of per diem remuneration may be made applicable for the position of Distinguish Professor. The remuneration approved for this position is upto Rs. 3 lakh p.m., therefore, the per day amount is Rs. 10,000/-***
- ***Range for per diem may be revised to Rs.5000-10000/- instead of existing range of Rs.3000-6000/-.***
- ***Per diem range for engagement of foreign academicians on these positions may be decided by the director on the recommendations of the ISC on case to case basis.***

The item is placed before the Board for consideration.

Item No.:

BoG-36.3.9

CONFIDENTIAL

CONFIDENTIAL

Item No.: To consider the appointment of Senior Executive Officer at the
BoG-36.3.10 Office of Dean Resource Generation and Alumni Relations (DORA).

The DORA was created at IIT Mandi in April 2022 for resource generation for the Institute. A Senior Executive Officer (SEO) temporary position on consolidated emoluments was publicized on the IIT Mandi website for DORA resource generation activities. The primary focus of this outward-looking position is to generate resources from philanthropists, corporate social responsibility, alums, and other donors by contacting them in person. A committee was constituted to process the applications for this position. The committee interviewed the candidates and then recommended one candidate with 13+ years

of experience with a pay of INR 1,20,000/- per month. Hiring the SEO will help reach several stakeholders in India and abroad who could contribute to IIT Mandi. The Finance Committee/Board of Governors may consider the recommendation of the Committee.

The Finance Committee is likely to deliberate the item in its 32nd meeting scheduled to held on 26.10.2022. The recommendations of the FC will be placed during the meeting.

Accordingly, the matter is placed before the BoG for consideration.

Item No.: **To consider the creation of a post of Law Officer in the Institute.**
BoG-36.3.11

The ISC in its meeting held on 04th July, 2022 vide agenda Item-06 (03) of ISC discussed on the creation of post of Law Officer in the Institute in the pay-level 10. After detailed discussions the ISC recommended the following to the board:

"A post of Law officer may be created by utilizing one post of Assistant Registrar (AR) with the condition that educational qualification LLB may be considered as equal to Master's degree for this specialized post. The required experience was decided to be 5 years as attorney or practicing advocate".

The matter is placed before the Board for consideration.

Item No.:
BoG-36.3.12

CONFIDENTIAL

Item No.: **Additional agenda placed on the table with the permission of the**
BoG-36.3.13 **Chairman, if any.**

अभिशासक परिषद् की पैंतीसवीं बैठक का
कार्यवृत्त

MINUTES OF THE 35th MEETING OF THE
BOARD OF GOVERNORS

14th JUNE, 2022



भारतीय प्रौद्योगिकी संस्थान मण्डी
कमांद- 175075, हिमाचल प्रदेश

Indian Institute of Technology Mandi
Kamand – 175075, Himachal Pradesh

**INDIAN INSTITUTE OF TECHNOLOGY MANDI
KAMAND, HIMACHAL PRADESH**



35th MEETING OF THE BOARD OF GOVERNORS

TUESDAY, JUNE 14, 2022

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INDIAN INSTITUTE OF TECHNOLOGY MANDI

Minutes of 35th Meeting of the Board of Governors held on 14th June, 2022 from 03:00 P.M. in the Conference Room, C. V. Raman Guest House, IIT Mandi.

The following were present:

- | | | | |
|-----|---|-----------------|-------------------------------------|
| 1) | Prof. Prem Vrat
Chairperson, BoG IIT Mandi | Chairperson | |
| 2) | Prof. Laxmidhar Behera
Director, IIT Mandi | Member | |
| 3) | Dr. Pradeep Kumar Agrawal
Scientist, Directorate of Special Projects,
D.R.D.O. Hyderabad | Member | |
| 4) | Shri Krishan Chandra Sharma
Site Head & Sr. Vice President
LUPIN Pharma Limited, Raisen, M.P. | Member | |
| 5) | Prof. Rahul Vaish
Professor & Dean (Academics)
School of Engineering, IIT Mandi | Member | |
| 6) | Prof. Suman Kalyan Pal
Professor & Chairperson
School of Basic Sciences, IIT Mandi | Member | |
| 7) | Prof. Rajeev Kumar
Dean (I & S), IIT Mandi | Special Invitee | } For item no. 35.1.2 |
| 8) | Prof. Satinder K. Sharma
Dean (Faculty), IIT Mandi | Special Invitee | } For item no. 35.2.2 |
| 9) | Dr. Venkata Krishnan
Associate Professor, SBS &
Dean (SRIC & IR), IIT Mandi | Special Invitee | } For item no. 35.3.1
and 35.3.2 |
| 10) | Dr. Varun Dutt
Associate Professor, SCEE, IIT Mandi | Special Invitee | } For item no. 35.3.4 |
| 11) | Dr. Manoj Thakur
Associate Professor, SBS &
Dean (Students), IIT Mandi | Special Invitee | } For item no. 35.3.5 |
| 12) | Dr. Sandip Kumar Saha
Assistant Professor, SE
IIT Mandi | Special Invitee | } For item no. 35.3.7
and 35.3.8 |
| 13) | Dr. Vishal Singh Chauhan
Dean (F&A), IIT Mandi | Special Invitee | } For item no. 35.3.9 |

- 14) Shri K. K. Bajre
Registrar, IIT Mandi Secretary

Leave of absence has been granted to the following:

- 1) Principal Secretary (TE)
Govt. of H.P. Member
- 2) Shri Hemant Sood
Managing Director & Promoter Member
Findoc Financial Services Group Ludhiana

The Chairperson welcomed all present at the meeting including the special invitees.

Thereafter, the Director welcomed all members including the special invitees.

The Board took cognizance of comments of the Additional Secretary (Technical Education), MoE and Member, Board received vide letter no. 16-8/2020-TS-I dated 13/06/2022, through email on the agenda items of 35th Board meeting and thereafter, the agenda items were taken up as follows:

- Item No.:** To confirm the minutes of the 34th meeting of the Board of Governors
BoG-35.1.1 held on 19/03/2022 and special meeting of the Board of Governors held on 11/05/2022.

It was noted that the minutes of 34th meeting of the Board of Governors (BoG) and special meeting of the Board of Governors held on 19/03/2022 and 11/05/2022 respectively have been circulated and no comments have been received. Therefore, the minutes of 34th and special meeting of the Board of Governors (BoG) meeting held on 19/03/2022 and 11/05/2022 were confirmed, as circulated.

- Item No.** To note Action Taken Report (ATR) on the minutes of previous
BoG-35.1.2 meetings of the Board of Governors (BoG).

Prof. Rajeev Kumar, Dean (I & S) gave a presentation on the ongoing works along with likely date of completion. The Board expressed concern in delayed works and emphasized the need for levying penalty for delay, wherever applicable.

With above observations, the Board noted the ATR.

- Item No.:** To ratify the decisions / actions taken by the Chairperson, Board of
BoG-35.2.1 Governors on the recommendations of the Director/designated Committee, on behalf of the Board of Governors:

The Board thanked the Chairperson, BoG for timely decision and approvals and ratified the decisions / actions taken by him including the following approvals given till 14.06.2022:

Recommendation of the Standing Faculty Selection Committee /Selection Committee Meetings for appointment on Teaching Positions (Faculty):

S. No.	Name of the Post	School	Pay Level / Consolidated Emoluments	Selection Process held on	Standing Faculty Selection Committee (SFSC)/ Selection Committee Recommendations
1.	Assistant Professor	SHSS	Pay as per rules	26.02.2022	• Dr. Ashish Bollimbala
2.	Assistant Professor	SHSS	Pay as per rules	26.02.2022	• Dr. Thirthankar Chakraborty • Dr. Neethi Vadakkan • Dr. Saumya Malviya
3.	Assistant Professor	SCEE	Pay as per rules	06.06.2022	• Dr. Narendra Kumar Dhar • Dr. Radhe Shyam Sharma
4.	Assistant Professor	SE	Pay as per rules	06.06.2022	• Dr. Rekha Raja • Dr. Jagadeesh Kadiyam

Recommendation of the Director regarding other items:

1.	Inclusion of Prof. Mukesh Kumar Barua, Deptt. of Management Studies, IIT Roorkee in the BOG approved panel for faculty selection.
2.	Inclusion of Prof. Indra Narayan Kar, Deptt. of Electrical Engineering, IIT Delhi in the BOG approved panel for faculty selection.

Item No.: To note other developments at the Institute.

BoG-35.2.2

Presentation by the Director: The Director made a presentation on overall progress of the Institute including notable workshops and symposia, Himachali Pravasi Global Association, visit of Director - IIT Ropar to campus, Japan International Cooperation Agency Proposal, Proposed Infrastructure Creation under Higher Education Financing Agency Loan, Updates from SRIC & IR, International Visitors to IIT Mandi and other initiatives and developments of the Institute. The Board appreciated the new initiatives.

(i) To report status of filling up of backlog vacancies in teaching cadre.

The Dean (Faculty) updated the Board about the status of filling up of backlog vacancies.

The Board expressed concerns with large vacancies and advised to step-up efforts to expedite the recruitment process.

Thereafter, other matters as reported vide agenda item no. 35.2.2 were noted by the BoG.

**Item No.: To consider addendum of designation in the BoG approved norms
BoG-35.3.1 for Research Staff in funded projects.**

The Dean (SRIC & IR) special invitee presented the item before the Board and briefed the proposal.

After detailed discussion, the Board resolved to approve that Project Staff designation be in accordance with designations approved by funding agencies.

**Item No.: To consider the policy for Intellectual Property Rights (IPR) and
BoG-35.3.2 Entrepreneurship.**

Considering the comments of the Additional Secretary (Technical Education), MoE and Member, BoG received vide letter no. 16-8/2020-TS-I dated 13/06/2022, the Board resolved to defer the agenda item with the advice to route the proposal through the Finance Committee (FC).

**Item No.: To consider the recommendations of the Committee for Academic
BoG-35.3.3 Organization / Structure of the Schools.**

Prof. Rahul Vaish, Dean (Academics) and member, Board presented the item.

The Board appreciated the proposal and after detailed deliberation, the Board resolved to approve the new Academic Organization / Structure of the Schools as recommended by the Senate.

**Item No.: To consider a proposal to establish an Indian Knowledge System and
BoG-35.3.4 Mental Health Applications Centre (IKSMHA Centre).**

Dr. Varun Dutt, Special Invitee presented the item before the Board and briefed the proposal.

The Board appreciated the proposal. After detailed deliberations, the Board resolved to approve the proposal for establishment of an Indian Knowledge System and Mental Health Applications Centre (IKSMHA Centre) with an advice to include Counselling services for the Faculty / Staff / Students of the Institute.

**Item No.: To consider a proposal to start a new MBA programme from
BoG-35.3.5 Academic Year 2022-23.**

Dr. Manoj Thakur, Special Invitee presented the item before the Board and briefed the proposal.

The Board considered the recommendations of the Senate and approved the proposal to start a new MBA - Data Science and Artificial Intelligence programme from the Academic Year 2022-23 with an advice that since the programme aims to have students from diverse backgrounds, the curriculum must include a course on Foundation of management.

Item No.: To consider the revision in scholarship/Fee waiver for UG women
BoG-35.3.6 Students.

The Dean (Academics), presented the item before the Board and briefed the proposal.

The Board considered the recommendations of the Finance Committee (FC) and noted that the present scheme of scholarship/Fee waiver for UG Women Students is based on the JAB recommendations to enhance girl enrolment to 20% in under graduate programs. The scheme was to be reviewed on achieving the target or after 8 years. It was noted that IIT Mandi has consistently achieved the target in last 2 years.

The complete fee waiver along with Rs.1000/- per month stipend to each UG girl student was initiated by IIT Mandi as part of JAB recommendation for giving incentives. Since, IIT Mandi achieved the target of 20% women students at UG level, the FC recommended to discontinue this practice. However, existing government schemes and MCM scholarship would continue.

The Board also took cognizance of the comments from the MoE wherein MoE appreciated discontinuation of fee waiver. However, to encourage meritorious girl students to excel academically a scholarship of Rs.1.0 Lakh per semester is proposed to be given to the girl students having SGPA greater than or equal to 8.5 from second semester onwards. Accordingly, the Board resolved to send a proposal for this scholarship to the MoE.

Item No.: To consider a proposal for modification in Fee Structure.
BoG-35.3.7

Dr. Sandip Kumar Saha, Assistant Professor, SE, special invitee presented the item before the Board and briefed about the need of modifications to be done in Fee Structure of the Institute.

The Board considered the recommendations of the Finance Committee (FC) and noted that in accordance with guidelines of the MoE, the UG fee is not under consideration and the enhanced fee would apply mostly prospectively. The current proposal of enhanced charges to existing students covers non-academic components like transportation, hostel and other campus facilities. The Board also noted that the charges have not been revised in last few years and the current proposal is in line with fee structure of other IITs.

After detailed deliberation, the Board resolved to approve revised fee structure including for the newly launched MBA program being initiated from the current academic year. The Board also approved that the mess advance may be decided by the Institute depending upon the need.

The final proposal for revision of various charges and fees is attached (**Annexure-1**).

Item No.: To consider the proposal for renaming Master of Science by
BoG-35.3.8 **Research (M.S. (R)) degree programme to Master of Technology by Research [M.Tech. (R)] degree programme.**

Dr. Sandip Kumar Saha, Special Invitee, presented the item before the Board and briefed the proposal.

After detailed discussion, the Board resolved to approve the re-naming of the program to Master of Technology by Research [M.Tech. (R)], for the students to be admitted now onwards.

Item No.: To consider the recommendations for the expenditure for
BoG-35.3.9 **International Conference, National Conference and Field Trips etc.**

The Dean (F&A), Special Invitee presented the item before the Board and briefed the proposal. The Board noted the salient recommendations as follows:

- i. Ph.D. Scholars registered for full time may be offered a travel support of maximum of Rs.1,00,000/- for entire duration of their course. This may be utilized for travel related needs relating to International Conferences, National Conferences, and Field Trips etc. This support may be utilized for one particular travel or in parts for different travel needs.
- ii. M.S. (by Research)/ M.Tech. (by Research) Scholars may be offered a travel support up to maximum of Rs.20,000/-, with rest of the conditions as mentioned in the point (i).

The Board resolved to approve the recommendations of the Finance Committee.

Item No.: Additional agenda placed on the table with the permission of the
BoG-35.3.10 Chairman, if any.

None.

Thereafter, the meeting concluded with a vote of thanks to the Chair.

L. B. Behera
27/06/22

Prof. Laxmidhar Behera
Director, IIT Mandi

K. K. Bajre
24/06/22

K. K. Bajre
Registrar & Secretary, BoG

Chairperson, Board of Governors

पैंतीसवीं सिनेट बैठक का कार्यवृत्त

MINUTES OF THE 35th SENATE MEETING OF
IIT MANDI

2nd JUNE, 2022



भारतीय प्रौद्योगिकी संस्थान मण्डी
कमांद- 175075, हिमाचल प्रदेश

INDIAN INSTITUTE OF TECHNOLOGY MANDI
KAMAND – 175075, HIMACHAL PRADESH

**INDIAN INSTITUTE OF TECHNOLOGY MANDI
KAMAND, HIMACHAL PRADESH**



35th SENATE MEETING OF IIT MANDI

THURSDAY, 2nd JUNE, 2022

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INDIAN INSTITUTE OF TECHNOLOGY MANDI

Minutes of the 35th Senate Meeting of IIT Mandi held on 2nd June, 2022 at 9:30 AM in Conference Room, C.V. Raman Guest House, IIT Mandi, Kamand.

The following were present:

In the Chair

Prof. Laxmidhar Behera, Director, IIT Mandi

Members:

Prof. Siddhartha Mukhopadhyay, Dept. of Electrical Engineering, IIT Kharagpur

Prof. Binay Kumar Pattnaik, Dept. of HSS, IIT Kanpur

Prof. Subrata Ghosh, Professor, SBS, IIT Mandi

Prof. Prem Felix Siril, Professor, SBS, IIT Mandi

Prof. Chayan Kanti Nandi, Professor, SBS and Dean (Resource Gen. and Alumni Relations), IIT Mandi

Prof. Pradeep C. Parameswaran, Professor, SBS, IIT Mandi

Prof. Rajeev Kumar, Professor, SE and Dean (I&S), IIT Mandi

Prof. Rahul Vaish, Professor, SE and Dean (Academics), IIT Mandi

Dr. Vishal Singh Chauhan, Dean (F&A), IIT Mandi

Dr. Venkata Krishnan, Dean (SRIC & IR), IIT Mandi

Dr. Manoj Thakur, Dean (Students), IIT Mandi

Dr. Samar, Chairperson, SCEE, IIT Mandi

Dr. Atul Dhar, Chairperson, SE, IIT Mandi

Dr. Shyamasree Dasgupta, Chairperson, SHSS, IIT Mandi

Dr. C.S. Yadav, Co-ordinator, AMRC, IIT Mandi

Dr. Prosenjit Mondal, Co-ordinator, Bio-X Centre, IIT Mandi

Dr. Deepak Swami, Associate Professor, SE, IIT Mandi

Dr. Viswanath Balakrishnan, Associate Professor, SE, IIT Mandi

Dr. Satyajit Thakor, Associate Professor, SCEE, IIT Mandi

Dr. Arti Kashyap, Associate Professor, SBS, IIT Mandi

Dr. Shyam Kumar Masakpalli, Associate Professor, SBS, IIT Mandi

Dr. Surya Prakash Upadhyay, Assistant Professor, SHSS, IIT Mandi

Dr. Rajeshwari Dutt, Associate Professor, SHSS, IIT Mandi

Mr. Rajesh Sinha, Chief Scientist & Head - Smart Machines Research Program, TCS

Dr. P. Anil Kishan, Associate Dean (Courses), IIT Mandi

Dr. Rajanish Giri, Associate Dean (Research), IIT Mandi

Dr. Tushar Jain, Head, CCE, IIT Mandi

Mr. Vivek Tiwari, Assistant Registrar (Academics), IIT Mandi

Kamal Kumar Bajre, Registrar & Secretary, Senate, IIT Mandi

Invitees:

Dr. Varun Dutt, Associate Professor, SCEE, IIT Mandi

Dr. Arnav Bhavsar, Associate Professor, SCEE, IIT Mandi

Dr. Sandip Kumar Saha, Assistant Professor, SE, IIT Mandi

Dr. Shubhajit Roy Chowdhury, Associate Professor, SCEE, IIT Mandi

Dr. Srinivasu Bodapati, Assistant Professor, SCEE, IIT Mandi

Dr. Puran Singh, Associate Professor, SHSS, IIT Mandi

Dr. Neha Kaushik, Assistant Professor, SHSS, IIT Mandi

Mr. Bhumanyu Goyal, Student Academic Affairs Secretary, IIT Mandi (Special Invitee)

Following Senate members/invitees could not attend the meeting due to prior commitments:

Prof. Sandeep Verma, Dept. of Chemistry, IIT Kanpur & Secretary (SERB)
 Prof. Suman Kalyan Pal, Professor and Chairperson SBS, IIT Mandi
 Prof. Satinder Sharma, Professor, SCEE, Dean (Faculty) & Co-ordinator C4DFED, IIT Mandi
 Prof. Bharat Singh Rajpurohit, Professor, SCEE, IIT Mandi
 Dr. Hitesh Shrimali, Associate Professor, SCEE, IIT Mandi
 Mr. Hemachandra Bhat, General Manager and Practice Head, Robotics Platforms, Wipro
 Mr. Naresh Singh Bhandari, Deputy Librarian, IIT Mandi
 Mr. Adesh Singh, Student Research Affairs Secretary, IIT Mandi (Special Invitee)
 Mr. Anirudh Singh, Student General Secretary, IIT Mandi (Special Invitee)

The Chairman Senate extended a warm welcome to all the new Senate members and Invitees attending the 35th Senate meeting of the Institute. He further appreciated and placed on records the services rendered by the outgoing members of the Senate.

Thereafter, following agenda items were taken up.

Item No. 35.1: To confirm the minutes of the 34th Senate meeting held on 15th March, 2022.

The minutes of the 34th Senate meeting held on 15th March, 2022 were circulated to members of the Senate on 31st March, 2022 (through email) for comments.

One comment was received on the Item No. 34.7 of the minutes of 34th Senate meeting. Considering the comment received with respect to minimum educational qualification for admission in MS (by Res.), the Senate approved the same as candidates with a bachelor degree in Engineering/Technology or Master degree in appropriate sciences and social sciences. For fellowship, they should fulfill the requirements of the sponsoring agency/authority.

The minutes of 34th Senate meeting held on 15th March, 2022 were confirmed with above addendum.

Item No. 35.2: To receive a report on the actions taken for the decisions taken in the 34th Senate meeting held on 15th March, 2022.

The Senate noted the actions on the decisions taken in its 34th meeting held on 15th March, 2022.

Item No. 35.3: To consider a policy across the Institute regarding Academic Dishonesty Policy.

On the recommendation of the Board of Academics, the Senate considered the proposal regarding Academic Ethics Policy/Plagiarism etc. presented by Dr. P Anil Kishan. The Senate noted that the current policy is inclined towards courses and the examination. Therefore, it was decided to have detailed guidelines for prohibiting plagiarism. Associate Dean (Research) was asked to propose the same in next Senate meeting.

After detailed deliberation, the Senate resolved to approve the proposal and name it as Academic Ethics policy, as placed at **Annexure A; Page No. 8 to 16.**

Item No. 35.4: To consider the proposal for modification in Minor in German.

On the recommendation of the Board of Academics, the Senate considered the proposal regarding modification in Minor in German presented by Dr. Rajeshwari Dutt, Course Coordinator, SHSS.

After detailed deliberation, the Senate resolved to approve the proposal, as placed at **Annexure B; Page No. 17 to 20.**

Item No. 35.5: To consider the recommendations of the Committee for Academic Organization / Structure of the Schools.

Prof. Rahul Vaish, Dean (Academics) presented a proposal / recommendations of the Committee for Academic Organization / Structure of the Schools.

After detailed discussion, the Senate resolved to recommend the proposal as placed at **Annexure C; Page No. 21** to the Board for approval.

Item No. 35.6: To consider a proposal to establish a Center on Indian Knowledge System and Mental Health (CIKSMH).

Dr. Varun Dutt and Dr. Arnav Bhavsar, presented a proposal to establish a Center on Indian Knowledge System and Mental Health (CIKSMH) at IIT Mandi.

After discussion, the Senate resolved to recommend the proposal as placed at **Annexure D; Page No. 22 to 25** to the Board for approval.

Item No. 35.7: To consider a proposal to start a new MBA programme from Academic Year 2022-23.

Dr. Manoj Thakur, Chair of the Committee, presented a proposal to start a new MBA programme from AY 2022-23.

After detailed discussion, the Senate resolved to recommend the proposal as placed at **Annexure E; Page No. 26 to 31** to the Board for approval.

Item No. 35.8: To consider the revision in fee waiver policy for UG Female students.

Prof. Rahul Vaish, Dean (Academics), presented a proposal regarding revision in fee waiver policy for UG Female students.

After discussion, the Senate resolved to recommend the proposal as placed at **Annexure F; Page No. 32** to the FC/Board for approval.

Item No. 35.9: To consider a proposal for modification in Fee Structure for AY 2022-23.

Dr. Sandip Kumar Saha, Committee Chair, presented a proposal for modification in Fee Structure for AY 2022-23.

After discussion, the Senate resolved to recommend the proposal as placed at **Annexure G; Page No. 33 to 41** to the FC/Board for approval.

Item No. 35.10: To consider the revision in the Regulations of the MS/PhD programme regarding course selection approval by Supervisor/Guide.

On the recommendation of the Board of Academics, the Senate considered the proposal revision in the Regulations of the MS/PhD programme regarding course selection approval by Supervisor/Guide presented by Dr. Atul Dhar, Chairperson, SE. After brief discussion, the following was approved by the Senate:

- The student will select the relevant courses in consultation with the thesis supervisor.

The same should also be applicable to the MS students.

Item No. 35.11: To consider the revision in the Regulations for the MS/PhD programme regarding ERP/Part-Time scholars and amendment in allotment of caretaker faculty-in-charge/ co-guide in the absence of guide.

Prof. Prem Felix Siril, Chair of the designated Committee presented the following proposals:

1. Proposal regarding revision in the Regulation for the MS/PhD programme regarding ERP/Part-Time scholars.
2. Amendment in allotment of faculty-in-charge (caretaker)/co-guide in the absence of guide from the Institute for longer duration (> 3 months).

After detailed deliberation, the Senate resolved to approve the proposal, as placed at **Annexure H; Page No. 42 to 43**.

Item No. 35.12: To consider the modified proposal regarding Exit options for IDD (Bioengineering) students after 4th year.

On the recommendation of the Board of Academics, the Senate considered the proposal regarding modification in Exit Options for IDD (Bioengineering) students after 4th year, presented by Dr. Shubhajit Roy Chowdhury, Programme Coordinator for B.Tech-M.Tech (Dual Degree (Bioengineering)).

After detailed deliberation, the Senate resolved to approve the proposal, as placed at **Annexure I; Page No. 44**.

Item No. 35.13: To consider the proposal for Second Major in Bioengineering programme.

On the recommendation of the Board of Academics, the Senate considered the proposal for Second Major in Bioengineering programme presented by Dr. Shubhajit Roy Chowdhury, Programme Coordinator for B.Tech-M.Tech (Dual Degree (Bioengineering)) programme.

After detailed deliberation, the Senate resolved to approve the proposal, as placed at **Annexure J; Page No. 45.**

Item No. 35.14: To consider revision in the curriculum for M.Tech. in VLSI programme.

On the recommendation of the Board of Academics, the Senate considered the proposal for revision in the curriculum for M.Tech. in VLSI programme presented by Dr. Srinivasu Bodapati, Course Coordinator for M.Tech. in VLSI programme.

After detailed deliberation, the Senate resolved to approve the proposal, as placed at **Annexure K; Page No. 46 to 48.**

Item No. 35.15: To consider the minor modification in FTE programme.

On the recommendation of the Board of Academics, the Senate considered the proposal for minor modification in FTE programme presented by Dr. Atul Dhar.

After detailed deliberation, the Senate resolved to approve the proposal, as placed at **Annexure L; Page No. 49 to 50.**

Item No. 35.16: To consider a proposal for Entrepreneurship Practicum.

Dr. Puran Singh, Associate Professor presented a proposal for Entrepreneurship Practicum. After detailed discussion following was resolved:

1. To run the course on an experimental basis. Accordingly, a maximum of 15 teams will be allowed to take the course in the coming semester, and only 2 financial grants of INR 50,000 each will be made by the Institute to teams selected for stage 2. Based on the feedback and the outcome of the program, further changes may be made in future, with the approval of the Chairman, Senate.
2. Dr. Varun Dutt, Project Director, iHub and HCI foundation, on behalf of the foundation, offered to extend three financial grants (*for 2022 call*) of INR 50,000 each for stage 3 teams aligned with the Human-computer interaction area.
3. A maximum of 15 teams will be allowed to take stage 1 of the course for 2 credits, and maximum 5 teams will be financially supported in stage 2 for additional 9 credits. Rest of the teams may also enroll for 9 credits practicum *without any Institute financial support.*
4. A program fee of INR 9000 per team shall be paid to the incubator.

Detailed proposal placed at **Annexure M; Page No. 51 to 55.**

Item No. 35.17: Any other agenda item with the permission of the Chairman, Senate.

None.

Item No. 35.18: To report decisions/action taken by the Chairman, Senate.

The Senate noted the decisions taken by the Chairman, Senate on behalf of the Senate, as given in the agenda.

Item No. 35.19: Issues to be discussed by the Senate without Student Members being present.

None.

The meeting concluded with a vote of thanks to the Chair and to the Members.

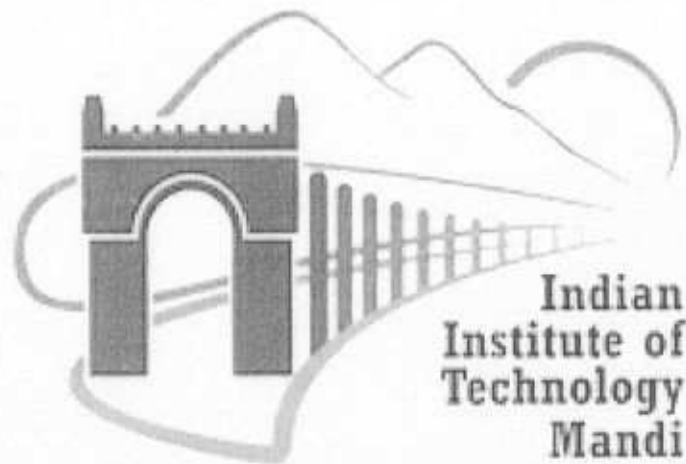
U. Belen
21/6/22
Chairman, Senate

Alina
21/6/22
Registrar & Secretary-Senate

छत्तीसवीं सिनेट बैठक का कार्यवृत्त

**MINUTES OF THE 36th SENATE MEETING OF
IIT MANDI**

15th SEPTEMBER, 2022



भारतीय प्रौद्योगिकी संस्थान मण्डी
कमांद— 175075, हिमाचल प्रदेश

**INDIAN INSTITUTE OF TECHNOLOGY MANDI
KAMAND – 175075, HIMACHAL PRADESH**

**INDIAN INSTITUTE OF TECHNOLOGY MANDI
KAMAND, HIMACHAL PRADESH**



36th SENATE MEETING OF IIT MANDI

THURSDAY, 15th SEPTEMBER, 2022

Item No.	Agenda items	Page No.
	PART – A	
36.1	To confirm the minutes of the 35 th Senate meeting held on 2 nd June, 2022.	3
36.2	To receive a report on the actions taken for the decisions taken in the 35 th Senate meeting held on 2 nd June, 2022.	3
36.3	To consider the recommendations regarding Awards and Medals.	3
36.4	To consider award of Ph.D., I-Ph.D. (Physics), M.S. (by Research), M.Tech. M.Sc., M.A. and B.Tech. degree.	3-4
36.5	To consider the award of Medals and Prizes to the winners among the graduands, which are to be awarded during the 10 th Convocation of the Institute.	4-5
36.6	To consider the proposal for establishment of Centre for Artificial Intelligence and Robotics (CAIR).	5
36.7	Any other agenda item with the permission of the Chairman, Senate.	5
36.8	To report decisions/action taken by the Chairman, Senate.	5
	PART – B	
36.9	Issues to be discussed by the Senate without Student Members being present.	6

INDIAN INSTITUTE OF TECHNOLOGY MANDI

Minutes of the 36th Senate Meeting of IIT Mandi held on 15th September, 2022 at 03:30 PM in Conference Room, C.V. Raman Guest House, IIT Mandi, Kamand.

The following were present:

In the Chair

Prof. Laxmidhar Behera, Director, IIT Mandi

Members:

Prof. Siddhartha Mukhopadhyay, Dept. of Electrical Engineering, IIT Kharagpur
 Prof. Suman Kalyan Pal, Professor and Chairperson Erstwhile SBS, IIT Mandi
 Prof. C. K. Nandi, Professor, Erstwhile SBS and Dean (Resource Gen. & Alumni Relations), IIT Mandi
 Prof. Rajeev Kumar, Professor, Erstwhile SE and Dean (I&S), IIT Mandi
 Prof. Satinder Sharma, Professor, SCEE, Dean (Faculty) & Co-ordinator C4DFED, IIT Mandi
 Prof. Rahul Vaish, Professor, Erstwhile SE and Dean (Academics), IIT Mandi
 Dr. Viswanath Balakrishnan, Associate Professor, Erstwhile SE and Dean (F&A), IIT Mandi
 Dr. Venkata Krishnan, Dean (SRIC & IR), IIT Mandi
 Dr. Hitesh Shrimali, Associate Professor, SCEE, and Dean (Students), IIT Mandi
 Dr. Samar, Chairperson, SCEE, IIT Mandi
 Dr. Atul Dhar, Chairperson, Erstwhile SE, IIT Mandi
 Dr. Shyamasree Dasgupta, Chairperson, SHSS, IIT Mandi
 Dr. C.S. Yadav, Co-ordinator, AMRC, IIT Mandi
 Dr. Prosenjit Mondal, Co-ordinator, Bio-X Centre, IIT Mandi
 Dr. Satyajit Thakor, Associate Professor, SCEE, IIT Mandi
 Dr. Shyam Kumar Masakpalli, Associate Professor, Erstwhile SBS, IIT Mandi
 Dr. Surya Prakash Upadhyay, Assistant Professor, SHSS, IIT Mandi
 Mr. Rajesh Sinha, Chief Scientist & Head - Smart Machines Research Program, TCS
 Mr. Hemachandra Bhat, General Manager and Practice Head, Robotics Platforms, Wipro
 Dr. P. Anil Kishan, Associate Dean (Courses), IIT Mandi
 Dr. Rajanish Giri, Associate Dean (Research), IIT Mandi
 Dr. Tushar Jain, Head, CCE, IIT Mandi
 Mr. Naresh Singh Bhandari, Deputy Librarian, IIT Mandi
 Mr. Vivek Tiwari, Assistant Registrar (Academics), IIT Mandi
 Kamal Kumar Bajre, then Registrar & Secretary, Senate, IIT Mandi
 Mr. Naveen Saisreenivas Thota, Student Academic Affairs Secretary, IIT Mandi (Special Invitee)
 Mr. Shubham Ranjan, Student Research Affairs Secretary, IIT Mandi (Special Invitee)
 Ms. Hiya Jain, Student General Secretary, IIT Mandi (Special Invitee)

Invitees:

Dr. Amit Shukla, Assistant Professor, Erstwhile SE, IIT Mandi

Following Senate members/invitees could not attend the meeting due to prior commitments:

Prof. Binay Kumar Pattnaik, Dept. of HSS, IIT Kanpur
 Prof. Sandeep Verma, Dept. of Chemistry, IIT Kanpur & Secretary (SERB)
 Prof. Subrata Ghosh, Professor, Erstwhile SBS, IIT Mandi
 Prof. Prem Felix Siril, Professor, Erstwhile SBS, IIT Mandi

Prof. Pradeep C. Parameswaran, Professor, Erstwhile SBS, IIT Mandi
 Prof. Bharat Singh Rajpurohit, Professor, SCEE, IIT Mandi
 Dr. Deepak Swami, Associate Professor, Erstwhile SE, IIT Mandi
 Dr. Arti Kashyap, Associate Professor, Erstwhile SBS, IIT Mandi
 Dr. Rajeshwari Dutt, Associate Professor, SHSS, IIT Mandi

The Chairman Senate extended a warm welcome to all the Senate members for attending the 36th Senate meeting of the Institute. He welcomed Prof. Satinder Sharma, Registrar I/c and Secretary to the Senate and appreciated the appreciable services rendered by Mr. K. K. Bajre, outgoing Registrar and Secretary to the Senate.

Thereafter, following agenda items were taken up.

Item No. 36.1: To confirm the minutes of the 35th Senate meeting held on 2nd June, 2022.

The minutes of the 35th Senate meeting held on 2nd June, 2022 at IIT Mandi were circulated to members of the Senate on 21st June, 2022 (through email) for comments, if any. No comments have been received on the minutes. Therefore, minutes of the 35th Senate meeting held on 2nd June 2022 were confirmed, as circulated.

Item No. 36.2: To receive a report on the actions taken for the decisions taken in the 35th Senate meeting held on 2nd June, 2022.

The Senate noted the actions on the decisions taken in its 35th meeting held on 2nd June, 2022.

Item No. 36.3: To consider the recommendations regarding Awards and Medals.

On the recommendation of the Board of Academics, the Senate considered the proposal of Awards and Medals for graduating batches presented by Dr. C. S. Yadav.

After detailed deliberation, the Senate resolved to approve the proposal, as placed at **Annexure – A; Page No. 7.**

The Senate recommended the same to BoG for approval.

Item No. 36.4: To consider award of Ph.D., I-Ph.D. (Physics), M.S. (by Research), M.Tech. M.Sc., M.A. and B.Tech. degree.

The 10th Convocation of the Institute will be organized soon. The Senate considered the students, who have fulfilled all the requirements for award of the degree during 10th Convocation as detailed below:

Programme	No. of students
Ph.D.	37
I-Ph.D. (Physics)	4
M.S. (by Research)	19
M.Sc. in Chemistry	39
M.Sc. in Applied Mathematics	31
M.Sc. in Physics	25
M.Tech in Mechanical Engineering with Specialization in Energy Systems	9 + 1 (2019 batch)

M.Tech in Energy Engineering with Specialization in Materials	12
M.Tech in Structural Engineering	10 + 1 (2019 batch)
M.Tech in VLSI	14
M.Tech in Power Electronics and Drives	13
M.Tech in Communication and Signal Processing	3 + 1 (2019 batch)
M.Tech in Biotechnology	12
M.A. in Development Studies	10
B.Tech in Civil Engineering	20
B.Tech in Computer Science and Engineering	85 + 1 (2017 batch)
B.Tech in Electrical Engineering	59
B.Tech in Mechanical Engineering	23
Total	429

The Senate congratulated the students on successful completion of the degree requirements and recommended to the Board of Governors (BoG) to award the degree. The complete list of students qualified for various degrees are placed as **Annexure – B; Page No. 8 to 28.**

Further, the Senate authorized the Chairman, Senate to approve the conferment of degree also on those students who complete all the requirements before seven days of commencement of the 10th Convocation.

Item No. 36.5:

To consider the award of Medals and Prizes to the winners among the graduands, which are to be awarded during the 10th Convocation of the Institute.

The Chairperson of the Awards and Prizes Committee presented the award of Medals and Prizes to the following winners among the graduands:

Sl.No.	Roll No.	Name	Medal/Prize
1	B18077	PIYUSH GOYAL	President of India Gold Medal
2	B18036	VISHAL KUMAR	Institute Silver Medal: B.Tech. Civil Engineering
3	B18077	PIYUSH GOYAL	Institute Silver Medal: B.Tech. Computer Science & Engineering
4	B18106	ASHISH ANAND	Institute Silver Medal: B.Tech. Electrical Engineering
5	B18156	ABHISHEK SINGH	Institute Silver Medal: B.Tech. Mechanical Engineering
6	B18012	BHUMANYU GOYAL	Director's Gold Medal
7	B18143	SHRIKHA	Rani Gonsalves Memorial Medal
8	T20211	SOUMYA RANJAN NAYAK	Institute Gold Medal: Among PG Programmes: M.Tech. Power Electronics and Drives
9	V20003	ANJALI SAINI	Institute Silver Medal: M.Sc. (Chemistry)
10	DI20028#	PRAKASH PANDEY	Institute Silver Medal: M.Sc. (Physics)& I-Ph.D. (Physics)

11	V20080*	BHAWNA	Institute Silver Medal: M.Sc. (Applied Mathematics)
12	T20005	RAHUL DOGRA	Outstanding Academic Achievement Award:M.Tech. in Structural Engineering
13	T20249	MEGHVERN PATHAK	Outstanding Academic Achievement Award:M.Tech. in VLSI
14	T20413	SNEHLATA RAO	Outstanding Academic Achievement Award: M.Tech. in Biotechnology
15	T20211	SOUMYA RANJAN NAYAK	Outstanding Academic Achievement Award: M.Tech. Power Electronics and Drives
16	T20045	PREMKUMAR M	Outstanding Academic Achievement Award: M.Tech. Energy Engineering with Specialization in Materials
17	T20042	SHUBHAM RODWAL	Outstanding Academic Achievement Award: M.Tech. Energy Engineering with Specialization in Materials
18	A20007	GAUTAM MISHRA	Outstanding Academic Achievement Award: M.A. in Development Studies
19			Ms. Kiran Bala Arora Memorial Award The committee has asked for the nominations, and will be submitting its recommendation separately. Chairman senate is authorized to take decision the submitted recommendation.)

* Her medal may be awarded only after the completion of her M.Sc.+Ph.D. dual degree program.

#The medal would be given at the time of his graduation after the successful completion of the I-PhD program.

The Senate congratulated and recommended the award of Medals and Awards to all the students mentioned above in various streams, for approval by the Board of Governors (BoG).

Item No. 36.6: To consider the proposal for establishment of Centre for Artificial Intelligence and Robotics (CAIR).

Dr. Amit Shukla, presented a proposal to establish a Center for Artificial Intelligence and Robotics (CAIR) at IIT Mandi.

After discussion, the Senate resolved to recommend the proposal to the Board for consideration, placed at **Annexure – C; Page No. 29 to 33.**

Item No. 36.7: Any other agenda item with the permission of the Chairman, Senate.

None.

Item No. 36.8: To report decisions/action taken by the Chairman, Senate.

The Senate noted the decisions taken by the Chairman, Senate on behalf of the Senate, as given in the agenda.

Item No. 36.9: Issues to be discussed by the Senate without Student Members being present.

None.

The meeting concluded with a vote of thanks to the Chair and to the Members.


30/9/22
Chairman, Senate


30/9/2022
Registrar I/c & Secretary-Senate

वित्त समिति की इकत्तीसवीं बैठक का कार्यवृत्त

**MINUTES OF THE 31st MEETING OF THE
FINANCE COMMITTEE**

14th June, 2022



**भारतीय प्रौद्योगिकी संस्थान मण्डी
कमांड - 175075, हिमाचल प्रदेश**

**Indian Institute of Technology Mandi
Kamand – 175075, Himachal Pradesh**

**INDIAN INSTITUTE OF TECHNOLOGY MANDI
KAMAND, HIMACHAL PRADESH**



31st MEETING OF THE FINANCE COMMITTEE

TUESDAY, 14th JUNE, 2022

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31.2	Action Taken Report (ATR) on the minutes of previous meetings of the Finance Committee.	2
31.3	To consider the revision in scholarship/Fee waiver for UG Women Students.	2-3
31.4	To consider a proposal for modification in Fee Structure.	3
31.5	To consider the recommendations for the expenditure for International Conference, National Conference and Field Trips etc.	3-4
31.6	To report status of filling up of backlog vacancies in teaching cadre.	4
31.7	Additional agenda with the permission of the Chair, if any.	4

INDIAN INSTITUTE OF TECHNOLOGY MANDI

Minutes of 31st Meeting of the Finance Committee of IIT Mandi held on 14th June, 2022 from 12:00 Noon in the Conference Room, C. V. Raman Guest House, IIT Mandi.

The following were present:

- | | | | |
|----|---|-----------------|---------------------|
| 1) | Prof. Prem Vrat
Chairperson, BoG IIT Mandi | Chairperson | |
| 2) | Prof. Laxmidhar Behera
Director, IIT Mandi | Member | |
| 3) | Prof. Ashok Gupta
Department of Civil Engineering
IIT Delhi | Member | |
| 4) | Dr. Vishal Singh Chauhan
Dean (F&A), IIT Mandi | Special Invitee | |
| 5) | Prof. Rajeev Kumar
Dean (I & S), IIT Mandi | Special Invitee | } For item no. 31.2 |
| 6) | Prof. Rahul Vaish
Dean (Academics), IIT Mandi | Special Invitee | } For item no. 31.3 |
| 7) | Dr. Sandip Kumar Saha
Assistant Professor, SE, IIT Mandi | Special Invitee | } For item no. 31.4 |
| 8) | Prof. Satinder Sharma
Dean (Faculty), IIT Mandi | Special Invitee | } For item no. 31.6 |
| 9) | Shri K. K. Bajre
Registrar, IIT Mandi | Secretary | |

Leave of absence has been granted to the following:

- | | | |
|----|---|-----------------|
| 1) | Prof. B. K. Mishra
Dept. of Mechanical & Industrial Engineering
IIT Roorkee | Member |
| 2) | Shri Hemant Sood
Managing Director & Promoter
Findoc Financial Services Group, Ludhiana | Special Invitee |

The Comments of members; 1.) Additional Secretary (Technical Education) and 2.) JS & FA, MoE have been received vide letter no.16-9/2018-TS-I dated 13.06.2022 and 1-17/2010-IFD dated 14.06.2022 respectively, through email.

The Chairperson welcomed all present at the meeting including special invitees.

Thereafter, the Director welcomed all present at the meeting including special invitees. At the outset, the Committee noted the comments received on behalf of the Additional Secretary (Technical Education) and JS & FA, MoE on the agenda items of meeting of the Finance Committee.

Thereafter, the agenda item was taken up as follows:

Item No. 31.1: To confirm minutes of 30th meeting of the Finance Committee held on 19/03/2022 and special meeting of the Finance Committee held on 11/05/2022.

It was noted that the minutes have been circulated and no comments have been received. Therefore, minutes of the 30th Finance Committee meeting held on 19/03/2022 and special meeting of the Finance Committee held on 11/05/2022 were confirmed as circulated.

Item No. 31.2: Action Taken Report (ATR) on the minutes of previous meetings of the Finance Committee.

Prof. Rajeev Kumar, Dean (I & S) gave a presentation on the ongoing works along with likely date of completion. The FC expressed concern in delayed works and emphasized the need for levying penalty for delay, wherever applicable. It was noted that penalty clause exists in the contract and IIT Mandi has received compensation for delay in works from both CPWD and NBCC which was appreciated by the FC.

The FC further noted with pleasure that IIT Mandi shall be saving Rs.10 Lakhs per month on account of supply of electricity with waived off meter rent and subsidy in tariff provided by the H.P. Government to IIT Mandi.

With above observations, the FC noted the ATR.

Item No. 31.3: To consider the revision in scholarship/Fee waiver for UG Women Students.

The Dean (Academics), special invitee presented the item before the Finance Committee and briefed the proposal. The FC noted that the present scheme of scholarship/Fee waiver for UG Women Students is based on the JAB recommendations to enhance girl enrolment to 20% in under graduate programs. The scheme was to be reviewed on achieving the target or after 8 years. It was noted that IIT Mandi has consistently achieved the target in last 2 years.

The complete fee waiver along with Rs.1000/- per month stipend to each UG girl student was initiated by IIT Mandi as part of JAB recommendation for giving incentives. Since, IIT Mandi achieved the

target of 20% women students at UG level, the FC recommended to discontinue this practice. However, existing government schemes and MCM scholarship would continue.

The FC took note of comments from the MoE wherein MoE appreciated discontinuation of fee waiver. However, to encourage meritorious girl students to excel academically a scholarship of Rs.1.0 Lakh per semester is proposed to be given to the girl students having SGPA greater than or equal to 8.5 from second semester onwards. The FC recommends to submit a proposal of this scholarship to the MoE for approval.

Item No. 31.4: To consider a proposal for modification in Fee Structure.

Dr. Sandip Kumar Saha, Assistant Professor, SE, special invitee presented the item before the Finance Committee and briefed about the need of modifications to be done in Fee Structure of the Institute. The FC noted in accordance with guidelines of the MoE, the UG fee is not under consideration and the enhanced fee would apply mostly prospectively. The current proposal of enhanced charges to existing students covers non-academic components like transportation, hostel and other campus facilities. The FC also noted that the charges have not been revised in last few years and the current proposal is in line with fee structure of other IITs.

After detailed deliberation, the FC recommended the proposal to the Board including fee structure for MBA program being initiated from the current academic year. The FC further advised that since mess advance is not a fee may be decided by the Institute depending upon the need.

The final proposal for revision of various charges and fees is attached (Annexure-1).

Item No. 31.5: To consider the recommendations for the expenditure for International Conference, National Conference and Field Trips etc.

The Dean (F&A), special invitee presented the item before the Finance Committee and briefed the proposal. The salient recommendations are as follows:

- 1) Ph.D. Scholars registered for full time may be offered a travel support of maximum of Rs.1,00,000/- for entire duration of their course. This may be utilized for travel related needs relating to International Conferences, National Conferences, and Field Trips etc. This support may be utilized for one particular travel or in parts for different travel needs.

- 2) M.S. (by Research)/ M.Tech. (by Research) Scholars may be offered a travel support up to maximum of Rs.20,000/-, with rest of the conditions as mentioned in the point (1).

The FC appreciated the proposal and recommended to the Board.

Item No. 31.6: To report status of filling up of backlog vacancies in teaching cadre.


The Dean (Faculty) updated the Finance Committee (FC) about the status of filling up of backlog vacancies.

The Finance Committee expressed concerns with large vacancies and advised to step-up efforts to expedite the recruitment process.

Item No. 31.7: Additional agenda with the permission of the Chair, if any.

None.

The meeting concluded with a vote of thanks to the Chair.


27/06/22

Prof. Laxmidhar Behera
Director, IIT Mandi

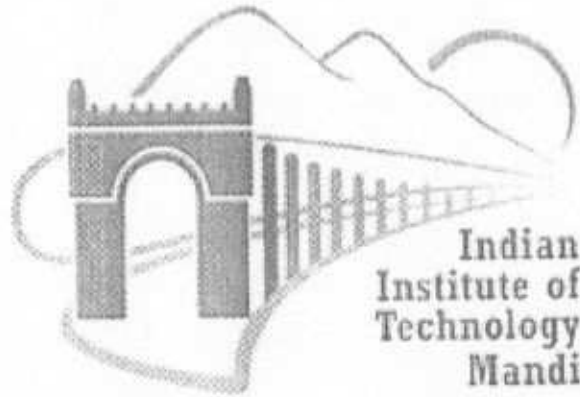

24/06/22

K. K. Bajre
Registrar & Secretary, FC

Chairperson, Finance Committee

भारतीय प्रौद्योगिकी संस्थान मण्डी
कमान्द- 175075 (हिमाचल प्रदेश)

**INDIAN INSTITUTE OF TECHNOLOGY MANDI
KAMAND - 175075 (HIMACHAL PRADESH)**



**MINUTES OF THE 38th MEETING
OF THE BUILDING & WORKS COMMITTEE
HELD ON FRIDAY 14th OCTOBER, 2022**

INDIAN INSTITUTE OF TECHNOLOGY MANDI
KAMAND (HIMACHAL PRADESH)

MINUTES OF THE 38TH MEETING OF THE BUILDING AND WORKS COMMITTEE
HELD ON FRIDAY 14TH OCTOBER, 2022
AT C.V. RAMAN GUEST HOUSE,
CONFERENCE ROOM, NORTH CAMPUS

INDEX

Item No.	Particulars
38.1	To confirm the minutes of the 37 th Building & Works Committee meeting held on 25 th April, 2022.
38.2	To receive a Report on the action taken to implement the decisions of the 37 th meeting of the Building & Works Committee held on 25 th April, 2022.
38.3	Status of arbitration cases of the works executed by CPWD.
38.4	Status of work being executed by NBCC.
38.5	Proposal for creation of research associate hostel.
38.6	Proposal for construction of road connecting north and south campuses of IIT Mandi.
38.7	Proposal for construction of undergraduate student hostel to accommodate future expansion.
38.8	Additional agenda with the permission of the chair, if any.

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INDIAN INSTITUTE OF TECHNOLOGY MANDI

Minutes of the 38th meeting of the Building and Works Committee of IIT Mandi, held on 14th October, 2022 at C.V. Raman Guest House conference room, north campus.

The following were present:

- | | | | |
|------------------------|--|---|---|
| 1) | Prof. Laxmidhar Behera
Director, Indian Institute of Technology
Mandi | - | Chairman (Attended through
Video Conference) |
| 2) | Prof. Rajeev Kumar
Professor and Dean (I & S)
Indian Institute of Technology Mandi | - | Member |
| 3) | Er. A.K. Jain
Former Spl DG, CPWD | - | Member (Attended through
Video Conference) |
| 4) | Er. K.N. Rai,
Fmr. CE (Civil), DRDO | - | Member (Attended through
Video Conference) |
| 5) | Prof. B. Bhattacharjee,
Deptt. Of Civil Engineering,
IIT Delhi | - | Member (Attended through
Video Conference) |
| 6) | Er. Sunil Kapoor
Superintending Engineer
Indian Institute of Technology Mandi
Kamand – 175075 | - | Member Secretary |
| Special Invitee | | | |
| 1) | Dr. Deepak Swami
Associate Dean (Infrastructure)
Indian Institute of Technology Mandi | | |
| 2) | Dr. Rajneesh Sharma
Associate Professor
Indian Institute of Technology Mandi | | Member (Attended through
Video Conference) |
| 3) | Dr. Viswanath Balakrishnan
Associate Professor and Dean (F & A)
Indian Institute of Technology Mandi | | Member (Attended through
Video Conference) |

The Chairman welcomed all the members and thanked them for making themselves available for the 38th meeting of the Building & Works Committee of IIT Mandi.

The following agenda items were taken up in the meeting:

Item No. 38.1: To confirm the minutes of the 37th Building & Works Committee meeting held on 25th April, 2022.

The minutes of the 37th Building & Works Committee meeting held on 25th April, 2022 were circulated to all members of the committee. No comments were received on the minutes from any of the members, so minutes were considered as approved.



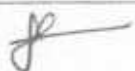
Item No. 38.2: To receive a report on the action taken to implement the decisions of the 37th Meeting of the Building & Works Committee held on 25th April, 2022.

Action Taken Report to implement the decision of previous meetings were noted down.

Item No.	Name of work	Decision/observation of Board	Awarded amount and date of Award/ Release of funds	Time of completion as per agreement	Likely date of completion	Remarks
26.5	To approve cost of i) Augmentation of existing 1x16/20 MVA, 132/33 kV Power Transformer to 1x25/31.5 MVA at 132/66/33 kV Sub-Station Bijni along with 33 kV feeder bay to meet with the load of IIT Mandi at Kamand amounting to Rs. 489 Lacs.	Approved in 20 th BoG Meeting amounting to Rs. 489 Lacs held on 16 th Feb. 2018 (Item No. 20.2.5)	28-02-2018 Rs. 489 lacs released to HPSEBL		Oct. 2022	i) Funds of Rs. 489 lakhs were deposited with HPSEBL on 28-02-2018, Rs. 494 lakhs stands utilized by HPSEBL. Only erection work of 33kV outgoing side and control cabling is pending, cable has been procured. As per HPSEBL the execution work has not still been taken up due to shortage of funds. HPSEBL is demanding additional 33 lacs to complete the work, meeting is being scheduled with HPSEBL to discuss the matter. Committee resolved that proper justification from HPSEBL shall be obtained for the cost escalation from Rs. 489 lacs.
	ii) Providing supply of power (SOP) to IIT Mandi North Campus at Kamand in Elect Sub-Division, HPSEBL, Kataula under Electrical Division HPSEBL, Mandi amounting to Rs.576.549 Lacs.	Approved in 20 th BoG Meeting amounting to Rs. 546 Lacs held on 16 th Feb. 2018 (Item No. 20.2.5)	Rs. 546 lacs released to HPSEBL on 28-02-2018	Tender for dedicated line from Pandoh to Nandli Sub-Station awarded during Sept, 2020 with completion period of 1 years.	Work completed during Sept. 2022	ii) For work at Sr. No. ii) an amount of Rs. 546 lakhs were deposited with HPSEBL on dated 28-02-2018. Dedicated H.T. line work which was earlier from Bijni Sub-Station, now has been provided from Pandoh to Nandli Sub-Station. Work stands completed as intimated vide letter No. 11007 dated 26-09-2022 and final bill is being prepared. Now electricity to IIT Mandi is being provided from Pandoh.

31.5	To consider the proposal for the construction of a Dining hall cum Student activity centre near S-11 building in North Campus	Approved in 29 th BoG Meeting amounting to Rs. 12,99,01,382 held on 23 rd June, 2020 (Item No.29.2.1)	Rs. 9,56,73,034 dated 29-12-2020	08-01-2022	30-11-2022	Work stands awarded to M/s Kuldeep Contractor with completion period of 12 months. Date of completion as per agreement is Jan., 2022. Present progress is 70% and during review the work it has been intimated by NBCC that work shall be completed by Nov. 2022.
33.5	To consider the proposal for Construction of Water Channel-02 along paver path from B-12 to C-14 at North Campus of IIT Mandi.	Approved in 33 rd B&WC meeting amounting to Rs. 63,21,200 held on 19 th March, 2021.	Rs. 62,02,316 dated 07-06-2021	13-10-2021	Work completed on 14-5-2022	Work awarded to M/s Kuldeep Kumar Contractor with completion period of 120 days. Work stands completed.
33.6	To consider the proposal for Construction of open parking and pathway/Green area behind Auditorium block A-08 at North Campus of IIT Mandi.	Approved in 33 rd B&WC meeting amounting to Rs. 98,52,608 held on 19 th March, 2021	Rs.1,65,85,195 dated 24-05-2021.	28-11-2021	Work completed in April,2022	Work awarded to M/s Kuldeep Kumar Contractor with completion period of 180 days. Work stands completed.
33.7	To consider the proposal for Construction of one row Open Car Parking along the road and Path way between Faculty housing Blocks C-34 and C-26 at North Campus of IIT Mandi	Approved in 33 rd B&WC meeting amounting to Rs. 88,98,741 held on 19 th March, 2021				
33.12	To consider the proposal of creating infrastructure for setting up of Supercomputing facility at IIT Mandi.	Approved in 32 nd BoG Meeting amounting to Rs. 478.28 Cr. held on 31 st March, 2021 (Item No.32.2.7)	Rs. 1,09,90,723 dated 08-11-2021	15-04-2022	Work completed in April 2022	Work awarded on 08-11-2021 to M/s. Chopra Aluminum with completion period of 150 days. Work stands completed.
34.5	To consider the proposal for the construction of boundary for North & South Campuses	Approved in 33 rd BoG Meeting amounting to Rs. 7,54,79,771/-held on 16 th Sept. 2021 (Item No.33.3.7)				Estimate for 1.08 Crore has been prepared where boundary is essentially required and tendering is being done. Rest of the work shall be taken up as per availability of funds.
34.6	To Consider the proposal for Construction of Building for Construction Material Laboratory (GF/FF) in LP-3 area of North campus adjacent to Civil Engineering lab	Approved in 33 rd BoG Meeting amounting to Rs. 2,49,18,760/- held on 16 th Sept.				Consultancy services for Construction Material Laboratory in land parcel 3 of IIT Mandi at Kamand has been completed and Tender for construction of Building for Construction Material Laboratory (GF/FF) in LP-3 area of

		2021 (Item No.33.3.8)				North Campus has been floated with date of opening 13-04-2022 which has been extended and now date of opening is 21-04-2022. Tender has now been opened and cancelled due to administrative reasons. Tender re- invited as per revised estimate with date of opening 31-08-2022. As no bid was received, tender was re-invited with date of opening 20-09-2022. Again no bid was received and tender shall be re-invited. The current proposal is being reviewed by internal faculty members and Institute Planning & design Cell. Tender shall be re- invite after the finalization & sanction of new revised proposal.
36.5	To consider the proposal for c/o R/Wall in front of B-9 hostel & approach to hostel B-8 & B-9 from Navlay road to hostel being constructed by NBCC in South Campus.	Approved in 36 th B&WC Meeting amounting to Rs. 3.98 Cr held on 13 th Dec. 2021 (Item No.36.5)	Rs.3,27,56,908/- dated 08-03-2022	16-09-2022	31-10-2022	AA/ES amounting to Rs. 3,98,01,986/- is issued to NBCC for R/wall and work stand awarded to M/s Keshavpriya Infrastructure with completion period of 6 months. 80% work stands completed.
36.6	Proposal for creation of Hostel Facilities due to implementation of reservation policy for Economically Weaker Section (EWS)	Approved in 34 th BoG amounting to Rs.63.47 Cr held on 19 th March, 2022 (Item No. 34.3.1)				Proposal sent to Ministry for sanction of fund under HEFA for an amount of Rs. 333.72 Cr. which included item No. 36.6, 37.5 & 37.7.
37.5	Proposal for creation of hostel and academic facilities to accommodate future expansion of IIT Mandi	Approved in Special meeting of BoG amounting to Rs.230,82,77,539/- held on 11 th May, 2022 (Item No.1)				
37.7	Proposal for creation of lecture hall complex (LHC) to cater future expansion of IIT Mandi.	Approved in Special meeting of BoG amounting to Rs.39,42,13,241/- held on 11 th May, 2022 (Item No.2)				



37.6	Proposal for appointment of consultant for DPR preparation for construction of road connecting north and south campuses of IIT Mandi (for preparation of DPR)	Approval to hire consultant for preparation of DPR was accorded in 37 th B&WC meeting.	Work was awarded on 21-09-2022	12-10-2022	Work completed on 10-10-2022	DPR has been prepared and is being presented as per agenda item No. 38.6 in this B&WC meeting.
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Item No. 38.3: Status of arbitration cases of the works executed by CPWD.

CPWD was entrusted the work of C/o different buildings under phase-I north for IIT Mandi at Kamand for C/o hostel Blocks-22 Nos. faculty housing-28 Nos, dining Block -3 Nos., faculty club house etc. i/c internal water supply, sanitary installations, internal electrical installations, drainage and development of the site etc. during 2013. Work was awarded to M/s Supreme Infrastructure Pvt. Ltd. for an amount of Rs 179.48 Cr dated 18-09-2013 with a completion period of 24 months. Due to slow progress made by the firm, buildings were withdrawn by CPWD at different stages and balance work were retendered and subsequently completed by various firms/contractors. **All buildings have since been completed.** Some of the firms/contractors have gone for arbitration. List and latest status as received from Executive Engineer CPWD is enclosed as **Annexure 38.3 Page no. 19 to 21.**

B&WC deliberated the matter in detail & based upon deliberation opined that as soon as any contractor applies for arbitration, CPWD shall immediately bring it to the notice of IIT Mandi with available details and also keep IIT Mandi informed from time to time about latest status of each & every arbitration cases on monthly basis along with the claims of arbitration. For further works Institute shall review the MoU/ contract to be signed with PMC regarding arbitration clause to safeguard the interest of Institute.

Item No. 38.4: Status of work being executed by NBCC.

Work of construction of academic block buildings A9, A10, A11, A12, A13, A14, A16 and village square buildings, A5 guest House, A6 gym/sports complex, A7 hospital and A8 auditorium building was awarded to M/s Pratibha Industries Ltd. for an amount of Rs. 268.28 Cr. on 07-05-2016 with a completion period of 22 months.

Due to slow progress of work by the firm, buildings were withdrawn and subsequently completed by other firms. All the building stands completed except one building i.e. dining hall cum student activity center.

Present status is attached in **annexure 38.4 Page no. 22.**

Committee members expressed its serious concern regarding delay in completion of building and it was resolved that NBCC shall provide realistic date for completion of the building. Committee further suggested that working programme of remaining work may be obtained from NBCC indicating requirement of material & manpower required to complete the work, present availability of manpower, which shall be reviewed by IIT Mandi on weekly basis.

Item no. 38.5: Proposal for creation of research associate hostel.

IIT Mandi has completed more than 12 years of service to the nation in 2022 and is now well set to take its operation to the next level in-line with the country's vision and requirements for Aatmanirbhar Bharat to Make-in-India. To this end, the institute plans to increase its intake for various post graduate courses. It has already started MBA and also proposed to start new PG courses in near future.

For this there shall be a additional requirement of hostel accommodation.

IIT Mandi shall be having a saving of about Rs. 11 Cr. from the already sanction Rs. 275 Cr. HEFA loan & work is proposed to be got executed from the saving of Rs. 11 Cr. **[Annexure 38.5 (A) Page No. 23 to 24]**

Considering the same IIT Mandi has proposed to create hostel facilities for about 80 students. Tentative plan of the same is attached. Building shall be 5 storey building having plinth area of 573.58 sqm. and total Built up area (BUA) of about 2868 sqm. IIT Mandi has already constructed similar type of building and same design can be adopted. The cost estimates on the basis of CPWD plinth area rates 2021, has been prepared amounting to Rs 10 Cr. which includes provision for one no. lift, DG set for lift, external lights, road, provision for furniture and is annexed as **Annexure 38.5 (B) page No. 25 to 28.**

Chairman B&WC explained the need for the hostel. Committee member for this agreed to construct the same & suggested that building shall have four/ five storey by incorporating the fire safety norms as per National Building Code during presentation of architectural drawings & detailed estimate.

It was also suggested to change the name of hostel to married research scholar cum project employee hostel instead of research associate hostel.

B&WC further deliberated & recommends that the proposal for approval to FC/BoG for an amount of Rs. 10 Cr. from HEFA savings & also recommends to take construction work through Construction Wing of IIT Mandi.

Item no. 38.6: Proposal for construction of road connecting north and south campuses of IIT Mandi.

30th Finance Committee meeting held on 19th March 2022 considered the selection of PMC for construction of double lane bridge connecting north campus from Ghoda Farm on Kataula Khad. During deliberation Director discussed about alternate proposal to integrate the two Campuses. On this FC advised to present cost benefit analysis of the proposal, so as to have more effective and efficient solution including intangible benefit for movement between north and south campuses. Accordingly, the proposal was deferred.

Alternate proposal with cost analysis of original and alternative proposal was presented in 37th B&WC meeting held on 25th April, 2022. The Director IIT Mandi briefed the committee members that alternative proposal has been prepared as recently 308 Acres of forest land has been transferred to IIT Mandi, which was not available at the time of preparing original proposal. The necessity for alternative proposal arises because of recently transferred forest land and connecting various land parcels of land. Committee members in 37th B&WC meeting agreed and appreciated the alternative proposal and suggested to prepare a detailed project report (DPR) on higher priority by appointing a consultant for preparation of plan for comprehensive internal road system and internal connectivity among land parcels to minimize time weighted travelling distance and DPR shall also include qualitative and quantitative benefits to user (both direct and indirect) in financial terms.

Based upon the approval from B&WC tender for hiring of consultant was floated however in the meantime IIT Mandi established a design and planning cell and it was deliberated in the meeting that as IIT Mandi has established design and planning cell so design of bridge can be done internally which shall save consultancy fee (consultancy fee is usually 2% to 3% of project cost) and consultancy service for road work may be done through hiring consultant as is being done by Himachal Pradesh Public Works Department for preparing for PMGSY roads. Cost involved shall be around 3 lacs only.

Based upon the deliberation tender for appointing consultant was floated for preparing road work DPR and work was awarded. Scope of the work includes:-

1. Alignment of the road in consultation with IIT Mandi.
2. Plan, cross section at 15 meter interval, L section of the road.
3. Estimate of earth work, retaining structure, cross drainage works and metalling/ tarring work.
4. Location of bridge, preparation of hydraulic data for bridge and GAD drawings.

Consultant has prepared detailed project report based upon alignment finalized by IIT Mandi. Alignment of the road is starting from start point of north campus to south campus thus connecting land parcel -2 with motorable road (new hostel is being proposed in this land parcel) which was not earlier accessible, land parcel -5 where lecture hall complex have been planned, few of the flat land in the recently transferred 308 Acres forest land and other flat land which was not earlier accessible, where future expansion may be planned.

Followings are the Salient features of the proposed road from north to south campus:-

1. Total length of road is 3.610 kms with 7 meter tarred width.
2. GSB of 200mm, WMM 225mm, BM 50mm and bituminous concrete 30mm.
3. U-shape and V-shape drains in a length of 1083 mts and 2527 mts.
4. Retaining wall/ breast wall has been considered as per site condition and marked on the plan.
5. Hume pipe culverts and RCC slab culverts have been considered for cross drainage work as per site.
6. W-metal crash barrier in a length of 1125 mts and cement concrete parapets in the remaining length along with safety/warning sign.
7. Provision of lights along road.

Based upon alignment finalized quantities of earth work, surfacing, CD work, retaining wall/breast wall and railing etc. has been worked out and amount has been worked out on DSR 2021 and morth data book which comes to Rs. 25,37,21,820/- including 3% contingency charges. Provision of 5% for street lighting & utility services has been kept. Cost estimate is attached as **Annexure 38.6 (1) Page 29 to 58.**

Similarly consultant has provided Hydraulic data and General Arrangement Drawings on the basis of alignment of road fixed/ hydraulic data. Salient points of the bridge proposed to be constructed are as under:-

1. Span	:	50 mts C/C of bearing.
2. Type	:	PSC Box Girder bridge in M40
3. Loading	:	IRC Class A double lane
4. Carriage way	:	7.5 mts and 1.5 mts footpath
5. Substructure	:	RCC substructure in M35
6. Seismic Parameter	:	Seismic Zone – V

Cost of the superstructure of the bridge has been worked out on the basis of structural drawings of 50 mts span pre-stressed box girder bridge constructed in Mandi town and drawings are attached for reference.



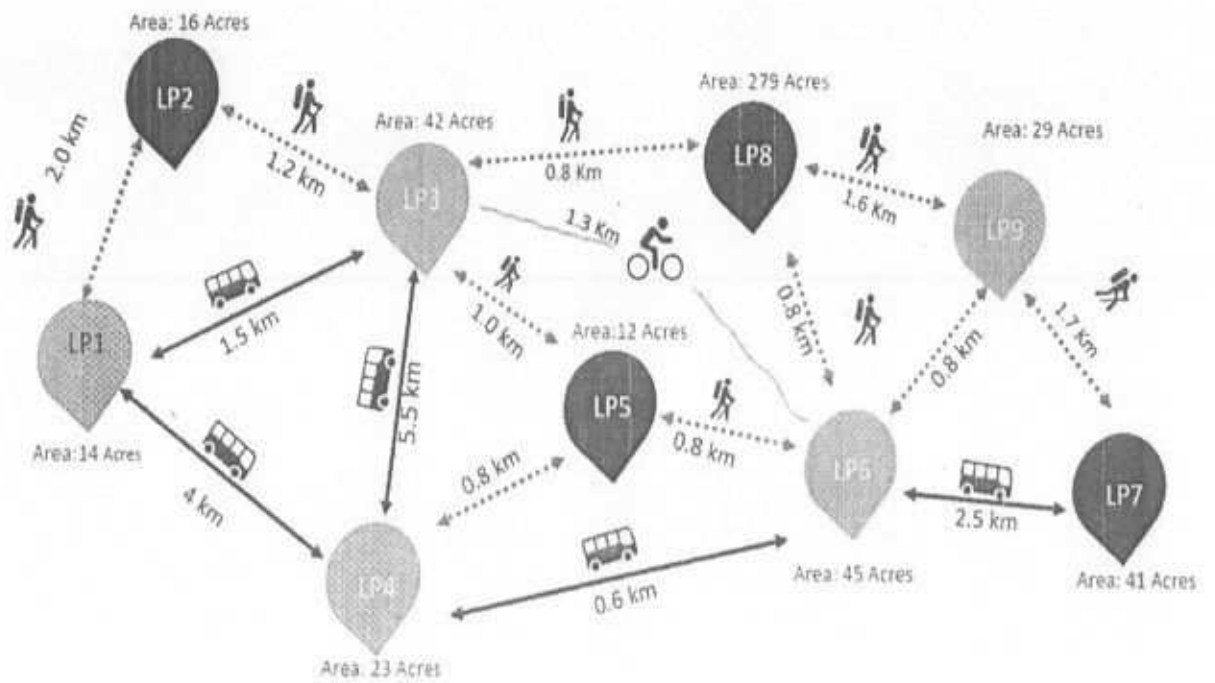
Sub structure has been designed by Design and planning section of IIT Mandi based upon hydraulic data submitted by consultant and for designing abutment bearing capacity of 15 t/m² towards Mind Tree school side and 25 t/m² towards RSS side has been considered which can be verified at the time of execution and if required design can be modified. Similarly design of structure can be checked before execution if desired. Estimate for sub structure and super structure as stated above has been worked out amounting to Rs. 5,44,93,793/- based upon standard data book of Ministry of Surface Transport by considering present market rates and is annexed as Annexure 38.6 (2) Page No. 59 to 87.

Cost of road work and bridge work is summarized below:-

Sr. No.	Particular	Amount (in Rs.)
1	Road work	25,37,21,820
2	Bridge work	5,44,93,793
	Total	30,82,15,613/-
	Say	30.82 Cr.

Cost benefit analysis:-

- Unification of entire campus, eliminating the segregation between south and north campus community.
- Complete end to end connection in all land parcels for rapid development (as shown in Fig.-3).
- Providing all season motorable road, allowing all stack holder to commute with ease between academic administrative and residential blocks.
- Students will have more time for their academic and extracurricular activities.
- Internal connectivity will save time for administrative processes.
- Campus residents will be moving safely within campus boundary, as traffic on the public road on which IIT community presently is commuting has increased many fold and rash driving has been witnessed.
- There will be less transport requirement to commute between the campuses which will result in less fossil fuel consumption.
- The unification will encourage campus resident to opt for walk cycle tracking through scenic meadows between the campuses.
- This dedicated road for IIT Mandi community will also save time by avoiding frequent traffic congestion.
- This unification will provide several view point for visitors.
- Future expansion on the allotted land parcel on the hill will be connected with less expense as, recently transferred land is inaccessible. To make this land useable, road access will be required which will involve a tentative cost of 13 to 14 Cr (Fig.-5).



Proposal-1

Total Cost of Connectivity: 30Cr

Access to land with all weather road: 60%

Fig.-1 Tentative Distance and mode of commuting as per proposal no.-1

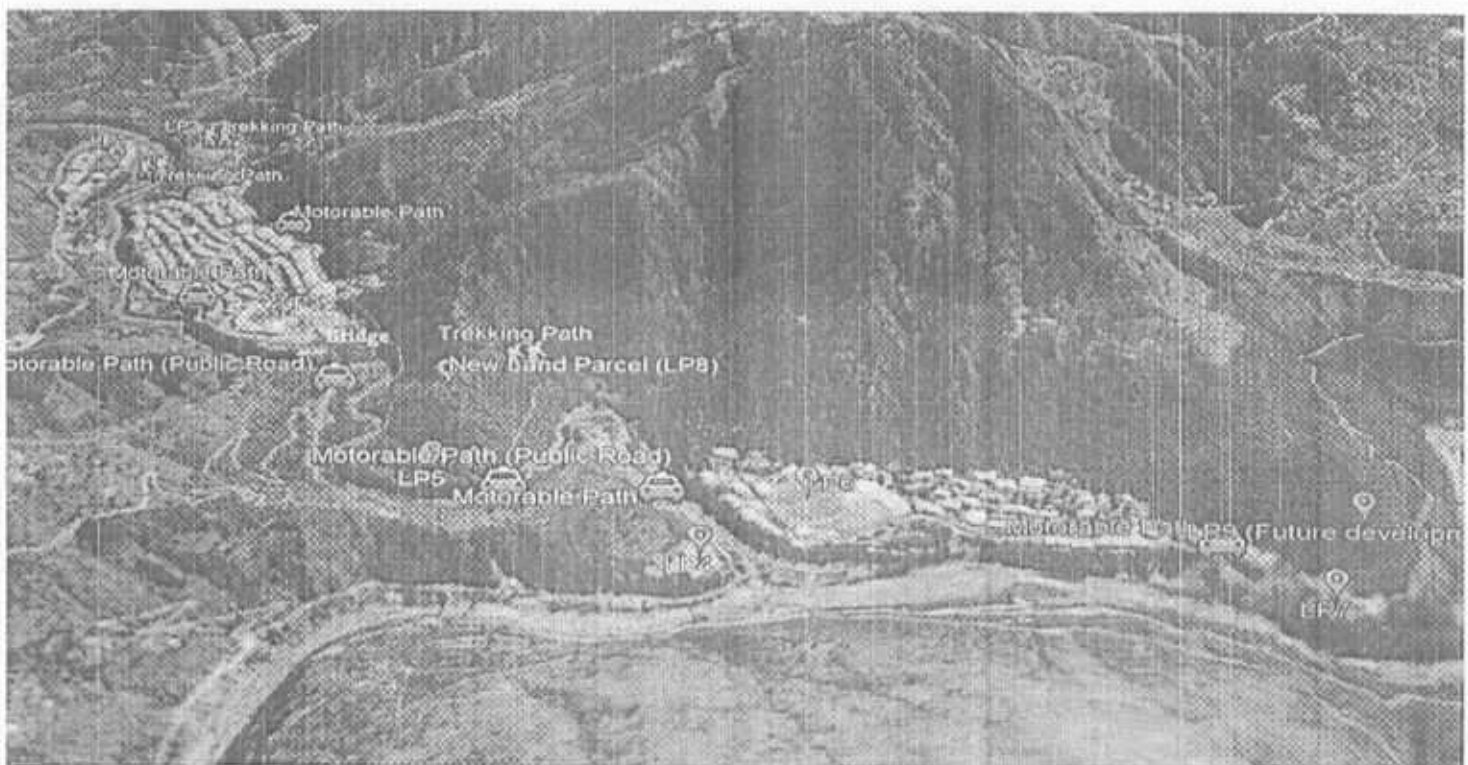
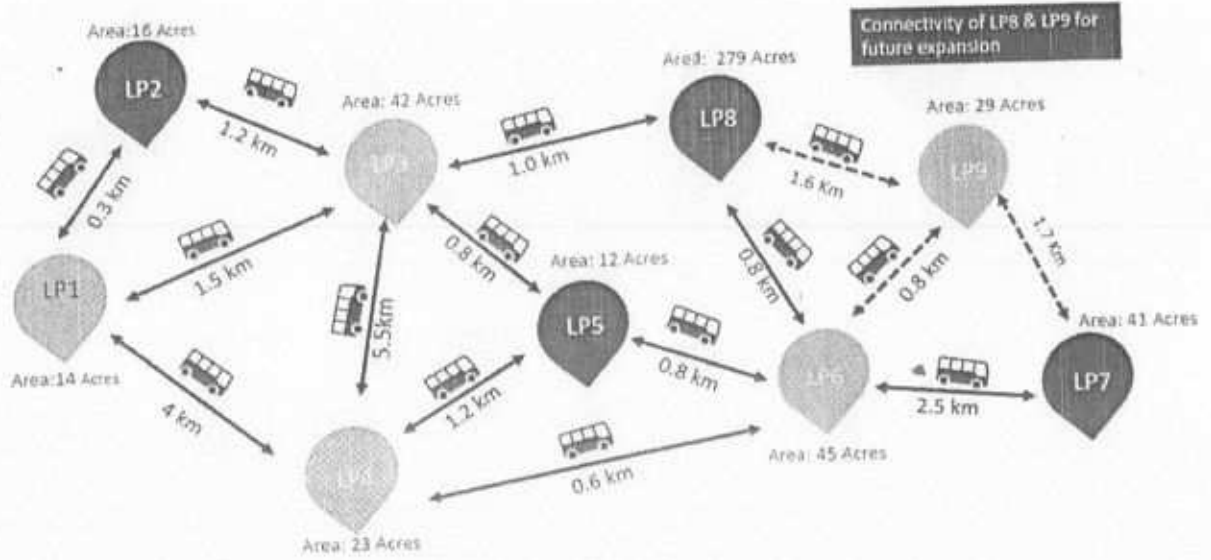


Fig.-2 Tentative alignment of motorable path as per proposal no.-1

SP



Proposal-2

Total Cost of Connectivity: 32Cr

Access to land with all weather road: 100%

Fig.-3 Tentative distance and mode of commuting as per proposal no.-2

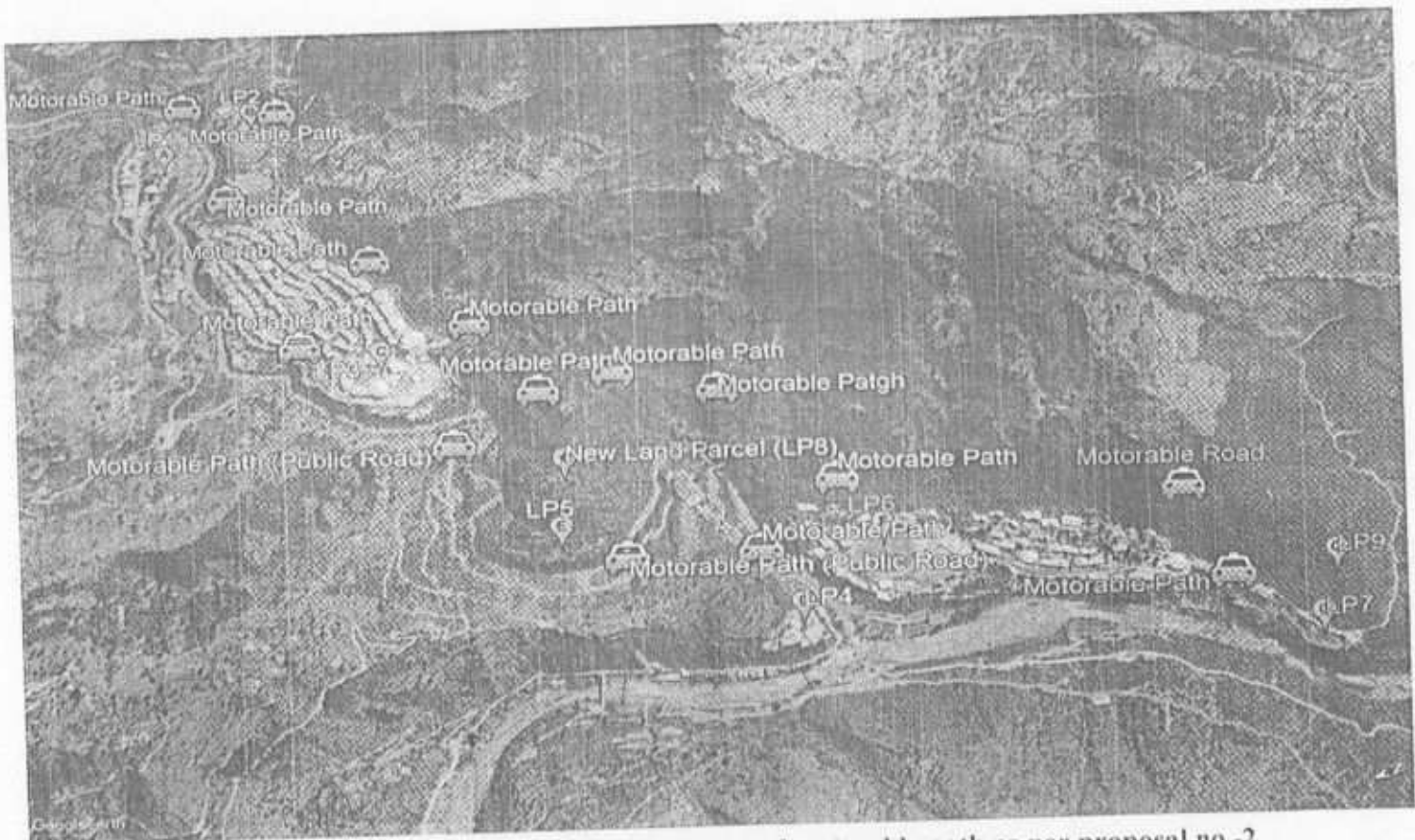
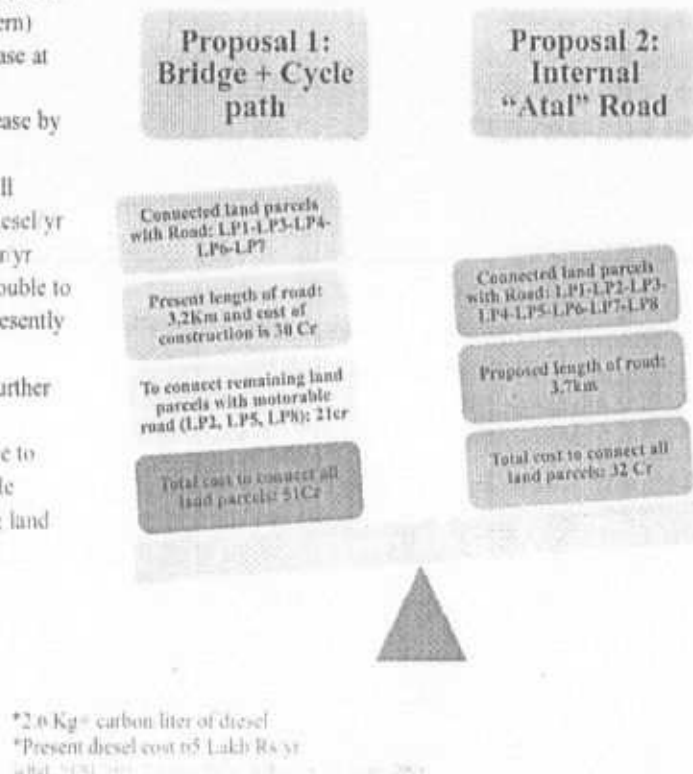


Fig.-4 Tentative alignment of motorable path as per proposal no.-2

- Travel distance will increase to 7 Km (in staggered pattern)
- Cost of travel will increase at least to 2.5 Cr/year
- Time of travel will increase by 30 Minute
- Diesel Consumption will double to 1.5 Lakh ltr diesel/yr from currently 72,000 ltr/yr
- Carbon Emission will double to 3.7 Lakh Kg/Yr from presently 1.8 Lakh Kg/Yr
- Future Expansion will further take time and multiple iterations in proposal due to construction of motorable approaches to remaining land parcels



- Travel distance will be 3.7 Km (in fluid pattern)
- Cost of travel will reduce to 50 Lakh/year
- Time of travel will reduce to 15 Minute
- Diesel Consumption will be half to 36,000 diesel/yr
- Carbon Emission will be 0.65 Lakh Kg/Yr from presently 1.8 Lakh Kg/Yr
- Future Expansion will be readily accessible for institute growth
- The complication to travel, vehicular dependency to travel between land parcels will drastically reduce
- Playground, hostel connectivity with cycle and by walk will significantly increase
- The only vehicular moment will be limited to LP3 to LP8 (1.5 Km)
- The Electrical vehicle can be started to bring down the carbon footprint to minimum

Fig.-5 Qualitative and Quantitative Benefits

Funds of Rs. 29.55 Cr. is available under Rs. 275 Cr. HEFA loan & balance 1.27 Cr. can be met out from OH 35.

Committee member appreciated the proposal no. 2 (as shown in Fig No. 3 & 4) as the road proposed is exclusively for IIT Mandi; it will serve the further expansion requirement of IIT Mandi. Committee members raised their concern about the soil slope stabilization after the fresh cutting of hill slope, and advised to take necessary technical measures during the construction of proposed road, to which special invitee of committee explained that internal faculty members has discussed the proposal in detail, the proposal is finalized based upon the contour data collected with the help of Drone Survey and Geological report of the area obtained from Geotechnical section of IIT Mandi & added that further necessary soil stabilization can be taken after cutting work is completed. Members also suggested proper lighting all along the road from security considerations.

B&WC deliberated upon the proposal, recommended the estimate for approval to FC/BoG for an amount of Rs. 30,82,15,613/- based upon latest DSR 2021 & standard data book of MORTH. Further it was also recommended to take up construction through Construction Wing of IIT Mandi by inviting separate tender for road & bridge work respectively.

[Handwritten signature]

Item no. 38.7: Proposal for construction of undergraduate student hostel to accommodate future expansion.

IIT Mandi has already completed hostels facilities for 2360 students and these hostels shall be fully utilized after admission/ start of first semester for B.Tech students.

IIT Mandi has completed more than 12 years of service to the nation in 2022 and is now well set to take its operation to the next level in-line with the country's vision and requirements for Aatmanirbhar Bharat to Make-in-India. To this end, the institute plans to increase its intake by starting new B.Tech courses for the next year. There shall be requirement of about 150 students undergraduate hostel.

Plan of the proposed hostel has been prepared and it is proposed to have 5 storey building having area of about 768 sqm for each storey. Total area thus comes to 3839 square meters. The cost estimates on the basis of CPWD plinth area rates 2021, has been prepared amounting to Rs 14,18,84,101/- which includes 14 rooms on ground floor, 18 rooms in the remaining 4 floors. Total capacity thus comes to 172 students considering 2 students per room. Estimate is annexed as **Annexure 38.7 page No. 88 to 92.**

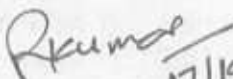
Chairman of the committee has explained the committee members about the necessity for construction of new hostel block to meet the future expansion requirements and work can be taken up from the funds available under OH-35. After deliberation committee members suggested to have four/ five storey building by incorporating the fire safety norms as by National Building Code during preparation of architectural drawings & detailed estimate & recommended the proposal for approval to FC/BoG for an amount of Rs. 14,18,84,101/-. It was also recommended to construct the building through Construction Wing of IIT Mandi.


The meeting ended with a vote of thanks to the Chair.


Er. A.K. Jain
Member
(Attended through
Video Conference)

Er. K. N. Rai
Member
(Attended through
Video Conference)

Prof. B. Bhattacharjee
Member
(Attended through
Video Conference)


Prof. Rajeev kumar
Member
17/10/2022


Superintending Engineer cum
Member Secretary
17/10/2022


Chairman, B&WC
18/10/22



ANNEXURE -B

41 Ph.D., 4 I-Ph.D., 20 M.S. (by Research), 39 M.Sc. (Chemistry), 31 M.Sc. (Applied Mathematics), 25 M.Sc. (Physics), 76 M.Tech (including 73 from 2020, 03 from 2019), 10 M.A. (Development Studies) and 188 B.Tech (including 187 from 2018, 01 from 2017 batch) which includes 74 B.Tech with Minor students, who fulfilled all the requirement for the award of the degree are as under:

a) Doctor of Philosophy (Ph.D.)

The following 41 Ph.D. scholars have completed all the requirements for the award of the degree of "Doctor of Philosophy" including submission of the final approved thesis.

Sl. No	Name & Roll No.	Date of Joining/ Date of Completion	Guide	Thesis Title	Viva- Voce Board	Thesis Examiners
1	Prateepsingh Sagara (D12089)	DoJ: 28-02-2013 DoC: 23-06-2022 (9 years, 4 months)	Prof. Prem Felix Siril (Guide) Dr. P.C. Ravikumar (External Co-Guide) Prof. Subrata Ghosh (Internal Co-Guide)	<i>N,N'</i> -Bidentate Directing Group: $C(sp^2)$ -H Activation by Ruthenium (II) Catalysis	Prof. Suman Kalyan Pal (Chair) Prof. Prem Felix Siril (Guide) Prof. Subrata Ghosh (Internal Co-Guide) Dr. P.C. Ravikumar (External Co-Guide) Dr. Beeraiah Baire (Thesis Examiner) Dr. Amit Balkrishna Pawar (Subject Expert)	Dr. Beeraiah Baire (IIT Madras) Prof. Martin E. Maier (Universitat Tubingen Institute fur Organische Chemie)
2	Monika Kaushik (D14035)	DoJ: 09-02-2015 DoC: 10-08-2022 (7 years, 6 months)	Dr. Suman	Identities at the Crossroads: Probing Gendered Bodies through A Play of Language in Mahesh Dattani's Select Plays	Dr. Shyamasree Dasgupta (Chair) Dr. Suman (Guide) Dr. Kamayani Kumar (Thesis Examiner) Dr. Manu V Devadevan (Member Expert from the discipline) Dr. Amit Jaiswal (Member from Outside the discipline)	Dr. Kamayani Kumar (Aryabhata College, University of Delhi) Dr. Vandana Saxena (University of Malaya, Lumpur)
3	Prabhjot Kaur (D15004)	DoJ: 22-07-2015 DoC: 23-04-2022 (6 years, 9 months)	Dr. Anil Kumar Sao	Novel Unsupervised Approaches for Quality Improvement of Structural Brain Magnetic Resonance Images	Dr. Samar (Chair) Dr. Anil Kumar Sao (Guide) Prof. Suyash P. Awate (Thesis Examiner) Dr. Anubha (Subject Expert) Prof. Rajeev Kumar (Special Nominee of Chairman, Senate)	Prof. Suyash P. Awate (IIT Bombay) Prof. Vijayan K Asari (University of Dayton, Ohio, USA)
4	Moumita Ganguly (D15020)	DoJ: 27-07-2015 DoC: 12-04-2022 (6 years, 9 months)	Dr. Aniruddha Chakraborty	Theoretical Investigations of Looping of a Long Chain Polymer Molecule in Dilute Solution	Prof. Suman K Pal (Chair) Dr. Aniruddha Chakraborty (Guide) Prof. Swapan K Ghosh (Thesis Examiner) Dr. Prasanth P Jose (Subject Expert) Dr. Rajesh Ghosh (Special Nominee of Chairman, Senate)	Prof. Swapan Kumar Ghosh (University of Mumbai) Prof. Vasudev M Kenkre (University of New Mexico, USA)
5	Afsal Thuppilakkadan	DoJ: 27-07-2015	Dr. Hari Varma R	Photoionization Studies of Endohedral Atoms	Dr. Sudhir Kumar Pandey (Chair) Dr. Hari Varma R (Guide)	Prof. Aravind G. (IIT Madras)

Sl. No	Name & Roll No.	Date of Joining/ Date of Completion	Guide	Thesis Title	Viva- Voce Board	Thesis Examiners
	(D15032)	DoC: 23-06-2022 (6 years, 11 months)			Prof. Aravind G. (Thesis Examiner) Dr. Pradyumna Pathak (Member Expert from the discipline) Dr. Padmanabhan Rajan (Member from Outside the discipline)	Prof. Jean-Patrick Connerade (South Kensington Campus, Imperial College, London)
6	Paromita Dutta (D15033)	DoJ: 27-07-2015 DoC: 02-02-2022 (6 years, 6 months)	Dr. Sudhir Kumar Pandey	Investigating the Effect of Electronic Correlation on the Physical Properties of Late 3d Transition-metal Based Systems using <i>ab-initio</i> Methods	Dr. Rajendra Ray (Chair) Dr. Sudhir Kumar Pandey (Guide) Dr. Sanjeev Kumar (Thesis Examiner) Dr. C.S.Yadav (Subject Expert)	Dr. Sanjeev Kumar (IISER Mohali, Punjab) Prof. Arun Bansil (Northeastern University, Boston, MA, USA)
7	Suman (D15037)	DoJ: 17-08-2015 DoC: 09-04-2022 (6 years, 8 months)	Prof. Pradeep C Parameswaran	Development of New Styryl Quinoline Derivatives as Chemosensors, Organic Thin Film Transistor Materials and Anticancer Agents	Prof. Suman K Pal (Chair) Prof. Pradeep C Parameswaran (Guide) Prof. Kaushik Ghosh (Thesis Examiner) Dr. Santanu Kumar Pal (Subject Expert) Dr. Subhajit Roy Chowdhury (Special Nominee of Chairman, Senate)	Prof. Kaushik Ghosh (IIT Roorkee) Prof. Cheal Kim (Seoul National University of Science and Technology, Korea)
8	Akansha Garg (D15039)	DoJ: 18-08-2015 DoC: 20-06-2022 (6 years, 10 months)	Dr. Narsa Reddy Tummuru (Guide) Prof. Ramesh Oruganti (Co-Guide)	Real-Time Power Management in DC Microgrid using DC Bus Signaling	Dr. Samar (Chair) Dr. Narsa Reddy Tummuru (Guide) Prof. Ramesh Oruganti (Co-Guide) Dr. Thanga Raj Chelliah (Thesis Examiner) Prof. Bharat Singh Rajpurohit (Member Expert from the discipline) Dr. Chandan Kumar (Member from Outside the discipline)	Dr. Thanga Raj Chelliah (IIT Roorkee) Dr. Jose Luis Rueda (Delft University of Technology, Netherlands)
9	Vyoma Singh (D15040)	DoJ: 18-08-2015 DoC: 11-01-2022 (6 years, 5 months)	Dr. Tushar Jain (Guide) Dr. Birupaksha Pal (Co-Guide)	State and Parameter Estimation for Spark-Ignition Engines	Dr. Samar (Chair) Dr. Tushar Jain (Guide) Dr. Birupaksha Pal (Co-Guide) Prof. Arun D Mahindrakar (Thesis Examiner) Dr. Shaikshavali C (Subject Expert) Dr. Aditi Halder (Special Nominee of Chairman, Senate)	Prof. Arun D Mahindrakar (IIT Madras) Prof. Didier Maquin (Universite de Lorraine, France)
10	Chandrasekhara Pratap G C (D15059)	DoJ: 08-02-2016 DoC: 01-04-2022 (6 years, 1 month)	Dr. Pradeep Kumar	Numerical Analysis of Natural Convection Coupled with Diffuse and Collimated Beam Radiation in a Participating Medium	Dr. Atul Dhar (Chair) Dr. Pradeep Kumar (Guide) Prof. K. Muralidhar (Thesis Examiner) Prof. K Srinivas Reddy (Subject Expert) Prof. Prem Felix Siril (Special Nominee of Chairman, Senate)	Prof. K Muralidhar (IIT Kanpur) Prof. Yogesh Jaluria (Rutgers University, NJ)
11	Mohammad Ishtiyaq Qureshi (D15063)	DoJ: 22-02-2016 DoC: 10-02-2022 (6 years)	Dr. Satyajit Thakor	On the Information Flow in Undirected Unicast Networks	Dr. Samar (Chair) Dr. Satyajit Thakor (Guide) Prof. Navin Kashyap (Thesis Examiner) Prof. Adrish Banerjee (Subject Expert) Dr. Bindu Radhamany (Special Nominee of Chairman, Senate)	Prof. Navin Kashyap (IISc Bangalore) Dr. Viveck Cadambe (Pennsylvania State University PA, USA)
12	Pooja	DoJ: 25-07-2016	Dr. Shyamasree	Access to Modern Fuels for	Dr. Rajeshwari Dutt (Chair)	Prof. K Narayanan

Sl. No	Name & Roll No.	Date of Joining/ Date of Completion	Guide	Thesis Title	Viva- Voce Board	Thesis Examiners
	Sankhyayan (D16001)	DoC: 30-11-2021 (5 years, 4 months)	Dasgupta	Cooking and Lighting in Indian Households: An Economic and Policy Discourse	Dr. Shyamasree Dasgupta (Guide) Prof. K. Narayanan (Thesis Examiner) Prof. Patricia E. Perkins (Subject Expert) Dr. Atul Dhar (Special Nominee of Chairman, Senate)	(IIT Bombay) Prof. Patricia Elaine Perkins (York University, Toronto, Canada)
13	Avinash Kumar (D16005)	DoJ: 25-07-2016 DoC: 03-02-2022 (5 years, 6 months)	Dr. Tushar Jain	Optimal Control Design in Krotov Framework	Dr. Samar (Chair) Dr. Tushar Jain (Guide) Dr. Mangal Kothari (Thesis Examiner) Dr. Yogesh Vijay Hote (Subject Expert) Dr. Syed Abbas (Special Nominee of Chairman, Senate)	Dr. Mangal Kothari (IIT Kanpur) Prof. Vicenc Puig Cayuela (Universitat Politècnica de Catalunya, Barcelona, Spain)
14	Arshdeep Singh (D16006)	DoJ: 25-07-2016 DoC: 24-03-2022 (5 years, 8 months)	Dr. Padmanabhan Rajan (Guide) Dr. Arnav Bhavsar (Co-guide)	Audio Scene Classification using Learning-based Frameworks	Dr. Samar (Chair) Dr. Padmanabhan Rajan (Guide) Dr. Arnav Bhavsar (Co-guide) Prof. C. V. Jawahar (Thesis Examiner) Dr. Goutam Saha (Subject Expert) Dr. Viswanath Balakrishnan (Special Nominee of Chairman, Senate)	Prof. C. V. Jawahar (IIIT Hyderabad) Prof. Sri Krishnan (Ryerson University, Canada)
15	Mohamad Ghulam Moinuddin (D16007)	DoJ: 25-07-2016 DoC: 26-07-2022 (6 years)	Prof. Satinder Kumar Sharma (Guide) Dr. Srikant Srinivasan (Co-Guide)	Emerging Tunnel Barrier and Layered 2D Magnets for Low Power Spintronics	Dr. Tushar Jain (Chair) Prof. Satinder Kumar Sharma (Guide) Dr. Srikant Srinivasan (Co-Guide) Prof. Anil Prabhakar (Thesis Examiner) Dr. Gopi Shrikanth Reddy (Member Expert from the discipline) Dr. Ajay Soni (Member from Outside the discipline)	Prof. Anil Prabhakar (IIT Madras) Prof. Rajdeep Singh Rawat (National Institute of Education, Nanyang Technological University, Singapore)
16	Aditi Jangid (D16009)	DoJ: 28-07-2016 DoC: 25-04-2022 (5 years, 9 months)	Dr. Tulika P Srivastava	Role Of Gut Microbiota Composition and Functions: Impact of Host Genes, Dietary Factors & Bacterial Taxa on Intestinal Immunity	Prof. Suman K Pal (Chair) Dr. Tulika P Srivastava (Guide) Prof. Pinaki Sar (Thesis Examiner) Dr. Prasad Kasturi (Subject Expert) Dr. Shubhajit Roy Chowdhury (Special Nominee of Chairman, Senate)	Prof. Pinaki Sar (IIT Kharagpur) Dr. Francois Blachier (Universite Paris-Saclay, INRAE, Paris France)
17	Lalita Sharma (D16011)	DoJ: 01-08-2016 DoC: 23-12-2021 (5 years, 4 months)	Dr. Aditi Halder	Defect Engineering in Transition Metal-Based Oxides for Energy Conversion Applications	Prof. Suman K Pal (Chair) Dr. Aditi Halder (Guide) Dr. Muhammed Musthafa O T (Thesis Examiner) Dr. Pravin P Ingole (Subject Expert) Dr. Rik Rani Koner (Special Nominee of Chairman, Senate)	Dr. Muhammed Musthafa O T (IISER, Pune) Prof. Emiliana Fabbri (Paul Scherrer Institute, Switzerland)
18	Harpreet Kaur (D16012)	DoJ: 01-08-2016 DoC: 02-08-2022 (6 years)	Dr. Rik Rani Koner (Guide) Dr. Venkata Krishnan (Co-Guide)	Multifunctional Metal-Organic Frameworks for Water Treatment: Detection, Adsorption and Photocatalytic Remediation of Toxic Contaminants	Prof. Prem Felix Siril (Chair) Dr. Rik Rani Koner (Guide) Dr. Venkata Krishnan (Co-Guide) Dr. Raju Kumar Gupta (Thesis Examiner) Dr. Ritu Gupta (Member Expert from	Dr. Raju Kumar Gupta (IIT Kanpur) Prof. Christian Serre (Institute of Porous Materials of Paris)

Sl. No	Name & Roll No.	Date of Joining/ Date of Completion	Guide	Thesis Title	Viva- Voce Board	Thesis Examiners
					the discipline) Dr. Moumita Das (Member from Outside the discipline)	(IMAP) France)
19	Priyamedha Sharma K R (D16013)	DoJ: 01-08-2016 DoC: 26-09-2022 (6 years, 2 months)	Dr. Bindu Radhamany	Interplay of Structural, Electronic and Magnetic Properties in 3d and 5d Based Transition Metal Compounds	Dr. Kaustav Mukherjee (Chair) Dr. Bindu Radhamany (Guide) Prof. Sugata Ray (Thesis Examiner) Dr. Ajay Soni (Member Expert from the discipline) Dr. Rik Rani Koner (Member from Outside the discipline)	Prof. Sugata Ray (IACS, Kolkata) Prof. Mehmet Acet (University of Duisburg-Essen)
20	Ankur Kumar (D16019)	DoJ: 01-08-2016 DoC: 26-09-2022 (6 years, 2 months)	Dr. Rajanish Giri	Targeting Zika Virus NS2B-NS3 Protease Complex for Folding and Inhibitor Discovery	Dr. Amit Jaiswal (Chair) Dr. Rajanish Giri (Guide) Prof. Biswajit Kundu (Thesis Examiner) Dr. Amit Prasad (Member Expert from the discipline) Dr. P Anil Kishan (Member from Outside the discipline)	Prof. Bishwajit Kundu (IIT Delhi) Prof. Siddappa N Byrareddy (Durham Research Center., Omaha, NE)
21	Manceesh Lingwan (D16020)	DoJ: 01-08-2016 DoC: 10-12-2021 (5 years, 4 months)	Dr. Shyam Kumar Masakapalli	Systems Analysis of Plant Metabolism Under UV-B Radiation by Integrating Metabolomics and ¹³ CO ₂ Labeling	Prof. Suman K Pal (Chair) Dr. Shyam K Masakapalli (Guide) Dr. Harsh Chauhan (Thesis Examiner) Dr. Kasturi Prasad (Subject Expert) Dr. Shubhajit Roy Chowdhury (Special Nominee of Chairman, Senate)	Dr. Harsh Chauhan (IIT Roorkee) Prof. Robert Hansch (Technische Universitat Braunschweig, Germany)
22	Nishith Mohan (D16021)	DoJ: 02-08-2016 DoC: 28-12-2021 (5 years, 4 months)	Dr. Nitu Kumari	Nonlinear Analysis of Reaction Diffusion Systems Describing Ecological Phenomenon	Prof. Suman K Pal (Chair) Dr. Nitu Kumari (Guide) Prof. Ranjit Kumar Upadhyay (Thesis Examiner) Dr. Rajendra Kumar Ray (Subject Expert)	Prof. Ranjit Kumar Upadhyay (IIT (ISM) Dhanbad)) Prof. Christina Kuttler (Technical University of Munich, Germany)
23	Satish Kumar (D16029)	DoJ: 05-08-2016 DoC: 29-09-2022 (6 years, 2 months)	Prof. Rajeev Kumar (Guide) Prof. S. C. Jain (Co-Guide)	Experimental and Theoretical Investigation on Triboelectric Energy Harvesting for Low Power Electronic Devices	Dr. Vishal Singh Chauhan (Chair) Prof. Rajeev Kumar (Guide) Prof. S.C. Jain (Co-Guide) Prof. Narayanan S (Thesis Examiner) Dr. Mohammad Talha (Member Expert from the discipline) Dr. Syed Abbas (Member from Outside the discipline)	Prof. Narayanan S (IIT Madras) Prof. Ing. Michael Sinapius (Technische Universitat Braunschweig, Germany)
24	Korakuti Hanumanthu (D16030)	DoJ: 05-08-2016 DoC: 08-07-2022 (5 years, 11 months)	Dr. Kaustav Sarkar	Improved Modelling of Sorptivity and Hydraulic Diffusivity based on Efficient Phenomenological Considerations	Prof. Rajeev Kumar (Chair) Dr. Kaustav Sarkar (Guide) Prof. Abdelghany Ali El Abd (Thesis Examiner) Prof. Balthasar Novak (Member Expert from the discipline) Prof. Bharat Singh Rajpurohit (Member from Outside the discipline)	Prof. Shashank Bishnoi (IIT Delhi) Prof. Abdelghany Ali El Abd (Nuclear Research Center, Atomic Energy Authority, Cairo, Egypt)
25	Ajay Kumar (D16033)	DoJ: 5-08-2016	Dr. Rajesh Ghosh (Guide)	Biomechanical Performance	Dr. Vishal Singh Chauhan (Chair) Dr. Rajesh Ghosh (Guide)	Prof. Debabrata Chakraborty (IIT Guwahati)

Sl. No	Name & Roll No.	Date of Joining/ Date of Completion	Guide	Thesis Title	Viva- Voce Board	Thesis Examiners
		DoC: 2-09-2022 (6 years, 1 month)	Dr. Rajeev Kumar (Co-Guide)	and Interface Failure Analysis of Cemented Acetabular Cup for Total Hip Replacement	Dr. Rajeev Kumar (Co-Guide) Prof. Debabrata Chakraborty (Thesis Examiner) Dr. Himanshu Pathak (Member Expert from the discipline) Dr. Prosenjit Mondal (Member from Outside the discipline)	Prof. Mark Taylor (Flinders University, Tonsley, South Australia)
26	Diksha Gambhir (D16037)	DoJ: 15-11-2016 DoC: 23-06-2022 (5 years, 7 months)	Dr. Rik Rani Koner	Amino Acid Based Chiral Supramolecular Systems for Visual Enantiomeric Recognition	Dr. Venkata Krishnan (Chair) Dr. Rik Rani Koner (Guide) Prof. Arindam Banerjee (Thesis Examiner) Dr. Tapasi Sen (Member Expert from the discipline) Dr. Sayantan Sarkar (Member from Outside the discipline)	Prof. Arindam Banerjee (Indian Association for the Cultivation of Science, Jadavpur, Kolkata) Prof. Jeffery Davis (University of Maryland, MD, USA)
27	Shailja Sharma (D16045)	DoJ: 01-02-2017 DoC: 20-06-2022 (5 years, 4 months)	Dr. C. S. Yadav	Electronic Properties of Transition Metal Doped Bi ₂ Se ₃ and Bi ₂ Te ₃ Topological Insulators	Dr. Rajendra K Ray (Chair) Dr. C.S. Yadav (Guide) Prof. Satyabrata Patnaik (Thesis Examiner) Dr. Kaustav Mukherjee (Member Expert from the discipline) Dr. Viswanath Balakrishnan (Member from Outside the discipline)	Prof. Satyabrata Patnaik (JNU, New Delhi) Dr. Ramanathan Mahendiran (National University of Singapore (NUS, Singapore)
28	Chethana (D16049)	DoJ: 01-02-2017 DoC: 08-08-2022 (5 years, 6 months)	Prof. Chayan Kanti Nandi	Carbogenic Fluorescent Nanodots as Versatile Probe for Microscope Imaging to Directly Visualize and Map the Biological Events	Dr. Ajay Soni (Chair) Prof. Chayan Kanti Nandi (Guide) Prof. Pramit K. Chowdhury (Thesis Examiner) Prof. Pradeep C. Parameswaran (Expert from the discipline) Dr. Viswanath Balakrishnan (Faculty from outside discipline)	Prof. Pramit K. Chowdhury (IIT Delhi) Prof. Lorenzo Albertazzi (Institute of Bioengineering of Catalonia in Barcelona, Spain)
29	Tripti Chhabra (D16056)	DoJ: 01-02-2017 DoC: 26-07-2022 (5 years, 5 months)	Dr. Venkata Krishnan	Green and Sustainable Conversion of Biomass Derivatives to Biofuel Precursors using Single Component Solid Acid Catalysts	Prof. Rahul Vaish (Chair) Dr. Venkata Krishnan (Guide) Prof. Sanjay Kumar Singh (Thesis Examiner) Prof. Pradeep C. Parameswaran (Expert from the discipline) Dr. Sunny Zafar (Faculty from outside discipline)	Prof. Sanjay Kumar Singh (IIT Indore) Prof. Carsten Sievers (Georgia Institute of Technology, Atlanta, USA)
30	Divya Verma (D16057)	DoJ: 01-02-2017 DoC: 13-08-2022 (5 years, 6 months)	Dr. Viswanath Balakrishnan	Mechanical Behavior Analysis of CVD Grown Functional Materials and their Composites	Prof. Rahul Vaish (Chair) Dr. Viswanath Balakrishnan (Guide) Dr. Debrupa Lahiri (Thesis Examiner) Dr. Prateek Saxena (Expert from the discipline) Dr. Mohammad Talha (Faculty from outside discipline)	Dr. Debrupa Lahiri (IIT Roorkee) Prof. Shriram Ramanathan (Purdue University, West Lafayette)
31	Dinesh	DoJ: 01-02-2017	Dr. Hitesh	Design and Optimization of	Dr. Dileep A D (Chair)	Prof. Santosh Kumar Vishvakarma

Sl. No	Name & Roll No.	Date of Joining/ Date of Completion	Guide	Thesis Title	Viva- Voce Board	Thesis Examiners
	Kumar B (D16066)	DoC: 02-09-2022 (5 years, 6 months)	Shrimali	High-Speed Hybrid Analog-to-Digital Converters	Dr. Hitesh Shrimali (Guide) Prof. Santosh Kumar Vishvakarma (Thesis Examiner) Dr. Shubhajit Roy Chowdhury (Expert from the discipline) Dr. Dericks P Shukla (Faculty from outside Discipline)	(IIT Indore) Prof. Linga Reddy Cenkeramaddi (University of Agder, Norway)
32	Niraj Kumar Singh (D16078)	DoJ: 01-02-2017 DoC: 06-04-2022 (5 years, 2 months)	Dr. Ajay Soni	Structure-Property Correlation in Layered Bi-Ge-Te Topological Insulators for Thermoelectric Applications	Prof. Suman K Pal (Chair) Dr. Ajay Soni (Guide) Prof. Satyajit Sahu (Thesis Examiner) Prof. Satinder Kumar Sharma (Subject Expert)	Prof. Satyajit Sahu (IIT Jodhpur) Prof. Subhendra D Mahanti (Michigan State University, East Lansing, Michigan, USA)
33	Poonam Jyoti (D16079)	DoJ: 01-02-2017 DoC: 28-12-2021 (4 years, 10 months)	Dr. Shyam Kumar Masakapalli (Guide) Dr. Tulika P Srivastava (Co-Guide)	Metabolic Systems Biology of <i>Ralstonia Solanacearum</i> by Integrating Genomics and ¹³ C Metabolic Flux Analysis	Prof. Suman K Pal (Chair) Dr. Shyam K Masakapalli (Guide) Dr. Tulika P Srivastava (Co-Guide) Prof. Sudip Kundu (Thesis Examiner) Dr. Ajay Soni (Subject Expert)	Prof. Sudip Kundu (University of Calcutta) Dr. Maurice Cheung (Yale-NUS College Singapore)
34	Rimanpreet Kaur (D16082)	DoJ: 10-02-2017 DoC: 01-04-2022 (5 years, 2 months)	Dr. Amit Prasad	Exploring Vaccine Potential and Therapeutic Targets of <i>Taenia Solium</i> Cyst Fluid Antigens for Neurocysticercosis	Prof. Suman K Pal (Chair) Dr. Amit Prasad (Guide) Prof. Rakesh Sehgal (Thesis Examiner) Prof. Ujjala Ghosal (Subject Expert) Dr. Subhajit Roy Chowdhury (Special Nominee of Chairman, Senate)	Prof. Rakesh Sehgal (PGIMER, Chandigarh) Prof. Siddappa N Byrareddy (University of Nebraska Medical Center, Omaha, NE)
35	Partha Sarathi Nayek (D16083)	DoJ: 14-02-2017 DoC: 11-01-2022 (5 years)	Dr. Maheshreddy Gade	Advanced Models for Prediction of Earthquake Induced Slope Displacement and Hazard Assessment	Dr. Viswanath Balakrishnan (Chair) Dr. Maheshreddy Gade (Guide) Prof. Subhadeep Banerjee (Thesis Examiner) Dr. Kala Venkata Uday (Subject Expert)	Prof. Subhadeep Banerjee (IIT Madras) Dr. Xueyu Geng (University of Warwick, UK)
36	Ashish Kumar (D17004)	DoJ: 03-08-2017 DoC: 27-09-2022 (5 years, 1 month)	Dr. Sumit Sinha Ray	Environmental Pollution Mitigation by Solution Blown Nanofibers	Prof. Rahul Vaish (Chair) Dr. Sumit Sinha Ray (Guide) Prof. Arup R Bhattacharya (Thesis Examiner) Dr. Viswanath Balakrishnan (Member Expert from the discipline) Dr. Aditi Halder (Member from Outside the discipline)	Prof. Arup R Bhattacharya (IIT Bombay) Prof. Parikshit Goswami (University of Huddersfield, UK)
37	Smriti Sharma (D17007)	DoJ: 03-08-2017 DoC: 23-04-2022 (4 years, 8 months)	Dr. Subhamoy Sen	Structural Health Monitoring under Varying Temperature Conditions using Deep Learning-Based Approaches	Dr. Atul Dhar (Chair) Dr. Subhamoy Sen (Guide) Dr. Sushanta Chakraborty (Thesis Examiner) Prof. Ajit P Annachatre (Subject Expert) Dr. Syed Abbas (Special Nominee of	Dr. Sushanta Chakraborty (IIT Kharagpur) Prof. Li, Dongsheng (Shantou University, China)

Sl. No	Name & Roll No.	Date of Joining/ Date of Completion	Guide	Thesis Title	Viva- Voce Board	Thesis Examiners
					Chairman, Senate)	
38	Chaurasiya Rohit Buddhiram (D17018)	DoJ: 18-08-2017 DoC: 02-09-2022 (5 years)	Dr. Rahul Shrestha	Hardware Efficient VLSI-Algorithms and Digital-Architectures of Standalone and Cooperative Spectrum Sensors for Cognitive Radio Network	Dr. Samar (Chair) Dr. Rahul Shrestha (Guide) Prof. Nitin Chandrachooodan (Thesis Examiner) Dr. Hitesh Shrimali (Expert from the discipline) Dr. Himanshu Pathak (Faculty from outside Discipline)	Prof. Nitin Chandrachooodan (IIT Madras) Dr. Anupam Chattopadhyay (National Technical University, Singapore)
39	Bhupinder Singh (D17055)	DoJ: 01-02-2018 DoC: 04-07-2022 (4 years, 5 months)	Dr. Sunny Zafar	Development of Erosion Resistant Surfaces through Microwave Cladding for Hydro Turbine Application	Prof. Rajeev Kumar (Chair) Dr. Sunny Zafar (Guide) Prof. J. Ramkumar (Thesis Examiner) Dr. Prateek Saxena (Member Expert from the discipline) Dr. Manoj Thakur (Member from Outside the discipline)	Prof. J Ramkumar (IIT Kanpur) Prof. Tanvir Hussain (University Park, Nottingham University, UK)
40	Shivprasad Shivaram Shastri (D18025)	DoJ: 01-08-2018 DoC: 08-02-2022 (3 years, 6 months)	Dr. Sudhir Kumar Pandey	First-principles Study of Semiconducting Heusler Alloys for High Temperature Thermoelectric Applications	Dr. Viswanath Balakrishnan (Chair) Dr. Sudhir Kumar Pandey (Guide) Prof. Manish Kumar (Thesis Examiner) Dr. C.S.Yadav (Subject Expert)	Prof. Manish Kumar (Jawaharlal Nehru University, New Delhi) Prof. Subhendra D Mahanti (Michigan State University, USA)
41	Mritunjay Kumar Shukla (ERPD1302)	DoJ: 02-04-2014 DoC: 04-07-2022 (8 years, 3 months)	Dr. Atul Dhar (Guide) Dr. Thallada Bhaskar (Co-Guide)	Development of Low-Cost Catalytic Systems for Emission Control from CI Engines	Prof. Rajeev Kumar (Chair) Dr. Atul Dhar (Guide) Dr. Thallada Bhaskar (Co-Guide) Prof. Sudarshan Kumar (Thesis Examiner) Dr. Viswanath Balakrishnan (Subject Expert) Dr. Arnav Bhavsar (Special Nominee of Chairman, Senate)	Prof. Sudarshan Kumar (IIT Bombay) Prof. Akinori Muto (Osaka Prefecture University, Japan)

b) Integrated Ph.d in Physics (I-Ph.D)

The following 4 scholars have completed all the requirements for the award of the degree of "Integrated Ph.D. in Physics' including submission of the final approved thesis.

Sl. No	Name & Roll No.	Date of Joining/ Date of Completion	Guide	Thesis Title	Viva- Voce Board	Thesis Examiners
1	Chinmoy Samanta (D11501)	DoJ: 17-08-2015 DoC: 14-09-2022 (7 years, 1 month)	Dr. Aniruddha Chakraborty	Generalized Multistate Systems in Statistical and Quantum Mechanics: Analytical and Semi-Analytical Method Development	Dr. C. S. Yadav (Chair) Dr. Aniruddha Chakraborty (Guide) Prof. V. Balakrishnan (Thesis Examiner) Dr. Prasanth P Jose (Expert from the discipline)	Prof. V. Balakrishnan (IIT Madras) Prof. Bernardo Spagnolo (University of Palermo, Italy)

Sl. No	Name & Roll No.	Date of Joining/ Date of Completion	Guide	Thesis Title	Viva- Voce Board	Thesis Examiners
					Dr. Kunal Ghosh (Faculty from Outside discipline)	
2	Kavita Yadav (DI1503)	DoJ: 17-08-2015 DoC: 11-02-2022 (6 years, 6 months)	Dr. Kaustav Mukerjee	Probing the Correlation between Valence Electron Count and Physical Properties of Heusler Alloys	Prof. Suman K Pal (Chair) Dr. Kaustav Mukherjee (Guide) Prof. Sugata Ray (Thesis Examiner) Dr. Sudhir K Pandey (Subject Expert)	Prof. Sugata Ray (IACS, Kolkata) Prof. Paolo Mele (Shibaura Institute of Technology, Japan)
3	Swati Mudra (DI1506)	DoJ: 17-08-2015 DoC: 26-07-2022 (6 years, 11 months)	Dr. Aniruddha Chakraborty	New Analytically Solvable Models for Multi-State Problems in Quantum and Statistical Mechanics	Prof. Suman K Pal (Chair) Dr. Aniruddha Chakraborty (Guide) Prof. Swapan K Ghosh (Thesis Examiner) Dr. Prasanth P Jose (Expert from the discipline) Dr. P Anil Kishan (Faculty from Outside discipline)	Prof. Swapan K Ghosh (Bhabha Atomic Research Centre, University of Mumbai) Prof. Raphael D. Levine (The Hebrew University of Jerusalem, Israel)
4	Sheetal Devi (DI1601)	DoJ: 08-08-2016 DoC: 14-09-2022 (6 years, 1 month)	Dr. C.S. Yadav	Spin Ice and Spin Freezing in Disordered Pyrochlore Zirconates	Dr. Hari Varma (Chair) Dr. C.S.Yadav (Guide) Dr. Vivek Kumar Malik (Thesis Examiner) Dr. Kaustav Mukherjee (Expert from the discipline) Dr. Rik Rani Koner (Faculty from Outside discipline)	Dr. Vivek Kumar Malik (IIT Roorkee) Prof. Philipp Gegenwart (University of Augsburg, Germany)

c) Master of Science (MS.(by Research))

The following 20 M.S. scholars have completed all the requirements for the award of the degree of Master of Science (M.S. (by Research)) including submission of the final approved thesis.

Sl. No	Name & Roll No.	Date of Joining/ Date of Completion	Thesis Title	Guide	Academic Progress Committee	External Examiners
1	Preethi S (S18001)	DoJ: 01-08-2018 DoC: 23-04-2022 (3 years, 8 months)	Medical Imaging Techniques for Transformation and Inference using Deep Learning	Dr. Aditya Nigam (Guide) Dr. Arnab Bhavsar (Co-guide)	Dr. Samar (Chair) Dr. Aditya Nigam (Guide) Dr. Arnab Bhavsar (Co-Guide) Dr. Dileep A D Dr. Sriram Kailasam Dr. Rajesh Ghosh	Prof. Suyash P. Awate (IIT Bombay) Dr. Gaurav Harit (IIT Jodhpur)
2	Mohana Singh (S18002)	DoJ: 01-08-2018 DoC: 26-07-2022 (4 years)	Learning-Based Light Field Image Compression	Dr. Renu M Rameshan	Dr. Samar (Chair) Dr. Renu M Rameshan (Guide) Dr. Dileep A D Dr. Arnab Bhavsar Dr. Tushar Jain	Dr. Purushottam Kar (IIT Kanpur) Dr. Ajit Rajwade (IIT Bombay)

Sl. No	Name & Roll No.	Date of Joining/ Date of Completion	Thesis Title	Guide	Academic Progress Committee	External Examiners
					Dr. Gaurav Bhutani	
3	Ganesan P (S18005)	DoJ: 01-08-2018 DoC: 02-09-2022 (4 years, 1 month)	Design and Evaluation of Event Streaming Data Pipeline and Distributed Training Strategies	Dr. Sriram Kailasam (Guide) Dr. Dileep A D (Co-guide)	Prof. Bharat S Rajpurohit (Chair) Dr. Sriram Kailsam (Guide) Dr. Dileep A D (Co-Guide) Dr. Varun Dutt Dr. Manas Thakur Dr. Kaustav Sarkar	Dr. V. Mahendran (IIT Tirupati) Dr. Sandeep Kumar Garg (IIT Roorkee)
4	Mohit (S18006)	DoJ: 01-08-2018 DoC: 03-03-2022 (3 years, 6 months)	Analytical and Numerical Nonlinear Vibration Analysis and Sensitivity Measurement	Dr. Arpan Gupta	Dr. Rajeev Kumar (Chair) Dr. Arpan Gupta (Guide) Dr. Sandip Saha Dr. Himanshu Pathak Dr. Padmanabhan Rajan	Prof. Jayanta Kumar Dutt (IIT Delhi) Dr. Navin Kumar (IIT Ropar)
5	Mundupalam Nikhil Mathew (S18008)	DoJ: 01-08-2018 DoC: 14-11-2021 (3 years, 3 months)	On-Board Hydrogen Generation using Heat Recovered from the Exhaust of a 4-Stroke Diesel Engine for HHO-Assisted Combustion	Dr. Atul Dhar	Dr. Rahul Vaish (Chair) Dr. Atul Dhar (Guide) Dr. Gaurav Bhutani Dr. Muslim Malik	Prof. Sudarshan Kumar (IIT Bombay) Dr. Dhananjay Kumar Srivastava (IIT Kharagpur)
6	Gajjar Margi Atulbhai (S18011)	DoJ: 01-08-2018 DoC: 24-12-2021 (3 years, 4 months)	Elasto-Plastic Fracture Modeling by Extended Finite Element Method	Dr. Himanshu Pathak	Dr. Mohammad Talha (Chair) Dr. Himanshu Pathak (Guide) Dr. Parmod Kumar Dr. Subhamoy Sen Dr. Gopi Shrikanth Reddy	Prof. P S Robi (IIT Guwahati) Prof. B. Nageswara Rao (IIT Madras)
7	Manish Chandra Bisht (S18012)	DoJ: 01-08-2018 DoC: 14-09-2022 (4 years, 1 month)	Discrete Element Modelling of Two-Dimensional Granular Flows with Breakage of Particles	Dr. Gaurav Bhutani (Guide) Dr. Prasanth P Jose (Co-guide)	Prof. Rajeev Kumar (Chair) Dr. Gaurav Bhutani (Guide) Dr. Prasanth P Jose (Co-guide) Dr. Pradeep Kumar Dr. Mousumi Mukherjee Dr. Hari Varma	Prof. Devang V Khakhar (IIT Bombay) Prof. Ishan Sharma (IIT Kanpur)
8	Shreesh S Parvatikar (S18017)	DoJ: 02-08-2018 DoC: 19-11-2021 (3 years, 3 months)	Estimation of Realistic Radiation Losses/Emissions in Combustion Systems	Dr. Pradeep Kumar	Dr. P Anil Kishan (Chair) Dr. Pradeep Kumar (Guide) Dr. Gaurav Bhutani Dr. Atul Dhar Dr. Aniruddha Chakraborty	Prof. Amrit Ambirajan (IISc, Bangalore) Dr. Santanu De (IIT Kanpur)
9	Rushiraj Sunil Jawale (S18022)	DoJ: 01-02-2019 DoC: 02-09-2022 (3 years, 7 months)	Frequency Reconfigurable Printed Monopole Antennas	Dr. Gopi Shrikanth Reddy	Dr. Samar (Chair) Dr. Gopi Shrikanth Reddy (Guide) Dr. Hitesh Shrimali Dr. Adarsh Patel Dr. Himanshu Pathak	Dr. Raghvendra Kumar Chaudhary (IIT (ISM) Dhanbad) Dr. Rohit Sharma

Sl. No	Name & Roll No.	Date of Joining/ Date of Completion	Thesis Title	Guide	Academic Progress Committee	External Examiners
						(IIT Ropar)
10	Dhanunjaya Varma D (S18023)	DoJ: 01-02-2019 DoC: 30-11-2021 (2 years, 9 months)	Classification of Acoustic Scenes using Background and Foreground	Dr. Padmanabhan Rajan	Dr. Samar (Chair) Dr. Padmanabhan Rajan (Guide) Dr. Rameshwar Pratap Dr. Aditya Nigam Dr. Manoj Thakur	Prof. Rajbabu Velmurugan (IIT Bombay) Dr. Nithin V George (IIT Gandhinagar)
11	Kamalpreet Singh (S18026)	DoJ: 04-02-2019 DoC: 08-07-2022 (3 years, 5 months)	Influence of Poling Orientation on Piezoelectric Characteristics for Sensing, Actuation, and Vibration Control	Dr. Rajeev Kumar	Dr. Arpan Gupta (Chair) Dr. Rajeev Kumar (Guide) Dr. Mohd. Talha Dr. Rajesh Ghosh Dr. Siddhartha Sharma	Prof. S. H. Upadhyay (IIT Roorkee) Dr. Navin Kumar (IIT Ropar)
12	Prakash Poudel (S18027)	DoJ: 01-02-2019 DoC: 26-09-2022 (3 years, 8 months)	Design of a Piezoelectric Wind Energy harvester for Bacterial Disinfection of Drinking Water	Prof. Rajeev Kumar (Guide) Prof. S. C. Jain (Co-Guide)	Dr. Vishal Singh Chauhan (Chair) Prof. Rajeev Kumar (Guide) Prof. S.C. Jain (Co-Guide) Dr. Mohammad Talha Dr. Manoj Thakur	Prof. Indra Vir Singh (IIT Roorkee) Prof. B.N. Singh (IIT Kharagpur)
13	Sourabh Dogra (S19001)	DoJ: 01-08-2019 DoC: 26-05-2022 (2 years, 9 months)	Acoustic Characterization of Helmholtz Resonators based Metamaterial	Dr. Arpan Gupta	Dr. Mohammad Talha (Chair) Dr. Arpan Gupta (Guide) Dr. Himanshu Pathak Dr. Pradeep Kumar	Prof. Jayanta Kumar Dutt (IIT Delhi) Prof. Ashish Kamalakar Darpe (IIT Delhi)
14	Debarshi Debnath (S19003)	DoJ: 01-08-2019 DoC: 14-09-2022 (3 years, 1 month)	Drop Spreading and Impact Dynamics on Different Wettability Surfaces	Dr. Parmod Kumar	Dr. P Anil Kishan (Chair) Dr. Parmod Kumar (Guide) Dr. Gaurav Bhutani Dr. Rahul Shrestha	Prof. Kirti Chandra Sahu (IIT Hyderabad) Prof. Rajneesh Bhardwaj (IIT Bombay)
15	Charu Chauhan (S19009)	DoJ: 01-08-2019 DoC: 07-07-2022 (2 years, 11 months)	Application of Nature-Based Soil Reinforcement for Erosion Control	Dr. Kala Venkata Uday	Dr. Rajesh Ghosh (Chair) Dr. Kala Venkata Uday (Guide) Dr. Maheshreddy Gade Dr. Amit Jaiswal	Prof. Satyendra Mittal (IIT Roorkee) Prof. Chandan Ghosh (NIDM, New Delhi)
16	Tushar Saini (S19011)	DoJ: 01-08-2019 DoC: 28-01-2022 (2 years, 5 months)	Modelling Air Quality via Machine Learning and IoT Technologies	Dr. Varun Dutt	Dr. Samar (Chair) Dr. Varun Dutt (Guide) Dr. Dileep A D Dr. Shyamasree Dasgupta	Dr. Bhaskaran Raman (IIT Bombay) Dr. Vimal Chandra Srivastava (IIT Roorkee)
17	Abhishek Dhyani (S19013)	DoJ: 01-08-2019 DoC: 08-03-2022 (2 years, 7 months)	Minimal-Norm Globally Non-Overshooting/Undershooting Control of Linear Multivariable Systems	Dr. Tushar Jain	Dr. Samar (Chair) Dr. Tushar Jain (Guide) Dr. Amit Singha Dr. Sreelakshmi	Dr. Shaunak Sen (IIT Delhi) Dr. Yogesh Vijay Hote

Sl. No	Name & Roll No.	Date of Joining/ Date of Completion	Thesis Title	Guide	Academic Progress Committee	External Examiners
					Dr. Amit Shukla	(IIT Roorkee)
18	Arpit Nandi (S19017)	DoJ: 01-08-2019 DoC: 08-07-2022 (2 years, 11 months)	Engineering GaN/Ga ₂ O ₃ Heterojunction for High Power Diodes	Dr. Ankush Bag	Dr. Samar (Chair) Dr. Ankush Bag (Guide) Dr. Srikant Srinivasan Dr. Kunal Ghosh Dr. Himanshu Pathak	Prof. Subhananda Chakrabarti (IIT Bombay) Prof. Rajendra Singh (IIT Delhi)
19	Sahil Verma (S20023)	DoJ: 01-08-2018 (in Ph.D) Converted to M.S. on 12-05-2021 DoC: 23-08-2022 (4 years)	An Investigation on Vibration Energy Harvesting for Organic Pollutants Remediation	Dr. Aditi Halder (Guide) Prof. Rahul Vaish (Co-Guide)	Dr. Sudhir K Pandey (Chair) Dr. Aditi Halder (Guide) Prof. Rahul Vaish (Co-guide) Dr. Jaspreet Kaur Randhawa Dr. C.S. Yadav Dr. Rik Rani Koner	Dr. Satyendra Singh (JNU, New Delhi) Dr. Deepak Kumar (IIT Delhi)
20	Yeturi Pramodkumar Reddy (S20024)	DoJ: 01-02-2019 (in Ph.D) Converted to M.S. on 02-06-2021 DoC: 13-06-2022 (3 years, 4 months)	Temperature Robust Health Bench-Marking and Monitoring of a Heritage Suspension Bridge	Dr. Subhamoy Sen	Dr. Kaustav Sarkar (Chair) Dr. Subhamoy Sen (Guide) Dr. Sandip Saha Dr. Himanshu Pathak Dr. Manoj Thakur	Prof. Aparna (Dey) Ghosh (IEST, Shibpur) Prof. Damodar Maity (IIT Kharagpur)

d) Master of Science in Chemistry (M.Sc. (Chemistry))

The following 39 students have completed all the requirements for the award of the degree of Master of Science (M.Sc. (Chemistry)). Their names and Roll Nos. are as given below:

Sl. No.	Roll.No.	STUDENT NAME
1	V20001	KOUSTAV KUNDU
2	V20002	SUSOVON GHOSH
3	V20003	ANJALI SAINI
4	V20004	JATIN SAXENA
5	V20005	SWAPNIL VERMA
6	V20006	MAINAO JULI BASUMATARY
7	V20007	AJAY KUMAR
8	V20008	MEGHA GARG
9	V20009	RISHABH GOSWAMI

10	V20010	MUSKAN KAUR
11	V20011	SAMIKSHA
12	V20012	AMAN YADAV
13	V20013	MOHIT
14	V20014	AANCHAL HURMADE
15	V20015	AMIT KUMAR NAYAK
16	V20016	SOURAV MANDAL
17	V20017	MASRAKUL ALAM
18	V20018	PIYUSH RANA
19	V20019	BALENDU BISHT
20	V20020	SAMEER SEKHAR MOHANTY
21	V20021	USHMA GANGWAR
22	V20024	LALNUNENGA
23	V20025	CHHAYA THADHANI
24	V20026	RITESH KUMAR BAG
25	V20027	MRATYUNJAY SINGH JADAUN
26	V20028	ROHIT YADAV
27	V20029	VIJENDRA SINGH
28	V20030	SUBHARTHA SARKAR
29	V20031	AMBIKA
30	V20032	SOURAV
31	V20033	RITUNJOY BARUAH
32	V20034	ARUN SINGH
33	V20035	ABHISHEK SAHU
34	V20036	SNEHASIS MONI
35	V20037	BIKASH RAUT
36	V20038	SHOBHIT PANWAR
37	V20039	GAYATRI
38	V20040	AMAN
39	V20041	VAIBHAV SACHDEVA

e) Master of Science in Applied Mathematics (M.Sc. (Applied Mathematics))

The following 31 students have completed all the requirements for the award of the degree of Master of Science (M.Sc. (Applied Mathematics)). Their names and Roll Nos. are as given below:

Sl. No.	Roll No.	STUDENT NAME
1	V20043	NAMAN KAROL
2	V20044	ADARSH SUBHASH NARENDULWAR
3	V20045	MANOJ CHAUDHARY
4	V20046	SAHIL SHARMA
5	V20047	VARUUN A DESHPANDE
6	V20048	TARUN KUMAR
7	V20049	PAYAL SHARMA
8	V20051	PANKAJ SAHU
9	V20053	RITU
10	V20054	ABHISHEK
11	V20055	PRATISHTHA WADHWA
12	V20056	SAHEB MONDAL
13	V20057	MANOJ KUMAR
14	V20058	THACKER SONIYA LAXMIDAS
15	V20059	IFTIKHAR BASHIR GOJRI
16	V20061	VIKAS KALSIA
17	V20062	RAJA KANNAVJIYA
18	V20063	HEMENT KUMAR
19	V20064	ANGHA AGARWAL
20	V20065	MAHESH KUMAR SHESHMA
21	V20066	NITIN
22	V20067	DEEPAK SAHU
23	V20069	SATNAM SINGH
24	V20070	SUSHIL PRAJAPAT
25	V20071	VIKAS RAJPAL
26	V20073	KHRIESAVINYU TERHUJA
27	V20074	KOMAL KUMAR
28	V20075	AJAY
29	V20076	RESHMA
30	V20077	SURJIT KUMAR
31	V20079	ZAFAR HOSSAIN

f) Master of Science in Physics (M.Sc. (Physics))

The following 25 students have completed all the requirements for the award of the degree of Master of Science (M.Sc. (Physics)). Their names and Roll Nos. are as given below:

Sl. No.	Roll No.	STUDENT NAME
1	V20082	ANANNYA MUKHERJEE
2	V20083	DIKSHA PRAJAPATI
3	V20084	SUSHIL
4	V20085	BHIMANI YOGIN JITENDRABHAI
5	V20086	ANJALI
6	V20088	ANSHU TYAGI
7	V20089	ARUNA
8	V20090	ROHIT GUPTA
9	V20091	SANDHYA A K
10	V20092	NALINIKANTA PRADHAN
11	V20093	SANDEEP PATEL
12	V20094	AFRA NAVAS
13	V20095	GUNJAN
14	V20097	BISWARUP BISWAS
15	V20098	ARUN PANDIYAN
16	V20099	NITIN KUMAR
17	V20100	PANKAJ KUMAR
18	V20101	ANKUSH KAMAL
19	V20102	ANAYAT ULLAH
20	V20103	SANKALP SHARMA
21	V20105	SREESHYAM V A
22	V20106	SAHIL KUMAR
23	V20107	SHAD MOHAMED A K
24	V20108	VINOD KUMAR
25	V20109	LIZA HELEN K

g) Master of Technology in Mechanical Engineering with specialization in Energy Systems (MES)

The following 10 students have completed all the requirements for the award of the degree of Master of Technology in MES. Their names and Roll Nos. are as given below:

Sl. No.	Roll No.	STUDENT NAME
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1	T20071	SHARAD PARDHE
2	T20072	NITIN KUMAR PATHAK
3	T20073	VINAY KUMAR
4	T20074	MUKESH KUMAWAT
5	T20076	RAHUL GUPTA
6	T20080	ANJANI KUMAR SAGAR
7	T20081	SACHIN VERMA
8	T20084	MRIDUL AGARWAL
9	T20086	MAITRAYO BRAHMACHARI
10	T19051	ROHIT VERMA

h) Master of Technology in Energy Engineering with specialization in Materials (EEM)

The following 12 students have completed all the requirements for the award of the degree of Master of Technology in EEM. Their names and Roll Nos. are as given below:

Sl. No.	Roll No.	STUDENT NAME
1	T20031	NARESH SHARMA
2	T20032	VINEET KUMAR
3	T20033	MANISH KUMAR
4	T20035	RUSHIKESH SHIRISH JADHAV
5	T20036	JITENDRA CHOUDHARY
6	T20038	SHIVAM DUBEY
7	T20040	SHIV SHANKAR TIWARI
8	T20041	RAHUL RAJ
9	T20042	SHUBHAM RODWAL
10	T20043	SAIRAJ AMRUT SALUNKE
11	T20044	SHASHYABH RAY
12	T20045	PREMKUMAR M

i) Master of Technology in Structural Engineering (SE)

The following 11 students have completed all the requirements for the award of the degree of Master of Technology in Structural Engineering. Their names and Roll Nos. are as given below:

Sl. No.	Roll No.	STUDENT NAME
1	T20001	SAMRUL HODA
2	T20003	HARSHIT NAYAK

3	T20005	RAHUL DOGRA
4	T20006	RISHABH SHARMA
5	T20007	SURAJ
6	T20010	SHERIFF CHADHA
7	T20011	AKSHIT NEGI
8	T20012	AMMAR AHMED
9	T20013	PRACHI VERMA
10	T20015	ADITYA MAHAJAN
11	T19022	DEEPAK KUMAR

j) Master of Technology in VLSI:

The following 14 students have completed all the requirements for the award of the degree of Master of Technology in VLSI. Their names and Roll Nos. are as given below:

Sl. No.	Roll No.	STUDENT NAME
1	T20241	PRITIKSHA CHAND
2	T20243	PANASA SRIKANTH
3	T20244	BALRAM PATIDAR
4	T20245	VISHNU KUMAR SHARMA
5	T20246	CHAITANYA ANAND
6	T20247	DEEPANK
7	T20248	ASHKAND KUMAR
8	T20249	MEGHVERN PATHAK
9	T20250	NISHANTH KUMAR V
10	T20251	MD. MUSHFIQUR RAHMAN CHOWDHURY
11	T20252	SWETANK TRIPATHI
12	T20254	KUSHAGRA NAINWAL
13	T20256	DIVYA AGRAWAL
14	T20258	BHARATH MOHAN K

k) Master of Technology in Power Electronics and Drives (PED)

The following 13 students have completed all the requirements for the award of the degree of Master of Technology in PED. Their names and Roll Nos. are as given below:

Sl. No.	Roll No.	STUDENT NAME
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1	T20201	TUHIN MITRA
2	T20202	KULDEEP SINGH
3	T20205	SURAJ S
4	T20208	ANKIT KUMAR RANJAN
5	T20210	HETAL SHARMA
6	T20211	SOUMYA RANJAN NAYAK
7	T20214	CHIRAG GUPTA
8	T20215	CHANDAN KUMAR MAHTO
9	T20216	VELICHETI SIVAJI GANESH
10	T20217	VENKATA ADITYA DUGGARAJU
11	T20218	VIVEK SINGH
12	T20220	MAHENDRA KUMAR
13	T20221	VIVEK KUMAR

l) Master of Technology in Communication and Signal Processing (CSP)

The following 4 students have completed all the requirements for the award of the degree of Master of Technology in CSP. Their names and Roll Nos. are as given below:

Sl. No.	Roll No.	STUDENT NAME
1	T20282	SHRUTI SINGH (<i>With specialization in Communication</i>)
2	T20283	VINEET KUMAR MISHRA (<i>With specialization in Machine Learning</i>)
3	T20287	LENKA VASUDEVARAO
4	T19160	AARTESH SHEKHAR SINGH

m) Master of Technology in Biotechnology:

The following 12 students have completed all the requirements for the award of the degree of Master of Technology in Biotechnology. Their names and Roll Nos. are as given below:

Sl. No.	Roll No.	STUDENT NAME
1	T20401	DEEPALI BISHT
2	T20402	HIMANSHU SHARMA
3	T20403	RIYA NAGER
4	T20404	CHANDAN KUMAR PRADHAN
5	T20405	ARPITA PRASAD
6	T20406	PRERNA VERMA
7	T20409	RITIKA JAIN

8	T20411	UJJAWAL SHARAN
9	T20413	SNEHLATA RAO
10	T20414	VISHALI DHIMAN
11	T20415	SHIMPY NIGAM
12	T20416	NISTHA SAINI

n) Master of Arts in Development Studies:

The following 10 students have completed all the requirements for the award of the degree of Master of Arts in Development Studies. Their names and Roll Nos. are as given below:

Sl. No.	Roll No.	STUDENT NAME
1	A20001	AKASH SHARMA
2	A20002	AKSHIT SIROHI
3	A20004	ANAGHA TV
4	A20006	NIHARIKA BATRA
5	A20007	GAUTAM MISHRA
6	A20008	HIMANI SINGH
7	A20011	KESHAV TADIA
8	A20012	KULDIP KAILAS MESHARAM
9	A20013	NEENA SREEKUMAR S
10	A20017	VIKAS GAUTAM SHINDE

(o) Bachelor of Technology (B.Tech.) in Civil Engineering

The following 20 students have completed all the requirements for the award of Bachelor of Technology in Civil Engineering. Their Names and Roll Number are as given below:

Sl. No.	Roll No.	Student Name
1	B18001	ABHISHEK GAUTAM
2	B18004	AMAN SINGH (<i>With Minor in Management</i>)
3	B18005	AMIT KUMAR JATAV
4	B18006	ANIMESH CHOUDHARY
5	B18008	ANKIT GUPTA
6	B18009	ASHISH SAGAR (<i>With Minor in Management</i>)
7	B18015	JAY PRAKASH

8	B18017	KUNAL SENGAR
9	B18018	MISHA SAGAR (<i>With Minor in Management</i>)
10	B18020	NISHA (<i>With Minor in Management</i>)
11	B18022	RADHA
12	B18023	SAGAR TOMAR
13	B18024	SHAH SAUD ALI
14	B18029	TORAL GOGIYA
15	B18032	URVASHEE MEENA
16	B18033	VIKASH KUMAR MEENA
17	B18035	VIKRAM SINGH MEENA
18	B18036	VISHAL KUMAR
19	B18039	YATIN KUMAWAT
20	B18189	RAKESH MEENA

o) Bachelor of Technology (B.Tech.) in Computer Science and Engineering

The following 86 students have completed all the requirements for the award of Bachelor of Technology in Computer Science and Engineering. Their Names and Roll Number are as given below:

Sl. No.	Roll No.	Student Name	Sl. No.	Roll No.	Student Name
1	B18003	AMAN MAHESHWARI (<i>With Minor in Management</i>)	44	B18077	PIYUSH GOYAL (<i>With Minor in Management</i>)
2	B18007	ANKIT BALUNI (<i>With Minor in Management</i>)	45	B18078	RAHUL ANAND
3	B18010	ASHUTOSH SHARMA (<i>With Minor in Management</i>)	46	B18079	RAHUL KUMAR
4	B18012	BHUMANYU GOYAL	47	B18080	RAHUL SAINI
5	B18019	MUSKAN GUPTA (<i>With Minor in Management</i>)	48	B18081	RASHIKA RATHI
6	B18030	TUSHAR GOYAL (<i>With Minor in Management</i>)	49	B18083	S KALYAN RAM
7	B18031	UJJWAL SONI (<i>With Minor in Management</i>)	50	B18084	SAATVIK CHUGH
8	B18040	ZAIDAN MOHAMMAD BHAT	51	B18085	SHIKHA SUMAN
9	B18041	A DILSHAAD T M ABDUL MUTHALIF	52	B18086	SIDDHARTH MITTAL (<i>With Minor in German Language</i>)
10	B18042	AAKASH MAURYA (<i>With Minor in Management</i>)	53	B18088	SUBHASH SUMAN
11	B18043	ABHIJEET MANHAS (<i>With Minor in Management</i>)	54	B18089	UMESH
12	B18044	ADITYA BRAJESH PANDEY (<i>With Minor in Management</i>)	55	B18090	VINAYAK SHIVAM GUPTA (<i>With Minor in Management</i>)
13	B18045	AKSHIT KUMAR	56	B18091	VISHAL SIWACH
14	B18046	ANAM SIDDIQUI (<i>With Minor in Management</i>)	57	B18092	VIVEK KUMAR

Sl. No.	Roll No.	Student Name	Sl. No.	Roll No.	Student Name
15	B18048	ASHWIN GINORIA	58	B18093	VYOM GOEL
16	B18049	BOKKA KANAKA KEERTHI	59	B18094	YASH CHAUDHARY
17	B18050	CHANDAN PRAKASH (<i>With Minor in Management</i>)	60	B18095	YASH SANJAY BANSOD
18	B18051	CHIRUMARRI VENKATA SIVA NAGA MEDHA	61	B18096	YASHIKA BAAN
19	B18052	DEBAJYOTI NATH (<i>With Minor in Management</i>)	62	B18097	YASHWINDER KUMAR (<i>With Minor in Management</i>)
20	B18053	DINESH BHAGAT	63	B18098	YOGESH DEVERTH (<i>With Minor in Management</i>)
21	B18054	DIPANSHU VERMA	64	B18099	ABHINAV KUMAR
22	B18055	HARJOT SINGH (<i>With Minor in Applied Physics</i>)	65	B18115	HARISH JAGLAN
23	B18056	HARSHIT KUMAR (<i>With Minor in Management</i>)	66	B18118	KARTIK KATHURIA
24	B18057	HRIDAYESH AKHAND	67	B18119	KESHAV GARG
25	B18058	INDERJEET (<i>With Minor in Management</i>)	68	B18124	NIDHI JAIN (<i>With Minor in Management</i>)
26	B18059	ISHAN DAHIYA (<i>With Minor in Management</i>)	69	B18126	NITESH (<i>With Minor in Management</i>)
27	B18060	JAHNVI	70	B18128	PRAKHAR UNIYAL
28	B18061	JAI LUTHRA (<i>With Minor in Management</i>)	71	B18135	RUCHIKA SHARAN
29	B18062	KAIRAV BANSAL	72	B18138	SAHIL GARG
30	B18063	KALYANI KUMARI	73	B18143	SHRIKHA MAHANTY (<i>With Minor in Management</i>)
31	B18064	KHYATI AGARWAL (<i>With Minor in Management</i>)	74	B18149	VASU GUPTA
32	B18065	KSHITIZ JAIN	75	B18150	VISHAL KUMAR SINGH
33	B18066	KUMAR HARSH (<i>With Minor in Management</i>)	76	B18158	ANJALI DEEP (<i>With Minor in Management</i>)
34	B18067	MALVI ADITYA PARITOSH	77	B18161	ANUJ GOEL (<i>With Minor in Management</i>)
35	B18068	MEHAK JAIN (<i>With Minor in Management</i>)	78	B18164	AYUSHMAN DIXIT (<i>With Minor in Management</i>)
36	B18069	MILIND TOPNO	79	B18175	MANAV MEHTA (<i>With Minor in Management</i>)
37	B18070	MOHIB QURESHI (<i>With Minor in Management</i>)	80	B18177	MOHD ASIM ANSARI
38	B18071	MOHIT (<i>With Minor in Management</i>)	81	B18181	NISHITA
39	B18072	MOHIT KUMAR	82	B18182	OM PANDEY (<i>With Minor in Management</i>)
40	B18073	MOOD VIKRAM	83	B18187	PRATIK KUMAR
41	B18074	MRINAL TYAGI (<i>With Minor in Management</i>)	84	B18190	SAKSHAM BARARA (<i>With Minor in Management</i>)
42	B18075	MUDIT GOSWAMI (<i>With Minor in Management</i>)	85	B18191	SARANSH JAIN
43	B18076	MUKUL DHIMAN	86	B17065	VAIBHAV SAHARAN

p) Bachelor of Technology (B.Tech.) in Electrical Engineering

The following 59 students have completed all the requirements for the award of Bachelor of Technology in Electrical Engineering. Their Names and Roll Numbers are as given below:

Sl. No.	Roll No.	Student Name	Sl. No.	Roll No.	Student Name
1	B18002	AMAN KUMAR	31	B18129	PRATIK GODBOLE
2	B18014	GOURAV GOEL (<i>With Minor in Management</i>)	32	B18130	RAHUL KUMAR MEENA
3	B18016	PATEL KENA KAMALESH (<i>With Minor in Management</i>)	33	B18131	RAHUL KUMAR MEENA
4	B18025	SHIKHAR KUSHWAH	34	B18132	RAJAN GARHWAL (<i>With Minor in Management</i>)
5	B18026	SUNIL KUMAR SINGH (<i>With Minor in Management</i>)	35	B18133	RAJEEV RAJ
6	B18027	SURAJ	36	B18134	RAMAN SONI
7	B18028	SWPNIL ENGLA	37	B18136	RUPANSHI (<i>With Minor in Management</i>)
8	B18037	VIVEK MOAR	38	B18137	SACHIT BATRA
9	B18038	YASH VARSHNEY	39	B18139	SAKET LALLA
10	B18100	ADARSH RAJ (<i>With Minor in Computer Science Engineering</i>)	40	B18140	SANSKAR GUPTA (<i>With Minor in Computer Science Engineering</i>)& (<i>With Minor in Management</i>)
11	B18102	ADITYA MISHRA (<i>With Minor in Management</i>)	41	B18141	SARTHAK JAIN
12	B18103	AKSHAY KUMAR (<i>With Minor in Management</i>)	42	B18142	SHRAWAN KUMAR
13	B18104	AMIN-UL-HISAAM	43	B18144	SHRINIVAS KHATAVKAR
14	B18105	ARSHITA KALRA (<i>With Minor in Management</i>)	44	B18145	SHUBHAM KUMAR (<i>With Minor in Management</i>)
15	B18106	ASHISH ANAND (<i>With Minor in Management</i>)	45	B18146	SOURAV KUMAR MEENA
16	B18108	B SAI SHIVANI	46	B18147	CHAUHAN SUDHANSHU RADHEYSHYAM
17	B18109	DEEKSHA SINGH	47	B18148	VARSHA MEENA
18	B18110	DEEPTI SINGH	48	B18151	VISHAL RAJ
19	B18111	DHANANJAY VERMA	49	B18152	VISHAL VERMA (<i>With Minor in Management</i>)
20	B18112	EKANSH SHARMA (<i>With Minor in Management</i>)	50	B18153	VIVEK MITTAL (<i>With Minor in Management</i>)
21	B18113	FINAVIA YASH	51	B18159	ANKIT KARAN (<i>With Minor in Computer Science Engineering</i>)& (<i>With Minor in Management</i>)
22	B18114	GARIMA CHAHAR (<i>With Minor in Management</i>)	52	B18168	DESAI VIDHI NIKUNJBHAI
23	B18116	HEMRAJ PARMAR	53	B18170	GANDI GAHAN
24	B18117	DOSHI KARAN SUNIL	54	B18174	MANAS PATEL
25	B18120	KUSHAGRA SAHNI	55	B18183	PARTH AGGARWAL (<i>With Minor in Management</i>)
26	B18121	MANVENDRA RATHORE	56	B18186	PRANJAL SONI (<i>With Minor in Management</i>)
27	B18122	MD TARIQUE ASAD RIZWEE	57	B18192	SHASHANK SHEKHAR DWIVEDI (<i>With Minor in</i>

Sl. No.	Roll No.	Student Name	Sl. No.	Roll No.	Student Name
					<i>Management)</i>
28	B18123	NAMAN TAYAL (<i>With Minor in Management</i>)	58	B18194	PANDEY SHUBHAMKUMAR KAMAKHYANARAYAN (<i>With Minor in Computer Science Engineering</i>)
29	B18125	NISHANT VEDWAL (<i>With Minor in Management</i>)	59	B18195	SHUBRAH GUPTA (<i>With Minor in Management</i>)
30	B18127	PAMULA SHASHIDHAR			

q) Bachelor of Technology (B.Tech.) in Mechanical Engineering

The following 23 students have completed all the requirements for the award of Bachelor of Technology in Mechanical Engineering. Their Names and Roll Number are as given below:

Sl. No.	Roll No.	Student Name	Sl. No.	Roll No.	Student Name
1	B18021	RACHIT KATEWA	13	B18179	NEHA
2	B18154	ABHAY SINGH RATHORE	14	B18180	NIKHIL KATNOUR
3	B18155	ABHISHEK SEHARA	15	B18184	PRADYUMNA PRATAP SINGH (<i>With Minor in Management</i>)
4	B18156	ABHISHEK SINGH	16	B18185	PRAGYANSHU CHAUDHARY
5	B18160	ANKUSH MAHER	17	B18188	RAJPAL MAHICH
6	B18162	AVULA SHANDILYA	18	B18193	SHIKHA CHAUDHARY (<i>With Minor in Management</i>)
7	B18163	AWANTIKA SINGH	19	B18196	SURINDERPAL SINGH
8	B18165	BALKAR SINGH	20	B18197	UDIT SINGH CHAUHAN
9	B18166	BEGARI VARAPRASAD	21	B18198	VAIBHAV MONGIA (<i>With Minor in Management</i>)
10	B18167	CHINMAY PATIL	22	B18199	VANGARA KARTHIK KUMAR (<i>With Minor in Intelligent Systems</i>)
11	B18172	KARAN SINGH	23	B18200	VISHESH MONGIA (<i>With Minor in Management</i>)
12	B18176	MAYANK SINGH (<i>With Minor in Management</i>)			

Centre for Artificial Intelligence & Robotics (CAIR)

Introduction

For several decades, the development of intelligent machines that help humans in various tasks has been a mainstay in science fiction. Many aspects of science fiction have been accelerating to science fact. Powering this change are recent developments in artificial intelligence, robotics and drone technology. In recent years, these fields have exploded into fast-paced research fields, and their applications are significantly transforming day-to-day life. A myriad of applications ranging from healthcare to autonomous vehicles has been powered by AI and associated algorithms. To address the technological advancements and their potential to vitalize the economy and the quality of life, the Indian Institute of Technology Mandi (IIT Mandi) conducted a Workshop on Healthcare Robotics and Drone Applications (WHRDA) between 27th and 29th May 2022. The workshop was widely attended by renowned researchers in the field of Robotics, Artificial Intelligence (AI), and Drone Technology from India and abroad. Also, 20+ faculty and staff from IIT Mandi participated in this Workshop. As a part of the deliberations that took place in the Workshop, several topics emerged under three main themes: a) Robotics, b) Artificial Intelligence, and c) Drone Technology. To mention a few are: AI based robotics, Medical/Healthcare robotics, Haptics and Teleoperation robotics, Systems for AI, Neuroscience and Cognitive science, and applications related to drone technology, etc.

Consequent to the WHRDA Workshop, it is proposed to establish a **Centre for Artificial Intelligence & Robotics** (referred to as “CAIR”) at IIT Mandi. IIT Mandi being situated in the foothills of Himalayas presents a unique opportunity to develop and test Robotics & Drone technology in the most challenging geography of the world. Seeing difficult terrain and geography at high altitudes, advanced UAV-based technologies can be a boon for the purpose of health, safety, and rescue missions in case of natural calamities and unfortunate accidents. The CAIR will focus on research on topics concerning Robotics, AI, and Drone technology, which has several benefits such as: developing systems that complement and augment human capabilities, with an increasing focus on the future of work, understanding and addressing the ethical, legal, and societal implications of this research, creating robust and trustworthy robotics and AI systems, supporting the development of related technical standards and tools, better understand the national R&D workforce needs, and enable long-term investments in these research areas.

Objectives

The Centre’s primary objectives are:

- To be a leading center for robotics and AI research in the country, with visible recognition in terms of projects and developing systems useful to society at large.
- To contribute to core research aspects in robotics, AI, and drone technology.
- To seamlessly integrate with robotics and drone technology to provide AI-based solutions for sensing, learning, and inference.
- To provide a stimulating environment to the students, researchers, visitors, and faculty members to carry out world-class research, teaching, and product development in a team, so that the technology can be brought to the household level and reach the needy people who are economically challenged.

- To train the next generation of students and practitioners of robotics, AI, and drone technology.
- Bridge gap between industry needs and available skills through industry-oriented learning- Develop certificate programs for people in industry for hands-on training in the field.

Figure 1 shows the components of the research areas under the proposed Centre. The center is intended to be designed under three main themes: (a) Robotics, (b) Artificial Intelligence, and (c) Drone Technology.

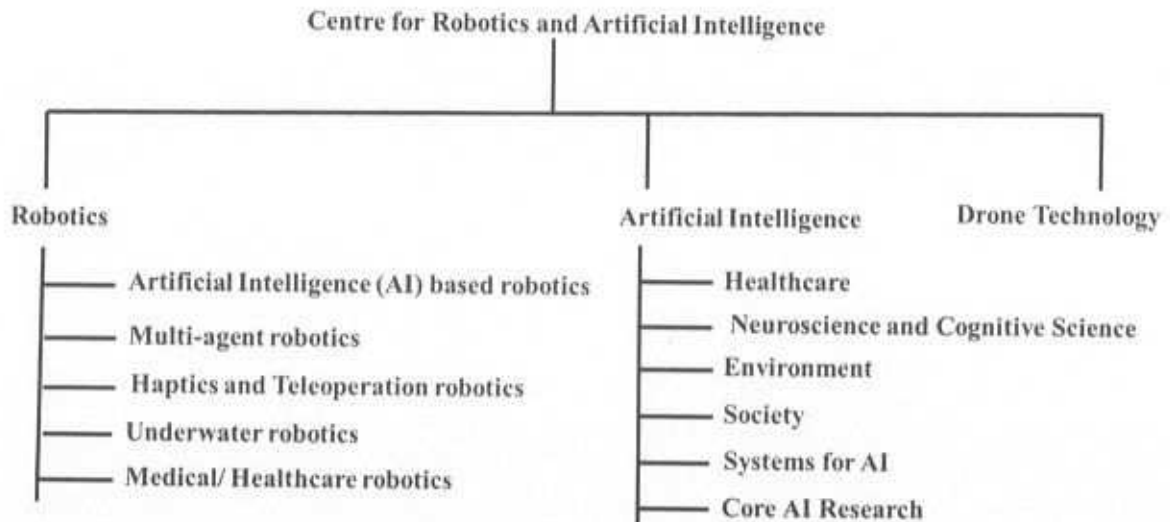


Fig. 1: The conceptualization of the center is grounded in robotics, artificial intelligence, and drone technology.

Uniqueness

Some of the unique aspects where the proposed center would focus on are:

- Significantly enable the development of robotics, AI, and drone technology-based solutions for societal benefits, and collaborate with partners (e.g. Industry, defense, hospitals, education, environment, etc.) to translate the research coming out of the center.
- Introduce new undergraduate and postgraduate specializations in robotics, AI, and drone technology, and create dedicated facilities and labs for such program
- Develop AI and robotics-based frameworks for contributing to some fundamental research areas such as neuroscience, cognitive science, biological sciences, and environmental science which are considered important in the coming decades.
- Making robotics, AI, and drone technology platforms scalable, efficient, and easily upgradable, and compatible across system architectures and OS and library upgrades
- Robotics, AI, and drone technology deployment for low-resource environments (e.g. mobile phones and other edge devices), and enabling mixed cloud-edge applications.

Research and Labs

The Centre would establish research labs like: AI-based robotics lab, multi-Agent robotics lab, Haptics and Teleoperation lab, Underwater robotics lab, Medical/Healthcare robotics lab, Indoor Drone testing facility, Outdoor/Field robotics lab, AI lab, Tinkering lab, and teaching labs. The Centre would also cater to several degree programs at the undergraduate and postgraduate levels. These programs include B. Tech. (Minor) in Robotics and the Master's degree program in Robotics with (a)

Minor in Intelligent Systems and b)) Minor in Unmanned Aerial System. The Centre will also include a Ph.D. program in Robotics and AI areas with Postdocs pursuing advanced research. The teaching programs would be supported via a number of teaching labs.

Mandates & Deliverables

The CRAI will have certain mandates and plans to have several deliverables/outcomes that are going to be beneficial to society. Some of the outcomes are detailed below:

- Center will offer M.Tech and PhD degree programs
- Center will also support minor specialization for B.Tech programs
- Center can hire faculties, staff, and postdoctoral candidates to conduct research, technology demonstration and teaching programs like Robotics, AI and Data sciences
- Center will conduct skill development activities to produce next-generation CAIR researchers, which include undergraduate students, postgraduate students, doctoral, postdoctoral, and faculty.
- Center will organize national-international conferences, competitions, seminars, workshops, and others such activities to promote knowledge and research culture.
- Center will collaborate with academic institutes, research centers and industry to promote innovations and product development.
- Building state-of-the-art facility for research in areas of Robotics, AI, and Drone Technology in India, which can be leased by other researchers and labs in India and abroad for research.
- Center will provide a bouquet of technological developments and know-how for improving healthcare, industrial automation, and other facets of society. This Centre could be utilized by both national and international visitors, who would like to experience, learn, and work on several research areas of CAIR in the pristine Himalayan environment.

Collaborations

Some of the Academic institutes and Industries in India and abroad with whom CAIR will collaborate include:

Industry:

Samsung
Gail India
Reliance
ABB
DEWA
ADNOC
HCL Technologies
TCS Research

Academia:

IISC
IIT Kanpur
IIT Delhi
IIT Palakkad
IIT Ropar
IIT Jodhpur
IIT KGP
IIIT Hyderabad
Stanford
CMU
ETH Zurich
KU
Queen Mary University, London
Royal Institute of Technology K
Stockholm
University of Pittsburgh
PGIMER Chandigarh
AIIMS Bilaspur
AIIMS Delhi

M.Tech. and Ph.D. Programs

The M.Tech. and Ph.D. programs in Robotics will equip students with the skills necessary to analyze, design, and control complex technical systems such as robots and other systems with significant autonomous capabilities. These systems are important today and will become even more important as new technology makes its way into our workplaces, homes, and shared public spaces.

The program will start with a few core courses that provide a solid foundation in the area of systems, control, and robotics, as well as scientific methodology in general. In addition to core courses, there are a large number of elective courses within the broad areas of AI, machine learning, and control. In order to be prepared for a diversity of future careers, students will also take a project course and a non-technical course of choice, and participate in a seminar series in which an opportunity is provided to reflect on the societal context of systems, control, and robotics, such as sustainability and ethics.

Some of the highlights of these programs are:

Firm Theoretical Foundation: Students develop a strong theoretical base through coursework in foundational topics including Linear Algebra, Probability, Control, Optimization, AI and ML, Signal Processing, Perception, Planning and Decision, Kinematics and Dynamics.

Extensive Hands-on Training: Students gain a variety of experimental skills via experimental lab modules on several topics including Programming of Mobile, Legged and Aerial Robots, Simulation Frameworks like Gazebo, VR/AR and Speech Interfaces for Robots, ROS Software Stacks, Robot Hardware for Sensor and Actuator Systems, 3D Design and Prototyping for Robots, and Game Engine Programming.

Industry Exposure: Students will participate in industry-academia collaborative research projects.

Exciting Careers: The program is tailored to meet the ever-growing demand for quality robotics engineers by companies and start-ups focused on developing drones, autonomous cars, robotic arms, and mobile robot systems.

Indian Institute of Technology Mandi



Intellectual Property Rights (IPR) Policy

Section 1: Introduction

1.1 Preamble:

Indian Institute of Technology Mandi (also referred to as IIT Mandi) is an academic Institute of National Importance set up with a vision of becoming a leader in science and technology education, knowledge creation and application. Its missions are to create an environment in which new ideas, innovations and forward thoughts can flourish, to create a knowledge base through team effort and individually for the benefit of society, and to foster the spirit of innovation among its members, which will solve problems of national and global importance, especially the ecologically fragile Himalayan region.

The Institute accepts the importance of innovation and facilitates the commercialization of novel innovations for public and private entities. The Intellectual Property Rights Policy protects the rights of IIT Mandi's Inventor(s), i.e., faculty/students/project staff/supporting staff/visitors, by giving them the option of acquiring intellectual property protection for a novel work or keeping it in the public domain. The policy promotes IIT Mandi's Vision and Mission by distributing breakthrough technologies. Using novel technologies' intellectual property rights, it encourages IIT Mandi faculty, students, and researchers to engage in technology transfer. These policies aim to safeguard, protect, and commercialize Institute-generated IP. IP policies provide guidelines for commercializing IP generated by funded research to further strengthen Institute and member rights. All members of the Institute and associated parties must follow this IPR policy. This document also aims to resolve IP rights disputes with honor and respect for all parties. With an ever-changing IP scenario and societal perspective, the policy may be amended to meet the needs of the Institute, its members, and associated parties.

1.2 Purpose

The information contained in this document pertains to an intellectual property rights (IPR) policy (and associated administrative procedures) designed to enable IIT Mandi to fulfil its primary responsibility of nurturing, inspiring, and encouraging creative activities in the field of science and technology in the broadest sense. The policy establishes standards to protect the legitimate interests of faculty, students, project staff, supporting staff, IIT Mandi visitors, and society. It provides an administrative system for the ownership,

control, and transfer of Institute-developed and-owned intellectual property. The policy attempts to avoid conflicts between competing interests as much as possible.

1.3 Definitions:

The following terms will be used in the document with all of their meanings as per definitions provided below:

- a) **Institute:** Indian Institute of Technology Mandi, Himachal Pradesh or IIT Mandi
- b) **Member:** Faculty (of all types including teaching fellows), staff, postdoctoral fellows, research students, undergraduate and graduate students, guest researchers on Institute's or Government of India fellowship, sponsors, technology transfer units and so on. The members are privileged to make use of the infrastructural and/or intellectual resources of the Institute
- c) **Associated member:** Person belonging to above category with their nature of association with the Institute in contractual form or limited to a certain period.
- d) **Creator or inventor:** Member of the Institute or associated party responsible for creating an IP using Institute facility in any form.
- e) **Copyright:** Rights (exclusive) granted by law for a certain duration of time to a sole creator or group to publish or reproduce in any form his or her novel work.
- f) **Director:** Director of Indian Institute of Technology, Mandi (otherwise Specified)
- g) **IP:** Intellectual Property - Any work created by intellectual efforts of the creator(s).
- h) **Patent:** Patent grant under rules or provision of Indian Patent Act 1970.
- i) **Patentee:** A person or entity whose name is entered in the register of patent for a fixed duration of time as per Indian Patent Act 2002 as generator, inventor, or proprietor of the patent.
- j) **Revenue:** Any payment received as per agreement between Institute and paying party usually towards legal use of an IP through license.
- k) **Collaborator or third party:** External Organization or Individual who is not affiliated with IIT Mandi and engages in collaborative work with Institute's member(s) or associate member(s). Collaboration can be in-kind, monetary, or in the form of facility extension. The revenue generated by such IP or copyright material through collaborative work, will be subjected to a revenue sharing policy governed by the MOU between IIT Mandi and the party involved in collaboration.

- l) **Agent:** Individuals or organizations hired by the Institute to perform specific tasks as determined by the IP & TT Cell.
- m) **Ownership:** The entity that owns the intellectual property and copyrights.
- n) **Exclusive Licensing (EL):** An exclusive license allows a licensor to share intellectual property with a licensee for a set period, with the licensor agreeing not to share the property with anyone else. However, the Institute will have a periodic review on the nature of usage of license. The assigned party must inform the IP & TT Cell of IIT Mandi section towards the nature of utilization of the license.
- o) **Non-Exclusive licensing:** In this case Institute will have the right on the nature of utilization of the license. This type of license will also be subject to periodic review towards nature of license utilization. The assigned party needs to take approval from IP & TT cell at every stage of utilization of the license.

1.4 Administration of IPR Policy:

1.4.1 Applicability:

This policy is applicable to all the Institute members and associate members, students, staff etc. and their range of activities such as, but not limited to, teaching, research, distance education, continuing education program, consultancy, sponsored work, collaborative research (internal and external) and the range of inventions includes patentable subject matter, trademark/service mark, design registrations, and other related necessary confidential information. The evaluation of academic work related with the creation of intellectual property will be governed by the Institute's regulations, where applicable.

1.4.2 Implementation of IPR Policy:

The Intellectual Property and Technology Transfer (IP & TT) Cell will be responsible for implementation of the IPR Policy and will report to Dean SRIC. The IP & TT cell's recommendations pertain to IP evaluation, assigning ownership, reasonability for commercialization of IP, IP filing support, licensing terms, and so on; and will be approved by Dean SRIC.

1.4.3 Administrative Mechanism:

All requests for IP filing and Institute support must be submitted to the IP & TT cell, which will facilitate subsequent action (or procedure). Prior to presenting the invention to the IP & TT cell, the potential patentee must obtain a patentability report from an IP agent or through a recognized software programme. The composition of the IP & TT cell will be as described below:

- 1) Coordinator, IP & TT Cell – Chairperson
- 2) Concerned School Chairperson – Member
- 3) Two experts (to be nominated by Dean SRIC)
- 4) Co-coordinator(s) of IP & TT cell
- 5) Assistant Registrar SRIC - Secretary

1.4.4 Powers to Amend IPR Policy:

The IIT Mandi Board of Governors will have the authority to modify or introduce a new IPR policy as deemed necessary. The changes or new policy shall apply to all faculty, students, project employees, support staff, and visitors. IIT Mandi, through its Director, will have the authority to create and modify administrative mechanism, administrative bodies and assign roles and responsibilities to various individuals/existing entities in order to adapt administrative procedures to changing conditions.

1.4.5 Appeal Procedure:

In the event of a dispute or grievance regarding the ownership of intellectual property, the processing of IP proposals, the procedures adopted for the implementation of the IPR policy, or the interpretation of the various clauses of the IPR policy, any aggrieved party may appeal to Dean SRIC. Efforts shall be made to address the concerns of the aggrieved party through the Dean SRIC and IP & TT cell. If the appellant disagrees with the decision of Dean SRIC, he or she may appeal to the Director of IIT Mandi, whose decision will be final.

Section 2: Intellectual Property and its Ownership

Ownership:

The following policies pertain to the ownership rights of an IPR. The following guidelines describe the nature of ownership under various conditions. The change of the guidelines will be based on the requirements with an approval of Director.

2.1 Ownership of patents, copyright on software, industrial design, IC layout design, new plant variety, etc.:

Case 1:

Intellectual property is owned by the Institute, if:

- a. It has been solely developed by the member using the Institute resources.
- b. It was produced with partial Institute funds/facilities and an external agency. If there is no prior approved agreement or memorandum of understanding between an external agency and the institute, then the institute will own all IP rights.
- c. It was created under any contract agreement, including work-for-hire, commissioned work, or outsourcing by the institution.
- d. It has been developed in accordance with a contract under which all rights and ownership have been transferred to the Institute.

Case 2:

Intellectual property is owned jointly by the Institute and other party, if:

- a. It was created with the assistance of external funding or collaborations. In such cases, the Institute (or the associated member(s)) and the collaborating or funding entity must engage into a prior agreement/MOU.
- b. It was created by an Institute member during his or her visit to a collaborating agency/firm/other Institute/lab/company. In such instances, the Institute (or affiliated member (s)) and the collaborating or sponsoring entity must engage into a prior agreement/MOU (s).

Note: A prior agreement or memorandum of understanding must ensure that both parties, i.e., Institute and the other party, receive the benefits.

Case 3:

Intellectual property is owned by the inventor or jointly by the inventor and other party, if:

- a. None of the situations and conditions listed in 1.2.1 and 1.2.2 exist or occur.
- b. If the inventor's work for IPR is unrelated to his or her job with the Institute. It is also expected that any such work for which the inventor wishes to retain IP rights will be performed outside of the Institute's normal business hours.
- c. It should also be mentioned that if the inventor undertakes some work outside the Institute and his/her stay and/or any other expenses are covered by the Institute, then the work falls under category 1.2.1 or 1.2.2

Note:

1. The individual must use his or her own finances to file for a patent. In extreme circumstances, however, the institute may provide support with the approval of the Competent Authority.
2. At any time, if any noncompliance related patent filing comes to the notice, appropriate action shall be taken in accordance with the Institute rules.
3. Before leaving the institution, the inventor must assign the rights to the disclosed intellectual property to Institute and agree to the terms and circumstances for sharing any financial gains derived from the commercialization of such IP.
4. The Institute may obtain legal advice prior to filing a patent.
5. In addition to the provisions listed in the policy, Institute may, with the consent of the Competent Authority, insert other provisions.

2.2 Design Rights:

The design right for a created component (physical or graphical, of any size) is governed by the IP inventions policy outlined in this section (1.2).

2.3 Trademark(s) / Service Mark(s):

The logo of the Institute would be the trademark of the Institute. It is to be noted that the logo of the Institute cannot be used on any of the private communication of any of the Institute members. The Institute logo is permitted by default on official activities that

are part of the officially recognized bodies of the Institute, web pages hosted on the Institute domain, project websites and conference slides and reports in which Institute is a project member or the member is from Institute, and student theses. All other uses of the Institute logo and Institute name, whether in full or in partial, require prior approval from the appropriate authority.

2.4 Copyright:

2.4.1 Ownership of copyright:

All copyrightable book publications, written, audio, and video material shall be transferred to the author, with the following exceptions:

- a. If the work is the result of sponsored research and/or a collaborative effort, then the copyright should be subject to a prior agreement between the parties involved. This agreement will be made in consent with the IP & TT cell.
- b. Institute shall own the copyright if the work is created using Institute resources.
- c. Institute shall own all intellectual property rights to works created within the framework of its distance learning or academic promotion programmes. However, the creator will be permitted to use the material in his or her professional capacity.
- d. Institute will retain ownership of any trademarks or service marks that it develops.

2.4.2 Evaluation of copyrightable academic work associated with IP creation:

This will be subject to the IP & TT cell of the Institute. Any agreement with an external agency that necessitates a delay in public disclosure for the purposes of intellectual property protection should typically not be in effect for more than three months after the Institute notifies the agency.

2.4.3 Relevant creations and ownership:

In accordance with this policy, Institute is assigned the title to any creations, including literary works, software, designs, music, cinematography, sound, and other rights covered by the Copyright Act of India, 1956 and any amendments thereto, that are made using Institute resources. The Institute is the owner of all documents resulting from assigned work. Other examples include course outline documents, question papers, answer sheets, and a grade ranking sheet. At the time of submission to the Institute, all creations must

ensure that the inventors' agreement/acceptance is filled out and satisfied. This agreement would stipulate the proportional distribution of any profits derived from the commercialization of the aforementioned creation. In the absence of such an agreement, the clause on revenue sharing contained in this document shall apply.

2.4.4 Ownership exemptions:

The IP & TT cell reserves the right to modify these exemptions as needed. Copyright being present by default on any material being created, the policy provides the following ownership exemptions for various creations resulting from member(s) or associated member(s) of the Institute's personnel activities.

2.4.5 Teaching / Course material:

Institute acknowledges that the author is the owner of any teaching materials created during the author's engagement with or stay at Institute. As the majority of course content is created cumulatively, and to enable a wider usage and distribution of the teaching materials created, the Institute automatically receives a license to the copyright and all other rights of the content created by the creator for fair use in an academic or research context. Institute is not responsible for any content-related copyright violations committed by its employees. Authors are expected to exercise due diligence during content creation.

2.4.6 Online Courses:

The copyright clearances for online course materials and academic course materials are distinct. The content and materials created will be the property of the course designer. Note that the course creator, course instructor, and course coordinator may or may not be the same person. The course creator is expected to obtain the necessary copyright approval from the IP & TT cell for all course materials. The Institute owns the course structure, course outline, and promotional materials developed for any online course for any purpose. Institute is not responsible for any content-related copyright violations committed by its employees. The creator is expected to exercise due diligence during the content creation process.

2.4.7 Thesis:

This includes both UG, PG and Ph.D theses: For ownership of thesis, the policies will be governed by following rules:

- a) The student is the original author of the thesis, which is revised with the supervisor's contribution (s). Since the student has made a substantial contribution to his or her thesis, the copyright belongs to the student creator.
- b) The student creator and the relevant supervisor(s) can jointly hold ownership with prior agreement. If desired, the supervisor(s) can waive their joint ownership. For such exemptions, relevant approval will be made available.
- c) The Institute reserves the right to identify potential intellectual property generated by the submitted thesis and protect such identified IP prior to making the thesis accessible to the public. Institute is granted a non-exclusive, non-commercial license for the display and academic research use of the thesis.
- d) In the case of a thesis supported by external funding, the copyrights belong solely to IIT Mandi; however, the external supervisor(s) may be co-authors along with the IIT Mandi student(s) and thesis supervisor (s). In the absence of a specific agreement, the IP and Copyright policy of IIT Mandi will apply in these instances. This requires an NDA between the parties involved.
- e) Where applicable, both the student(s) and the faculty supervisor(s) have the right of first refusal for any further adaptations and other derivative works that either party intends to create. They have three months from the date of the official request to exercise their right to decline. The official request should at a minimum include the identified adaptations.
- f) If no response is received within three months, it will be assumed that the presented proposal has been accepted. Either party may approach the IP & TT cell with a resolution proposal. Institute reserves the right to use the thesis for educational and research purposes regardless of any agreement.
- g) Unless a specific non-disclosure agreement exists with a third party, the institute has the automatic right to publish the thesis in soft and hard copies.

2.4.8 Articles, short notes, books and other printed material (both soft and hard copy):

The Institute promotes the dissemination of knowledge to a larger population. Therefore, the Institute will have no rights to such content. However, it is strictly prohibited

to display the Institute logo in any form on personal materials, online websites, cover pages, or social media pages without permission. For the Institute logo to be displayed on personal materials, online websites, cover pages, or social media pages, prior approval from the IP & TT cell is required. In the event that multiple individuals or organizations contributed to the creation of Articles, Short notes, books, or other printed materials, the royalty will be shared. If the material is created under the instruction of the Institute, by a member of the Institute (or a member affiliated with the Institute), or by using a significant portion of the Institute's facilities, the copyright will exclusively remain with the Institute. Before publishing any material related to their research conducted at IIT Mandi, students must always obtain approval from their faculty advisor/supervisor.

The Institute has a strong desire to own its own intellectual property creations (subjected to above conditions). All such IP shall be utilized for the Institute's, its members', and associated members' benefit. Institute will also credit the creator of all such intellectual property (s). IP & TT cell will determine the nature of the credit.

2.5 Disclosures:

- a) For all inventions produced at the Institute, the inventor(s) must disclose the creative work to the IP & TT cell as soon as possible using the Institute's Invention Disclosure Form (IDF) before approaching for patenting.
- b) Disclosure is a vital component of the IP protection procedure, as it formally documents claim of inventorship, the date of the invention, and other information about the invention. The inventor(s) must assign Institute the rights to the disclosed invention.
- c) For sponsored and/or collaborative activities, the contract provisions regarding disclosure of creative work apply.
- d) All Institute members and non-Institute members associated with any Institute activity shall treat as confidential all IP-related information disclosed to the IP & TT cell and/or whose rights have been assigned to the Institute, or whose rights rest with Institute personnel. This confidentiality shall be maintained until the date specified in the relevant contract, if any, between the parties involved, unless the information is in the public domain or is generally available to the public.
- e) In order to expedite and complete the procedural and legal formalities of IP protection, all inventors / creators of the Institute are required to sign such identified

documents and assist in empowering and enabling the Institute to fulfill these statutory requirements within the prescribed time frame.

2.6 Assessment of Inventions / Innovations for protection

The Institute shall assess the patentability of the invention and make one of the following recommendations:

- a) The Institute will assume responsibility for the protection of the IP, in which case it will initiate the necessary processes.
- b) If the Institute does not assume responsibility for IP protection, the inventor(s) or creator(s) may choose to protect the IP on their own. Nonetheless, Institute shall retain ownership rights. In such cases, the revenue sharing clause presented in this document will govern the cost and revenue sharing. Inventor and Institute may enter into a separate, more specific agreement with the Dean SRIC's approval. This section will define the format for such an agreement.
- c) Submission of IP applications in foreign nations: Within a reasonable timeframe of filing a complete IP application in India, the Institute shall determine, based on available information, whether protection of the invention in foreign countries is appropriate.
- d) If Institute chooses not to undertake such protection in any country requested by the inventor(s), the creator(s) may choose to protect the creative work independently. Nonetheless, Institute shall retain ownership rights. In such instances, Institute and the inventor / creator will enter into a separate agreement governing cost(s) and revenue sharing. The SRIC section will define the format for such an agreement.

2.7 Renewal of IP Rights:

A decision regarding the annual renewal of IP rights will be withheld by the IP & TT cell, pending SRIC section approval. If the SRIC section decides not to renew the IPR in any country, it may assign the IP rights in that country to the creator(s) based on a request from the creator(s) and an internal review. In all cases where IP rights in a particular country have been reassigned to the inventor(s), the Institute shall not be entitled to any share of profits earned through that IP in that country, with the exception of costs already incurred.

Section 3: IP Licensing and Agreements

The Institute understands both the commercial needs and the security and safety requirements in the form of intellectual property, particularly regarding ground-breaking technologies. The Institute works hard to strike a balance between the primary goal of disseminating and promoting academic and research findings and the primary requirement of meeting this critical requirement. This will ultimately result in the technologies that were developed either by the Institute itself or in conjunction with an association. The Institute shall strive to market its intellectual property and identify potential licensees. This procedure should be assisted by the inventor(s). The Institute may subcontract the commercialization of intellectual property to (Government/Private) Technology Management Agencies. The inventor(s) may also contact potential licensee(s) on their own during technology marketing discussions, while maintaining confidentiality and taking all necessary precautions not to affect the value of the IP through appropriate agreements such as Non-Disclosure Agreements (NDAs). The NDA should be made in consent with Dean SRIC.

3.1 Licensing types and provision of granting license:

The nature of the invention or innovation will determine the type of license granted. The following Licensing Committee will make recommendations to Dean SRIC regarding licensing and other relevant matters for approval.

- 1) Coordinator, IP & TT Cell – Chairperson
- 2) Concerned School Chairperson – Member
- 3) Two experts (to be nominated by Dean SRIC)
- 4) Co-coordinator(s) of IP & TT cell
- 5) Assistant Registrar SRIC - Secretary

License are defined as Exclusive and Non- Exclusive license:

3.1.1 Institute, as a Government of India-funded institution, encourages non-exclusive licensing for the broader application of innovations developed at the Institute. Under specific circumstances, Institute may consider exclusive licensing. These exceptions are decided by the licensing committee.

3.1.2 In the case of platform-wide use of inventions/innovations and/or where significant resources/efforts must be expended by the licensee in order to use the IP, the Institute may consider granting an application- and/or region-specific or global exclusive license. The licensing committee will conduct due diligence, including but not limited to the business plan, business model, milestones, and usage plan of the IP in question, as well as other pertinent information as required, in order to determine the type of licensing to be provided.

3.1.3 Licenses are granted to businesses, not individuals. The license may be restricted to the IP in question and not its enhancements or modifications. The granted licenses are subject to periodic review, which includes the operational status and accessibility / availability of the utilized IP. The licensing committee reserves the right to extend, modify, or terminate the existing license type based on its review of licensing activities.

3.1.4 Non-Exclusive licensing is the favored method. Exceptions will be made based on the project's funding and any other pertinent requirements. The licensing committee will conduct periodic reviews of exclusive licenses, including but not limited to usage status, application and/or region-specific royalty generation for the continuation of such license agreements.

3.1.5 The licensing committee will have the authority to hire an external commercialization agency.

3.1.6 The licensing committee may grant licensing rights to an Incubated/startup company (incubated or explored by IIT Mandi). Once the appropriate License type is granted to an incubated company, they must honor the revenue split agreement with the incubator (if any). Failure to do so may result in the incubated company being blacklisted and subjected to appropriate action.

3.1.7 If the incubated/startup company is offered an exclusive license and fails to achieve commercial breakthrough within the allotted time, the startup will lose its exclusive license status.

3.2 License Exemptions

Institute may provide the exception on issuing of licensing rights subjected to following conditions:

3.2.1 In an event, the inventor(s) and an external party(ies) request the license of the same Institute-owned intellectual property at the same time, preference for licensing may be given to the inventor(s) based on the nature of the technology and other factors.

3.2.2 Regardless of the license provided, the Institute retains the right to research exemption and experimental use for patents, design rights, and fair use of copyrights and trademarks on an Institute-wide perpetual license in order to fulfill its fundamental academic and research objectives. This will include the right to publish, as well as the use of technical data, methods, products, and related services resulting from earlier research that has been licensed for the aforementioned activities.

3.2.3 In the case of inventions by its faculty/students/research scholars/other Institute-Personnel under lien/sabbatical/visit/internship, the Institute may exercise its right to access such intellectual property created for the sole purpose of academic work and research under license exemption and fair use, conducted within its jurisdiction. During their external stay, the stakeholders are encouraged to disclose the invention using an appropriate invention disclosure form.

3.3 Revenue Sharing

Net earnings from the commercialization of IP owned by Institute or in-case where license of the IP is given to an Institute member/external or internal member(s)/agents/users.

a) The inventor (s) / creator(s) share would be declared annually (or as revenues are received), and disbursement would be made to the inventor (s) / creator(s), their legal heir, regardless of whether the inventor (s) / creators are affiliated with the Institute at the time of disbursement.

b) The ratio of revenue sharing between the inventor(s) and the organization will be governed by subsection 3.3.1. IP protection costs will be included in the Institute and inventor license revenue sharing agreement (s). As the need arises or is brought to the attention of the institute's IP & TT cell, this revenue model may be modified or altered.

3.3.1 Revenue sharing model:

For all cases the revenue generated by any type of IP or license will be as follows:

Case	Net earnings	Inventor(s)	Institute Share
1	Income generated from Licensing/ Technology Transfer/ royalty generated from/by the IP	60 %	40 %*

a) The institute may consider accepting equity in the licensee company as part of the license fees. For such equity arrangements with the inventor, the institute shall make a case-by-case determination.

b) The creator(s) share would be declared annually and distributed to the creator(s), their legal heir, regardless of whether the creators are affiliated with the Institute at the time of distribution.

c) Co-creators of IP must sign a distribution of IP earnings agreement at the time of disclosure, which specifies the percentage distribution of IP earnings to each co-inventor. The Distribution of IP Earnings Agreement can be modified at any time by mutual consent of the inventors.

d) Institute will always ensure and seek the protection of its and its members' rights in all circumstances. If it is determined that the rights of the Institute or its members have been violated in any way, the Institute reserves the right to take all appropriate legal action.

e) Cost and revenue sharing will be governed by a separate agreement between the institute and the inventor / creator where applicable and when the institute reassigns IP rights to its creator(s) for any country (s). The inventors may modify the distribution of IP earnings agreement at any time by mutual consent, subject to prior approval from Dean SRIC.

The revenue sharing may be amended time to time based on the requirements with the approval of the Director.

3.4 Infringements, Damages, Liability, and Indemnity Insurance

In any contract between the Institute and the licensee, the Institute shall seek indemnification from any legal proceedings, including but not limited to manufacturing defects, production problems, design guarantee, upgrades, debug obligations, and created content. In addition, the policy supports the need to indemnify Institute personnel as stipulated in license agreements for sponsored research and consulting work. Institute shall retain the right to litigate infringements of its intellectual property and licenses.

3.5 Conflict of Interest

The inventor(s) must disclose any potential conflicts of interest when engaging in IP-related activities. If the inventor(s) and/or their immediate family have a financial interest in a licensee or potential licensee company, they are required to disclose this interest. A license issued by the Institute to a company in which the inventors have a stake, and a management position is subject to the approval of the Dean (SRIC) in light of the aforementioned considerations. All members of the Institute are bound by the Institute's conflict of interest policy / guidelines, as applicable from time to time.

3.6 Jurisdiction

All agreements and forms to be signed by Institute will have the jurisdiction of the court in Himachal Pradesh and shall be governed by appropriate laws of India.

3.7 Agreement procedure and Form management:

The nature of the agreements made between different parties normally comes under following heads:

- a) Confidentiality Agreement / Non-disclosure Agreement
- b) Consultation Agreement
- c) Evaluation Agreement
- d) Research and Development Agreement
- e) License Agreement
- f) Technology Transfer Agreement
- g) Alternative Dispute Resolution Agreement
- h) Collaborative MOU with University / Organisation

Depending on the needs, additional agreements may be developed by adhering to proper procedures. Depending on the circumstances, the Dean SRIC/Director is the final signing/approving authority for all the categories of agreements. The SRIC section will facilitate the drafting of such agreements by providing templates and professional consulting services.

References:

1. IPR policy IIT Delhi
2. IPR policy IIT Kharagpur
3. IPR policy IRCC IIT Bombay
4. IPR policy IIT Kanpur
5. IPR policy and guidelines IIT Roorkee
6. IPR policy IIT Hyderabad
7. IPR policy IISc Bangalore

Enclosures:

1. Annexure 1 – Intellectual Property Disclosure Form
2. Annexure 2 – Intellectual Property Agreement with all Members/Associate Members of IIT Mandi

These annexures may be revised periodically depending upon the requirements with the approval of Dean SRIC as per the recommendations of IP & TT Cell.

ANNEXURE I – Form 1
Intellectual Property Disclosure Form
Indian Institute of Technology Mandi

Title of the invention:

Inventor(s) or Creator(s) who have contributed or conceived an essential element of the invention, either independently or jointly with others during evolution of the technology concept or reduction to practice:

Name: 1)2).....3).....

(Names of all the Inventor (s) or Creator(s) involved to be included)

Position:

(Mention current position in serial order as above)

School (s):

(Mention the current School)

Phone:

(Corresponding Inventor)

e-mail:

(Corresponding Inventor)

Brief description of the invention: (Add separate sheets for answering all the points below as Annexure 1a, 1b ...)

How does this invention relate to new processes, machines, compositions of matter, etc.?

Please cover the following points:

(a) Describe the invention so that the other faculty of the Institute who are knowledgeable in the field can evaluate the technical and commercial merits of the technology.

(b) Is the proposed invention, an extension of your own previously published work? Provide complete information of such work along with the relevant NDA and MOU if applicable.

(c) What are the advantages of the present invention over the comparable inventions?

(d) Has the invention been tested experimentally? Are experimental data available? If yes kindly provide them along with this form.

(e) Has the invention been patented or protected under confidentiality agreement?

(Please provide additional sheets to elaborate and to attach sketches, drawings, photographs and other materials that help illustrate the description).

Commercial potential:

What are the:

(a) Possible uses/application areas and/or products you feel may embody aspects of your technology and

(b) Possible end-users

(c) Potential marketability including commercial suggestions viz.,

(1) input required,

(2) production capacity, where applicable,

(3) raw material requirement,

(4) transfer form,

(5) target companies and countries,

(6) economic viability and commercialization aspect,

(7) potential long-term utilization and development.

(8) Societal impact

(Please provide as much information as possible; attach extra sheets as required)

Prior disclosure and possible intent:

Has the invention been disclosed to industry representatives or third parties? Has any commercial interest been shown in it and of what nature? Name of companies and specific individuals and their titles.

Product Development stage:

Give your inputs on the current stage of development of the product as it relates to its marketability (indicate appropriate response):

1. Current status of the TRL:
2. Initial (needs substantial work to bring market)
3. Design stage (Just experimental work is done)
4. Fabricated and Tested (could be brought to market with significant investment)
5. Of the shelf (could be brought to market with nominal investment)

Do you know of any other inventions that are congruent with this invention or in parallel with any of above stage?

Signature of Inventor(s) with date

I/We the undersigned, (*Names of all the inventors should be included*) -----
----- hereby certify that ----- (the "Work"; attach
additional sheet if necessary to accurately describe the work) was specially commissioned
by and is to be considered a "work made for hire" by IIT Mandi, herein after referred to as
Institute with address at Indian Institute of Technology, Mandi, Himachal Pradesh 175075,
India, and that IIT Mandi is entitled to all patent/copyright/trademark and all other
intellectual property rights thereto.

Without limiting the foregoing, for product (including all hardware, software, copyrightable
etc.) consideration, receipt of which is thereby acknowledged and in accordance with the
above entitlement of Institute to Intellectual Property generated by me/us, I/We hereby
assign and/or transfer to Institute, its successors and assign, absolutely and forever, all right,
title, and interest, throughout the world in and to the Work and each element thereof,
including but not limited to the copyright/patent/technology innovation contained therein.

I/(We) further agree that no copyright material assigned by me to the Institute under this
agreement shall be reproduced by me/us beyond that which falls under fair use, and I shall
retain only moral rights and licensing right awarded to me by Institute to this material. I/We
understand that any prior disclosure by myself, directly or indirectly, either during the
period of this work-for-hire agreement or after its termination, shall render me
prosecutable as per laws that may be in force at the time.

Inventor1.

Signed this _____ day of _____ (month), _____ (year)

Name:

Address:

Inventor2.

Signed this _____ day of _____ (month), _____ (year)

Name:

Address:

Annexure 2

Intellectual Property Agreement with all Members/Associate Members of IIT Mandi

1. Name (CAPITAL LETTERS) _____
2. I submit that by virtue of:
 - My employment at Indian Institute of Technology Mandi and /or
 - My participation in research at IIT Mandi
 - Opportunities provided or to be provided by IIT Mandi which result in significant or partial use of IIT Mandi funds and facilities, and/or
 - Opportunities to have a share in royalties as per Intellectual Property policies guidelines of IIT Mandi.

I, hereby agree that:

A. I shall promptly disclose any IPR and adhere to the IIT Mandi guidelines on IPR policies related to inventions, copyrightable materials, computer software, tangible research property and trade marks (Intellectual Property) conceived, invented, authored or validated to practice by me, solely or jointly with others which:

(i) are outcome of sponsored research or any other agreement to which I have direct or indirect participation or

(ii) are outcome of substantial or partial utilization of IIT Mandi resources or

(iii) is an outcome of "work-for-hire" as per IPR guidelines.

B. I shall cooperate with IIT MANDI to obtain, protect or exploit the intellectual property through legal protection such as patent, copyright etc.

C. I shall make available all documentation of IIT MANDI intellectual property as per the agreement signed by me and Institute.

D. I shall surrender to IIT MANDI the documents related to intellectual property for which rights belong to IIT Mandi, if I leave IIT MANDI for any reason or at any other time asked for such documents.

E. The agreement will survive the termination of my employment or other association with IIT MANDI

Signature (Member Inventor 1):

Name: School :

Designation :

Signature (Member Inventor 2):

Name: School :

Designation :

Signature (Dean SRIC):

Name:

Designation:

Indian Institute of Technology Mandi



Innovation and Entrepreneurship (IEP) Policy

Preamble

Incubation center(s) under IIT Mandi aims to incubate entrepreneurs working on technology based innovations focuses on economic and/or social impact. Incubation center(s) specially focus on technology based solutions for problems in Himalayan region. In addition to others, Incubation center(s) under IIT Mandi help the budding entrepreneurs to survive by providing them with specialized support services such as mentoring, infrastructural & technical support, networking and financial support during the critical period of a business venture i.e., the start-up phase that helps them to refine their business ideas, create prototypes, test for market potential and commercialize the same.

Faculty members at IIT Mandi are continuously engaged in knowledge generation and dissemination. A large number of R&D activities are being carried out by faculty members in several technological areas. However, most of these research outcomes do not get translated into commercial products, benefiting the society in general, due to several reasons including hand holding support required for setting up a new enterprise, proper facilitation of intellectual property protection and lack of interest/ inertia in the industry in commercializing new and futuristic technologies. Towards this end, IIT Mandi incubation center(s) encourages interested faculty members in having their own startup or to be a direct stakeholder in any of the technology based enterprises. It is expected that faculty members will make all efforts to balance their academic responsibilities while assuming the above role.

This innovation and entrepreneurship policy is aimed at formulating suitable policy guidelines to enable faculty members, staff, students and research scholars of IIT Mandi to enter into technology based entrepreneurship, and avail any available incubation facilities within the Institute for the purpose of setting up of new start-ups in different forms as specified in the policy. It is expected that the faculty members of this Institute would be directly or indirectly involved in the development, modification, augmentation, standardization of such technologies to be used in the new startups.

1. Objectives

Faculty Members/Staff/Research Scholars/Students at IIT Mandi are continuously engaged in knowledge generation and dissemination. A large number of design and innovation activities are being carried out by them in several cutting edge science and technology areas. However, many of these research outcomes do not get translated into commercial products or technologies, that could benefit the society in general. For this purpose, IIT Mandi intends to promote business incubation by encouraging entrepreneurship among the Faculty, Staff, Research Scholars, Students and others associated with the institute by initiating the following activities:

- 1.1. Incubation of companies/ Startups by IIT Mandi with active support by its Faculty/Staff/ Research Scholars/Students
- 1.2. Establishment of companies based in part or in full on technologies/IP developed by the Institute or jointly in collaborative mode
- 1.3. Incubation support to external Startups with which Faculty/Staff/Research Scholars/ Students may be associated as consultants or mentors or full time/part time employee or founder; and also allow these external start-ups to license technology/IP developed by IIT Mandi for commercialization.
- 1.4. While encouraging interested faculty members/staff/research scholars/students to scale their R&D to products and technologies by incubating companies or participating in existing companies to achieve the objectives of this policy, it is expected that Faculty Members/Staff/Research Scholars/Students shall do so without detriment to their core academic responsibilities at IIT Mandi.

2. Definitions

2.1. IIT Mandi Member(s) (henceforth called member): Refers to any Faculty/Staff (appointed on permanent/contract basis while on duty or on short/long leave)/ Research scholar and Students (having live registration), participating in the activities defined in 1 above.

2.2 Incubator: Refers to an incubation center on campus founded/promoted by IIT Mandi for the primary purpose of promoting and fostering business ventures by IIT Mandi members and non-members.

2.3. Startup: Refers to any of the following two:

2.3.1. Member Startup: Refers to an individual or team, registered or unregistered, promoted and /or invested in by member(s) singly or jointly, intending to apply for support program of an incubator.

2.3.2. External Startup: Refers to an individual or team, registered or unregistered, promoted and /or invested in individuals/groups from outside IIT Mandi that is admitted or in process of admission to the support program at an incubator.

3. Priority to Startups

3.1. IIT Mandi, through its incubator(s), will provide pre-incubation and incubation support to Startups in the order of priority as given below:

1st priority: Member startups

2nd priority: External startups

4. Support to Startups and Innovation Activities

Incubator(s) shall carry out, on behalf of IIT Mandi, all dealings with a Startup and lay out eligibilities, criteria and application/selection procedures, program design/delivery, and other procedures/rules, etc., from time to time, to facilitate required support which may include:

- (1) Advice pertaining to legal and commercial IPR transactions
- (2) Permission for use of allocated office and operational space
- (3) Permission to use equipment, laboratories and facilities. If a company is owned or co-owned by member(s), its use of laboratory and institute facilities will be subject to availability. However, in this regard the priority will always be given to academic programmes of the institute.
- (4) Networking and logistics support
- (5) Business management advice / mentoring
- (6) Seed fund, where and when possible
- (7) Permission to use branding in the form of 'Incubated by IIT Mandi incubator(s)'
- (8) Institute will allocate 1% or more (if applicable) of its overall budget towards innovation and entrepreneurial activities every financial year

5. Involvement of Faculty and Staff Members

A member, who is a faculty or staff at IIT Mandi may get involved in a Startup through different modes. **Annexure I and II** provide an overview of modes of engagement and application process. Following are the related details:

5.1. Participation through Capital Investment only:

A member may be involved through capital investment alone in return for shares, with no other managerial, technical or mentorship involvement whatsoever. All the shares thus allotted can be retained by the concerned member, and the transaction is treated as a purely private commercial transaction of the member with no concern to the IIT Mandi or incubator(s). However, the member must declare this to IIT Mandi vide **Annexure III** and also state any conflict of interest.

5.2. Full Time Participation:

5.2.1. Mode of engagement:

A member may participate on full time basis in a Startup in capacity as a founder, director, consultant, advisor, employee, or any other position approved from time to time, for a mode of compensation that may involve cash, kind or shares (partially or fully). The member must inform IIT Mandi about nature of engagement and the mode of compensation vide **Annexure II** and take due approval.

5.2.2. Provision for leave:

The period of leave will be governed under the leave rules of the institute and specific conditions decided by the competent authority about full time engagement of the employee.

5.3. Part-time Participation:

5.3.1. Mode of engagement:

A member may participate on part time basis in a Startup in capacity as a non-executive founder/director, part-time consultant, part-time advisor, or any other role as approved from time to time, for a compensation in cash or kind or shares. The member must inform IIT Mandi about nature of engagement and the mode of compensation vide **Annexure IV** and take due approval.

5.3.2. Rules and Norms:

IIT Mandi consultancy norms will be applicable in cases where the member receives any compensation in cash through this engagement. The member may spend their time for part time participation in a Startup only on weekends and holidays or leaves availed with the prior approval. The member should ensure that such an engagement does not affect the responsibilities of teaching, research and other duties assigned by the institute. The member may spend no more than 20% of their office time for their startup or entrepreneurial activities. A prior approval must be taken in this regard. In addition, the member must not involve research staff or institute staff or other staff in the activities at startup and vice-versa,

5.4. Participation through Project from Startup:

A member may undertake project(s) from the Startup that could be conducted at the institute following the prevailing institute norms of research or consultancy projects.

6. Involvement of Research Scholars or Students

6.1. Participation through Capital Investment only:

A member may be involved through capital investment alone in return for shares, with no other managerial, technical or mentorship involvement whatsoever. All the shares thus allotted can be retained by the concerned member, and the transaction is treated as a purely private commercial transaction of the member with no concern to the IIT Mandi or incubator(s). However, the member must declare this to IIT Mandi vide **Annexure III** and also state any conflict of interest.

6.2. Full time participation:

- (1) A member may seek permission from IIT Mandi and the period of leave will be governed under the leave rules of the institute applicable for the research scholars and students and any other specific conditions decided by the competent authority about the full time engagements of the research scholars and students.
- (2) The member must inform IIT Mandi about nature of engagement and the mode of compensation vide **Annexure III** and take due approval.
- (3) In case of a member on fellowship sponsored by an external agency, the rules of such agency will apply with respect to extension of fellowship, leave allowed, and related matters.

(4) A member can earn credits by working as entrepreneur or establishing a startup during their period of enrolment with the institute.

(5) A member, who are under incubation and perusing some entrepreneurial venture while studying may use their address in the Institute to register their company with due permission from the competent authority in the Institute.

(6) A member may be granted permission to sit in exam with less attendance if the concern is engaged in his own startup or entrepreneurial venture. Approval/ recommendation for the same must requested be requested or taken from the competent authority.

(7) A member can go for semester (or more) break for perusing entrepreneurial venture based on the recommendation of a review committee setup to review such matter. Here review committee can be constituted by the competent authority.

6.3. Part time participation:

(1) The member may seek permission from IIT Mandi to engage on a part-time basis and IIT Mandi may accord sanction following the norms during a semester and also, in the vacation period. If the member is compensated by the Startup in the form of cash and/or shares, consultancy norms of IIT Mandi will apply.

(2) The member may assume solely a non-executive role if he/she is engaged part-time with the Startup. The engagement will start after obtaining permission from IIT Mandi and sanction of appropriate type of leave, when necessary.

(3) The member shall be permitted to involve with a Startup as promoter/ advisor/ consultant/ or any other approved role.

(4) The member may be permitted to use specified physical and/or intellectual resources (e.g., workshop equipment, laboratory instruments, computing resources, and other resources) of IIT Mandi following the prevailing norms of the institute. Any such use of IIT Mandi resources shall be governed by an agreement with a Startup and it shall contain the contents and implications of the applicable policies at IIT Mandi.

(5) Where a Startup awards a consultancy project to a member, the prevailing rules and regulations of IIT Mandi for consultancy projects shall apply.

(6) The member must inform IIT Mandi about nature of engagement and the mode of compensation vide **Annexure V** and take due approval.

7. Incubating outside IIT Mandi

A company owned or co-owned by the member(s) will normally be required to incubate at the institute. However, in the exceptional cases, where the member(s) wants to incubate outside the institute, a sufficient justification has to be provided, for the approval of the competent authority, subject to the provision in service rules (CCS (CCA)).

8. Intellectual Property Matters

IIT Mandi Intellectual Property Rights (IPR) Policy in force, from time to time, shall serve as reference in cases where IP related matters are involved.

9. Application Process for NoC from IIT Mandi

- (1) A member may apply for and appear in the selection process for support program of an incubator.
- (2) Upon communication of selection from an incubator, the Member has to take approval as follows:
- (3) Submit an application (**Annexure III, IV or V as applicable**) through Head of School/Section (in case of for the faculty and staff) through Dean Academics (in case of research scholars/students) and through PI (in case of project staff) to Dean SRIC.
- (4) Dean SRIC will evaluate the application and follow due procedure at the Institute level or may constitute a committee to examine and submit recommendations and then forward the decision to the incubator.
- (5) Incubator, upon receiving an approval, may admit the Startup to support programs. The Member(s), at this stage, will be authorized to perform necessary actions for support program including registration of the Company, funds raising, team development, product/services development, consulting, market research and development, etc.
- (6) In case any member leaves the institute due to any reason, his/her engagement permitted through the institute with the startup will be revoked from the date of leaving institute. However, member may make an appeal to the Director of the institute for reconsideration of the matter. The decision of the Director will be final.

10. Conflict of Interest

- (1) The request for engagement may be submitted well in time preferably three months in advance through proper channel for the approval of the appropriate authority.
- (2) It is essential that the member must avoid any conflict of interest between their roles in IIT Mandi and in the Startup in any circumstances including the following:
 - (a) if there are IIT Mandi resources in their control, which are also sought by the Startup
 - (b) if member is developing IPR in a research activity/project in IIT Mandi that is closely related to the IPR that the member may be developing when on leave and working in the Startup
 - (c) when the relative shareholding of the member and the concerned incubator is sought to be changed by infusion of fresh capital in the Startup by the member
 - (d) when shares are allotted by a Startup to an immediate relative (as it can include sibling/in-laws also) of a member who is involved with the Startup
- (3) IIT Mandi or concerned Incubator shall determine the potential areas/activities where there is conflict of interest in the case of each member who applies for approval to engage with the Startup, and arrive at an agreed upon methodology for ensuring transparency in decision-making in respect of these activities/areas.
- (4) IIT Mandi or concerned Incubator may, if it chooses to, set up an overview committee of faculty/staff for specific cases to ensure that conflicts of interest do not arise.
- (5) IIT Mandi or concerned incubator may also require the member to declare their financial interests, and those of their close relatives, in the Startup, at the time of engagement, as well as whenever a change in such interests takes place due to additional investment in the Startup, or payment/share allotment by the Startup.
- (6) A member involved with a Startup must file a declaration periodically with the Incubator irrespective of whether there is a change in their financial interests in the Startup or not. The required periodicity shall be determined by the concerned Incubator.
- (7) The incubator reserves the right to obtain a third-party evaluation of the value of the Startup's shares before a member or their close relative(s) makes additional investments in the Startup. Such an evaluation will be carried out in a reasonable time-frame.

11. Protection of the fair name of IIT Mandi

(1) When a Startup is formally designated as an Incubated Startup, it is permitted to advertise itself as such wherever such advertisement is appropriate. All other Startups shall desist from using the name or logo of IIT Mandi in their publicity material in spite of any other form of engagement they may have with IIT Mandi.

(2) In view of the risk to the fair name of IIT Mandi that may arise in case the Startup so designated indulges in improper conduct or dealings, and in order to protect itself from such risks, IIT Mandi, through concerned incubator, may seek a seat on the Board of Directors or Governors or observer on such boards of the Startup, without liability, in order to ensure transparency in all its dealings.

(3) IIT Mandi may seek access to the unaudited and audited financial statements of the Startup. In certain cases, the incubator may even seek visibility on payments above a specified value made by the Startup before such payments are made. All such requirements will be specified in the agreement that will be entered into by an incubator with the Startup.

12. Impact Assessment

Institute shall formulate an impact assessment committee to assess overall impact the innovation and Entrepreneurship activities are making in the institute. This committee shall record key performance indicators (KPIs) to assess the impacts. KPIs can be based on following counts (but not limited to):

(1) Number of Startups created

(2) Number of IPR generated and commercialized

(3) Number of entrepreneurial and innovation-based engagements by other higher education institutions (HEIs) and/or Industry

(4) Sociological impact due to entrepreneurial culture in the institute

(5) Long run commercial success (to be assessed as long-term goal only)

(6) Engaging the Institute's intellectual and nonintellectual resources to promote innovation and entrepreneurship

13. Termination of Support

IIT Mandi or concerned incubator reserves the right to terminate its support to any Startup that it engages with, following a due process of notice with or without assigning any

reason. This may involve withdrawal of access to IIT Mandi's facilities, and/or withdrawal of permission to member to engage further with a Startup in any manner, though the member and the Incubator can continue to hold the shares they already possess in the Startup. It may also involve withdrawal of the status as the incubated Startup and from such point the Startup will be required to desist from advertising itself as incubated Startup. Should the need arise, an incubator may also seek modifications to the agreement signed with the Startup through an amendment, in order to protect IIT Mandi's fair name and its interests.

14. Resolution of Conflicts

(1) If any conflict arises between the institute/ incubator and the Startup regarding any breach of contract or the conduct of the member(s) involved, the matter will be referred to Dean SRIC. Dean SRIC may establish an independent committee to recommend steps for the resolution of the conflict within the framework of policies and the rules of IIT Mandi. Dean SRIC may approve the recommendations for implementation.

(2) If a member is aggrieved by the decisions based on the recommendations of the committee (in above points), he/she may appeal to the Director of the institute for reconsideration of decision. The verdict of Director shall be final and binding in this regard.

Any change in this policy will be made with the approval of the Director based on the requirements.

References:

- Faculty Entrepreneurship Policy, IIT Roorkee
- Incubator Policy and Procedures, IIT Kanpur
- Faculty Entrepreneurship Policy, IIT Kanpur
- Policy and Procedures for Business Incubator, IIT Bombay
- Business Incubation Policy, IIT Madras
- National Innovation and Startup Policy (NISP) 2019

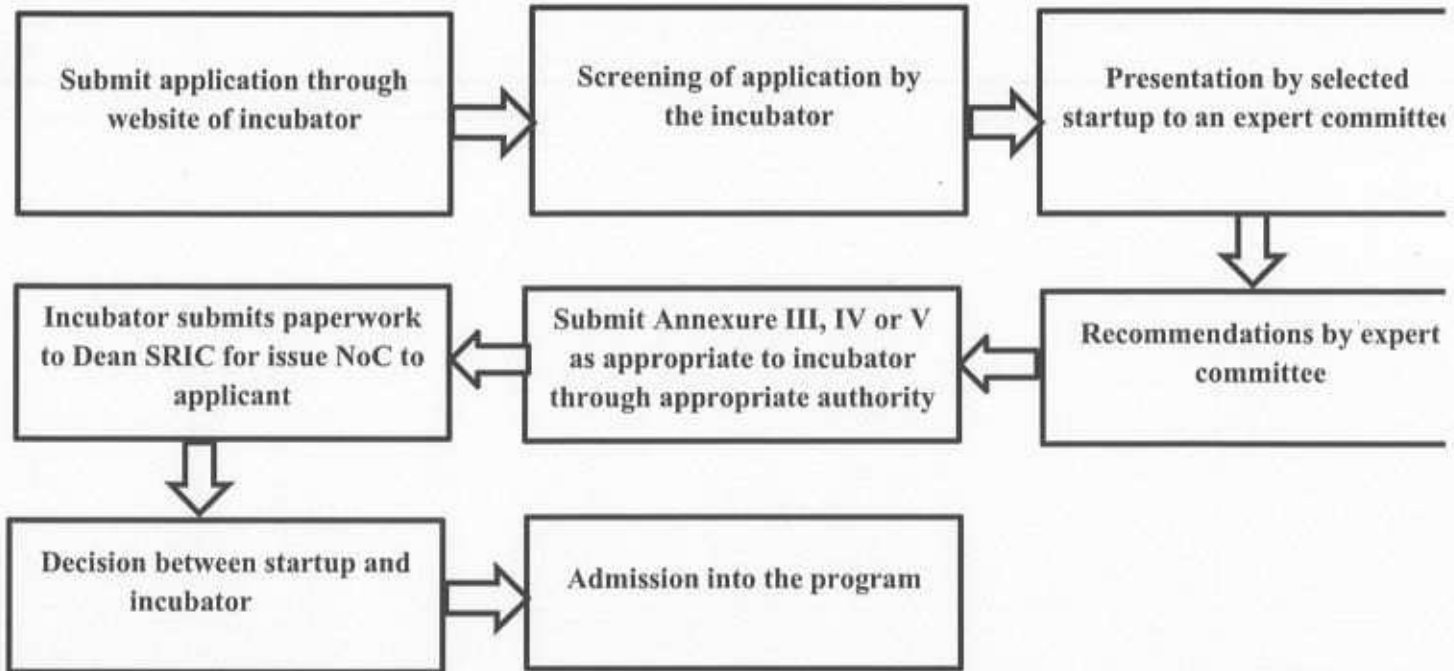
Enclosures:

Relevant templates are included as Annexures. These annexures may be revised periodically depending upon the requirements with the approval of Dean SRIC.

Annexure I: Overview of Mode of engagement

	Capital Investment in Startup	Full time engagement with Startup	Part time engagement with Startup
Role and Compensation	<ul style="list-style-type: none"> • No managerial, technical or mentorship involvement whatsoever • The transaction is treated as a purely private commercial transaction 	<ul style="list-style-type: none"> • Participate on full time basis in a Startup in capacity of a founder, director, consultant, advisor, and employee. • Mode of compensation may involve cash, kind or shares (partially or fully) 	<ul style="list-style-type: none"> • Participate in capacity of a non-executive founder/ director, part-time consultant, part-time advisor • Mode of compensation may involve cash or kind or shares
Time commitment	No time commitment	Spend full time after taking appropriate leave	Spend time only on weekends, holidays and formally availed leaves
Application template	Member must declare this to IIT Mandi vide Annexure I	Inform IIT Mandi about nature of engagement and the mode of compensation vide Annexure II and take due approval	Inform IIT Mandi about nature of engagement and the mode of compensation vide Annexure II and take due approval

Annexure II: Application and Approval Process



Annexure III [For Faculty & Staff]

Template for full disclosure on Investment/Shareholding in a Startup

(To be submitted to relevant incubator through School/Section Head/FA)

A) Basic Information:

1. Name:

2. Designation at IIT Mandi:

3. School/Section:

4. Employee No./Roll no:

5. Other relevant information that will have a bearing due to your engagement with the Startup (List out any areas of conflict of interest):

B) Startup Information:

1) Name of the Startup:

2) Nature of Startup: Team / Partnership / Incorporated Company / Other:

3) If registered, kindly provide details of registered office address and year of incorporation:

4) Names and details of founders of startup:

S.No	Name	Current Designation, Organization	Association with startup [Full time / Part - Time]

5) State briefly the business of startup (product/service/target market):

C) Your Role in Startup:

1. Your designation in Startup:

2. Your investment in Startup:

a.	Have you invested any money in the startup? If yes, mention the amount	
b.	Do you hold shares/profit sharing position in the startup? If yes, share details:	

3. Are you, in this Startup, planning to use knowledge technology/intellectual property developed at IIT Mandi? If yes, give details:

Declaration: I will adhere to the norms of the institute and rules and restrictions as laid down in in the IIT Mandi Innovation and Entrepreneurship Policy. These would include but not limited to leave/consultancy rules and terms of employment in the institute.

The activities of the Startup are not in conflict with the interest of the institute and my participation in the company will not be in conflict of my assigned duties and responsibilities of the institute.

Signature and date:

Name of IIT Mandi Member:

Recommendation Authorities			Approval Authorities		
	Name & Designation	Signature		Name & Designation	Signature
1			1.		

2.			2.		
3.			3.		

Annexure IV [For Faculty & Staff, including Project Staff]

Application Form for Faculty and Staff for Full time or Part time engagement in a Startup
(Separate form for each member)

A) Basic Information:

1. Name:

2. Designation at IIT Mandi:

3. School:

4. Employee No./Roll no:

5. Academic Load on the Applicant (Faculty & staff for Full time or Part time engagement in a Startup) :

a.	No of Research Students	
b.	No of Research Projects	
c.	No. of consultancy projects	
d.	Administrative Responsibilities (Details)	
e.	Other responsibilities (if any)	

6. Other relevant academic/administrative roles that will have a bearing due to your engagement in incubation program:

B) Startup Information:

1. Name of the Startup:

2. Nature of Startup: Team / Partnership / Incorporated Company / Other:

3. If registered, kindly provide details of registered office address and year of incorporation:

4. Names and details of founders of startup:

S. No	Name	Current Designation at IIT Mandi	Association with startup [Full time / Part - Time]

--	--	--	--

5. State briefly the business of startup (product/service/target market):

C) Your Role in Startup:

6. Your designation in Startup:

7. Your role in Startup:

a.	Executive: Full time engagement. This will require you to take leave from IIT Mandi	[]
b.	Non Executive: Advisory role that does not require significant amount of time commitment	[]
	i. Approx no of hours you intend to spend on startup advisory per week:	

	ii. Briefly summarize the activities you plan to carry out in the Enterprise:	
c.	Have you invested any money in the startup? If yes, mention the amount	
d.	Do you hold shares/profit sharing position in the startup? If yes, share details:	

8. Are you, in this enterprise, planning to use knowledge /technology/intellectual property developed at IIT Mandi? If yes, give details:

--

Declaration: I will adhere to the norms of the institute and rules and restrictions as laid down in the IIT Mandi Innovation and Entrepreneurship Policy. These would include but not limited to leave/consultancy rules and terms of employment in the institute.

The activities of the Company are not in conflict with the interest of the institute and my participation in the company will not be in conflict of my assigned duties and responsibilities of the institute.

Signature (with date):

(Name of IIT Member)

Recommendation Authorities			Approval Authorities		
	Name & Designation	Signature		Name & Designation	Signature

1			1.		
2.			2.		
3.			3.		

Annexure V [For Students]

Application Form for Student/Research Scholars for Full time or Part time engagement in a Startup
(Separate form for each member)

A) Basic Information:

1. Name:

2. Program Enrolled in at IIT Mandi:

3. School:

4. Roll no:

5. Academic details of the Applicant:

a.	Branch/Specialization	
b.	Year of enrolment	
c.	Age/ Gender	

6. Other relevant academic activities that will have a bearing due to your engagement in incubation program:

11
12
13

B) Startup Information:

1. Name of the Startup:

2. Nature of Startup: Team / Partnership / Incorporated Company / Other:

3. If registered, kindly provide details of registered office address and year of incorporation:

4. Names and details of founders of startup:

S. No	Name	Current Designation at IIT Mandi	Association with startup [Full time / Part - Time]

5. State briefly the business of startup (product/service/target market):

C) Your Role in Startup:

6. Your designation in Startup:

7. Your role in Startup:

a.	Executive: Full time engagement. This will require you to take leave from IIT Mandi	[]
b.	Non Executive: Advisory role that does not require significant amount of time commitment	[]
	i. Approx no of hours you intend to spend on startup advisory per week:	
	ii. Briefly summarize the activities you plan to carry out in the Enterprise:	
c.	Have you invested any money in the startup? If yes, mention the amount	
d.	Do you hold shares/profit sharing position in the startup? If yes, share details:	

8. Are you, in this enterprise, planning to use knowledge /technology/intellectual property developed at IIT Mandi? If yes, give details:

Declaration: I will adhere to the norms of the institute and rules and restrictions as laid down in the IIT Mandi Innovation and Entrepreneurship Policy. These would include but not limited to leave/consultancy rules and terms of employment in the institute.

The activities of the Company are not in conflict with the interest of the institute and my participation in the company will not be in conflict of my assigned duties and responsibilities of the institute.

Signature (with date):
(Name of IIT Member)

Recommendation Authorities			Approval Authorities		
	Name & Designation	Signature		Name & Designation	Signature
1			1.		
2.			2.		
3.			3.		



Speed Post
 भारतीय लेखापरीक्षा तथा लेखा विभाग
 कार्यालय महानिदेशक लेखापरीक्षा (केन्द्रीय), चण्डीगढ़
 Indian Audit & Accounts Department
 Office of The Director General of Audit (Central),
 Chandigarh



सं/No: डी. जी. ए. (सी)/के. व्यय/SAR-2021-22/ITM/2022-23/ 1832

दि/ Dated: 11/01/2022

सेवा में,

सचिव,
 उच्चतर शिक्षा विभाग,
 शिक्षा मंत्रालय,
 भारत सरकार,
 नई दिल्ली - 110001

विषय: Indian Institute of Technology, Mandi (Himachal Pradesh) के वर्ष 2021-22 के लेखाओं पर पृथक लेखापरीक्षा प्रतिवेदन

महोदय,

कृपया Indian Institute of Technology, Mandi (Himachal Pradesh) के वर्ष 2021-22 के लेखाओं पर पृथक लेखापरीक्षा प्रतिवेदन (Separate Audit Report) संसद के दोनों सदनों के समक्ष प्रस्तुत करने हेतु सलग्र पाएं। संसद में प्रस्तुत होने तक प्रतिवेदन को गोपनीय रखा जाए।

संसद में प्रस्तुत करने के उपरांत प्रतिवेदन की पांच प्रतियाँ इस कार्यालय को भी भेज दी जाएं।

कृपया इस पत्र की पावती भेजें।

भवदीय,

संलग्न: उपरोक्त अनुसार

-हस्ता/-

महानिदेशक

उपरोक्त की प्रतिलिपी वर्ष 2021-22 की पृथक लेखापरीक्षा प्रतिवेदन की प्रति सहित आवश्यक कार्यवाही हेतु निदेशक, Indian Institute of Technology, Mandi (Himachal Pradesh) Parashar Road, Tehsil Sadar, Near Kataula, Kamand, Himachal Pradesh 175005 को प्रेषित की जाती है।

भवदीया,
 मतिश्री
 निदेशक (केन्द्रीय व्यय)

165

Separate Audit Report of the Comptroller & Auditor General of India on the Accounts of the Indian Institute of Technology, Mandi (Himachal Pradesh) for the year ended 31 March 2022

We have audited the Balance Sheet of the Indian Institute of Technology, Mandi as at 31 March 2022, Income & Expenditure Account and Receipts & Payments Account for the year ended on that date under Section 19 (2) of the Comptroller & Auditor General's (Duties, Powers & Conditions of Service) Act, 1971 read with Section 23 (2) of Institutes of Technology Act, 1961 as amended by Institutes of Technology (Amendment) Act, 2012. These financial statements are the responsibility of the Institute's management. Our responsibility is to express an opinion on these financial statements based on our audit.

2. This Separate Audit Report contains the comments of the Comptroller & Auditor General of India (CAG) on the accounting treatment only with regard to classification, conformity with the best accounting practices, accounting standards and disclosure norms, etc. Audit observations on financial transactions with regard to compliance with the Law, Rules & Regulations (Propriety and Regularity) and efficiency-cum-performance aspects, etc., if any, are reported through Inspection Reports/ CAG's Audit Reports, separately.

3. We have conducted our audit in accordance with auditing standards generally accepted in India. These standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatements. An audit includes examining, on a test basis, evidences supporting the amounts and disclosure in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of financial statements. We believe that our audit provides a reasonable basis for our opinion.

4. Based on our audit, we report that:

i) We have obtained all the information and explanations, which to the best of our knowledge and belief were necessary for the purpose of our audit;

ii) The Balance Sheet and Income and Expenditure Account/Receipts and Payments Account dealt with by this Report have been drawn up in the format prescribed by the

A.2 The Institute is receiving grants under various head such object head 31- Recurring General, object head 36- Recurring Salary, object head 35- Non Recurring-creation of Capital Assets, grant towards repayment of HEFA Loan and grant towards repayment of interest on HEFA Loan. The Institute had shown consolidated details of grants in the Schedule 3C/ 10. However, head-wise details of above captioned grants were not shown in the Schedule 3C/10.

A.3 As per Schedule III, balance of unutilised Grant in Aid was ₹ 143.90 crore. However, Schedule 3 C/10 annexed with annual accounts; were showing balance of unutilised grants amounting to ₹11.32 crore only. As per the information furnished by the Institute, the balance of ₹ 143.90 crore included grant balance and SRIC balance of ₹11.85 crore and ₹132.05 crore, respectively. Thus, it was observed that:-

- (i) Details of figures of ₹ 143.90 crore included in the Schedule 3, were not shown properly through its supporting Schedule 3C;
- (ii) As per the prescribed format, the Schedules 3C and 10 are prescribed for showing transactions of Government grants only. However, transactions of SRIC balances were included in the Schedule 3C/10 in contravention of the instructions contained in the prescribed format;
- (iii) The Institute had worked out two grant balances of ₹ 11.32 crore (worked on cash basis) and ₹ 132.05 crore (worked on accrual basis). The balance of ₹ 132.05 crore was incorporated in the Financial Statements. However, figures appearing in the Schedule 3C/10 amounting to ₹ 11.32 crore were not included in the annual accounts though Schedules 3C & Schedule 10 were appended with the annual accounts.

B. Grant-in-Aid

Out of total available funds of ₹ 150.90 crore including previous year unspent balance of ₹ 29.99 crore and Grant-in-Aid received during the year ₹120.91 crore; the Institute utilized a sum of ₹ 139.58 crore, leaving an unutilized balance of ₹ 11.32 crore at the end of the year.

C. Management letter

Deficiencies which have not been included in the Audit report have been brought to the notice of the Institute's management through a management letter issued separately for remedial/corrective action.

v) Subject to our observations in the preceding paragraphs, we report that the Balance Sheet, Income and Expenditure Account and Receipts and Payments Account dealt with by this report are in agreement with the books of accounts.

vi) In our opinion and to the best of our information and according to the explanations given to us, the said financial statements read together with the Accounting Policies and Notes on Accounts, and subject to the significant matters stated above and other matters mentioned in Annexure to this Audit Report give a true and fair view in conformity with accounting principles generally accepted in India:

- a. In so far as it relates to the Balance Sheet, of the state of affairs of the Indian Institute of Technology, Mandi as at 31 March 2022; and
- b. In so far as it relates to Income and Expenditure Account, of the deficit for the year ended on that date.

For and on behalf of the C & AG of India

Director General of Audit (Central), Chandigarh

Place: Chandigarh

Date: 06.10.2022

Annexure to Audit Report

1. Adequacy of Internal Audit System

The system of pre-audit of payments is in existence. System of Internal Audit is yet to be introduced.

2. Adequacy of Internal Control System

Internal control system is inadequate, in view of the following:-

- (i) Accounting Manual was not prepared.
- (ii) Internal Audit is not being conducted.
- (iii) Fixed assets records maintained by the Institute in tally only show transactions made in an ongoing accounting year besides showing the opening value of these fixed assets. Physical verification of assets is to be done on the basis of assets register maintained by the store department. However, records maintained by the store department is not matching with the accounting records maintained by the Institute. Moreover, Fixed Assets Register was not maintained in proper format in the Form GFR -22 as prescribed in the General Financial Rule 211 (ii) (a).

3. System of Physical Verification Fixed Assets

Physical verification of Fixed Assets, was completed upto 31 March, 2020. However, verification for the years 2020-21 and 2021-22 was not conducted.

Physical verification of Library books was completed upto 31 March, 2019 and the next physical verification was due on 2022-23.

4. System of Physical Verification of Inventory

As per Rule 213 of the General Financial Rules, 2017 regarding Physical Verification of Fixed Asset and Consumable goods that a physical verification of all the consumable goods and materials should be undertaken at least once in a year and discrepancies, if any should be recorded in the stock register for appropriate action by the competent authority. However, the Institute had not conducted physical verification of stock.

5. Regularity in payment of Statutory Dues

The payment of statutory dues was regularly made by the Institute.


Director

Indian Institute of Technology Mandi
Kamand, Himachal Pradesh - 175075



भारतीय प्रौद्योगिकी संस्थान मण्डी
कमांद, हिमाचल प्रदेश - 175075

No. IIT Mandi/ARAL/SAR/2021-22(2022-23)/11/3469

Dated: 18.08.2022

To

The Director (CE),
Office of the Director General of Audit (Central),
Plot No. 20-21, Sector-17E,
Chandigarh-160017

Subject: Draft Audit Comments on the Accounts of IIT Mandi for the year 2021-22.

Sir/Madam,

Your kind attention is invited towards the letter No. DGA (C)/Ke.Vayay/ SAR/2021-22/IITM/2022-23/1127 dated 05.08.2022 on the cited subject vide which Draft Audit Comments on the Accounts of this Institute for the year ended 31st March, 2022 were sent to the Institute for submission of reply in annotated form (both in hard and soft copy).

In Compliance, a detailed reply in respect of the Draft Audit Comments in annotated form is enclosed herewith for your kind consideration. Soft copy of the same is being e-mailed separately on 'pdacchadigarh@cag.gov.in'.

Yours faithfully,

Behere
18/8/22
Director

Encls. : As above

Reply of the Draft Audit Comments on the Annual Accounts of the Indian Institute of Technology, Mandi for the year ended 31st March 2022 received vide letter no. DGA/(C), Ke. Vayay/SAR/2021-22/IITM/2022-23/1127 dated 05.08.2022.

Point wise Audit Comments	Reply
<p>A. Balance Sheet Application of Funds</p>	
<p>A.1 Fixed Assets Tangible Assets-Rs.719.34 Crore (Schedule-IV) Laboratory and Scientific equipment- Rs.69.85 crore</p> <p>A.1.1 Above included an amount of Rs. 1.08 lakh on account of purchase of Kitchen Duct and exhaust hoods installed in IIT, Guest House, which should have been included in Electrical Installations. As per formats of Financial Statements for Central Higher Educational Institutions, the rate of depreciation charged on Laboratory & Scientific equipment was 8 percent per annum, whereas the rate of depreciation on Electrical Installation & Equipment was 5 percent per annum. This has resulted in overstatement of Laboratory & Scientific equipment by Rs. 0.99 lakh (1.08- 0.09 depreciation), understatement of Electrical Installations by Rs. 1.02 lakh (1.08- 0.06 depreciation) and overstatement of depreciation by Rs. 0.03 lakh (3239/-=Rs.8638 - Rs.5399).</p> <p>A.1.2 Above included an amount of Rs.40.69 lakh (Rs.3570364+Rs.498990) on account of purchase of Laboratory & Scientific Equipment naming Fume Hood and QMPEXP Hi-Tech instrument. These equipment were installed on dated 07.04.2022 and 02.04.2022 respectively. This amount was required to be booked as asset in next financial i.e. 2022-23. Depreciation Rs. 3,25,548/- (8%) was charged in the Income and Expenditure Account. This has resulted in overstatement of Fixed Assets by Rs. 37.43 lakh (Rs. 40.69 lakh - Rs. 3.26 lakh depreciation), understatement of Capital Work in Progress by Rs. 40.69 lakh and overstatement of depreciation by Rs. 3.26 lakh.</p>	<p>In this context, it is submitted that depreciation charged extra amounting to Rs. 3,239/- will be rectified in the Books of Accounts in the current financial year and compliance will be shown to the Audit.</p> <p>Hence, para may kindly be dropped.</p> <p>Necessary rectification will be carried out in the Book of Accounts in the current financial year and compliance will be shown to the Audit.</p> <p>Hence, para may kindly be dropped.</p>
<p>A.2 Loans, Advances & Deposits (Schedule VIII): Rs. 1273.92 lakh.</p> <p>Above included an amount of Rs. 7.81 lakh which was released as advance to CPWD against the work "Providing Fire Fighting System in 50 Nos. of buildings hostel block-19 (G+2), faculty Housing-26 nos. (G+2), Dining Block-2 Nos (S/S), Faculty club</p>	<p>Necessary entries will be made in the Book of Accounts in the current financial year and compliance will be shown to the Audit.</p> <p>Hence, para may kindly be dropped</p>

house-1 No.". As per 'Form-65' submitted by CPWD Division upto March, 2022 against the total deposits for the work amounting to Rs. 212.85 lakh, CPWD had incurred an expenditure of Rs. 212.68 lakh. Therefore, as per 'Form-65' submitted by CPWD balance amount of advance was Rs. 0.17 lakh. This has resulted in understatement of Capital Work in Progress and overstatement of by Loan Advances & Deposits by Rs. 7.64 lakh.

B. General

B.1 Vide comment no. A.1.1 of the previous Separate Audit Report it was pointed out that the Institute had made adjustment entries of Rs. 90.72 crore (Adjustment relating to previous years) under OH-31 and OH-36 and Rs. 91.33 lakh under OH-31 in Schedule 10. The details of these entries were not provided.

These details were furnished in current audit. It was regularly being pointed out in Separate Audit Reports (SARs) of the Institute, that it was not showing balances of unutilised grants separately in the annual accounts, as unutilised balances of grants were included in Corpus Fund of the Institute. An observation in this regard was also included at Sl.no. A.1.1 in the Separate Audit Report for the year 2019-20.

In the previous financial year 2020-21, to make compliance of the above observation; the Institute had made an exercise to confirm the figures of correct grant balances on accrual basis from its starting year 2009-10, as the Institute prepared its first financial accounts in the year 2009-10. However, Ministry of Education's prescribed format of accounts was applicable from the financial year 2014-15 onwards. After making detailed workings, the Institute had an adjustment entry of Rs. 90.72 crore to transfer funds from Corpus Fund to unutilised grants. On verifications of these details for the years 2009-10 to 2019-20 made by the Institute, it was noticed that the workings made by the Institute were not found correct. While working out revenue expenditure from grants; the Institute had only taken 'excess of expenditure over income' as recurring expenditure of these years. However, as per the prescribed format, the expenditure in the Income & Expenditure Account and pertains to grants; should have booked as revenue expenditure (excluding depreciation and provision for retirement benefits) from grants. Further, revenue expenditure worked by the Institute, included provision for retirement benefits. Therefore,

The Capital grants received were being directly taken into capital fund account and the revenue grants were directly taken into Income and Expenditure Account up to 31.03.2020. Further the deficit was met out from capital fund till 31.03.2020. However, on the suggestion of Audit the details of grants received, grant utilized and un-utilized grant was prepared since inception of the Institute, during the year 2020-2021. The adjustment of unutilized grants of Rs.90.72 Crore was made in capital fund account during the year 2020-2021. Since, the accounts are being prepared on accrual system of accounting, hence, the utilization of the grants is accounted for on the basis of expenditure incurred. The advance given to contractors and the amount lying in capital work in progress is adjusted only when the assets are created. Thus, the figure of capital advance, other advances and capital work in progress are not adjusted as grant utilized in the books of accounts. Such adjustment, if made in the books of accounts will not give a true and fair view of the Balance Sheet. However, the Institute has prepared the Schedule-3C on the basis of cash system of accounting as near as possible, hence, such difference will always exist in the Schedule-3C and un-utilized grants. It is pertinent to mention here that schedule-3C was prepared on accrual system of accounting in the financial year 2020-21 but the same was also objected to by your office. However, suggestions of the Audit have been taken into consideration and necessary entries as desired, if any will be made in the current financial year.

In view of above, the para may kindly be dropped.

<p>these workings made by the Institute were not found correct and adjustment entry made of Rs. 90.72 crore in the year 2020-21 was also incorrect.</p> <p>Therefore, the Institute should re-verify and re-work the adjustment entry made of Rs. 90.72 crore, as per the instructions contained in the Ministry of Education's prescribed format of accounts applicable to it and thereafter correct accounting entries are to be made in the accounts.</p>													
<p>B.2 Rule 189 of Receipt and Payment Rules, 1983 provides that at the close of March each year, (a) deposits not exceeding twenty five rupees unclaimed for one whole account year, or residuary balances not exceeding the said amount out of deposits partly repaid during the year then closing, and (b) all deposits or balances in excess of the aforesaid amount, unclaimed for more than three complete account years, shall be credited to the Government account under the Consolidated Fund, keeping necessary note in the register of deposits.</p> <p>The institute has deposits of Rs.9.91 lakh lying unclaimed since for more than three completed years. Keeping in view the aforesaid provisions, the Institute should review these liabilities and an accounting policy to be framed regarding such unclaimed liabilities.</p>	<p>The final settlement of deposits on account of Caution Money and Library Security as pointed out in the para is under process. Its final adjustment will be made in the current financial year after confirmation from quarter concerned. The point has been noted for compliance.</p> <p>Hence, the para may kindly be dropped.</p>												
<p>B.3 The Institute is receiving grants under various head such object head 31- Recurring General, object head 36- Recurring Salary, object head 35- Non Recurring- creation of Capital Assets, grant towards repayment of HEFA Loan and grant towards repayment of interest on HEFA Loan. The Institute had shown consolidated details of grants in the Schedule 3C/10. However, head-wise details of above captioned grants should have been shown in the Schedule 3C/10.</p>	<p>Suggestion has been noted for compliance.</p> <p>Hence, the para may kindly be dropped.</p>												
<p>B.4 As per Schedule III, balance of unutilized Grant in Aid was Rs. 1,43,89,70, 019/-. However, Schedule 3 C/10 annexed with annual accounts; were showing balance of unutilized grants amounting to Rs. 11.32 crore only. On being pointed out, the Institute furnished details of Rs. 143.90 crore which included grant balance of Rs. 132.05 crore and SRIC balance Rs. 11.85 crore. Thus, details of figures of Rs. 143.90 crore included in the Schedule 3, were not shown properly in the Sub-Schedule 3C.</p>	<p>Details of unutilized grant as per schedule 3 amounting to Rs. 1,43,89,70,019/- is as under:</p> <table border="1"> <thead> <tr> <th>Particulars</th> <th>Figures (in Rs.)</th> </tr> </thead> <tbody> <tr> <td>Unutilized grant as per books of accounts under OH-31</td> <td>1,64,86,19,974/-</td> </tr> <tr> <td>Add: HEFA principal grant under OH-31</td> <td>10,31,25,000/-</td> </tr> <tr> <td>Less: Under OH-36 recoverable</td> <td>43,12,23,515/-</td> </tr> <tr> <td>Add: Unutilized grant of SRIC account</td> <td>11,84,48,560/-</td> </tr> <tr> <td>Total unutilized grant</td> <td>1,43,89,70,019/-</td> </tr> </tbody> </table> <p>Besides this the balance shown in schedule 3C/10 Rs.11.32 Crore is based on the grant received and</p>	Particulars	Figures (in Rs.)	Unutilized grant as per books of accounts under OH-31	1,64,86,19,974/-	Add: HEFA principal grant under OH-31	10,31,25,000/-	Less: Under OH-36 recoverable	43,12,23,515/-	Add: Unutilized grant of SRIC account	11,84,48,560/-	Total unutilized grant	1,43,89,70,019/-
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	<p>expenditure incurred during the current financial year i.e. 2021-22 on cash basis.</p> <p>Hence, the para may kindly be dropped.</p>															
<p>B.5 Further, the Schedule 3C/10 are prescribed for showing transactions of Government grants only, however the Institute was including the transactions of SRIC in the Schedule 3C in contravention of the prescribed format. Transactions and balances of SRIC funds should not have been included in the Schedule 3C/10 as these Schedules are prescribed for showing transactions of Government grants only.</p>	<p>Suggestions have been noted for compliance.</p> <p>Hence, the para may kindly be dropped.</p>															
<p>B.6 The Institute is availing HEFA Loan. As per the annual accounts an amount of Rs. 159.81 crore was outstanding on account of Secured Loan. Grants of Rs. 22.94 crore and Rs.11.37 crore were received during the year 2021-22 towards repayment of HEFA Loan and interest on HEFA Loan, respectively. However, to verify the authenticity of these figures, the Institute had not furnished (i) HEFA Loan Statement for the period since beginning of loan to 31 March 2022, (ii) details of grants received from Government towards repayment of HEFA Loan and interest on HEFA Loan since beginning of loan to 31 March 2022 (iii) details of payments made to HEFA out of grants received from Government towards repayment of HEFA Loan and interest on HEFA Loan since beginning of loan to 31 March 2022 (iv) details of assets created out of HEFA Loan and accounting treatment given to these assets (v) accounting treatment given to grants received from Government towards repayment of HEFA Loan and interest on HEFA Loan and (vi) accounting treatment given to repayment of Loan to HEFA from the Government towards repayment of HEFA Loan and interest on HEFA Loan.</p> <p>Only ledgers in this regard were furnished but above details were not furnished by the Institute.</p>	<p>Point wise reply of HEFA Loan and interest on HEFA loan is given below:</p> <table border="1"> <thead> <tr> <th>S.No.</th> <th>Audit Observation</th> <th>Reply</th> </tr> </thead> <tbody> <tr> <td>i)</td> <td>HEFA Loan Statement for the period since beginning of loan to 31 March 2022.</td> <td>Complete statement has already been shared with the CAG Audit party and also provided to the CAG office through email dated 28-07-2022, 06:23 pm separately.</td> </tr> <tr> <td>ii)</td> <td>Details of grants received from Government towards repayment of HEFA Loan and interest on HEFA Loan since beginning of loan to 31 March 2022.</td> <td>1. Grant received towards repayment of HEFA principal - Rs. 64.19475 Crore 2. Grant received towards repayment of HEFA loan interest - Rs. 22.92 Crore.</td> </tr> <tr> <td>iii)</td> <td>Details of payments made to HEFA out of grants received from Government towards repayment of HEFA Loan and interest on HEFA Loan since beginning of loan to 31 March 2022.</td> <td>1. Grant received towards repayment of HEFA principal - Rs. 85.5930 Crore (including 25% institute share). 2. Grant received towards repayment of HEFA loan interest - Rs. 22.92 Crore.</td> </tr> <tr> <td>iv)</td> <td>Details of assets created out of HEFA Loan and accounting treatment given to these assets</td> <td>The HEFA term loan has been used for the ongoing civil construction related activities amounting to Rs. 241.35 Crore and Rs. 1.30 Crore</td> </tr> </tbody> </table>	S.No.	Audit Observation	Reply	i)	HEFA Loan Statement for the period since beginning of loan to 31 March 2022.	Complete statement has already been shared with the CAG Audit party and also provided to the CAG office through email dated 28-07-2022, 06:23 pm separately.	ii)	Details of grants received from Government towards repayment of HEFA Loan and interest on HEFA Loan since beginning of loan to 31 March 2022.	1. Grant received towards repayment of HEFA principal - Rs. 64.19475 Crore 2. Grant received towards repayment of HEFA loan interest - Rs. 22.92 Crore.	iii)	Details of payments made to HEFA out of grants received from Government towards repayment of HEFA Loan and interest on HEFA Loan since beginning of loan to 31 March 2022.	1. Grant received towards repayment of HEFA principal - Rs. 85.5930 Crore (including 25% institute share). 2. Grant received towards repayment of HEFA loan interest - Rs. 22.92 Crore.	iv)	Details of assets created out of HEFA Loan and accounting treatment given to these assets	The HEFA term loan has been used for the ongoing civil construction related activities amounting to Rs. 241.35 Crore and Rs. 1.30 Crore
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<p>B.7 Adequacy of Internal Audit System The system of pre-audit of payments is in existence. System of Internal Audit is yet to be introduced.</p>	<p>The fact is that Internal Audit system is already in existence and the system of pre-audit of payments is in existence.</p>									
<p>B.8 Adequacy of Internal Control System Internal control system is inadequate, in view of the following:-</p> <p>(i) Accounting Manual has not been prepared.</p> <p>(ii) Internal Audit is not being conducted.</p> <p>(iii) Fixed Assets Register was not maintained in proper format as prescribed in the General Financial Rule 211 (ii) (a) in GFR Form 22.</p>	<p>i) The Accounts are prepared as per formats prescribed by the Ministry of Education, GOI for Autonomous Bodies.</p> <p>ii) Internal Audit System is in existence.</p> <p>iii) The fixed assets register has been prepared in excel format showing Gross Cost as the beginning of the year, additions/deletions, depreciation for the year/till date and written down value. All the figures are duly reconciled with the financial books of accounts and Fixed Assets Schedule-4 which is forming part of the accounts.</p>									

<p>B.9 System of Physical Verification Fixed Assets</p> <p>Physical verification of Fixed Assets was completed up to 31 March, 2020. However, verification for the years 2020-21 and 2021-22 was not conducted. Physical verification of Library books was completed up to 31 March, 2019 and the next physical verification was due on 2022-23.</p>	<p>Point has been noted for compliance.</p>
<p>B.10 System of Physical Verification of Inventory.</p> <p>As per Rule 213 of the General Financial Rules, 2017 regarding Physical Verification of Fixed Asset and Consumable goods that a physical verification of all the consumable goods and materials should be undertaken at least once in a year and discrepancies, if any should be recorded in the stock register for appropriate action by the competent authority. However, the Institute had not conducted physical verification of stock.</p>	<p>Point has been noted for compliance.</p>
<p>B.11 Regularity in payment of Statutory Dues.</p> <p>The payment of statutory dues was regularly made by the Institute.</p>	<p>No comments.</p>
<p>C. Grant-in-Aid</p> <p>Out of total available funds of Rs. 150.90 crore including previous year unspent balance of Rs. 29.99 crore and Grant-in-Aid received during the year Rs.120.91 crore; the Institute utilized a sum of Rs. 139.58 crore, leaving an unutilized balance of Rs. 11.32 crore at the end of the year.</p>	<p>No comments.</p>

U. Delore 18/8/22
Director

Financial Summary of Rs. 275 Cr. Sanctioned under HEFA							
1	2	3	4	5	6	7	8
S. No.	Description	Approved Cost/Amount Sanctioned under HEFA (Cr)	Fund Released	Completion Cost	Balance fund required to be released	Balance available	Remarks
1	C/o bridge connecting North Campus from Ghoda farm and Cycle path connecting North South Campus and Consultancy Service.	30,00,00,000.00	44,91,000.00	30,00,00,000.00	----	29,55,09,000.00	Balance funds are being kept for unification of campus
2	C/o Academic block in LP-3, Faculty Housing in LP-4, Student Hostels, Dining and Faculty Housing in LP-6 and Consultancy Service.	2,15,00,00,000.00	1,96,45,57,637.00	2,04,00,00,000.00	7,54,42,363.00	11,00,00,000.00	
3	landscaping work	10,00,00,000.00	8,83,03,711.00	9,78,00,000.00	94,96,289.00	22,00,000.00	
4	Misc./additional works i.e. landscaping work , ground, boundary wall, Horticultural works etc.	10,00,00,000.00	6,43,90,926.00	9,33,00,000.00	2,89,09,074.00	67,00,000.00	
5	Student Activity Centre and Dining hall near S-11 at North Campus and Solar light	10,00,00,000.00	7,34,47,550.00	10,00,00,000.00	2,65,52,450.00	0.00	
	Total	2,75,00,00,000.00	2,19,51,90,824.00		14,04,00,176.00	41,44,09,000.00	

Funds released = Rs. 2195190824

Liability = Rs. 140400176

Total = Rs. 2335591000

Balance available = Rs. 41,44,09,000

Grand Total = Rs. 2750000000

Note: Rs. 30 Cr. is for Sr. No. 1

So Saving = Rs. 41,44 - 30 = Rs. 11.44 Cr. Say = 11 Cr.

Financial Summary of Rs. 38 Cr. Sanctioned under HEFA

Annexure-38.5 (A)

Sr. No.	Name of Work	Approved Cost in Cr.	Fund Released/Interest credited& BG Encashed	Funds required to complete the work	Total	Remarks
1						
1	Construction of Academic buildings (A 9, A10, A11, A12, A13, A14 & A16 and Institutional buildings i.e. A5 Guest House, A-6 Gym, A7-Hospital, A-8 Auditorium at Phase 1 North Campus of IIT Mandi. Balance work of A11 & A14 building. C/o Sub-station 33/11 KV & 11/0.433 KV, DG set, Area Lighting, Cable distribution Network at North Campus and 500 KVA, 22/11/0.433 KVESS for LP-3 at IIT Kamand, Mandi H.P. Balance work of Construction of utility services (water supply, sewage disposal and firefighting system), ground water reservoir, sewerage treatment plant and internal road work at North campus IIT Mandi, Mandi(H.P)	380000000	21,00,00,000.00	6,00,00,000.00	28,50,00,000.00	A-14 work stands completed. Final bill/settlement of account with NBCC may take another 6 months.
			1,50,00,000.00			
2	C/o Different Buildings under Phase-I North for IIT Mandi at Kamand (H.P).SH: C/o Hostel Blocks-22 Nos. (G+2), Faculty Housing-28 Nos [(8 Nos. – G+1), (17 Nos. –G+2), (3 Nos.-G+3), Dining Block -3 Nos. (S/S), Faculty Club House-1 No. (S/S) and Servant Quarters-2 Nos. (G+2) i/c Internal Water Supply, Sanitary Installations, Internal Electrical Installations, Drainage and Development of the site etc. Providing fire fighting system in 50 nos. buildings (Hostel blocks – 19 nos, Faculty housing block 26 nos, Dining block – 2 nos, Faculty club house – 1 no & servant quarter – 2 nos at North campus for IIT Mandi (H.P.)		7,50,00,000.00	1,00,00,000.00	8,50,00,000.00	Work stands completed and final bill is under process. Settlement of account with CPWD may take another 6 months.
			73,38,583.00	26,50,000.00	99,88,583.00	
			30,73,38,583.00	7,26,50,000.00	37,99,88,583.00	

Rs. 7.26 Cr. is to be released to NBCC/CPWD as per present status.

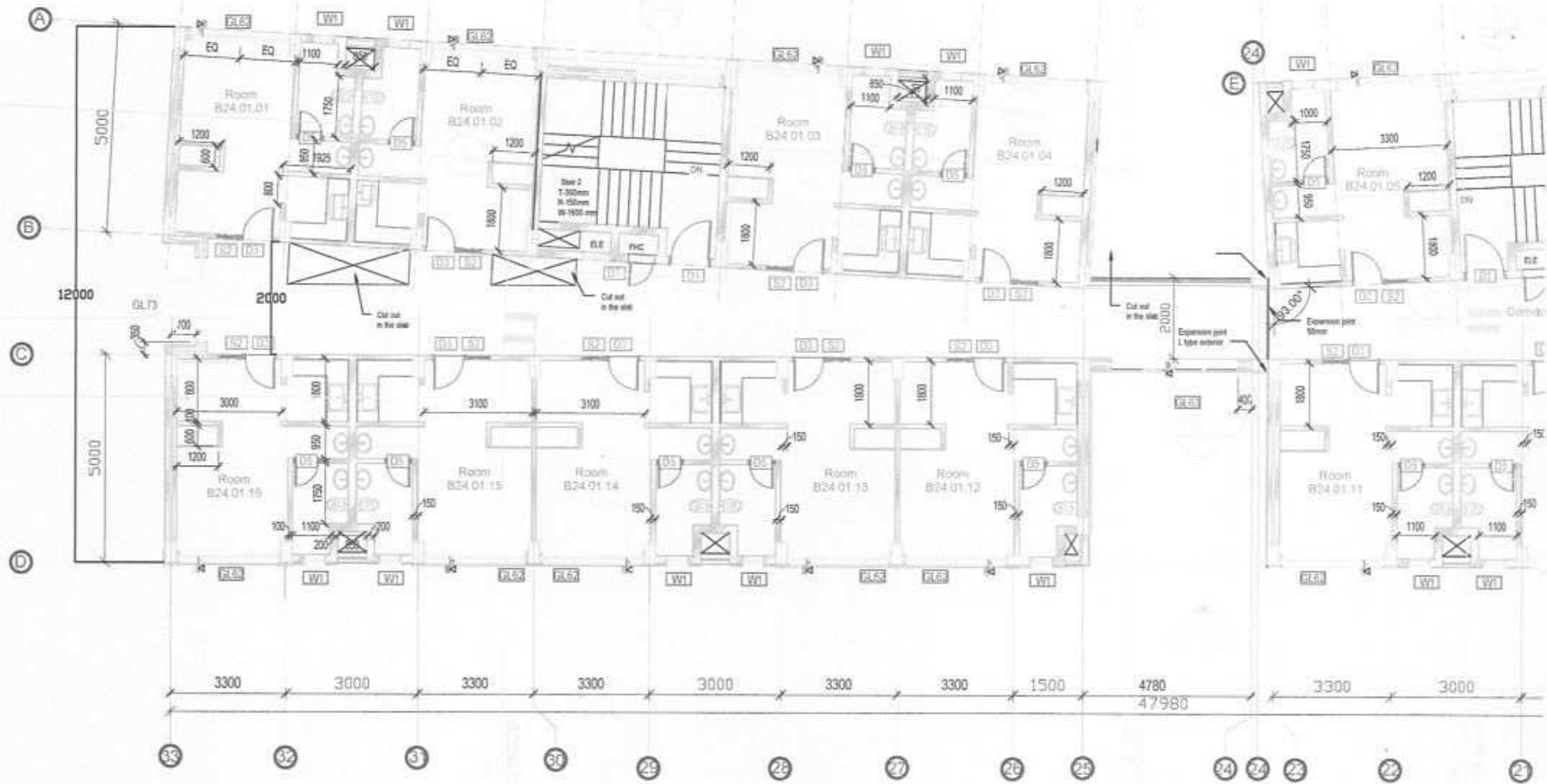
Area detail of Research Associate hostel 80 students

S.No	Location	Length in Mtr.	Width in Mtr.	Area in sqm	Remarks
1	Grid 33 to 25 & C-D	24.60	5.00	123.00	$3.3+3.0+3.3+3.3+3.0+3.3+3.3+1.5+0.3+0.3=24.60$
2	Grid 23 to 17 & C-D	19.87	5.00	99.33	$3.365+3.0+3.3+3.3+3.0+3.3+3+.3+.3=19.865$
3	Grid 01 to 08 & A-B	25.20	5.00	126.00	$3.3+3.0+3.3+5.4+3.3+3.0+3.3+.3+.3=20.40$
4	Grid 10 to 16 & E-F	20.40	5.00	102.00	$1.5+3.3+5.4+3.3+3.0+3.3+0.3+0.3=24.60$
5	Corridor between grid 25-24 & B-C	4.98	2.25	11.21	$4.780-0.3+0.2+0.3*(2+2.5/2)=4.98*2.25$
6	Corridor between grid 33-25 & B-C	24.6	2.25	55.35	$3.3+3.0+3.3+3.3+3.0+3.3+3.3+1.5+0.3+0.3=24.60$
7	Corridor between grid 23-17 & F-C	25.2	2.25	56.70	$3.365+3.0+3.3+3.3+3.0+3.3+.3+.3+.3=19.865$
8	Total Ground floor area			573.58	
9	Total five floor area			2867.90	
10	Say			2868.00	

Estimated Cost for creation of Research Associate hostel 80 students based upon CPWD plinth area rate 2021

SL No	Description	Unit	Rate as per plinth area rates as on 01-04-2021			PAR,Item code	Remarks
			Area	Rate	Amount		
1	RCC framed structure(upto six storeys) (floor height = 3meters)	sqm	2868	20685.00	5,93,24,580.00	1.1.2	
2	Every 0.3 metres or part thereof, additional/less height over normal plinth height of 0.60 meter/3.00 meter (on areas having additional/less height).	sqm	2868	1850.00	53,05,800.00	1.3.2	Height of floor considered is 3.3 meters.Rate(370X5=1850)
	Fire Fighting					1.5	
4	Downcomer System with wet riser	sqm	2868	800.00	22,94,400.00	1.5.2	
5	Manual fire alarm system.	sqm	2868	250.00	7,17,000.00	1.6.1	
	Services (percentage below refers to the percentage of building cost as per 1.0 above)					2.0	
6	Internal water supply & sanitary installations.	@ 8% of building cost			47,45,966.40	2.1	
7	Internal electric installations.	@ 12.5% of building cost			74,15,572.50	2.3	
	Extra For					2.4	
8	Lightening conductors	@ 0.25% of building cost			148311.45	2.4.2	
	Lifts with power operated centre opening doors and AC variable voltage & variable frequency controls					3.0	
	Passenger lifts.					3.1	
10	13 Passengers	1 Nos.		18,00,000.00	18,00,000.00	3.1.3	
	RCC Water Tank					4	
11	Overhead tank without independent staging	15000 ltrs.		20/ltrs.	3,00,000.00	4.1	
	Development of site						
12	Levelling		600	300.00	1,80,000.00	5.1	Plinth area of building=573+ some extra area has been considered.
13	Internal road with pavement with vacuum dewatered concrete. cement concrete		210	2040.00	4,28,400.00	5.2.3	70 metres length of the road with 3m width has been considered.
14	Footpath with PCC base, 60 mm thick paver block and kerb stone edging.		105	2600.00	2,73,000.00	5.2.4	70 metres length with 1.5 m wide footpath has been considered.
15	External sewerage	950 mtrs.		3350.00	31,82,500.00	5.3	
	Filter water supply.						
16	Distribution line upto 100 mm dia.	500 mtrs		1700.00	8,50,000.00	5.4.1	
17	Peripheral grid 150mm to 300mm dia pipes.	100 mtrs		3600.00	3,60,000.00	5.4.2	
18	Unfiltered water supply distribution line	100 mtrs		1330.00	1,33,000.00	5.4.3	
19	Storm water drains	100 mtrs		8920.00	8,92,000.00	5.5	
20	Rain water harvesting (RWH)	100 mtrs		3350.00	3,35,000.00	5.6	
21	Horticulture operations including 300mm earth filling, grassing, tree plantation/shrubs and potted plants etc.		600	275.00	1,65,000.00	5.9.1	Plinth area of building=573+ some extra area has been considered.
	SPECIALISED E&M WORKS					6.0	
	33kV Receiving Substation and 33kV/11kV HT Cabling					6.1	

SL. No	Description	Unit	Rate as per plinth area rates as on 01-04-2021			PAR,Item code	Remarks
22	Supply, installation, testing and commissioning of 33kV substation comprising 33kV HT panel, transformers 33kV/11kV, 11kV HT panel, interconnections, 11kV HT under ground cabling to the distribution substations on ring main system, substation earthing, substation safety equipment.	315 kVA		3500.00	11,02,500.00	6.1.1	
Sub-station Equipment						6.2	
23	Supplying, installation, testing and commissioning of 11kV/0.433 kV substation equipment comprising HT panel, dry type/ oil type transformers, HT cable, bus trunking from transformer to LT panel, LT panels, automatic power factor correction panel, active harmonics filter TVSS, SPD, essential panel, earthing, required interconnections, substation safety equipments including LT cabling from substation to the building fed by substation.	315 kVA		9000.00	28,35,000.00	6.2.1	
GENERATING SETS						6.3	
24	Supplying, installation, testing and commissioning of DG sets, AMF pance, bus ducting/ cables from DG sets to essential panel, DG set enclosure room sound insulation/ ventilation. Smoke exhaust as required, earthing of DG set system, control cabling, fuel tank/ piping, DG set exhaust piping. exhaust chimney as per CPCB norms, civil works connected with DG sets including foundation as required.	40 kVA		10000.00	4,00,000.00	6.3.1	
25	Extra for synchronizing panels wherever required	40 kVA		1000.00	40,000.00	6.3.2	
LAN SYSTEM							
26	Supplying, installation, testing and commissioning of LAN system comprising of core switches & L2 switches with 10 g, 10 giga SFP modules, WIFI access points, WIFI controller, network management software, racks, CAT 6 A cable, patch panels, OFC etc. (Rate applicable on plinth area excluding service/ common areas).		2868	500.00	14,34,000.00	6.16.1	500 per sqm
Street lighting with LED						6.19	
27	Supplying, installation, testing and commissioning of LED street/compund/high mast/apthway/landscape lighting for the entire campus(Rate applicable on total plt area).		574	150	86,100.00	6.19.1	
STP/ETP Plant							
Supplying, installation, testing and commissioning of STP/ETP of appropriate technology including civil works(except plant room), tertiary treatment etc. for the building/campus						6.20	
28	Plant size upto 50KLD	50KLD		75,000.00	37,50,000.00	6.20.1	
29	Furniture & Misc.Expenses				16,00,000.00		
Total					10,00,98,130.35		
Say					10,00,00,000.00		



GENERAL ABSTRACT OF COST

Name of work:- Unification of two campuses (between North and South Campus), IIT Kamand, Distt.- Mandi (HP)

(Sub Head: Formation cutting & Filling, Retaining/breast/edge wall, CD work, M/T, V-Shape Drain, Parapets, Traffic Signs, KM Stone & Marking, Protection Work & Crach Barrier in KM 0/00 to 3/610)

Sr. No.	Description of Items		Amount in Rs.
1	Formation cutting & Filling in km 0/00 to 3/610	as per Ann-A attached	4,25,52,997.00
2	C/O Retaining, Breast & edge walls in km 0/00 to 3/610	as per Ann-B attached	7,39,22,352.00
3	C/O Cross drainage (CDs.) in km 0/00 to 3/610	as per Ann-C attached	1,28,76,486.00
4	P/L Metalling and tarrining in km 0/00 to 3/610	as per Ann-D attached	6,83,60,866.00
5	C/O V-shape drain in km 0/00 to 3/610	as per Ann-E attached	37,13,052.00
6	C/O Parapets in km 0/00 to 3/610	as per Ann-F attached	24,20,774.00
7	P/F Traffic sign board & KM stones in km 0/00 to 3/610	as per Ann-G attached	14,93,017.00
8	C/O Protection work for Dumping Site (using Wire Crates)	as per Ann-H attached	36,59,144.00
9	P/F Crash Barriers in km 0/00 to 3/610	as per Ann-J attached	60,19,803.00
	Total (A)		21,50,18,491.00
	Add 3% Contingency Charges on (A)		64,50,555.00
	Add escalation @ 10% for two years gestation period on (A)		2,15,01,849.00
	Provision for Utility services @ 5% on (A)		1,07,50,925.00
	G. Total:-		25,37,21,820.00

Say Rs. 2,537.22 Lacs

Abstract of Cost

Annexure-A

Name of work:- Unification of two campuses (between North and South Campus), IIT Kamand, Distt.- Mandi (HP)
(SH :- Formation cutting & Filling in km 0/00 to 3/750)

Sr. No.	DSR/ MORT&H Ref.	Description of item	Qty.	Unit	Rate	Amount in Rs.
1		Construction of Embankment with Material Obtained from Roadway Cutting				
	MR 3.17	Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of Tables 300.1 and 300.2 as per Technical Specification Clause 301.	3750.00	Cum	222.00	832500.00
		Earth work in hill roads				
2	2.6	Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-incharge. 2.6.1 All kinds of soil	62255.00	Cum	205.45	12790290.00
3	2.7.3	Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-incharge. Hard rock (blasting prohibited)	26681.00	Cum	1184.30	31598308.00
		Total				45221098.00
		Credit for useful material				
		b) Blast Work 1/3	8893.67			
		Total	8893.67	Cum	300.00	2668101.00
		Net Amount after deduction				42552997.00

Abstract of Cost

Annexure-B

Name of work:- Unification of two campuses (between North and South Campus), IIT Kamand, Distt.- Mandi (HP)

(SH :- Construction of Retaining walls, Breast walls & Edge walls)

Sr. No.	DSR/ MORT&H Ref.	Description of item	Qty.	Unit	Rate	Amount in Rs.
1	MR 12.1 (I)	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	8582.30	Per Cubic Metre	158.00	1356003.00
2	4.1.8	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources	10028.60	Per Cubic Metre	6326.05	63441425.00
3	MR 13.10	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and Technical Specification.	1121.80	Per Cubic Metre	1321.00	1481898.00
4	MR 13.8	Providing weep holes in Brick masonry/Plain/ Reinforced concrete abutment, wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing face. Complete as per drawing and Technical Specifications	2987.00	Each	1160.00	3464920.00
5	MR 13.9	Backfilling behind abutment, wing wall and return wall complete as per drawings & technical specification Clause 1204.3.8	3857.90	Cum	1083.00	4178106.00
		Total				73922352.00

Say in Lacs

739.22

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General abstract of Cost - CDs (Pipe & Slab Culverts)

ANN. C

Name of Project: Unification of two campuses (between North and South Campus), IIT Kamand, Distt.- Mandi (HP)

(SH :- Construction of Cross Drainage works)

S No.	Description Of Items	L(m)	B(m)	H(m)	Unit	Quantity	Rate	Amount
1	Construction of 900 dia HP Culverts (8 Nos.)							3433640.00
2	4.00mtr. RCC Slab Culverts (1 Nos.)							2651977.00
3	6.00mtr. RCC Slab Culverts (2 Nos.)							6790869.00
	Total							12876486.00
							Rs in Lacs	128.76

Abstract of Cost

Annexure - C

Name of work :- Unification of two campuses (between North and South Campus), IIT Kamand, Distt.- Mandi (HP)

(S.H. :- Construction of 900mm dia Hume Pipe culvert)

Sr. No	DSR Ref.	Description of Items	Quantity	Unit	Rate (Rs)	Amount (Rs)
1	MR 12.1 (I)	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	488.90	cum	158.00	77246.00
2	MR 12.4	Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.	19.76	cum	7656.00	151283.00
3	MR 12.8A	Plain/Reinforced Cement Concrete in Open Foundation/Substructure complete as per Drawing and Technical Specifications. PCC Grade M15	156.16	cum	7963.00	1243502.00
4	MR 15.8	Bedding for Pipe Laying concrete cradle bedding with M15 Grade: Plain/Reinforced Cement Concrete in Open Foundation/Substructure complete as per Drawing and Technical Specifications.	19.90	cum	8605.00	171240.00
5	MR 12.8B	Plain/Reinforced Cement Concrete in Open Foundation/Substructure complete as per Drawing and Technical Specifications. PCC Grade M20 (1:2:4)	5.92	cum	8812.00	52167.00
6	19.6.10	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete 900 mm dia. R.C.C. pipe metre	85.00	Running metre	4260.35	362130.00

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Sr. No	DSR Ref.	Description of Items	Quantity	Unit	Rate (Rs)	Amount (Rs)
7	4.1.8	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources	171.84	cum	6326.05	1087068.00
8	MR 13.8	Providing weep holes in Brick masonry/Plain/ Reinforced concrete abutment, wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing face. Complete as per drawing and Technical Specifications	96.00	Nos.	1083.00	103968.00
9	MR 13.10	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and Technical Specification.	104.00	cum	1321.00	137384.00
10	MR 13.9	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical Specification	44.00	cum	1083.00	47652.00
		Total				3433640.00

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Abstract of Cost

Annexure-"C9"

Name of work:- Unification of two campuses (between North and South Campus), IIT Kamand, Distt.- Mandi (HP)

(SH :- Construction of 4.00 mtr. Span R.C.C. slab culvert)

at RDs, 0/628 = 1 Nos.

Sno	Ref. of rate analysis	Description of Items	Quantity	Unit	Rate (Rs)	Amount (Rs)
1	MR 12.1 (I)	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	175.11	Cum	158.00	27667.00
2	MR 12.4	Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.	17.42	Cum	7656.00	133368.00
3	MR 12.8A	Plain/Reinforced Cement Concrete in Open Foundation/Substructure complete as per Drawing and Technical Specifications. PCC Grade M15	35.50	Cum	7963.00	282687.00
4	MR 12.8B	Plain/Reinforced Cement Concrete in Open Foundation/Substructure complete as per Drawing and Technical Specifications. PCC Grade M20 (1:2:4)	122.64	Cum	8812.00	1080704.00
5	MR 13.5	Plain/Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications RCC Grade M25	4.21	Cum	9234.00	38875.00
6	MR 14.1B	Furnishing and Placing Reinforced/ Prestressed cement concrete in super-structure as per drawing and Technical Specification RCC slab, RCC Grade M25	14.92	Cum	10634.00	158659.00
7	MR 5.14	Providing and laying 25 mm (2 layers of 25mm =50mm) thick mastic asphalt wearing course with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 13.5 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 100 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.	65.18	Square meter	2342.00	152652.00
8	MR 13.6	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and Technical Specifications	631.50	KG	105.40	66560.00

Sno	Ref. of rate analysis	Description of Items	Quantity	Unit	Rate (Rs)	Amount (Rs)
9	MR 14.2	Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications	2238.00	KG	107.50	240585.00
10	MR 13.9	Backfilling behind abutment, wing wall and return wall complete as per drawings & technical specification Clause 1204.3.8	36.26	Cum	1083.00	39270.00
11	MR 13.8	Providing weepholes in brick masonry/stone masonry, plain/reinforced concrete abutment, wing wall, return wall with 100 mm dia PVC pipe extending through the full width of the structures with slope of 1(V):20(H) towards drawing face complete as per drawing and technical specification Clauses 614, 709, 1204.3.7	56.00	Nos.	1160.00	64960.00
12	MR 14.9	Drainage Spouts complete as per drawing and Technical specification	4.00	Nos.	6045.00	24180.00
13	MR 15.8	Providing and laying Flooring complete as per drawing and Technical specifications laid over cement concert bedding.	6.69	Cum	8605.00	57567.00
14	MR 12.8A	Plain/Reinforced Cement Concrete in Open Foundation/Substructure complete as per Drawing and Technical Specifications. PCC Grade M15	3.70	Cum	7963.00	29463.00
15	MR 14.11	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification	7.40	Cum	14631.00	108269.00
16	4.1.8	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources	23.16	Cum	6326.05	146511.00
		Total				2651977.00

Abstract of Cost

Annexure
"C10"

Name of work:- Unification of two campuses (between North and South Campus), IIT Kamand, Distt.- Mandi (HP)
at RDs, 0/562, 2/665 = 2 Nos.

Sno	DSR Ref.	Description of Items	Quantity	Unit	Rate (Rs)	Amount (Rs)
1	MR 12.1 (I)	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	1085.81	Cum	158.00	171558.00
2	MR 12.4	Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.	89.08	Cum	7656.00	681996.00
3	MR 12.8A	Plain/Reinforced Cement Concrete in Open Foundation/Substructure complete as per Drawing and Technical Specifications. PCC Grade M15	39.02	Cum	7963.00	310716.00
4	MR 12.8B	Plain/Reinforced Cement Concrete in Open Foundation/Substructure complete as per Drawing and Technical Specifications. PCC Grade M20 (1:2:4)	294.31	Cum	8812.00	2593460.00
5	MR3.5	Plain/Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications RCC Grade M25	11.83	Cum	9234.00	109238.00
6	MR 14.1B	Furnishing and Placing Reinforced/ Prestressed cement concrete in super-structure as per drawing and Technical Specification RCC slab, RCC Grade M25	53.22	Cum	10634.00	565941.00
7	MR 5.14	Providing and laying 25 mm (2 layers of 25mm =50mm) thick mastic asphalt wearing course with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 13.5 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 100 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.	8.81	Square meter	2342.00	20633.00
8	MR 13.6	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and Technical Specifications	1774.50	KG	105.40	187032.00

Sno	DSR Ref.	Description of Items	Quantity	Unit	Rate (Rs)	Amount (Rs)
9	MR 14.2	Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications	9304.50	KG	107.50	1000234.00
10	MR 13.9	Backfilling behind abutment, wing wall and return wall complete as per drawings & technical specification Clause 1204.3.8	178.01	Cum	1083.00	192785.00
11	MR 13.8	Providing weepholes in brick masonry/stone masonry, plain/reinforced concrete abutment, wing wall, return wall with 100 mm dia PVC pipe extending through the full width of the structures with slope of 1(V):20(H) towards drawing face complete as per drawing and technical specification Clauses 614, 709, 1204.3.7	112.00	Nos.	1160.00	129920.00
12	MR 14.9	Drainage Spouts complete as per drawing and Technical specification	4.00	Nos.	6045.00	24180.00
13	MR 15.8	Providing and laying Flooring complete as per drawing and Technical specifications laid over cement concert bedding.	17.06	Cum	8605.00	146801.00
14	MR 12.8A	Plain/Reinforced Cement Concrete in Open Foundation/Substructure complete as per Drawing and Technical Specifications. PCC Grade M15	9.77	Cum	7963.00	77799.00
15	MR 14.11	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification	19.53	Cum	14631.00	285743.00
16	4.1.8	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources	46.29	Cum	6326.05	292833.00
		Total				6790869.00

Abstract of Cost

Annexure-"D"

Name of Work:- Unification of two campuses (between North and South Campus), IIT Kamand, Distt.- Mandi (HP)

(Sub Head :- Providing and laying Matelling & Tarring in KM 0/00 to 3/750)

Sr. No.	DSR/ MORT&H Ref.	Description of item	Qty.	Unit	Rate	Amount
1	MR 3.19	Loosening of the ground upto a level of 500 mm below the sub-grade level, watered, graded and compacted in layers to meet requirement of table 300-2 for sub-grade construction.	3767.78	Per Cubic metre	97.00	365475.00
2	MR 3.18	Construction of subgrade and earthen shoulders Construction of sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	3767.78	Per Cubic metre	1567.00	5904111.00
3	16.78.1	Construction of granular sub-base by providing close graded Material conforming to specifications, mixing in a mechanical mix plant at OMC, carriage of mixed material by tippers to work site, for all leads & lifts, spreading in uniform layers of specified thickness with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of Engineer-in-Charge. With material conforming to Grade-I (size range 75 mm to 0.075 mm)	6379.02	Per Cubic metre	2658.10	16956073.00
4	16.79	Wet Mix Macadam Providing, laying, spreading and compacting graded stone aggregate (size range 53 mm to 0.075 mm) to wet mix macadam (WMM) specification including premixing the material with water at OMC in for all leads & lifts, laying in uniform layers with mechanical paverfinisher in sub- base / base course on well prepared surface and compacting with vibratory roller of 8 to 10 tonne capacity to achieve the desired density, complete as per specifications and directions of Engineer-in-Charge.	7176.40	Per cubic metre	2803.65	20120114.00
5	MR 5.1	Prime Coat Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means.	31895.10	Per square metre	54.00	1722335.00

Sr. No.	DSR/ MORT&H Ref.	Description of item	Qty.	Unit	Rate	Amount
6	16.31.2.1	Tack Coat Providing and applying tack coat using hot straight run bitumen of grade VG-10, including heating the bitumen, spraying the bitumen with mechanically operated spray unit fitted on bitumen boiler, cleaning and preparing the existing road surface as per specifications : With medium setting bitumen emulsion On W.B.M / W.M.M. @ 0.4kg/sqm	31895.10	Per square metre	16.35	521485.00
7	16.55.1	Bituminous Macadam Providing and laying bituminous macadam using crushed stone aggregates of specified grading premixed with bituminous binder, transported to site by tippers, laid over a previously prepared surface with paver finisher equipped with electronic sensor to the required grade, level and alignment and rolling with smooth wheeled, vibratory and tandem rollers as per specifications to achieve the desired compaction and density, complete as per specifications and directions of Engineer-in-Charge.50 to 100 mm average compacted thickness with bitumen of grade VG-30 @ 3.50% (percentage by weight of total mix) prepared in Batch Type Hot Mix Plant of 100-120 TPH capacity.	1594.76	Per cubic metre	7756.40	12369596.00
8	16.57.1	Bituminous Concrete Providing and laying Bituminous concrete using crushed stone aggregates of specified grading, premixed with bituminous binder and filler, transporting the hot mix to work site by tippers, laying with paver finisher equipped with electronic sensor to the required grade, level and alignment and rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction and density as per specification, complete and as per directions of Engineer-in-Charge.40/50 mm compacted thickness with bitumen of grade VG-30 @ 5.5% (percentage by weight of total mix) and lime filler @ 3% (percentage by weight of Aggregate) prepared in Batch Type Hot Mix Plant of 100-120 TPH capacity.	956.85	Per cubic metre	10870.75	10401677.00
Total:-						68360866.00

Abstract of cost

Name of work: - Unification of two campuses (between North and South Campus), IIT Kamand, Distt.- Mandi (HP)
(Sub Head :- Construction of V-Shape Drain)

Sr. No	DSR Ref.	Description of Item	Qty.	Unit	Rate	Amount
1	MR 12.1 (I)	Excavation for Structures Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	684.82	Per cubic metre	158.00	108201.00
2	MR 12.4	Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.	470.85	Per cubic metre	7656.00	3604851.00
		Total:-				3713052.00
		Say in Lacs				37.13

Abstract of cost**Annexure-F**

Name of work:- Unification of two campuses (between North and South Campus), IIT Kamand, Distt.- Mandi (HP)
(SH :-Construction of Parapet)

Sr. No.	DSR Ref.	Description of Item	Qty.	Unit	Rate	Amount
1	MR 12.1 (I)	Excavation for Structures Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	82.04	cum	158.00	12962.00
2	MR 12.4	Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.	314.50	cum	7,656.00	2407812.00
		Total				2420774.00

Say in Lacs**24.21**

Abstract of cost**Annexure-"G"**

Name of work:- Unification of two campuses (between North and South Campus), IIT Kamand, Distt.- Mandi (HP)

(SH :- Sign Boards & Km Stones)

Sr. No.	DSR Ref.	Description of Item	Qty.	Unit	Rate	Amount
1	MR Mord	Providing and Fixing 'Logo' of IIT Project Providing and fixing of typical IIT informatory sign board with Logo as per MORD specifications and drawing. Three MS Plates of 1.6 mm thick, top and middle plate duly welded with MS flat iron 25mm x 5m size on back on edges. The lower plate will be welded with MS angle iron frame of 25mm x 25mm x 5mm. The angle iron frame of the lower most plate and flat iron frame of middle plate will be welded to 2 nos. 75mm x 75 mm of 12 SWG sheet tubes posts duly embedded in cement concrete M-15 grade blocks of 450mm x 450mm x 600mm, 600mm below ground level. The top most diamond plate will be welded to middle plate by 47mm x 47mm of 12 SWG steel plate tube. All M.S. will be stove enameled on both sides. Lettering and printing arrows, border etc. will be painted with ready mixed synthetic enamel paint of superior quality in required shade and colour. All sections of framed posts and steel tube will be painted with primer and two coats of epoxy paint as per drawing Clause 1701 and Annexure 1700.1	2.00	Each	15834.00	31668.00
2		Kilometre Stone				
		Reinforced cement concrete M15 grade kilometre stone/local stone of standard design as per IRC:8 fixing in position including painting and printing, etc as per drawing and Technical Specification Clause 1703				
	MR Mord	i) 5th Kilometre Stone (precast)				
	MR Mord	ii) Ordinary Kilometer Stone (Precast)	4.00	Each	3056.00	12224.00
3	MR Mord	Semi Reflective Traffic Signs, Providing and fixing of semi reflective cautionary, mandatory and informatory sign board as per IRC:67 made of 1.5 mm thick MS Sheet duly stove white colour in front and gray colour on back with red reflective border of 65 mm width and required letters and figures with reflective tape engineering grade as per Clause 1701.3.9 of MORD for Rural Roads of required shade and colour supported and welded on 47mm x 47 mm x 12 SWG sheet tube firmly fixed to the ground by mean of properly designed foundations with M-15 grade cement concrete 450x450x600 mm, 600 mm below ground level as per approved drawing Clause 1701.2.2 (900 mm equilateral & triangle)	24.00	Each	2650.00	63600.00

Sr. No.	DSR Ref.	Description of Item	Qty.	Unit	Rate	Amount
4	MR Mord	Semi Reflective Traffic Signs Providing and fixing of semi reflective cautionary, mandatory and informatory sign board as per IRC:67 made of 1.5 mm thick MS Sheet duly stove white colour in front and gray colour on back with red reflective border of 65 mm width and required letters and figures with reflective tape engineering grade as per Clause 1701.3.9 of MORD for Rural Roads of required shade and colour supported and welded on 47mm x 47 mm x 12 SWG sheet tube firmly fixed to the ground by mean of properly designed foundations with M-15 grade cement concrete 450x450x600 mm, 600 mm below ground level as per approved drawing Clause 1701.2.2 (600 mm circular)	4.00	Each	2563.00	10252.00
5	MR 8.5	Semi-Reflective Traffic signs, Direction and place indentification signs up to 0.9 sqm size board Providing and erecting direction and place identifications of semi reflective sign boards as per IRC:67 made of 2 mm thick M.S. Sheet duly stove enameled paint in white colour in front and grey colour on back with red reflective border of 70 mm width and required message, letters, figures with reflective engineering grade tape as per MORD specifications of required shade and colour. Supported and welded on 47 mm x 47mm of 12 SWG Square tube of 3050 mm height duly strengthened by 25 mm x 5 mm M/s flat iron on edges on back firmly fixed to the ground by means of properly designed foundations with M-15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawing and Technical Specification Clause 1701	4.00	S.qm.	5110.00	20440.00
6	MR 8.13	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.C1014:F1032	1083.00	S.qm.	1251.00	1354833.00
Total						1493017.00
Say in Lacs						14.93

Abstract of Cost

Annexure-"H"

Name of Project: Unification of two campuses (between North and South Campus), IIT Kamand, Distt.- Mandi (HP)

(Sub Head :- Protection work for Dumping Site (using Wire Crates)

S No.	Ref. of rate analysis	Description of Items	Quantity	Unit	Rate (Rs)	Amount (Rs)
1	MR 12.1 (I)	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	316.00	cum	158.00	49928.00
2	MR 15.2	Boulder Apron Laid in Wire Crates Providing and laying of boulder apron laid in wire crates made with 4mm dia GI wire conforming to IS: 280 & IS:4826 in 100mm x 100mm mesh (weaved diagonally) including 10 per cent extra for laps and joints laid with stone boulders weighing not less than 40 kg each.	1152.00	cum	3133.00	3609216.00
Total						3659144.00

Say in Lacs

36.59

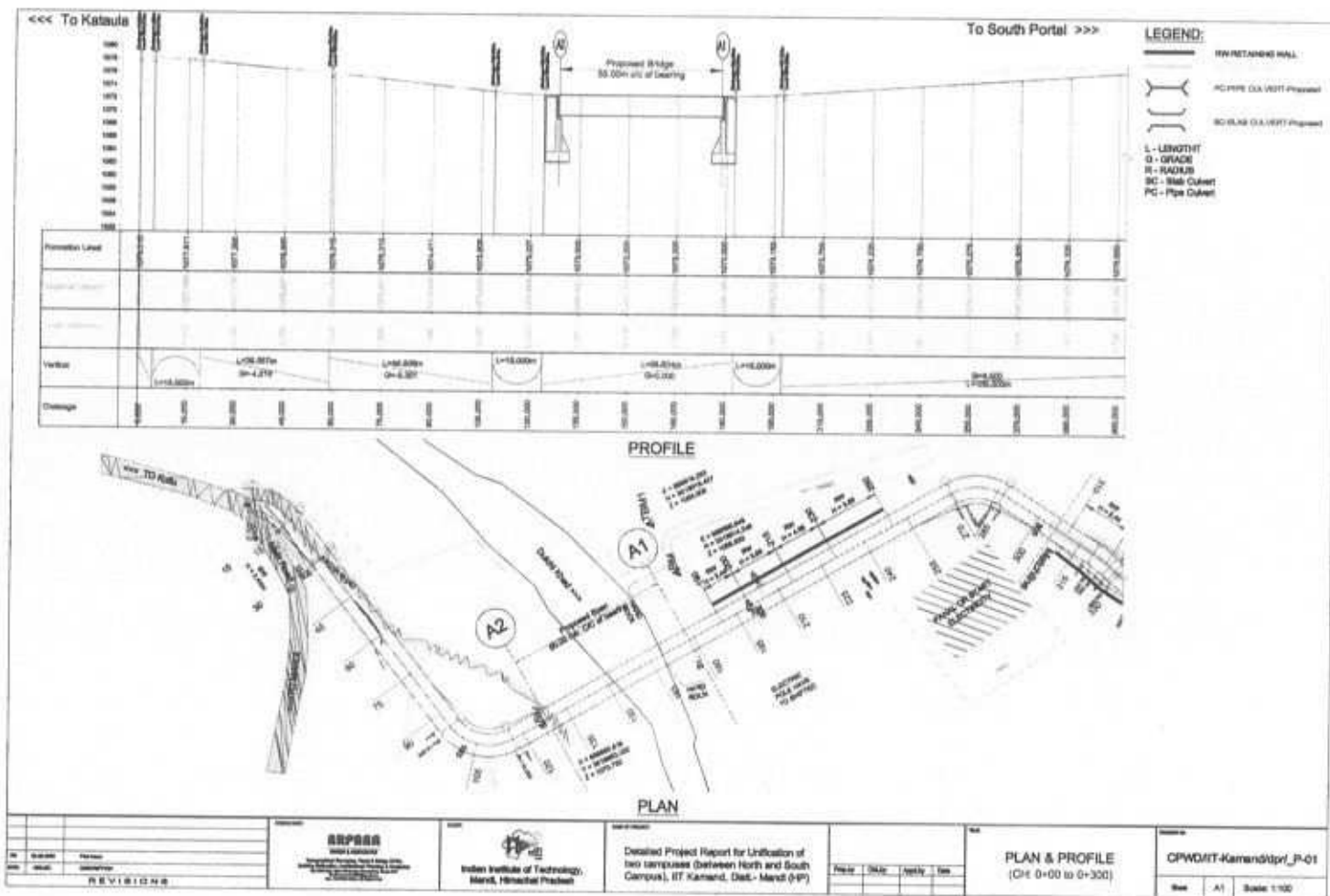
Abstract of Cost

Annexure-"J"

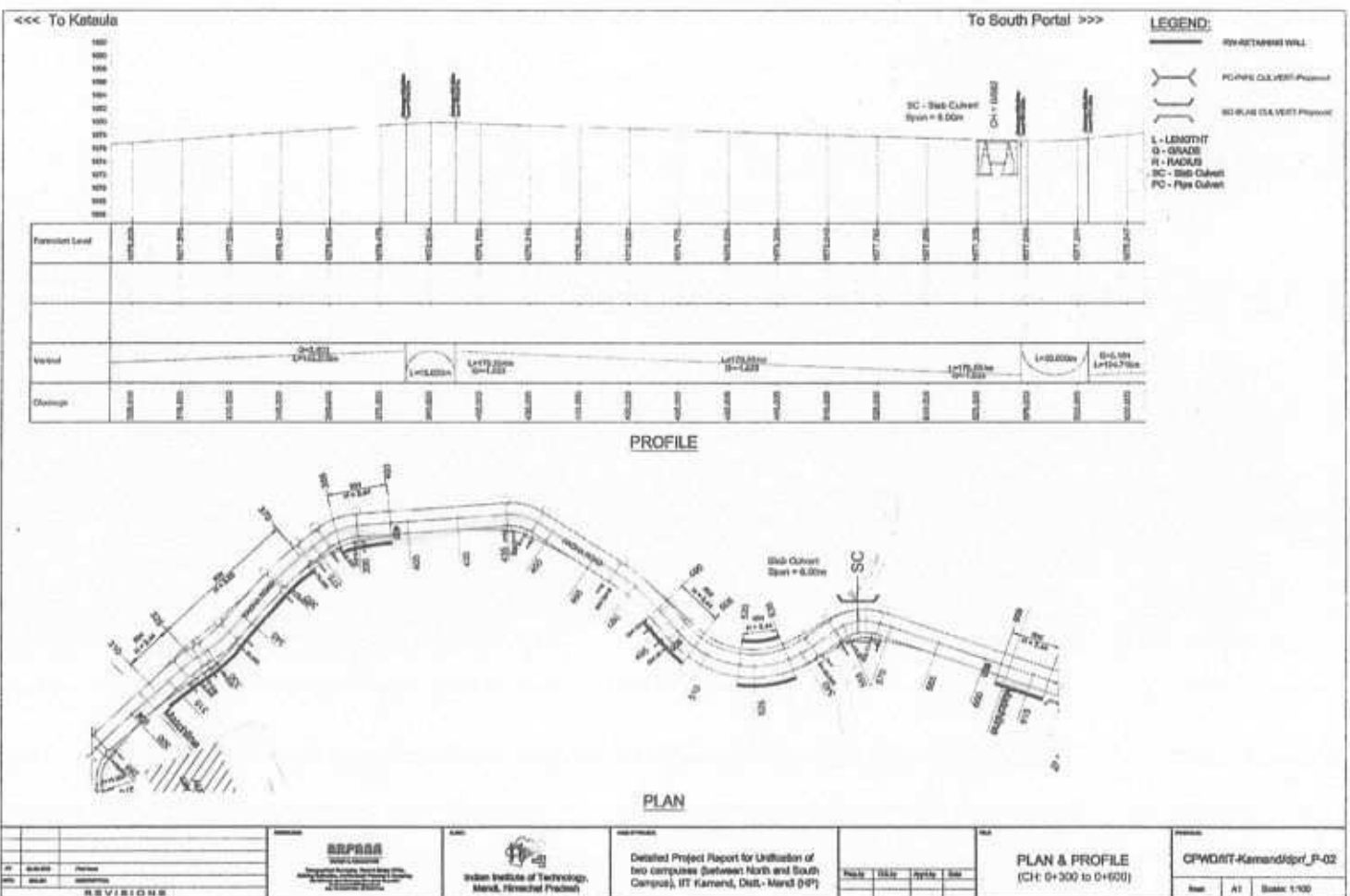
Name of Project: Unification of two campuses (between North and South Campus), IIT Kamand, Distt.- Mandi (HP)

(Sub Head :- Providing & fixing Crash Barrier)

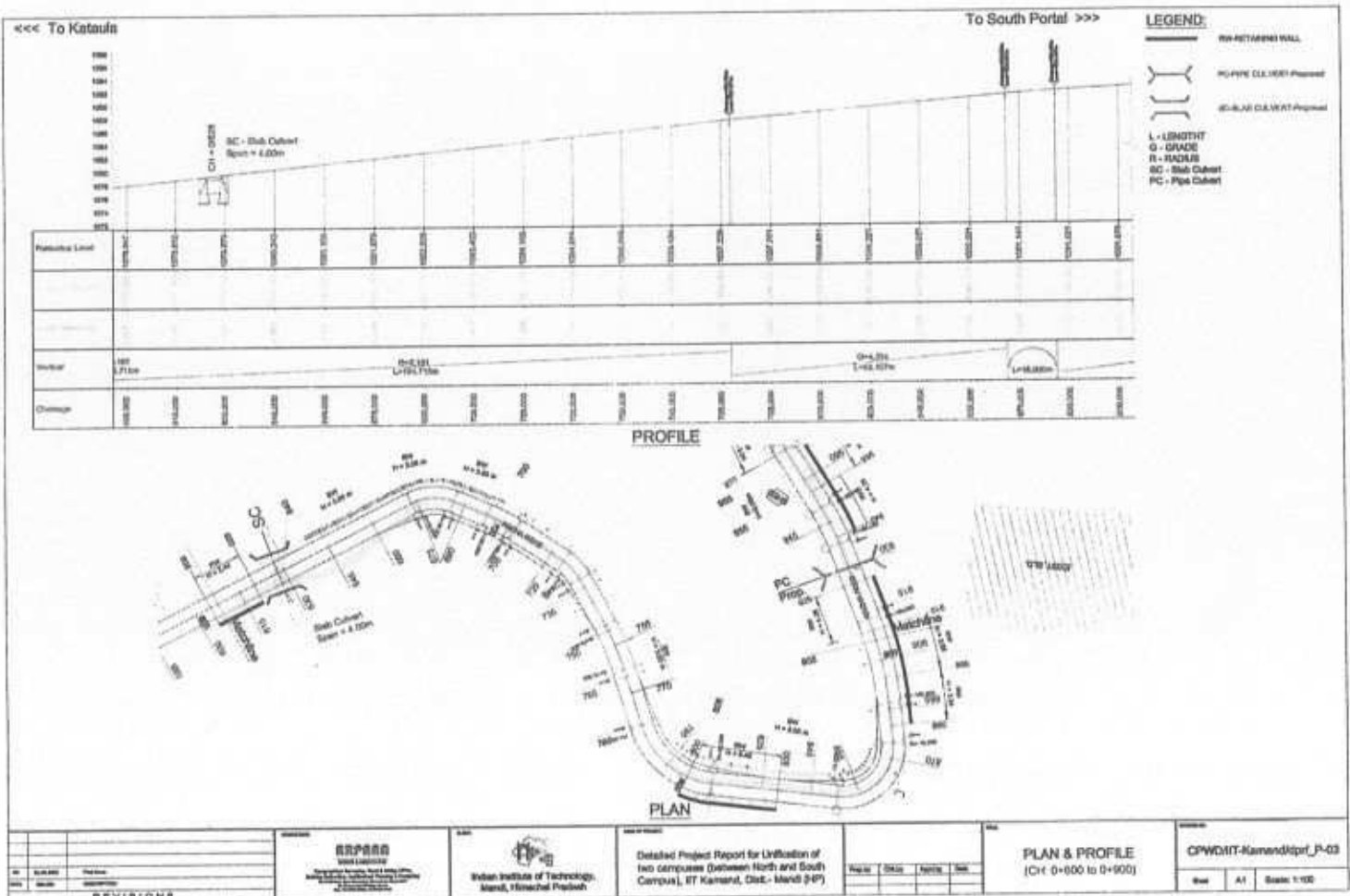
S No.	Ref. of rate analysis	Description of Items	Quantity	Unit	Rate (Rs)	Amount (Rs)
1	MR 12.1 (I)	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	75.93	cum	158.00	11997.00
2	4.1.3	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:2:4 (1 cement : 2 coarse sand (zone-III) derived from natural sources : 4 graded stone aggregate 20 mm nominal size derived from natural sources)	75.04	cum	7365.15	552681.00
3	MR 8.23	Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810	1125.00	Rmt.	4849.00	5455125.00
Total						6019803.00



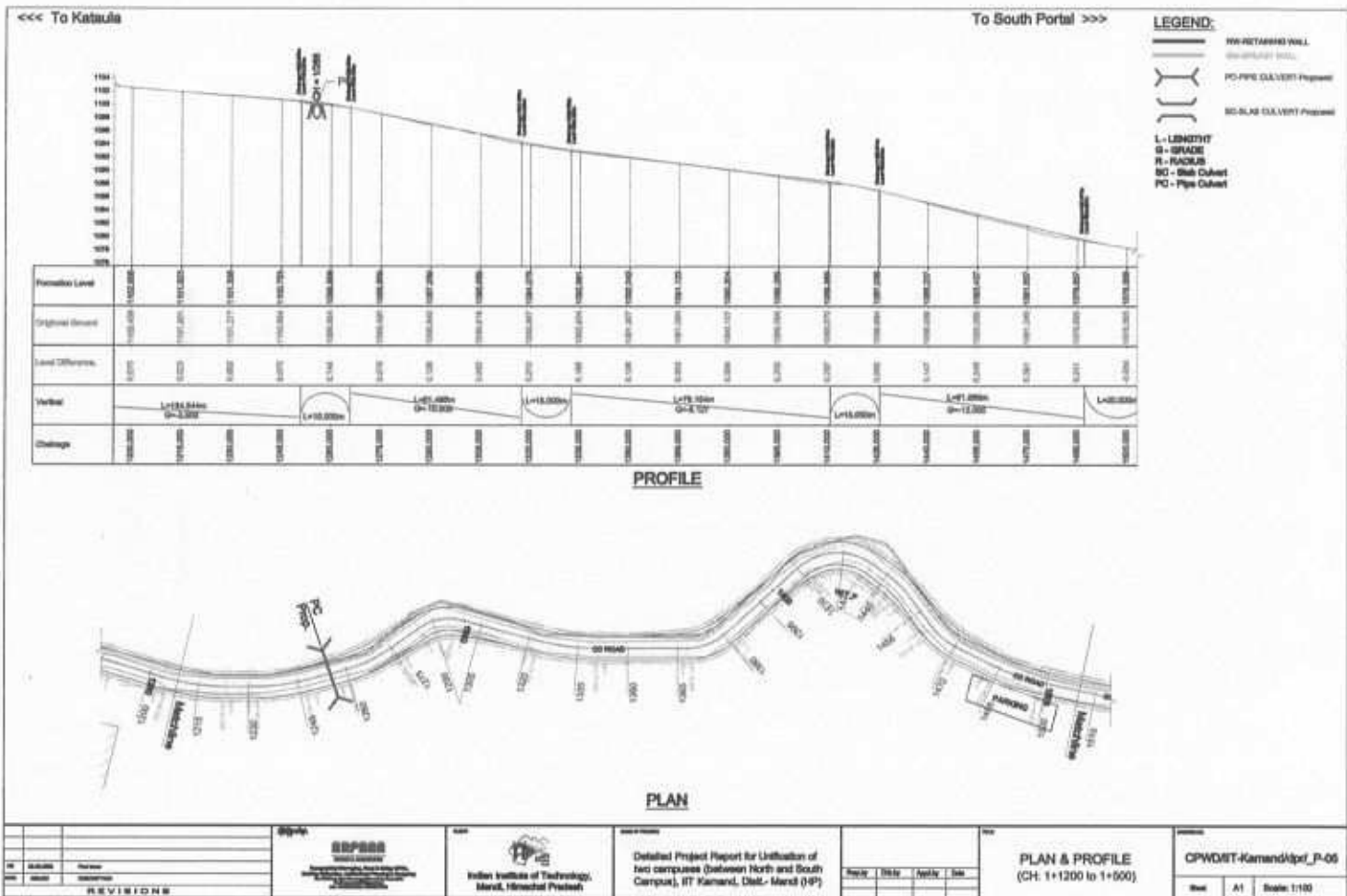
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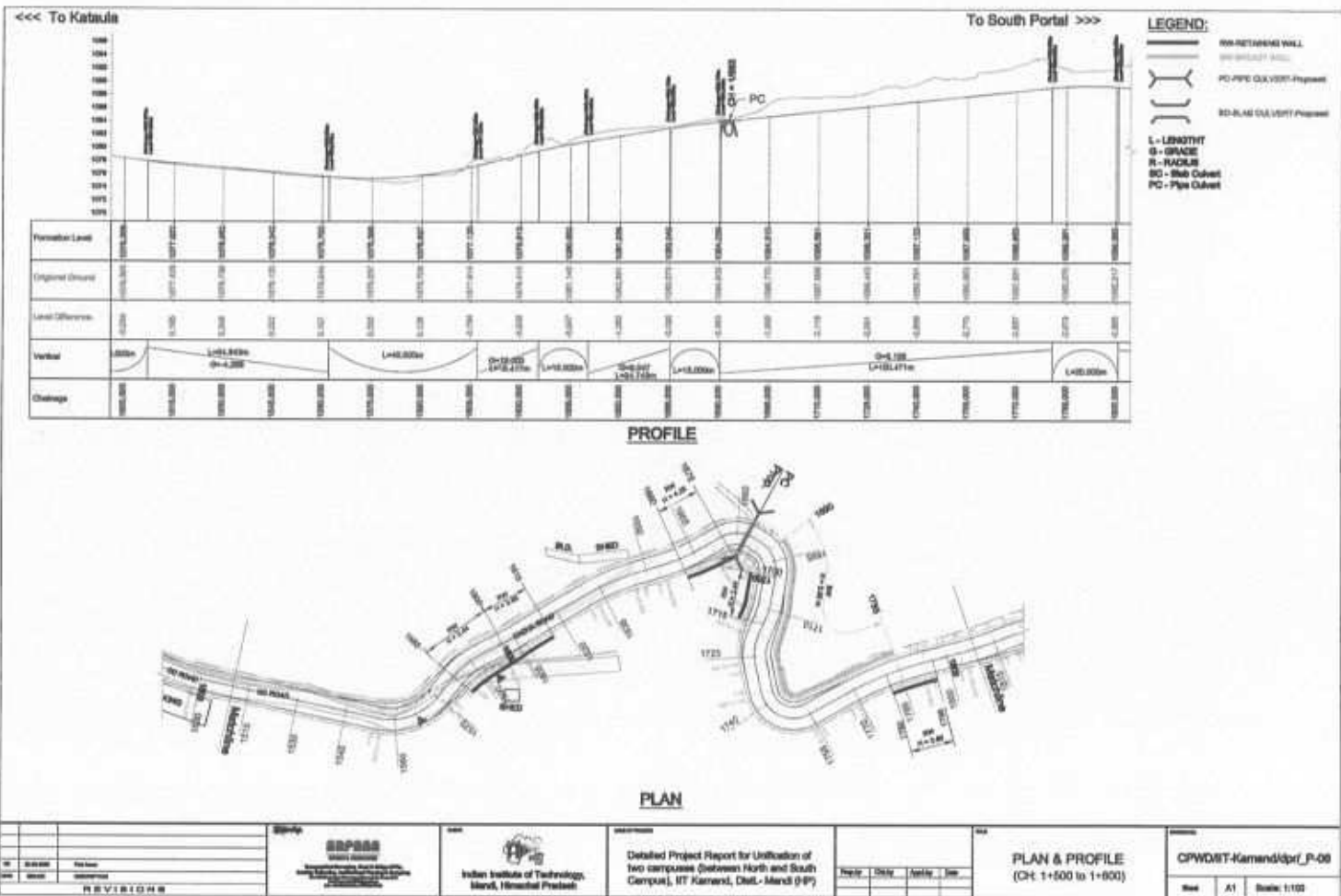
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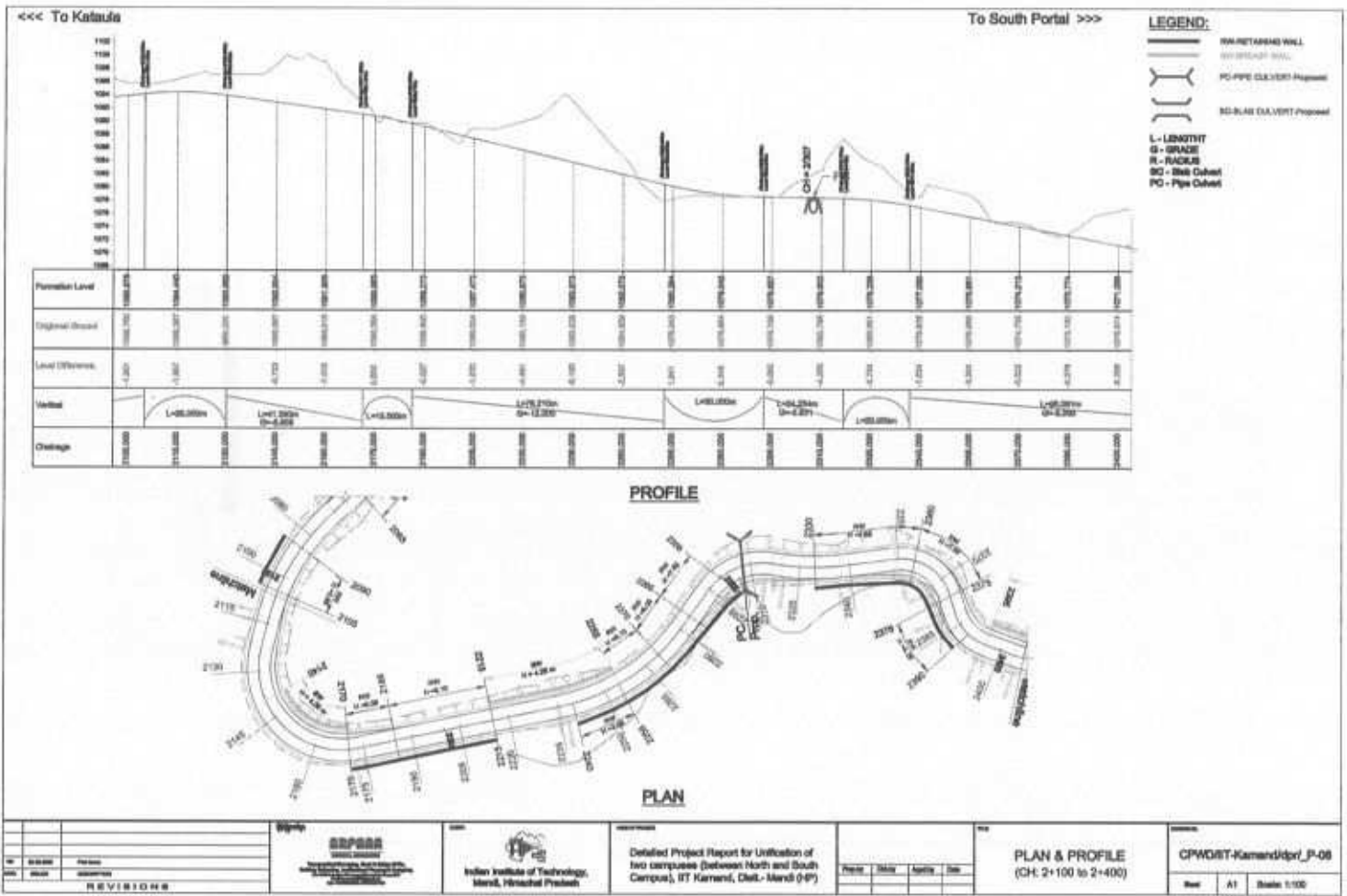
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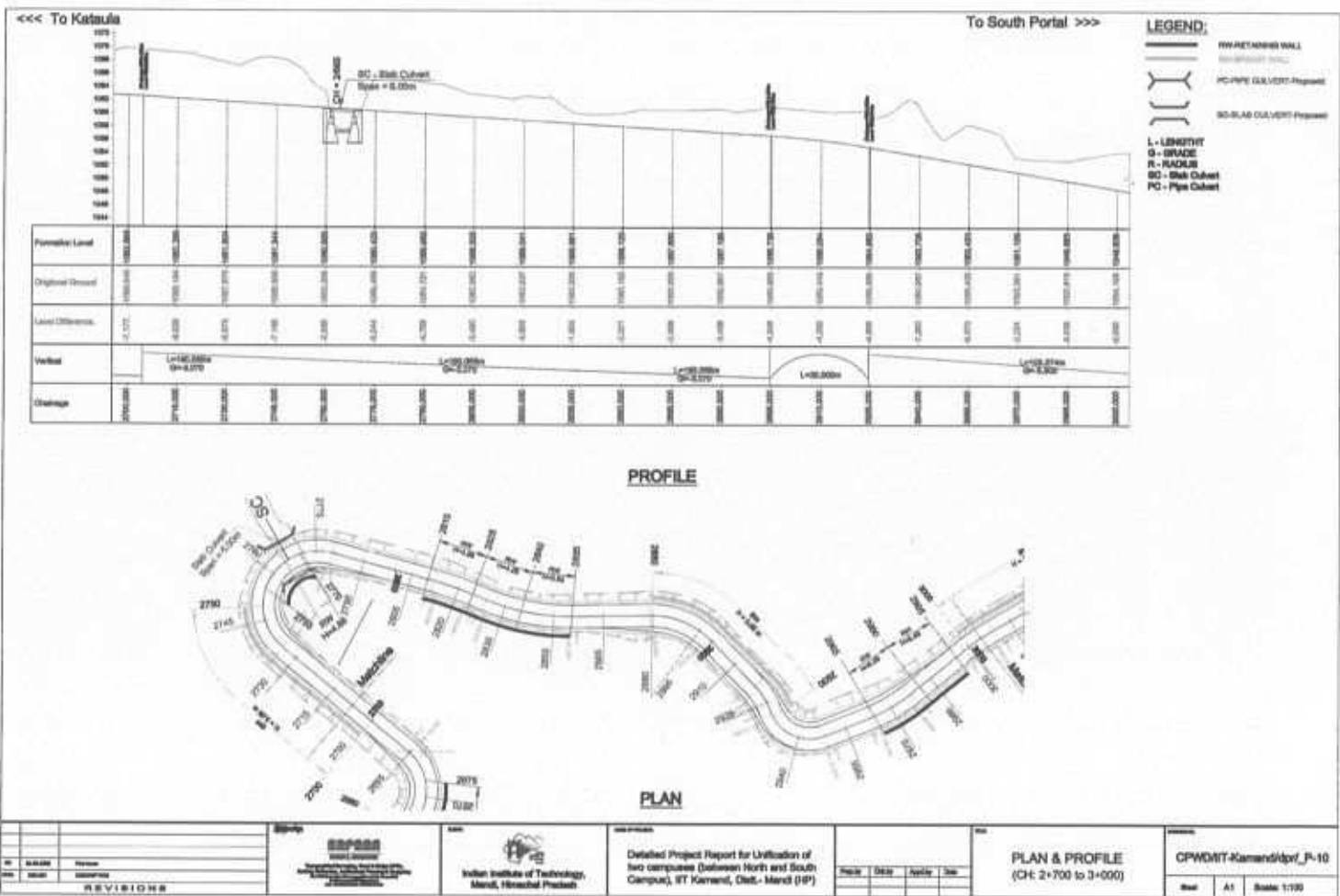
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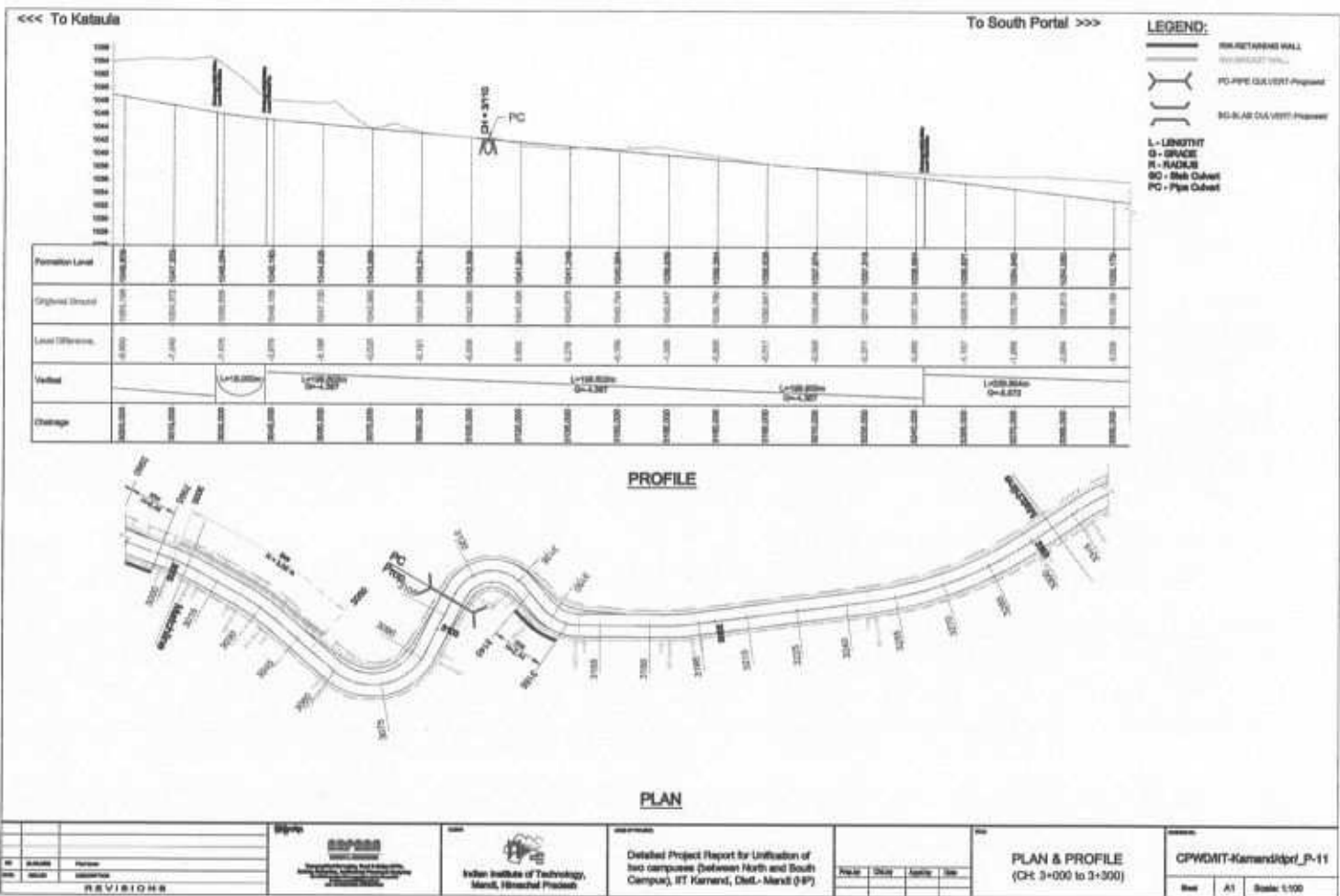


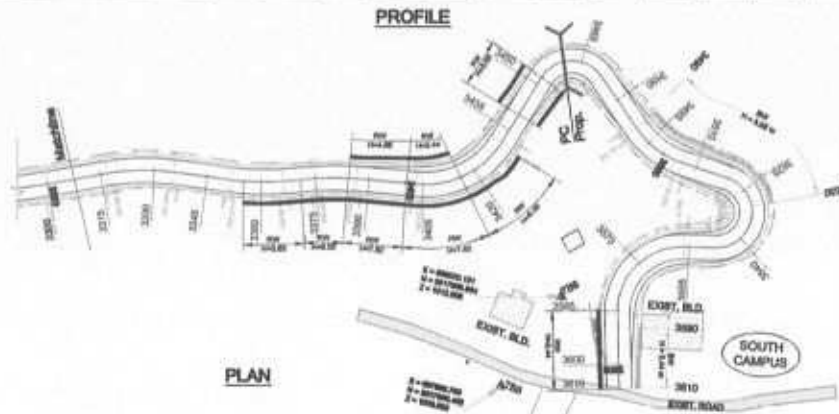
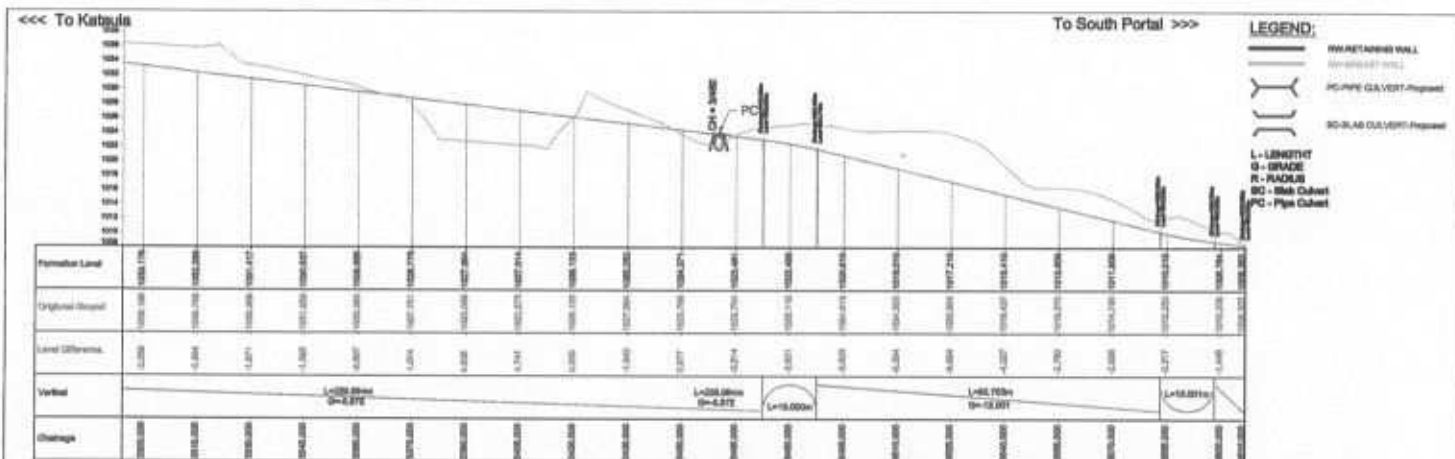
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<table border="1"> <thead> <tr> <th>NO</th> <th>REVISION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO	REVISION	DATE						Detailed Project Report for Utilization of two campuses (between North and South Campus), IIT Kanpur, Dist- Merut (UP)	<table border="1"> <thead> <tr> <th>Prep</th> <th>Check</th> <th>Appr'd</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Prep	Check	Appr'd	Date					PLAN & PROFILE (CH: 3+300 to 3+800)	CPWD/IT-Kanur/dbr_P-12 Sheet: A1 Scale: 1:100
	NO	REVISION	DATE																	
Prep	Check	Appr'd	Date																	
REVISIONS																				

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Annexure 38.6 (2)

Name of work:- Detailed estimate for the Construction of 50.0 Meter Span PSC Box Grder Bridge (Double Lane with foot path) over Kataula Khad

<i>S.no</i>	<i>Description of item</i>	<i>Amount</i>
1	Construction of 50.00 mtr. Span (double lane with foot path) PSC bridge substructure Construction of 50.00 mtr. Span (double lane with foot path) PSC bridge Macro piling	25375010.00
2	Construction of 50.00 mtr. Span (double lane with foot path) PSC bridge super structure	21120104.00
3	Construction of 50.00 mtr. Span (double lane with foot path) PSC bridge road approaches	6411481.00
	Total of civil work (A)	52906595.00
	Add @ 3% contingency charges on A	1587198.00
	Total	54493793.00

ABSTRACT

Name of work:- Detailed estimate for the Construction of 50.0 Meter Span PSC Box Grder Bridge (Double Lane with foot path) over Kataula Khad

S.no	Ref S D B nd Revision-2019	Description of item	Unit	Qty	Rate	Amount
SUB STRUCTURE						
1		Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material. Ordinary soil				
1.1	12.1(I)B(iii)	Depth above 6m	Cubic metre	697.51	218.00	152057.00
2		Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.				
2.1	12.1(iv) A	Hard Rock (blasting prohibited)	Cubic metre	427.05	963.00	411249.00
3		Plain/Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications				
3.1		PCC Grade M15				
3.1.1	13.5 A (p)	Height upto 5m	Cubic metre	73.48	8423.00	618922.00
4		Reinforced cement concrete Grade M35 in sub-structure complete as per drawing and Technical Specifications as per MORT&H Drawing and Technical Specification, clauses 1500,1700 and 2200. complete in all respects .				
4.1	13.5 H (q) Case II	b) Height 5m to 10m	Cubic metre	533.78	13932.00	7436623.00
5	13.6	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and Technical Specifications as per MORT&H Drawing and Technical Specification, clauses 1600, and 2200. complete in all respects .	Metric tonne	117.440	105352.00	12372539.00

S.no	Ref S D B nd Revision-2019	Description of item	Unit	Qty	Rate	Amount
6	13.16	Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel/fabricated structural steel, metal and elastomer elements to be as per IRC: 83 part-I & II respectively and other parts conforming to BS: 5400, section 9.1 & 9.2 and clause 2006 of MoRTH Specifications complete as per drawing and approved Technical Specifications. as per MORT&H Drawing and Technical Specification, clauses 2000 and 2200.complete in all respects .	Metric tonne	1890.100	1072.00	2026187.00
Total For Sub structure				Total :-		23017577.00
MACRO PILING						
7	A/R	Grouting for macro piling complete as per drawing and Technical Specifications	Cubic metre	20.25	10988.80	222523.00
8	M/R	Boring for macro-piling in sub-structure complete as per drawing and Technical Specifications as per MORT&H Drawing and Technical Specification complete in all respects .	Running metre	144.00	14160.00	2039040.00
9	13.6	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and Technical Specifications as per MORT&H Drawing and Technical Specification, clauses 1600, and 2200. complete in all respects .	Metric tonne	0.910	105352.00	95870.00
Total For Macro piling				Total :-		2357433.00
Total For Sub structure & Macro piling						25375010.00
SUPERSTRUCTURE						
10	14.1E Case II (i) (r)	Furnishing and Placing Prestressed cement concrete Grade M-40 in super-structure as per drawing and Technical Specification as per MORT&H Drawing and Technical Specification, clauses 1500,1600 and 1700 complete in all respects .	Cubic metre	401.860	16121.00	6478385.00
11	14.2	Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications as per MORT&H Drawing and Technical Specification, clauses 1600. complete in all respects .	Metric tonne	77.360	107533.00	8318753.00
12	14.3	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications as per MORT&H Drawing and Technical Specification, clauses 1800. complete in all respects .	Metric tonne	15.010	215260.00	3231053.00

S.no	Ref S D B nd Revision-2019	Description of item	Unit	Qty	Rate	Amount
13	14.4	Providing and laying Cement concrete wearing coat M-30 grade including reinforcement complete as per drawing and Technical Specifications as per MORT&H Drawing and Technical Specification, as per MORTH clauses 2702. complete in all respects .	Cubic metre	64.140	17117.00	1097884.00
14	14.7	Construction of RCC railing of M30 Grade in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings and technical specifications. as per MORT&H Drawing and Technical Specification, as per MORT&H Drawing and Technical Specification, clauses 2705.complete in all respects .	Running metre	120.900	2793.00	337674.00
15	14.9	Drainage Spouts complete as per drawing and Technical specification as per MORT&H Drawing and Technical Specification, clauses 1200 and 1900. complete in all respects .	Each	22.000	6045.00	132990.00
16	14.10	PCC M15 Grade leveling course below approach slab complete as per drawing and Technical specification as per MORT&H Drawing and Technical Specification, as per MORTH clauses 2700.complete in all respects .	Cubic metre	30.960	7657.00	237061.00
17	14.11	Reinforced cement concrete Grade M-30 in approach slab including reinforcement and formwork complete as per drawing and Technical specification as per MORT&H Drawing and Technical Specification, clauses 1500 and 1600,1700 and 2704.complete in all respects .	Cubic metre	30.960	14631.00	452976.00
18	14.22	Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation. as per MORTH clauses 2607.complete in all respects .	Running metre	24.000	34722.00	833328.00
Total For Super structure				Total :-		21120104.00
APPROACHES						
19	12.01	Earth work in excavation of foundation of structures as per MORT&H Drawing and Technical Specification, clauses 304 ,including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material complete in all respects . - In Ordinary Soils - By Mechanical Means	Cubic metre	540.00	158.00	85320

S.no	Ref S D B nd Revision-2019	Description of item	Unit	Qty	Rate	Amount
20	12.8A Case II	Plain Cement Concrete Grade M-15 in Leveling Course below Open Foundation complete as per MORT&H Drawing and Technical Specification, clauses 1500,1700 and 2100. complete in all respects .	Cubic metre	602.40	7963.00	4796911
21	13.8	Providing weep holes in Brick masonry/Plain/ Reinforced concrete abutment, wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing face. Complete as per drawing and Technical Specifications as per MORT&H Drawing and Technical Specification, clauses 2706 and 2200. complete in all respects .	Each	300.00	1160.00	348000
22	13.9	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical Specification Clause 710.1.4.of IRC:78 & 2200 (Granular material) complete in all respects .	Cubic metre	1125.00	1,050.00	1181250
Total For Approach road					Total :-	6411481
Grand Total						52906595

Details Of Measurements
SUB STRUCTURE

S.No.	Description	No.	Length	Width	Depth	Quantity	Units	Remarks
1	Earthwork(ordinary soil)							
	Mind tree side	1	13.00	7.30	7.35	697.51	cum	
2	Earthwork(Hard Rock)							
	North Campus side	1	13.00	7.30	4.50	427.05	cum	
3	Lean Concrete M15							
	Mind tree side	1	13.00	7.30	0.15	14.24	cum	
	North Campus side	1	13.00	7.30	0.15	14.24	cum	
	Protection for Abutment	1	15.00	2.00	1.50	45.00	cum	
	Total					73.48	cum	
4	R.C.C M35							
	Mind tree side							
	Base	1	13.00	7.00	1.20	109.20	cum	
	Back wall	1	12.00	0.30	8.80	31.68	cum	
	Side Return wall	2	2.70	0.50	8.80	23.76	cum	
	Side Return wall	2	4.00	0.50	4.80	19.20	cum	
	Inner Box wall (Longer side)	1	12.00	0.30	8.80	31.68	cum	
	Inner Box wall (shorter side)	4	1.05	0.30	8.80	11.09	cum	
	Inner Box wall (shorter side)	4	1.35	0.30	8.80	14.26	cum	
	Return wall inner	1	12.00	0.50	4.36	26.16	cum	
	Counter fort wall	2	3.50	0.45	3.00	9.45	cum	
	Coping Beam	1	13.00	1.05	0.90	12.29	cum	
	North campus side							cum
	Base	1	13.00	7.00	1.20	109.20	cum	
	Back wall	1	12.00	0.30	6.79	24.44	cum	
	Side Return wall	2	2.70	0.50	6.79	18.33	cum	
	Side Return wall	2	4.00	0.50	3.00	12.00	cum	
	Inner Box wall (Longer side)	1	12.00	0.30	6.79	24.44	cum	
	Inner Box wall (shorter side)	4	1.05	0.30	6.79	8.56	cum	
	Inner Box wall (shorter side)	4	1.35	0.30	6.79	11.00	cum	
Return wall inner	1	12.00	0.50	2.55	15.30	cum		
Counter fort wall	2	3.50	0.45	3.00	9.45	cum		
Coping Beam	1	13.00	1.05	0.90	12.29	cum		
	Total					533.78	cum	
5	HYSB Bars							
		Volume	Length	Factor		Quantity	unit	
	For Superstructure							
	HYSB Qty in Kg	533.78		200.00		106756	KG	
	HYSB Qty in MT					106.76	MT	
	Add 10 % for wastage.					10.68		
	Grand Total					117.44	MT	
6	POT-PTFE bearing consisting of a metal piston		Volume	Density				
	Steel		92.37	7.85		725.10	MT	
	Concrete		466.00	2.5		1165.00	MT	
						Total	1890.10	MT
MACRO PILING								
7	Grouting							
	Mind tree side	12	0.75	0.75	3.00	20.25	cum	
						Total	20.25	cum
8	Boring							

S.No.	Description	No.	Length	Width	Depth	Quantity	Units	Remarks
	Mind tree side (230mm dia)	48			3.00	144	mtrs	
					Total	144.00	mtrs	
9	HYSD Bars							
	Steel 32mm dia for Macro Piling							
		Volume	Length	Factor		Quantity	unit	
	Mind tree side	48	3.00	6.32		910.08	kg	
					Total Weight	0.91	MT	

Super - Structure

10 Furnishing and Placing Prestressed cement concrete Grade M-40 in super-structure as per drawing and Technical Specification as per MORT&H Drawing and Technical Specification, clauses 1500,1600 and 1700 complete in all respects .

S.No.	Description	No.	Length	Width	Depth	Quantity	Units	Remarks
	Section 1							
	Box Girder Bottom	1	49.60	4.50	0.23	51.34	cum	
	Box Girder Sides	2	49.60	0.30	3.30	98.21	cum	
	Top portion/Deck portion	1	49.60	6.00	0.29	86.30	cum	
	Cantilever top	2	49.60	0.28	3.00	83.33	cum	
	Haunch	2	49.60	0.50	0.15	7.44	cum	
	Haunch	2	49.60	1.00	0.15	14.88	cum	
	Concrete for anchorage	4	3.00	0.50	0.50	3.00	cum	
	Total					344.50	cum	T1
	Section 2							
	End girder Bottom	2	5.29	0.44	0.40	1.86	cum	
	End girder	2	5.65	0.40	3.69	16.68	cum	
	End girder Projection	4	0.45	0.40	3.3	2.38	cum	
	End Girder triangular projection	2	2.70	0.40	2.64	5.70	cum	Area of triangle 1/2*perpendicular*base
	Cantilever at bottom	2	0.30	0.23	5.29	0.73	cum	
	Cantilever at top	2	12.00	0.44	1.03	10.88	cum	
	Total					38.23	cum	T2
	Total					382.72	cum	T1+T2
	Add extra 5 %					19.14		
	Grand Total					401.86		

11 Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications as per MORT&H Drawing and Technical Specification, clauses 1600. complete in all respects .

	Volume	Factor		Quantity	unit	
For Superstructure						
HYSD Qty in Kg	401.86	175.00		70325.5	KG	
HYSD Qty in MT				70.33	MT	
Add 10 % for wastage.				7.03		
Grand Total				77.36	MT	

12 High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications as per MORT&H Drawing and Technical Specification, clauses 1800. complete in all respects .

Cable No	No.	Length (m)	No of strands	Strand Area (mm ²)	Area Cable (m ²)	Weight/unit length (kg/m)	Weight (kg)
1	2	52.582	12	98.70	0.0011844	9.29754	977.77
2	2	52.57	12	98.70	0.0011844	9.29754	977.54
3	2	52.512	12	98.70	0.0011844	9.29754	976.46
4	2	52.5	12	98.70	0.0011844	9.29754	976.24
5	2	52.44	12	98.70	0.0011844	9.29754	975.13
6	2	52.438	12	98.70	0.0011844	9.29754	975.09
7	2	52.37	12	98.70	0.0011844	9.29754	973.82
8	2	52.35	12	98.70	0.0011844	9.29754	973.45
9	2	52.35	12	98.70	0.0011844	9.29754	973.45
10	2	52.35	12	98.70	0.0011844	9.29754	973.45
11	2	52.312	12	98.70	0.0011844	9.29754	972.75

S.No.	Description	No.	Length	Width	Depth	Quantity	Units	Remarks	
12	2	52.312	12	98.70	0.0011844	9.29754	972.75		
13	2	52.312	12	98.70	0.0011844	9.29754	972.75		
14	2	52.312	12	98.70	0.0011844	9.29754	972.75		
	Total						13643.40		
	wastage @10%						1364.34		
	Total						15007.74		
	Qty of Prestressing steel							15.01	MT
13	Providing and laying Cement concrete wearing coat M-30 grade including reinforcement complete as per drawing and Technical Specifications as per MORT&H Drawing and Technical Specification, a per MORTH clauses 2702. complete in all respects .								
S.No.	Description	No	Length	Width	Depth	Quantity	Units	Remarks	
	Section 1								
	Wearing Coat	1	60.45	7.50	0.075	34.00	cum		
	Footpath interlocking	2	60.45	0.30	0.281	10.19	cum		
	Footpath	2	60.45	1.65	0.10	19.95	cum		
	Total					64.14	cum		
	Quantity		64.14	cum					
14	Construction of RCC railing of M30 Grade in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings and technical specifications. as per MORT&H Drawing and Technical Specification, as per MORT&H Drawing and Technical Specification, clauses 2705.complete in all respects .								
S.No.	Description	No	Length	Width	Depth	Quantity	Units	Remarks	
1	Section 1								
	RCC railing	2	60.45			120.90	mtrs		
	Total					120.90	mtrs		
	Qty		120.90	mtrs					
15	Drainage Spouts complete as per drawing and Technical specification as per MORT&H Drawing and Technical Specification, clauses 1200 and 1900. complete in all respects .								
S.No.	Description	No	Length	Width	Depth	Quantity	Units	Remarks	
	Drainage spout @ 5m C/C Spacing	22				22.00	no.		
	Total					22.00	no.		
	Total No		22.00	no.					
16	PCC M15 Grade leveling course below approach slab complete as per drawing and Technical specification as per MORT&H Drawing and Technical Specification, as per MORTH clauses 2700.complete in all respects .								
S.No.	Description	No	Length	Width	Depth	Quantity	Units	Remarks	
	Wearing Coat	1	8.60	12.00	0.30	30.96	cum		
	Total					30.96	cum		
	Quantity		30.96	cum					
17	Reinforced cement concrete Grade M-30 in approach slab including reinforcement and formwork complete as per drawing and Technical specification as per MORT&H Drawing and Technical Specification, clauses 1500 and 1600,1700 and 2704.complete in all respects .								
S.No.	Description	No	Length	Width	Depth	Quantity	Units	Remarks	
1	M30 RCC								
	Wearing Coat	1	8.60	12.00	0.30	30.96	cum		
	Total					30.96	cum		
	Quantity		30.96	Cum					

S.No.	Description	No.	Length	Width	Depth	Quantity	Units	Remarks
18	Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation. as per MORTH clauses 2607.complete in all respects .							
S.No.	Description	No	Length	Width	Depth	Quantity	Units	Remarks
	On Abutment side	2	12.00			24.00	mtrs	
Approaches								
S.No.	Description	No	Length	Width	Depth	Quantity	Units	Remarks
19	Earth Work							
	Wing wall (North Campus Side)	2	15.00	2.40	2.50	180.00	Cum	
	Wing wall(Mind tree side)	2	10.00	4.50	4.00	360.00	Cum	
						Total	540.00	Cum
20	C.CONC.1:3:6 M-15							
	Wing wall (North Campus Side)	2	15.00	1.50	5.00	225.00		Width=(2.40+0.60)/2 =1.50
	Wing wall(Mind tree side)	2	10.00	2.55	7.40	377.40		Width=(4.50+0.60)/2 =2.55
						602.40	Cum	
21	Weep hole	300				300.00	Nos	
22	Sand filling	1	15.00	15.00	5.00	1125.00	Cum	

Analysis of Rate

12.1	304		Excavation for Structures					
			Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.					
		I	Ordinary soil					
			Unit = cum					
			Taking output = 10 cum					
12.1 (I) B		(iii)	Depth above 6m					
			Unit = cum					
			Taking output = 180 cum					
			a) Labour					
			Mate	day	0.40	557.00	222.60	L-12
			Mazdoor	day	10.00	477.00	4770.00	L-13
			b) Machinery					
			Hydraulic excavator 1.0 cum bucket capacity	hour	6.00	4130.00	24780.00	P&M-026
			c) Overhead charges @ 0.2 on (a+b)				5954.56	
			d) Contractor's profit @ 0.1 on (a+b+c)				3572.74	
			Cost for 180 cum = a+b+c+d				39300.10	
			Rate per cum = (a+b+c+d)/180				218.33	
							say	218.00
		Note	1. Cost of dewatering upto 10 per cent of (a+b) may be added, where required. Assessment for dewatering shall be made as per site conditions.					
			2. Labour provided for excavation by mechanical means includes that required for trimming of bottom and side slopes.					
12.1		IV	Hard Rock (blasting prohibited)					
			Unit = cum					
			Taking output = 10 cum					
		A	Mechanical Means					
			a) Labour					
			Mate	day	0.20	557.00	111.40	L-12
			Mazdoor	day	5.00	477.00	2385.00	L-13
			b) Machinery					
			Air Compressor 250 cfm with 2 leads of pneumatic breaker	hour	6.00	800.00	4800.00	P&M-001
			c) Overhead charges @ 0.2 on (a+b)				1459.28	
			d) Contractor's profit @ 0.1 on (a+b+c)				875.57	
			Cost for 10 cum = a+b+c+d				9631.25	
			Rate per cum = (a+b+c+d)/10				963.12	
							say	963.00
		Note	1. Cost of dewatering upto 10 per cent of (a+b), may be added, where required Assessment for dewatering shall be made as per site conditions.					
			2. In case of rock, foundation beyond 3 m is not dug and hence not included.					
13.5	1500, 1700 & 2200		Plain/Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications					
			Unit = cum					
			Taking output = 1 cum					
		A	PCC Grade M15					
		(p)	Height upto 5m					
			Same as Item 12.8 (A) upto 5 m height, except for formwork which shall be 10 per cent instead of 4 per cent of cost of material, labour and machinery.					
			Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (A)				5801.00	Item 12.8 (A)
			d) formwork					
			Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork		10.00		580.10	
			e) Overhead charges @ 0.2 on (a+b+c+d)				1276.22	
			f) Contractor's profit @ 0.1 on (a+b+c+d+e)				765.73	
			Rate perm (a+b+c+d+e+f)				8423.05	

						say	<u>8423.00</u>	
13.5	1500, 1700 & 2200		Plain/Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications					
			Unit = cum					
			Taking output = 1 cum					
13.5 H (q)		Case II	With Batching Plant, Transit Mixer and Concrete Pump					
			Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (H) Case II					
			d) formwork					
			Add 11 per cent of cost of material, labour and machinery (a+b+c) for Formwork	11.00			1032.90	
			Add 1.4 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift	1.40			131.46	
			e) Overhead charges @ 0.2 on (a+b+c+d)					
			f) Contractor's profit @ 0.1 on (a+b+c+d+e)					
			Rate perm (a+b+c+d+e+f)					
							13931.76	
						say	<u>13932.00</u>	
13.6	Section 1600 & 2200		Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and Technical Specifications					
			Output: MT					
			Taking output = 1 MT					
			a) Material					
			HYSD bars including 5 per cent overlaps and wastage	tonne	1.05	71000.00	74550.00	M-082
			Binding wire	kg	6.00	105.00	630.00	M-072
			b) Labour for cutting, bending, shifting to site, tying and placing in position					
			Mate	day	0.34	557.00	189.38	L-12
			Blacksmith	day	2.00	671.00	1342.00	L-02
			Mazdoor	day	6.50	477.00	3100.50	L-13
			c) Overhead charges @ 0.2 on (a+b)					
			d) Contractor's profit @ 0.1 on (a+b+c)					
			Rate for per MT (a+b+c+d)					
							105351.68	
						say	<u>105352.00</u>	
13.16	2000 & 2200		Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel/fabricated structural steel, metal and elastomer elements to be as per IRC: 83 part-I & II respectively and other parts conforming to BS: 5400, section 9.1 & 9.2 and clause 2006 of MoRTH Specifications complete as per drawing and approved Technical Specifications.					
			Unit: one tonne capacity					
			Considering a Pot bearing assembly of 250 tonne capacity for this analysis.					
			a) Labour					
			Mate	day	0.08	557.00	44.56	L-12
			Mazdoor	day	1.50	477.00	715.50	L-13
			Mazdoor (Skilled)	day	0.50	477.00	238.50	L-15
			b) Material					
			Pot type bearing assembly consisting of a metal piston supported by a disc, PTFE pads providing sliding surfaces against stainless steel mating together with cast steel assemblies/fabricated structural steel assemblies duly painted with all components as per clause 2006 and complete as per drawings and Technical Specifications.	each	1.00	200000.00	200000.00	M-068
			Add 1 per cent of cost of bearing assembly for foundation anchorage bolts and consumables.				2000.00	
			c) Overhead charges @ 0.2 on (a+b)					
			d) Contractor's profit @ 0.1 on (a+b+c)					
			cost for 250 tonnes capacity bearing = a+b+c+d					
			Rate per tonne capacity = (a+b+c+d)/250					
							1071.83	
						say	<u>1072.00</u>	

A/R	1800		Grouting for macro piling complete as per drawing and Technical Specifications					
	Sub-analysis (Add.)	(B)	Cement Mortar 1:2 (1 cement :2 sand)					
			Unit = 1 cum					
			Taking output = 1 cum					
			a) Materials					
			Cement	tonne	0.67	9000.00	6048.00	M-081
			Sand	cum	0.93	1725.00	1604.25	M-005
	14.3		b) Labour					
			For grouting					
			Mate/Supervisor	day	0.05	557.00	27.85	L-12
			Mason	day	0.25	671.00	167.75	L-11
			Mazdoor	day	1.00	477.00	477.00	L-13
			C) Overhead charges @ 0.2 on (a+b+c)				1664.97	
			d) Contractor's profit @ 0.1 on (a+b+c+d)				998.98	
			Cost for 1 Cum (a+b+c+e)				10988.80	

Analysis of Rate

14.1	1500 & 1600 1700		Furnishing and Placing Reinforced/ Prestressed cement concrete in super-structure as per drawing and Technical Specification					
14.1E		Case II	Using Batching Plant, Transit Mixer and Concrete Pump					
			<i>Unit = cum</i>					
			<i>Taking output = 120 cum</i>					
			a) Material					
			Cement	tonne	51.60	9000.00	464400.00	M-081
			Coarse sand	cum	54.00	3500.00	189000.00	M-004
			20 mm Aggregate	cum	64.80	3500.00	226800.00	M-053
			10 mm Aggregate	cum	43.20	3500.00	151200.00	M-051
			Admixture @ 0.4 per cent of cement	kg	206.40	40.00	8256.00	M-180
			b) Labour					
			Mate	day	0.94	557.00	523.58	L-12
			Mason	day	3.50	671.00	2348.50	L-11
			Mazdoor	day	20.00	477.00	9540.00	L-13
			c) Machinery					
			Batching Plant @ 20 cum/hour	hour	6.00	1200.00	7200.00	P&M-002
			Generator 100 KVA	hour	6.00	550.00	3300.00	P&M-080
			Loader	hour	6.00	1180.00	7080.00	P&M-017
			Transit Mixer (capacity 4.0 cu.m)					
			Transit Mixer 4 cum capacity lead upto 1 Km	hour	15.00	700.00	10500.00	P&M-049
			Lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	100.00	60000.00	Lead =2 km & P&M-050
			Concrete Pump	hour	6.00	800.00	4800.00	P&M-007
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum		1144949.00			
14.1E Case II (i)		(r)	Height above 10m					
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum				1144949.00	
			d) Formwork and staging 28 per cent of (a+b+c)		28.00		320585.72	
			e) Overhead charges @ 0.2 on (a+b+c+d)				293106.94	
			f) Contractor's profit @ 0.1 on (a+b+c+d+e)				175864.17	
			Cost for 120 cum = a+b+c+d+e+f				1934505.83	
			Rate per cum = (a+b+c+d+e+f)/120				16120.88	
						say	<u>16121.00</u>	
14.2	1600		Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications					
			<i>Unit = 1 MT</i>					
			<i>Taking output = 1 MT</i>					
			a) Material					
			HYSD bars including 5 per cent for laps and wastage	tonne	1.05	71000.00	74550.00	M-082
			Binding wire	Kg	8.00	105.00	840.00	M-072
			b) Labour for cutting, bending, tying and placing in position					
			Mate	day	0.44	557.00	245.08	L-12
			Blacksmith	day	3.00	671.00	2013.00	L-02
			Mazdoor	day	8.00	477.00	3816.00	L-13
			Basic Cost of Labour & Material (a+b)		81465.00			
			c) Overhead charges @ 0.2 on (a+b)				16292.82	

		d) Contractor's profit @ 0.1 on (a+b+c)				9775.69	
		Rate per MT = a+b+c+d				107532.59	
					say	107533.00	

14.3	1800	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications					
		Unit = 1 MT					
		Taking output = 0.377 MT					
		Details of cost for 12T13 strand 40 m long cable (weight = 0.377 MT)					
		a) Material					
		H.T. Strand @ 9.42 kg/m including 2 per cent for wastage and extra length for jacking	tonne	0.39	135000.00	51975.00	M-119
		Sheathing duct ID 66 mm along with 5 per cent extra length 40 x 1.05 = 42 m.	metre	42.00	300.00	12600.00	M-165
		Tube anchorage set complete with bearing plate, permanent wedges etc.	each	2.00	1560.00	3120.00	M-187
		Cement for grouting including 3 per cent wastage @ 3.00 kg/m = 3 x 1.03 x 40 = 123.60 kg (say, = 125 kg)	tonne	0.125	9000.00	1125.00	M-081
		Add 0.50 per cent cost of material for Spacers, insulation tape and miscellaneous items				3441.00	
		b) Labour					
		i) For making and fixing cables, anchorages					
		Mate	day	0.16	557.00	89.12	L-12
		Blacksmith	day	1.00	671.00	671.00	L-02
		Mazdoor	day	3.00	477.00	1431.00	L-13
		ii) For prestressing					
		Mate/Supervisor	day	0.05	557.00	27.85	L-12
		Prestressing operator / Fitter	day	0.25	671.00	167.75	L-08
		Mazdoor	day	1.00	477.00	477.00	L-13
		iii) For grouting					
		Mate/Supervisor	day	0.05	557.00	27.85	L-12
		Mason	day	0.25	671.00	167.75	L-11
		Mazdoor	day	1.00	477.00	477.00	L-13
		c) Machinery					
		Stressing jack with pump	hour	2.50	675.00	1687.50	P&M-040
		Grouting pump with agitator	hour	1.00	200.00	200.00	M-111
		Generator 33 KVA.	hour	3.50	375.00	1312.50	P&M-079
		d) Overhead charges @ 0.2 on (a+b+c)				1347.26	
		e) Contractor's profit @ 0.1 on (a+b+c+d)				808.36	
		Cost for 0.377 MT (a+b+c+d+e)				81152.94	
		Rate per MT = (a+b+c+d+e)/0.377				215259.79	
					say	215260.00	
		Note	Cost of HT steel has been taken for delivery at site. Hence carriage has not been considered.				

14.4	2702		Providing and laying Cement concrete wearing coat M-30 grade including reinforcement complete as per drawing and Technical Specifications					
			Unit = 1 cum					
			Taking output = 1 cum					
			a) Material					
			Cement concrete M30 Grade Refer relevant item of concrete in Item 14.1 excluding formwork	cum	1.00	6786.00	6786.00	Item 14.1(C)
			HYSD bar reinforcement Rate as per item No 14.2(Excluding OH & CP)	tonne	0.075	81465.00	6109.88	Item 14.2 A
			b) Labour					
			Mazdoor for cleaning deck slab concrete surface.	day	0.15	477.00	71.55	L-13
			c) Overhead charges @ 0.2 on (a+b)				2593.49	
			d) Contractor's profit @ 0.1 on (a+b+c)				1556.09	
			Rate per cum (a+b+c+d)				17117.00	
						say	<u>17117.00</u>	

14.7	2703, 1500, 1600 & 1700		Construction of RCC railing of M30 Grade in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings and technical specifications.					
			Unit = 1 RM					
			Taking output = 2 x 24 m span = 48 m.					
			a) Material					
			Cement concrete M30 Grade Refer relevant item of concrete in Item 14.1(C) by using batching plant, excluding formwork i.e. per cum basic cost (a+b+c)	cum	4.092	6786.00	27768.31	Item 14.1(C)
			No. of vertical posts = $(12 + 2)2 = 28$ Nos., External area of vertical post $0.25 \times 0.275 = 0.069 \text{ sqm}$, Concrete in vehicle posts = $0.069 \times 28 = 1.932$ cum, Hand rail in 3 tiers = $3 \times 24 = 72$ m, External area = $0.170 \times 0.175 = 0.03 \text{ sqm}$, Concrete in hand rails = $0.03 \times 72 = 2.16$ cum, Total Concrete = $1.932 + 2.16 = 4.092$ cum. (Refer MoRTH SD / 202).					
			Add 12 per cent of above cost for form work.				3332.20	
			HYSD bar reinforcement Rate as per item No 14.2(Excluding OH & CP)	tonne	0.87	81465.00	70467.23	Item 14.2 A
			refer MoRTH SD / 202.					
			b) Overhead charges @ 0.2 on (a)				20313.55	
			c) Contractor's profit @ 0.1 on (a+b)				12188.13	
			Rate for 48 m (a+b+c)				134069.41	
			Rate per metre (a+b+c)/48				2793.11	
						say	<u>2793.00</u>	
		Note	1. Quantities of material have been adopted from standard plans of MoRTH vide drawing no. SD/202.					

14.9	2705	Drainage Spouts complete as per drawing and Technical specification					
		Unit = 1 No.					
		Taking output = 1 No.					
		a) Material					
		Corrosion resistant Structural steel including 5 per cent wastage	Kg	4.00	75.00	300.00	M-087/1000
		GI pipe 100mm dia	metre	6.00	630.00	3780.00	M-056
		GI bolt 10 mm Dia	each	6.00	20.00	120.00	M-110
		Galvanised MS flat clamp	each	2.00	10.00	20.00	M-101
		b) Labour					
		For fabrication					
		Mate	day	0.02	557.00	11.14	L-12
		Skilled (Blacksmith, welder etc.)	day	0.02	671.00	13.42	L-02
		Mazdoor	day	0.02	477.00	9.54	L-13
		For fixing in position					
		Mate	day	0.01	557.00	5.57	L-12
		Mason	day	0.01	671.00	6.71	L-11
		Mazdoor	day	0.20	477.00	95.40	L-13
		Add @ 5 per cent of cost of material and labour for electrodes, cutting gas, sealant, anti-corrosive bituminous paint, mild steel grating etc.				218.09	
		c) Overhead charges @ 0.2 on (a+b)					
		d) Contractor's profit @ 0.1 on (a+b+c)					
		Rate per metre (a+b+c+d)					
		say <u>6045.00</u>					
		Note	1. In case of viaducts in urban areas, the drainage spouts should be connected with suitably located pipelines to discharge the surface run-off to drains provided at ground level.				
			2. In case of bridges, sufficient length of G.I Pipe shall be provided to ensure that there is no splashing of water from the drainage spout on the structure.				

14.10	2700	PCC M15 Grade leveling course below approach slab complete as per drawing and Technical specification					
		Unit = 1 cum					
		Taking output = 1 cum					
		Material					
		Concrete, Rate as per item No. 12.8 (A) excluding formworks	cum	1.00	7657.00	7657.00	Item 12.8 (A)
		Rate per cum					
		say <u>7657.00</u>					

14.11	1500,1600,1700 & 2704	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification					
		Unit = 1 cum					
		Taking output = 1 cum					
		a) Material					
		Cement concrete M30 Grade Refer relevant item of concrete in item 12.8(G) by using batching plant, excluding formwork i.e. per cum basic cost (a+b+c) (Excluding OH & CP)	cum	1.00	6774.00	6774.00	Item 12.8 (G)
		(Refer relevant item of concrete in item No. 13.8 (G) except that formwork may be added at the rate of 2 per cent of cost against 3.5 per cent provided in the foundation concrete.				237.09	

			HYSD bar reinforcement Rate as per item No 14.2(Excluding OH & CP)	tonne	0.05	81465.00	4073.25	Item 14.2 A
			b) Overhead charges @ 0.2 on (a)				2216.87	
			c) Contractor's profit @ 0.1 on(a+b)				1330.12	
			Rate per cum (a+b+c)				14631.33	
						say	<u>14631.00</u>	
		Note	The grade of reinforced cement concrete may be adopted as M30 for severe conditions and M25 for moderate conditions.					

14.22	2607		Strip Seal Expansion Joint					
			Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.					
			<i>Unit = Running meter</i>					
			<i>Taking output = 12 m</i>					
			a) Labour					
			Mate	day	0.05	557.00	27.85	L-12
			Mazdoor	day	1.00	477.00	477.00	L-13
			Mazdoor (Skilled)	day	0.25	477.00	119.25	L-15
			b) Material					
			Supply of complete assembly of strip seal expansion joint comprising of edge beams, anchorage, strip seal element and complete accessories as per approved specifications and drawings.	metre	12.00	25000.00	300000.00	M-178
			Add 5 per cent. of cost of material for anchorage reinforcement, welding and other incidentals.					
			15031.21					
			c) Overhead charges @ 0.2 on (a+b)					
			63131.06					
			d) Contractor's profit @ 0.1 on (a+b+c)					
			37878.64					
			Cost for 12 m = (a+b+c+d)					
			416665.00					
			Rate per m = (a+b+c+d)/12					
			34722.08					
			say <u>34722.00</u>					
		Note	1. The installation shall be done by the manufacturer or his authorised representative to the satisfaction of the Engineer.					
			2. The concreting for joining the expansion joint assembly with the deck has not been included in this analysis as the same is catered in the quantities of RCC deck.					

Analysis of Rate

12.1	304		Excavation for Structures						
			Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.						
12.1 (l)		B	Mechanical Means						
		(i)	Depth upto 3 m						
			Unit = cum						
			Taking output = 240 cum						
		a)	Labour						
			Mate	day	0.32	557.00	178.24	L-12	
			Mazdoor	day	8.00	477.00	3816.00	L-13	
		b)	Machinery						
			Hydraulic excavator 1.0 cum bucket capacity	hour	6.00	4130.00	24780.00	P&M-026	
		c)	Overhead charges @ 0.2 on (a+b)				5754.85		
		d)	Contractor's profit @ 0.1 on (a+b+c)				3452.91		
			Cost for 240 cum = a+b+c+d				37982.00		
			Rate per cum = (a+b+c+d)/240				158.26		
							say	158.00	
		Note	Cost of dewatering upto 5 per cent of (a+b) may be added, where required. Assessment for dewatering shall be made as per site conditions..						
12.8	1500, 1700 & 2100		Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications.						
		A	PCC Grade M15						
			Unit = cum						
			Taking output = 15 cum						
		a)	Material						
			Cement	tonne	4.13	9000.00	37170.00	M-081	
			Coarse sand	cum	6.75	1725.00	11643.75	M-005	
			40 mm Aggregate	cum	8.10	1635.00	13243.50	M-055	
			20 mm Aggregate	cum	4.05	1635.00	6621.75	M-053	
			10 mm Aggregate	cum	1.35	1635.00	2207.25	M-051	
		b)	Labour						
			Mate	day	0.86	557.00	479.02	L-12	
			Mason	day	1.50	671.00	1006.50	L-11	
			Mazdoor	day	20.00	477.00	9540.00	L-13	
		c)	Machinery						

			Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	350.00	2100.00	P&M-009
			Generator 63 KVA	hour	6.00	500.00	3000.00	P&M-019
			Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		5801.00			
			d) Formwork @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery				3480.47	
			e) Overhead charges @ 0.2 on (a+b+c+d)				18098.45	
			f) Contractor's profit @ 0.1 on (a+b+c+d+e)				10859.07	
			Cost for 15 cum = a+b+c+d+e+f				119449.76	
			Rate per cum = (a+b+c+d+e+f)/15				7963.32	
						say	<u>7963.00</u>	
		Note	Needle Vibrator is an item of minor T & P which is already included in overhead charges. Hence not added in rate analysis of cement concrete works.					
13.8	2706 & 2200		Providing weep holes in Brick masonry/Plain/ Reinforced concrete abutment, wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing face. Complete as per drawing and Technical Specifications					
			Unit = Nos.					
			Taking output = 30 Nos.					
			a) Material					
			AC pipe 100 mm dia. (including wastage @ 5 per cent)	metre	31.50	546.88	17226.72	M-056
			Average length of weep hole is taken as one metre for the purpose of estimating.					
			MS clamp	each.	30.00	42.00	1260.00	M-123
			collar for AC pipe (average) taking 10% of above pipe rate	each.	10.00	54.69	546.90	M-056/10
			Cement mortar 1:3 (Rate as in Item 12.6)	cum	0.05	6853.00	6853.00	Item 12.6 (A)
			b) Labour					
			Mate	day	0.03	557.00	16.71	L-12
			Mason	day	0.50	671.00	335.50	L-11
			Mazdoor	day	0.25	477.00	119.25	L-13

			c) Overhead charges @ 0.2 on (a+b)				5271.62	
			d) Contractor's profit @ 0.1 on (a+b+c)				3162.97	
			Cost for 30 m = a+b+c+d				34792.67	
			Rate per m (a+b+c+d)/30				1159.76	
							say	<u>1160.00</u>

13.9	710.1.4.of IRC:78 & 2200		Back filling behind abutment, wing wall and return wall complete as per drawing and Technical Specification					
			Unit = cum					
			Taking output = 10 cum					
		A	Granular material					
			a) Labour					
			Mate	day	0.28	557.00	155.96	L-12
			Mazdoor	day	7.00	477.00	3339.00	L-13
			b) Material					
			Granular material	cum	12.00	350.00	4200.00	M-009
			c) Machinery					
			Plate compactor/power rammer	hour	2.50	100.00	250.00	P&M-086
			Water Tanker	hour	0.05	200.00	10.00	P&M-060
			d) Overhead charges @ 0.2 on (a+b+c)					
			e) Contractor's profit @ 0.1 on (a+b+c+d)					
			Cost for 10 cum of granular backfill = a+b+c+d+e					
			Rate per cum = (a+b+c+d+e)/10					
							say	<u>1050.05</u>

Sub-Analysis of Rate

12.8		H	RCC Grade M35					
12.8 H		Case II	Using Batching Plant, Transit Mixer and Concrete Pump					
			Unit ; cum					
			Taking Output = 120 cum					
			a) Material					
			Cement	tonne	50.64	9000.00	455760.00	M-081
			Coarse sand	cum	54.00	3500.00	189000.00	M-004
			20 mm Aggregate	cum	64.80	3500.00	226800.00	M-053
			10 mm Aggregate	cum	43.20	3500.00	151200.00	M-051
			b) Labour					
			Mate	day	0.84	557.00	467.88	L-12
			Mason	day	3.00	671.00	2013.00	L-11
			Mazdoor	day	18.00	477.00	8586.00	L-13
			c) Machinery					
			Batching Plant @ 20 cum/hour	hour	6.00	1200.00	7200.00	P&M-002
			Generator 100 KVA	hour	6.00	550.00	3300.00	P&M-080
			Loader 1 cum capacity	hour	6.00	1180.00	7080.00	P&M-017
			Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	700.00	10500.00	P&M-049
			Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	100.00	60000.00	P&M-050 Lead= 2 km
			Concrete Pump	hour	6.00	800.00	4800.00	P&M-007
			Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		9390.00			
14.1C		Case II	Using Batching Plant, Transit Mixer and Concrete Pump.					
			Unit = cum					
			Taking output = 120 cum					
			a) Material					
			Cement	tonne	48.79	9000.00	439110.00	M-081
			Coarse sand	cum	54.60	1725.00	94185.00	M-004
			20 mm Aggregate	cum	64.80	1635.00	105948.00	M-053
			10 mm Aggregate	cum	43.20	1635.00	70632.00	M-051
			b) Labour					
			Mate	day	0.88	557.00	490.16	L-12
			Mason	day	3.00	671.00	2013.00	L-11
			Mazdoor	day	19.00	477.00	9063.00	L-13
			c) Machinery					
			Batching Plant @ 20 cum/hour	hour	6.00	1200.00	7200.00	P&M-002
			Generator 100 KVA	hour	6.00	550.00	3300.00	P&M-080
			Loader	hour	6.00	1180.00	7080.00	P&M-017
			Transit Mixer (capacity 4.0 cu.m)					
			Transit Mixer 4 cum capacity lead upto 1 Km	hour	15.00	700.00	10500.00	P&M-049
			Lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	100.00	60000.00	Lead =2 km & P&M-050
			Concrete Pump	hour	6.00	800.00	4800.00	P&M-007
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum		814322			

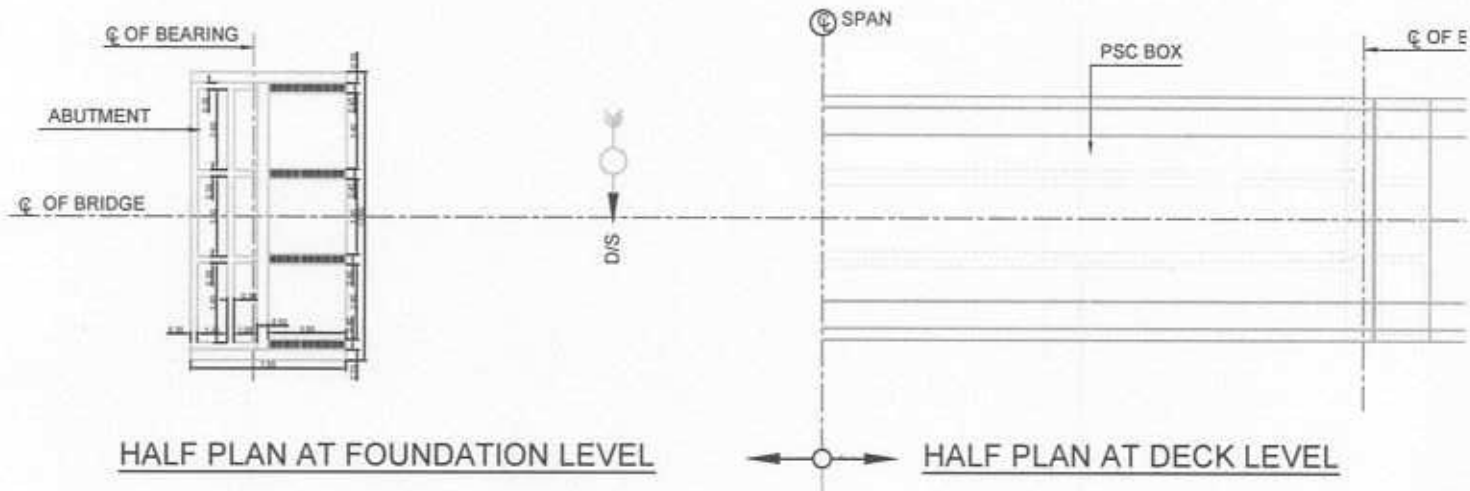
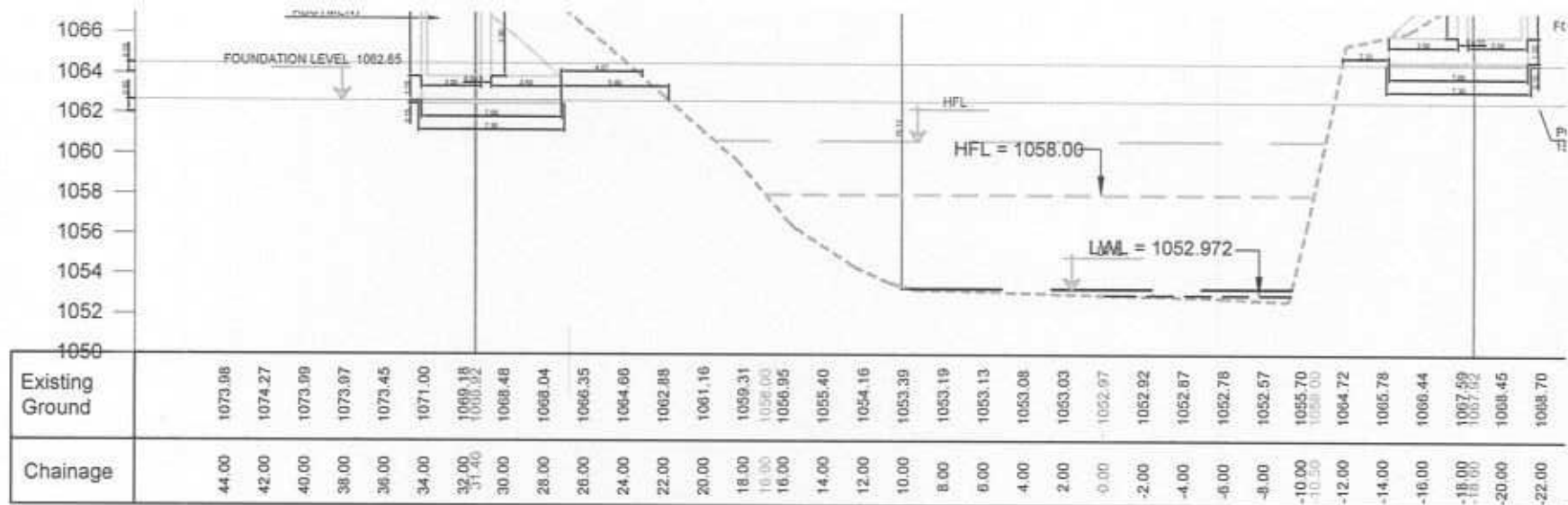
			<i>Basic Cost of Labour, Material & Machinery (a+b+c) for 1 cum</i>		6786.00			
14.2(A)	1600		Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications					
			Unit = 1 MT					
			Taking output = 1 MT					
			a) Material					
			HYSD bars including 5 per cent for laps and wastage	tonne	1.05	71000.00	74550.00	M-082
			Binding wire	Kg	8.00	105.00	840.00	M-072
			b) Labour for cutting, bending, tying and placing in position					
			Mate	day	0.44	557.00	245.08	L-12
			Blacksmith	day	3.00	671.00	2013.00	L-02
			Mazdoor	day	8.00	477.00	3816.00	L-13
			<i>Basic Cost of Labour & Material (a+b)</i>		81465.00			


12.8	1500, 1700 & 2100		Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications.					
		A	PCC Grade M15					
			Unit = cum					
			Taking output = 15 cum					
			a) Material					
			Cement	tonne	4.13	9000.00	37170.00	M-081
			Coarse sand	cum	6.75	1725.00	11643.75	M-005
			40 mm Aggregate	cum	8.10	1635.00	13243.50	M-055
			20 mm Aggregate	cum	4.05	1635.00	6621.75	M-053
			10 mm Aggregate	cum	1.35	1635.00	2207.25	M-051
			b) Labour					
			Mate	day	0.86	557.00	479.02	L-12
			Mason	day	1.50	671.00	1006.50	L-11
			Mazdoor	day	20.00	477.00	9540.00	L-13
			c) Machinery					
			Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	350.00	2100.00	P&M-009
			Generator 63 KVA	hour	6.00	500.00	3000.00	P&M-019
			<i>Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)</i>		5801.00			
			e) Overhead charges @ 0.2 on (a+b+c+d)				17402.35	
			f) Contractor's profit @ 0.1 on (a+b+c+d+e)				10441.41	
			Cost for 15 cum = a+b+c+d+e+f				114855.54	
			Rate per cum = (a+b+c+d+e+f)/15				7657.04	
							say	7657.00
		Note	Needle Vibrator is an item of minor T & P which is already included in overhead charges.					

12.8 G		Case II	Using Batching Plant, Transit Mixer and Concrete Pump	RCC Grade M30				
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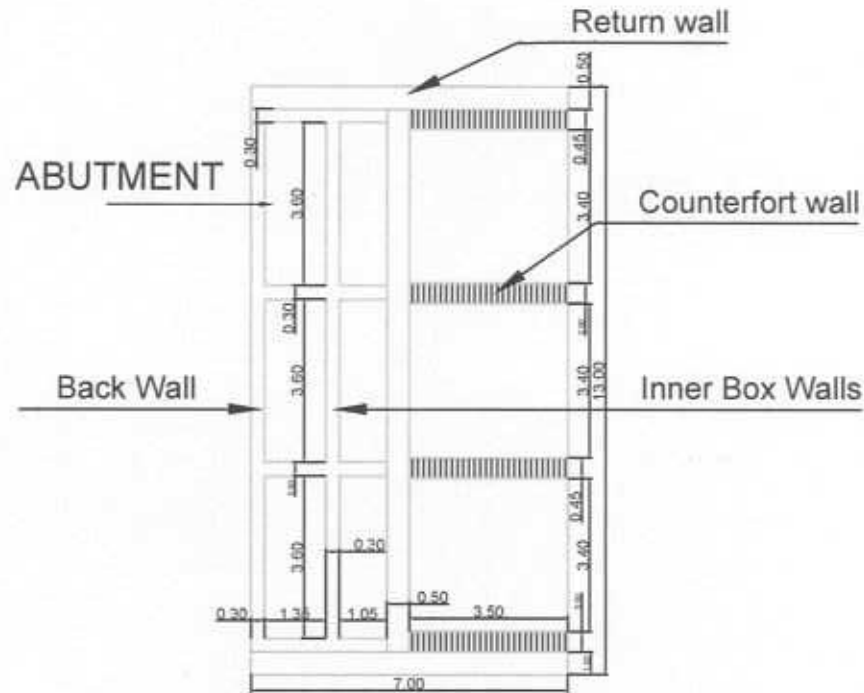
			<i>Unit = cum</i>					
			<i>Taking output = 120 cum</i>					
			a) Material					
			Cement	tonne	48.80	9000.00	439200.00	M-081
			Coarse sand	cum	54.00	1725.00	93150.00	M-004
			20 mm Aggregate	cum	64.80	1635.00	105948.00	M-053
			10 mm Aggregate	cum	43.20	1635.00	70632.00	M-051
			b) Labour					
			Mate	day	0.84	557.00	467.88	L-12
			Mason	day	3.00	671.00	2013.00	L-11
			Mazdoor	day	18.00	477.00	8586.00	L-13
			c) Machinery					
			Batching Plant @ 20 cum/hour	hour	6.00	1200.00	7200.00	P&M-002
			Generator 100 KVA	hour	6.00	550.00	3300.00	P&M-080
			Loader 1 cum capacity	hour	6.00	1180.00	7080.00	P&M-017
			Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	700.00	10500.00	P&M-049
			Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	100.00	60000.00	P&M-050 Lead= 2 km
			Concrete Pump	hour	6.00	800.00	4800.00	P&M-007
			Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		6774.00			

12.6	Sub-analysis	(A)	Cement Mortar 1:3 (1 cement : 3 sand)					
			<i>Unit = 1 cum</i>					
			<i>Taking output = 1 cum</i>					
			a) Materials					
			Cement	tonne	0.51	9000.00	4590.00	M-081
			Sand	cum	1.05	1725.00	1811.25	M-005
			b) Labour					
			Mate	day	0.04	557.00	22.28	L-12
			Mazdoor	day	0.90	477.00	429.30	L-13
			Total Material and Labour = (a+b)			say	6853.00	



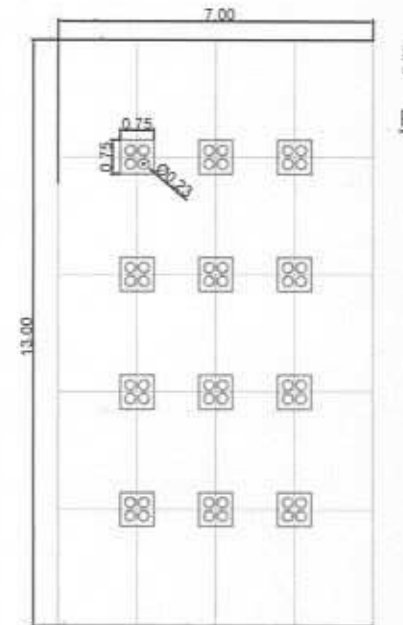
NAME OF PROJECT:- Unification of two campuses (between North and South Campus), IIT Kamand, Distt.- Mandi (HP) (SH:- GAD Dwg. for C/O 50.00m Span (Double Lane) Bridge over Dulchi khad)	 IP&D Cell, IIT Mandi, H.P	Prepared by:-	Checked by:-	Note:- All Di

SECTION (Mind Tree Side)




FOUNDATION PLAN

SECTION (North Campus)

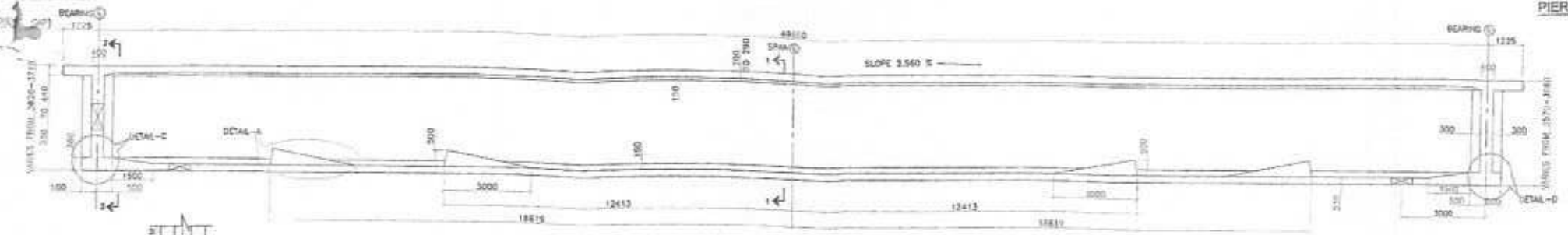


PLAN FOR MAC

<p>NAME OF PROJECT:- Unification of two campuses (between North and South Campus), IIT Kamand, Distt.- Mandi (HP) (SH:- Foundation Plan Dwg. for C/O 50.00m Span (Double Lane) Bridge over Dulchi khad)</p>	 <p>Indian Institute of Technology Mandi</p> <p>IP&D Cell, IIT Mandi, H.P</p>	<p>Prepared by:-</p>	<p>Checked by:-</p>	<p>Note:- All meters.</p>
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PIER P2 SIDE

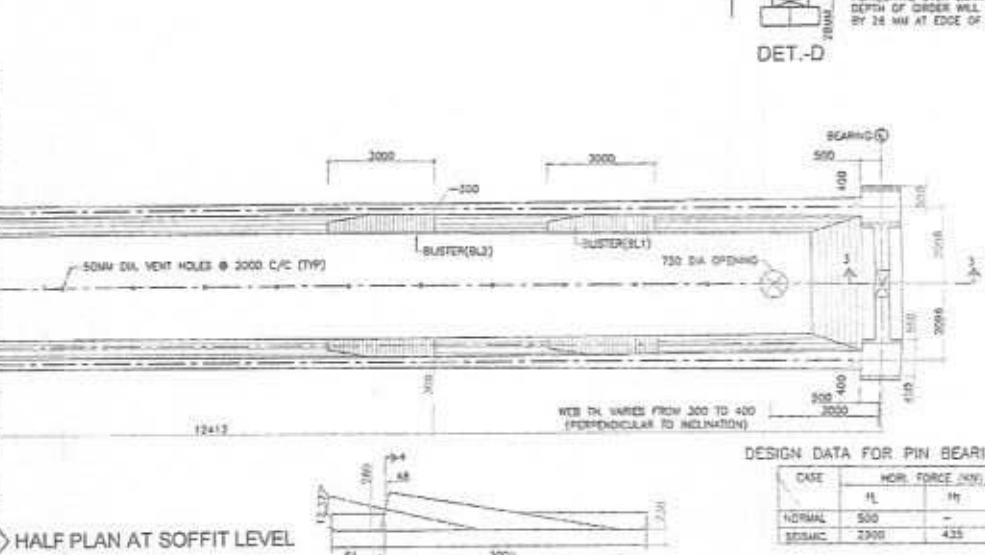
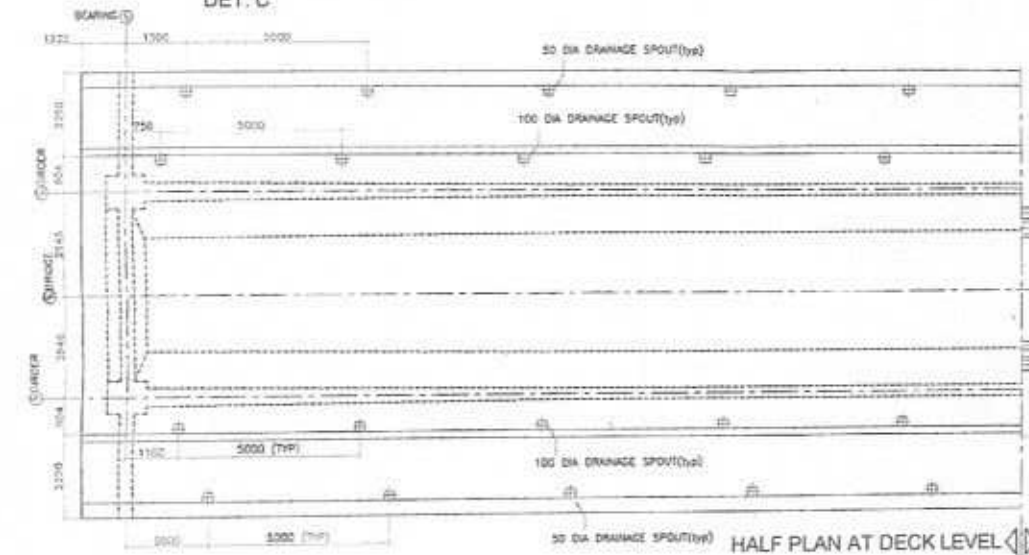
PIER P3 SIDE



SECTIONAL ELEVATION OF PSC BOX GIRDER

DET. C
BOT. OF GIRDER MADE HORIZONTAL OVER BEARING. DEPTH OF GIRDER WILL INCREASE BY 30 MM AT EDGE OF GIRDER.

DET. D
BOT. OF GIRDER MADE HORIZONTAL OVER BEARING. DEPTH OF GIRDER WILL REDUCE BY 25 MM AT EDGE OF GIRDER.



HALF PLAN AT DECK LEVEL & HALF PLAN AT SOFFIT LEVEL

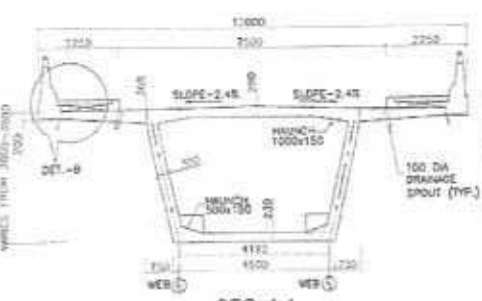
DESIGN DATA FOR PIN BEARING (1 NOS.)

CASE	HORIZ. FORCE (KNI)		ROTATION (RAD)
	FL	HL	
NORMAL	500	-	0.015
SEISMIC	2900	425	

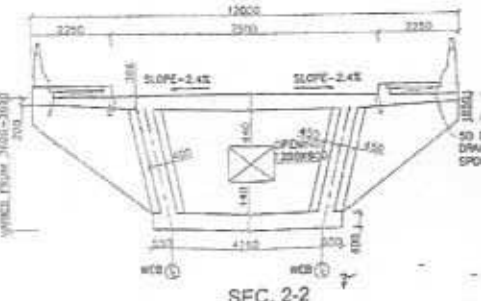
DESIGN DATA FOR FREE BEARING (2 NOS.)

CASE	VERT. LOAD (KN)	HORIZ. FORCE (KNI)		MOVEMENT (MM)		ROTATION
		FL	HL	LONG./TRANS.		
NORMAL	MIN.	210	210	+10	-10	0.015
	MAX.	2900	210			
SEISMIC	4250	1900	212.5	212.5		

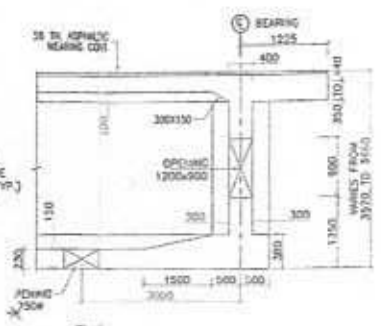
DESIGN DATA FOR GUIDED SLIDING BEARING (2 NOS.)



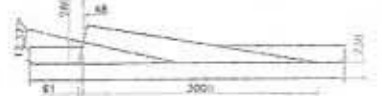
SEC. 1-1



SEC. 2-2



SEC. 3-3

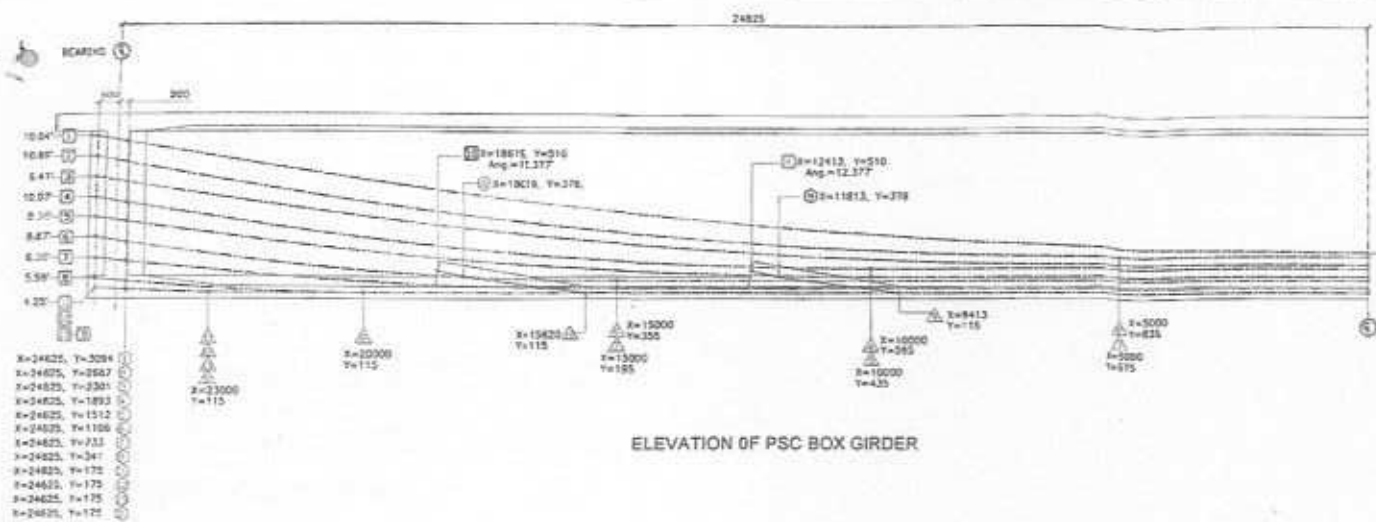


DET. A

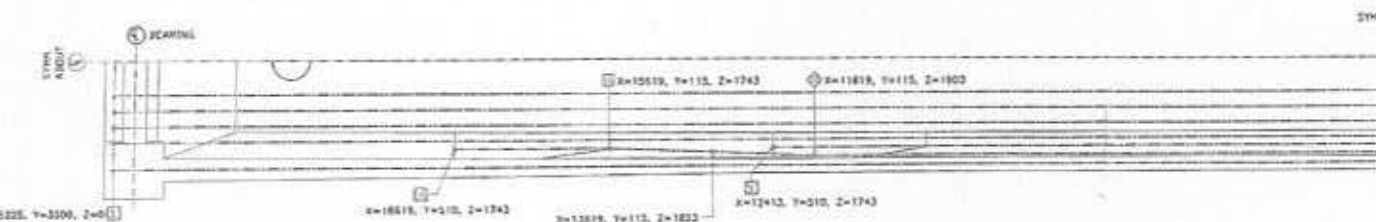


SEC. 4-4





ELEVATION OF PSC BOX GIRDER



PLAN OF PSC BOX GIRDER

TABLE -1: Cable Co-ordinates (in mm)

X=25.2250m	X=24.8200m	X=21.7218m	X=18.5187m	X=15.5156m	X=12.4125m	X=9.3003m	X=6.2082m	X=3.105m	X=0.00m	Cable No.										
Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z									
3000	-	3094	-	2810	-	2181	-	1780	-	1488	-	1226	-	1053	-	890	-	815	-	5
2860	-	2887	-	2179	-	1727	-	1367	-	1099	-	824	-	643	-	535	-	535	-	2
2400	-	2321	-	1855	-	1458	-	1143	-	807	-	753	-	681	-	673	-	675	-	3
2000	-	1883	-	1429	-	1046	-	790	-	630	-	595	-	585	-	585	-	585	-	4
1800	-	1513	-	1127	-	809	-	568	-	494	-	435	-	435	-	435	-	435	-	5
1200	-	1126	-	721	-	481	-	357	-	358	-	355	-	355	-	355	-	355	-	7
800	-	723	-	437	-	271	-	197	-	195	-	195	-	195	-	195	-	195	-	8
400	-	241	-	146	-	115	-	115	-	115	-	115	-	115	-	115	-	115	-	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
220	1583	175	1583	115	1583	115	1583	115	1583	115	1583	115	1583	115	1583	115	1583	115	1583	11
220	1383	175	1383	115	1383	115	1383	115	1383	115	1383	115	1383	115	1383	115	1383	115	1383	12
220	883	175	883	115	883	115	883	115	883	115	883	115	883	115	883	115	883	115	883	13
220	683	175	683	115	683	115	683	115	683	115	683	115	683	115	683	115	683	115	683	14

TABLE -2: Cable Extension and Jacking Forces

CABLE NOS	1	2	3	4	5	6	7	8	9	10	11	12	13	DUMMY
CABLE EXTENSION (mm) AT EACH END	181	180	181	182	182	179	180	180	90	128	181	181	185	181
CABLE LENGTH (m) (CUT LENGTH)	53.32	52.21	52.15	52.14	52.08	52.08	52.01	51.99	25.39	38.80	51.85	51.95	51.85	51.95
JACKING FORCES (k)	173	173	173	173	173	173	173	173	173	173	173	173	173	-
CABLE TYPE	12 T 13	12 T 13	12 T 13	12 T 13	12 T 13	12 T 13	12 T 13	12 T 13	12 T 13	12 T 13	12 T 13	12 T 13	12 T 13	12 T 13

LEGEND

START OF CURVE IN ELEVATION	△
END OF CURVE IN ELEVATION	▽
START OF CURVE IN PLAN	◇
END OF CURVE IN PLAN	◇
END OF CABLE	□

NOTES

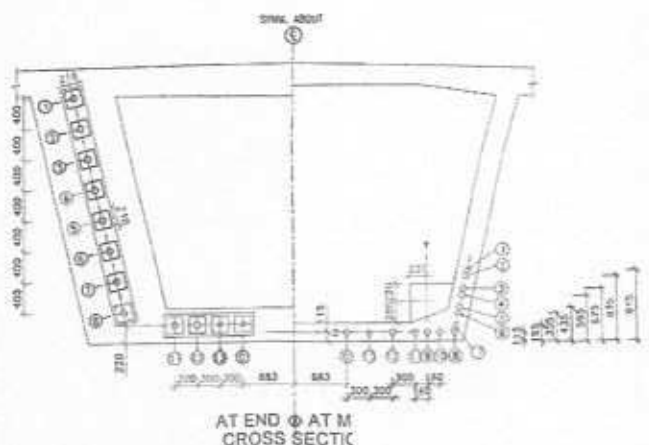
- ALL DIMENSIONS ARE IN MILLIMETERS & UNLESS OTHERWISE SPECIFIED.
- DO NOT SCALE FOLLOW WRITING DIMENSIONS ONLY.
- PRESTRESSING METHOD:
 - PRESTRESSING STRINGS SHALL HAVE THE PRESTRESSING STRINGS RELEASED HIGH TENSILE STRESS OF 12 TON/CM² CORRESPONDING TO 100% LOSS RELAXATION.
 - CALCULATED JACKETING SHALL BE USED.
 - THE PARAMETERS ADOPTED FOR DESIGN ARE AS FOLLOWS:

1) ANCHORAGE TYPE	13 T 13
2) SLIP AT EACH END	50mm
3) STRIP LENGTH	10mm
4) STRIP THICKNESS	10.5mm
5) COEFFICIENT OF FRICTION	0.30
6) LOSS RELAXATION	10%
7) MODULUS OF ELASTICITY	200000 N/MM ²
8) HIGH TENSILE STEEL	100000 N/MM ²
9) 100 HOURS RELAXATION	15%
10) LOSS AT 9 HOURS	15%
- ALL THE DESIGN PARAMETERS ADOPTED SHALL BE VERIFIED AT SITE.
- PRESTRESSING OPERATION:
 - CABLES SHALL BE Laid IN SMOOTH CURVES PASSING THROUGH THE GIVEN ORIGINATES AND SHALL BE SUPPORTED AT A SPACING NOT EXCEEDING 1000mm BY A TOWER OR CROSS BARS FOR UNDESIRABLE FIELD IN POSITION WITH VERTICAL VES NOT.
 - RADIUS OF CURVES SHALL BE NOT LESS THAN 100m.
 - CABLE LENGTH MEASURED BY THE DRAWING AND INCLUDING OF WITHIN EXTRA AT EACH END THE TOTAL LENGTH OF CABLE SHALL BE VERIFIED AT SITE.
 - STAGES OF PRESTRESSING SHALL BE AS FOLLOWS:
 - STAGE I: CABLES SHALL BE STRESSED WHEN VIBES AND SPLIT SLAB CONCRETE IS 14 DAYS OLD OR MORE.
 - STAGE II: CABLES SHALL BE STRESSED IN COORDINATION WITH THIS OFFICE EVEN IF THERE IS NO SHORT FALL. STAGE III: CABLES SHALL BE STRESSED AFTER LAYING OF THE TOP SLAB AND CRACK BARRELS.
 - STRESSING OF CABLES SHALL BE CARRIED OUT SIMULTANEOUSLY AT BOTH ENDS AND ALL STRANDS OF CABLES SHALL BE TENSIONED FROM BOTH ENDS. ONLY MULTIPLE JACKS SHALL BE USED FOR STRESSING.
 - CABLES SHALL BE TREATED AS UNIFORM CABLES IN CASE OF ANY SHORT FALL IN PRESTRESSING. THE LOSS OF STRANDS IN THIS CASE MAY BE SUTABLY STRESSED TO COMPENSATE FOR THE SHORT FALL.
 - CONJUGATE CABLES SHALL BE STRESSED IN COORDINATION WITH THIS OFFICE EVEN IF THERE IS NO SHORT FALL. STAGE III: CABLES SHALL BE STRESSED AFTER LAYING OF THE TOP SLAB AND CRACK BARRELS.
 - EXTENSION SHALL BE MEASURED AT 24 HOURS AFTER ANCHORING TO OBSERVE SLIP CORRECTION. THE METHOD SHALL BE DESCRIBED FOR EXCESSIVE SURFACE IF ANY.
 - EXTENSION ARE GIVEN FOR HALF CABLE LENGTH INCLUDING OF END OR GRIP LENGTH AT EACH END. LOSS UP TO 5mm DUE TO SLIP OF ANCHORAGES ARE NOT TO BE COMPENSATED DURING SITE OPERATIONS. JACK PRESSURE AND EXTENSION OF CABLES AT EACH END GIVEN IN THE DRAWING SHALL BE VERIFIED AT SITE.
 - INITIAL SLACKNESS IN CABLES SHALL BE REMOVED BY APPLYING SMALL TENSION. THE INITIAL TENSION REQUIRED TO REMOVE SLACKNESS SHALL BE TAKEN AS THE STARTING POINT FOR MEASURING ELONGATION AND CORRECTION SHALL BE APPLIED AS PER CL. 12.2.2 OF IS 13020.
 - IN CASE THE CALCULATED ELONGATION AND THE JACK PRESSURE ARE NOT ACHIEVED SHALL BE CORRECTED DURING PRESTRESSING OPERATION. STRESSING SHALL BE CONTINUED UNTIL THE LOSS IS AS PER NOTE NO. 4 GIVEN BELOW.
 - THE EXTENSION GIVEN IN TABLE NO. 2 SHALL BE MODIFIED AT SITE IN CASE ACTUAL VALUE OF AREA OF STRANDS AND MODULUS OF ELASTICITY IS DIFFERENT FROM THE VALUES ASSUMED IN THE DESIGN CALCULATION. THE CORRECTION SHALL BE CALCULATED AS UNDER:

$$\text{EXTENSION} = \frac{E \times A \times L}{P}$$
 - EXTENSION OF CABLES SHALL BE VERIFIED FOR 1720 CABLES AT SITE. IN CASE OF VALUE OF U AND A ARE FOUND TO BE DIFFERENT FROM THE ASSUMED VALUES, EXTENSION SHALL BE SUTABLY MODIFIED AFTER APPROVAL OF ENGINEER-IN-CHARGE.
 - THE GRIP LENGTH FROM ANCHORAGE FACE UP TO CENTER POINT IN JACK SHALL BE SUTABLY MODIFIED AFTER APPROVAL OF ENGINEER-IN-CHARGE.
 - IN CASE GRIP LENGTH VARIES THEN THE CORRECTION SHALL BE CALCULATED AS UNDER:

$$\text{CORRECTION} = \frac{E \times A \times L}{P}$$
 - IN CASE GRIP LENGTH VARIES THEN THE CORRECTION SHALL BE CALCULATED AS UNDER:

$$\text{CORRECTION} = \frac{E \times A \times L}{P}$$



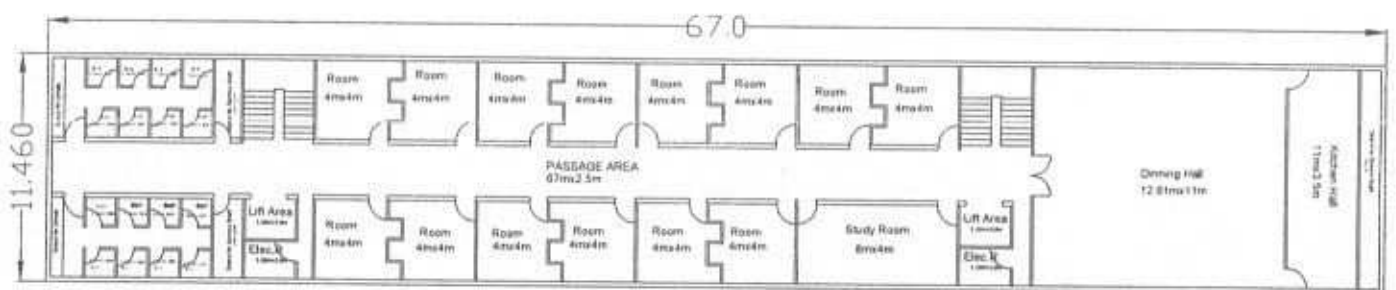
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Estimated Cost for creation of hostel facility based upon CPWD plinth area rate 2021							
SL. No	Description	Unit	Rate as per plinth area rates as on 01-04-2021			PAR,Item code	Remarks
			Area	Rate	Amount		
1	RCC framed structure(upto six storeys) (floor height = 3meters)	sqm	3839	20685.00	7,94,09,715.00	1.1.2	
2	Every 0.3 metres or part thereof, additional/less height over normal plinth height of 0.60 meter/3.00 meter (on areas having additional/less height).	sqm	768	3700.00	28,41,600.00	1.3.2	Height of floor considered is 3.6 meters.Rate(Rs.370per floor for 0.3 mtrsX5floor*2=3700)
3	RCC raft foundation (on ground floor area only).	sqm	768	10700.00	82,17,600.00	1.3.6	Maximum 5 storey has been considered.So,ground floor area=3839/5=768 sqmt
Fire Fighting						1.5	
4	Downcomer System with wet riser	sqm	3839	800.00	30,71,200.00	1.5.2	
5	Manual fire alarm system.	sqm	3839	250.00	9,59,750.00	1.6.1	
Services (percentage below refers to the percentage of building cost as per 1.0 above)						2.0	
6	Internal water supply & sanitary installations.	@ 8% of building cost			63,52,777.20	2.1	
7	Civil external service connection	@ 1.25% of building cost			35,520.00	2.2.2	
8	Internal electric installations.	@ 12.5% of building cost			99,26,214.38	2.3	
Extra For						2.4	
9	Lightening conductors	@ 0.25% of building cost			198524.2875	2.4.2	
Lifts with power operated centre opening doors and AC variable voltage & variable frequency controls						3.0	
Passenger lifts.						3.1	
10	13 Passengers	2Nos.		20,00,000.00	40,00,000.00	3.1.3	
RCC Water Tank						4	
11	Overhead tank without independent staging	100000 ltrs.		20/ltrs.	20,00,000.00	4.1	
Development of site							
12	Levelling		800	300.00	2,40,000.00	5.1	Plinth area of building=768+ some extra area has been considered.
13	Internal road with pavement with vacuum dewatered concrete. cement concrete		600	2040.00	12,24,000.00	5.2.3	100 metres length of the road with 3m width has been considered.
14	Footpath with PCC base, 60 mm thick paver block and kerb stone edging.		300	2600.00	7,80,000.00	5.2.4	100 metres length with 1.5 m wide footpath has been considered.
15	External sewerage	1000 mtrs.		3350.00	33,50,000.00	5.3	
Filter water supply.							
16	Distribution line upto 100 mm dia.	1000 mtrs		1700.00	17,00,000.00	5.4.1	
17	Peripheral grid 150mm to 300mm dia pipes.	100 mtrs		3600.00	3,60,000.00	5.4.2	
18	Unfiltered water supply distribution line	100 mtrs		1330.00	1,33,000.00	5.4.3	
19	Storm water drains	100 mtrs		8920.00	8,92,000.00	5.5	
20	Rain water harvesting (RWH)	100 mtrs		3350.00	3,35,000.00	5.6	

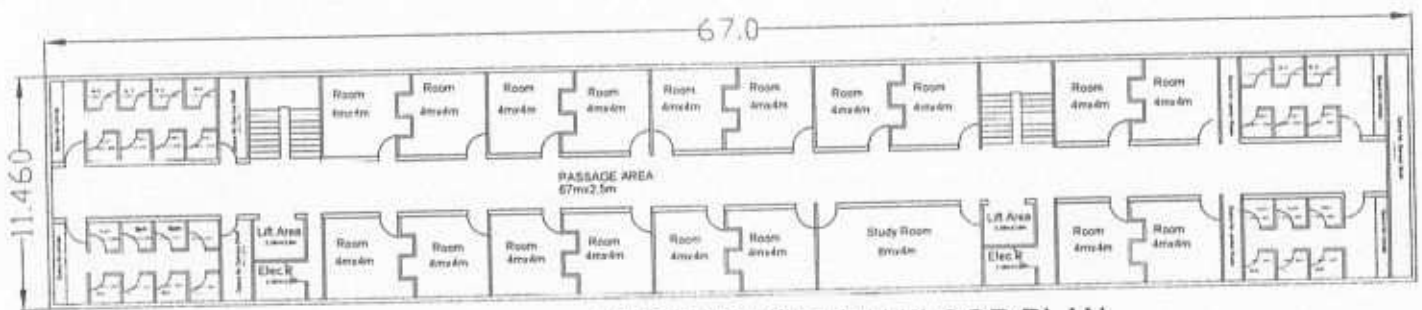
SL. No	Description	Unit	Rate as per plinth area rates as on 01-04-2021			PAR,Item code	Remarks
	Boundry wall with 15mm high wall and 600mm high Msgrill including 2100mm high steel gates at every 100 meter					5.8	
21	Precast RCC wall in M40 grade concrete comprising of I shaped 250*230mm RCC post fixed in ground and 70mm thick RCC wall panel inserts	250mtrs		8050.00	20,12,500.00	5.8.2	
22	Horticulture operations including 300mm earth filling, grassing, tree plantation/shrubs and potted plants etc.		800	275.00	2,20,000.00	5.9.1	Plinth area of building=768+ some extra area has been considered.
SPECIALISED E&M WORKS						6.0	
33kV Receiving Substation and 33kV/11kV HT Cabling						6.1	
23	Supply, installation, testing and commissioning of 33kV substation comprising 33kV HT panel, trasnsformers 33kV/11kV, 11kV HT panel, interconnections, 11kV HT under ground cabling to the diistribution substations on ring main system, substation earthing, substation safety equipment.	250 kVA		3500.00	8,75,000.00	6.1.1	
Sub-station Equipment						6.2	
24	Supplying, installation, testing and commissioning of 11kV/0.433 kV substation equipment comprising HT panel, dry type/ oil type transformers, HT cable, bus trunking from transformer to LT panel, LT panels, automatic power factor correction panel, active harmonics filter TVSS, SPD, essential panel, earthing, required interconnections, sustation safety equipments including LT cabling fron substation to the building fed by substation.	250 kVA		9000.00	22,50,000.00	6.2.1	
GENERATING SETS						6.3	
25	Supplying, installation, testing and commissioning of DG sets, AMF pance, bus ducting/ cables from DG sets to essential panel, DG set enclosure room sound insulation/ ventilation. Smoke exhaust as required, earthing of DG set system, control cabling, fuel tank/ ppping, DG set exhaust piping. exhaust chimney as per CPCB norms, civil works connected with DG sets including foundation as required.	65 kVA		10000.00	6,50,000.00	6.3.1	
26	Extra for synchronizing panels wherever required	65 kVA		1000.00	65,000.00	6.3.2	
LAN SYSTEM							
27	Supplying, installation, testing and commissioning of LAN system commissioning of LAN system comprising of core switches & L2 switches with 10 g, 10 giga SFP modules, WIFI access points, WIFI controller, network management software, racks, CAT 6 A cable, patch panels, OFC etc. (Rate applicable on plinth area excluding service/ common areas).		3839	500.00	19,19,500.00	6.16.1	500 per sqm
Street lighting with LED						6.19	

SL. No	Description	Unit	Rate as per plinth area rates as on 01-04-2021			PAR,Item code	Remarks
28	Supplying,installation,testing and commissioning of LED street/compund/high mast/aphway/landscape lighting for the entire campus(Rate applicable on total plt area).		768	150	1,15,200.00	6.19.1	
	STP/ETP Plant						
29	Supplying,installation,testing and commissioning of STP/ETP of appropriate technology including civil works(except plant room),tertiary treatment etc. for the building/campus					6.20	
30	Plant size upto 50KLD	50KLD		75,000.00	37,50,000.00	6.20.1	
31	Furniture & Misc.Expenses				40,00,000.00		
	Total				14,18,84,100.86		



GROUND FLOOR PLAN

DETAIL (Ground Floor-67m x 11.46m)			
Sr No	Description	Unit	Quantity
1.0	Room (4m x 4m)	Nos	14
2.0	W.C. (1.5m x 2.5m)	Nos	08
3.0	Kitchen (1.5m x 2.5m)	Nos	02
4.0	Study Room (8m x 4m)	Nos	01
5.0	Dining Hall (12.81m x 11m)	Nos	01
6.0	Kitchen (1.5m x 2.5m)	Nos	01



FIRST TO FOURTH FLOOR PLAN

DETAIL (Each Floor 67m x 11.46m)

Sr. No.	Description	Unit	Quantity
1.5	Room (4m x 4m)	nos	10
2.0	WC (1.5m x 2m)	nos	10
3.0	Study Room (8m x 4m)	nos	10
4.0	Study Room (8m x 4m)	nos	01

Annexure-D**Academic Governance of IIT Mandi**

This Institute firmly supports an academic environment where knowledge freely crosses disciplinary boundaries. The Institute has a goal of fostering an interdisciplinary academic culture and utilising the benefits of this strategy in its teaching and research endeavours. IIT Mandi had four schools, the School of Engineering, School of Humanities and Social Sciences, School of Basic Sciences, and School of Computing and Electrical Engineering, to support multidisciplinary culture and encourage free flow of ideas across disciplines.

In view of smooth administrative management with growing faculty and students' strength, BOGs have approved the following nine schools in the previous meeting. In order to keep interdisciplinary academic culture, this proposal recommends following units as 1. Schools, 2. Interdisciplinary research Centres, and 3. Facility centres at IIT Mandi.

There major roles and responsibilities are mentioned below.

SCHOOLS	
GOALS:	Excellence in teaching and research of specialized disciplines. Technology leadership in select areas. Streamline course offerings across various academic units in the institute.
Schools:	<ol style="list-style-type: none"> 1. School of Computing and Electrical Engineering (SCEE) 2. School of Humanities and Social Sciences (SHSS) 3. School of Civil and Environmental Engineering (SCENE) 4. School of Mechanical and Materials Engineering (SMME) 5. School of Physical Sciences (SPS) 6. School of Chemical Sciences (SCS) 7. School of Mathematical and Statistical Sciences (SMSS) 8. School of Biosciences and Bioengineering (SBBE) 9. School of Management (SM) 10.
Role and Responsibilities	Managed by School Chairperson Own specialized UG, PG and PhD programs. Offer all requisite courses as per the requirements of owned UG/PG/PhD programs Host core and affiliated faculty
INTERDISCIPLINARY RESEARCH CENTRES	
GOALS:	Foster interdisciplinary research. Focused on solving pressing societal problems. Breaking down school barriers & bringing together faculty from diverse disciplines.
Research Centres	<ol style="list-style-type: none"> 1. IKSHMA 2. Robotics and AI 3. 4.....5.....
Role and Responsibilities	Managed by Centre Chairperson Own PG and PhD programs. Offer all requisite courses as per the requirements of owned PG/PhD programs. Host core and affiliated faculty.

	Support UG programs Desirable to affiliate each faculty member with atleast 1 centre to foster Interdisciplinary research
FACILITY CENTRES	
GOALS:	Create a one-stop shop for researchers and faculty
Centres	<ol style="list-style-type: none"> 1. BioX Center (BioX) 2. Advanced Materials Research Center (AMRC) 3. Center for Design and Fabrication of Electronic Devices (C4DFED) 4. Center for Continuing Education (CCE), 5.....
Role and Responsibilities	<p>Managed by Coordinators</p> <p>Raise fund for maintenance and operations</p> <p>Cannot own Academic programs</p> <p>Will only have affiliated faculty from Schools and Interdisciplinary Research Centres.</p>

Indian Institute of Technology Mandi
Mandi, Himachal Pradesh



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मण्डी, हिमाचल प्रदेश

No. IIT Mandi/28th BoG/2019/

Date: 09.01.2020

To

Dean (Faculty)
IIT Mandi

Dear Sir,

Please see below extract of Minutes of the 28th Board meeting held on 13th December, 2019 vide item no. 28.2.4 duly approved by the Chairperson, BoG for your kind information and further necessary action

[Signature]
09/01/2020
(K. K. Bajre)
Registrar

Copy to:

1. Sr. Superintendent (Faculty Estb. & Admn.), IIT Mandi

Item No.:

BoG-28.2.4

To consider the Recruitment and Performance Review process of Faculty members.

The process followed by the Institute for the recruitment and performance review of faculty is well structured. Since inception of the Institute, the process has been very successful in hiring of faculty and in nursing their academic growth. The Board of Governors had approved major aspects of these processes.

Dr. Tulika P. Srivastava presented the recommendations of the Committee comprising Dean (Faculty), Associate Dean (Faculty) and Chairperson, School of Computing and Electrical Engineering regarding detailed recruitment and performance review of faculty. The BoG also noted the comments of MHRD vide letter no. 16-8/2019-T.S.1 dated 11th December, 2019.

After due deliberations, the Board noted the same and resolved to approve the proposed policy on the Recruitment and Performance Review process of Faculty members. Further, the Board approved, for Assistant Professor and Associate Professor, School Chair will be a member, if occupying a post higher than that of selection being made. Else, a senior faculty from School or other School in place of School Chair shall be a member of the Selection Committee. The Board

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[Signature]
14/1/2020



also approved to authorize the Director, as the Chairman of the Selection Committees to invite up to two experts over and above than prescribed in Section 17.5 of the Statutes from the approved panel of the experts. These experts would also participate in final recommendations. Refer Annexure – 1 & 2; Page 1 to 6.

Faculty Performance Review Process

The main objectives the Performance Review to nurse academic career of the faculty, to ensure that a faculty excels in his/her chosen discipline and to share the expectations of the Institute. The present process of review for Assistant Professor is well structured and has served well Associate Professors also. Therefore, it is proposed to have review process approved by the BOG for entire Faculty cadre.

These reviews are also requirement for service related matters such as Probation Confirmation, Service Regularization, Placement in higher pay level etc.

Detailed steps are as follows:

- Performance review of Assistant Professor, Associate Professor and Professor or equivalent positions be done annually, biennially and triennially, respectively.
- There are several dimensions on which performance is reviewed. Four major dimensions are teaching, research (including research guidance and funding), contributions to Institute building & Instt. Services. All faculty and persons in similar positions are expected to excel in at least two of these dimensions and to perform good in others.
- Few other dimensions for performance review include Industry Interaction, Contributions to Government/Policy bodies, Social activities, Professional bodies and Nurturing of other educational Institutions. These dimensions are optional, though it is expected from Faculty member that they would normally be active in some of these also as their career advances.
- The proportion of responsibilities of each Faculty member will depend upon the needs of the Institute, interests and capabilities of concerned Faculty member and will be dynamic in nature.
- Faculty is required to submit Self-Assessment report in a prescribed format. This Self-assessment report has two parts. Part-A is for achievements already made and Part-B is for the future plans. This assessment report forms the basis of the interaction during performance review.
- An introductory review meeting is to be held within 3 months of joining of a Faculty in the institute. The primary purpose of this interaction is to share institute's vision, mission, and immediate expectations and to know faculty immediate teaching and research plans. The Committee may give its advice in the context of proposed teaching and research plans.
- These Performance Reviews may also be required for service related matter

and may be synchronized accordingly.

- Following compositions are proposed for the Periodic Review Committees:

S. No.	Review Purpose	Committee Composition
1.	New Faculty Interaction Meeting	<ul style="list-style-type: none"> • Director, (Chairperson) • Chairperson of concerned School(s) (Member) (If the post for which review is being made is same or lower in status than that held by School Chairperson) • Professor/Associate Professor (Member) (If the post for which review is being made is same or lower in status than that held by member) • Invited member(s) of any designation, (optional) if desired by the Chairperson. <p>✓ Dean (Faculty) is authorized to constitute the Review Committee.</p>
2.	Periodic Review Meeting	

- Following compositions are proposed for the Review Committees for service related matters of Faculty members:

S. No.	Review Purpose	Committee Composition
1.	Review for Probation Confirmation	<ul style="list-style-type: none"> • Director, (Chairperson) • Chairperson of concerned School(s) (Member) (If the post for which review is being made lower in status than that held by School Chairperson, alternatively: Senior Faculty from School or other School). • Professor/ Associate Professor (Member) (If the post for which review is being made is same or lower in status than that held by member) • Invited member(s) of any designation, (optional) if desired by the Chairperson. <p>✓ Dean (Faculty) is authorized to constitute the Review Committee.</p>
2.	Review for movement to next pay level	
3.	Review of Assistant Professor / Associate Professor / Professor on Contract (to be regularized through internal committee) Review Committee is empowered to recommend the extension or termination or regularisation of contract.	
4.	Assistant Professor/Associate Professor/Professor on Contract (to be regularized through selection committee) Review Committee is empowered to recommend the extension of contract.	

- Following is proposed for the regularization of Assistant Professor Grade II (on contract) to Assistant Professor Grade I:

S. No.	Review Purpose	Committee Composition
1	Review for regularization of Assistant Professor Grade II	<ul style="list-style-type: none"> • Director, (Chairperson) • Chairperson of concerned School (Member) (If the post for which review is being made lower in status than that held by School Chairperson, alternatively; Senior Faculty from School or other School). • Member from the School (nominated by ISC) (Member) (If the post for which review is being made is same or lower in status than that held by member) • Member of the ISC (Member) (of any academic designation) • External expert from a panel of subject experts submitted by the above member from the School (Member)(of any designation) <p>Director/Dean (Faculty) is authorized to constitute the Review Committee. ✓</p>

Based on the performance review meeting process the outcome will be shared by the Chairperson to Faculty members during and after the meeting through appropriate means/channel.

Notwithstanding anything contained in above Performance Review process of Faculty members shall restrict any provision given in Statutes.

x-----x

Indian Institute of Technology Mandi
Mandi, Himachal Pradesh



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मण्डी, हिमाचल प्रदेश

No. IIT Mandi/32nd BoG/2021/

Date: 04.05.2021

To

✓ Dean (Faculty)
IIT Mandi

Dear Sir,

Please see below extract of Minutes of the 32nd Board meeting held on 31st March, 2021 vide item no. 32.2.3 for your kind information and further necessary action.

all 13/05/21
(K. K. Bajre)
Registrar

Item No.: To consider the guidelines for appointments of Honorary/
BoG-32.2.3 Visiting/Adjunct/Distinguished/Emeritus/Joint Faculty Members.

Prof. Prem Felix Siril, Dean (Faculty) and Member of the Board made a presentation on the proposed guidelines for appointments of Honorary/ Visiting/ Adjunct/ Distinguished/ Emeritus/ Joint Faculty Members. After detailed deliberation, the Board advised the following:

- 1) The Ad-hoc Faculty Selection Committee be called as Standing Faculty Selection Committee.
- 2) The Director would Chair the Standing Faculty Selection Committee (not his nominee).
- 3) In addition, Professors/Associate Professors of practice be added to the list of other than regular faculty members.
- 4) Salary range should be revised by the Board from time to time.
- 5) Introduce the position of Emeritus Professor.
- 6) The position of Professor Emeritus (Honorary) from this agenda may be dropped to avoid confusion from the list, since it has already been approved by the Board in its 27th meeting held on 05.10.2019 vide item no. BoG-27.2.4.

The Board resolved to approve the proposal, after incorporating the suggested modifications, as enclosed at Annexure - 1.

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No. IIT Mandi/32nd BoG/2021/

Date: 04.05.2021

To

✓
Dean (Faculty)
IIT Mandi

Dear Sir,

Please see below extract of Minutes of the 32nd Board meeting held on 31st March, 2021 vide item no. 32.2.4 for your kind information and further necessary action.


(K. K. Bajre)
Registrar

Item No.:
BoG-32.2.4

To report the discrepancy in the terms and conditions of appointment of Dr. Bhaskar Mondal, Assistant Professor, School of Basic Sciences.

Prof. Prem Felix Siril, Dean (Faculty) and Member of the Board presented the item. After detailed deliberations, the Board resolved to approve issuance of corrigendum in the offer letter and joining report in respect of Dr. Bhaskar Mondal. The Board was apprised that administrative restructuring is being done to avoid such a situation in future.

255

DATE 11-0-21

Guidelines for Appointments of Honorary/Visiting/Adjunct/Distinguished/Emeritus/Joint/
Practice faculty members

Reference: IIT Mandi Statute No. 18 (1), (2), (3)

- (1) Chair Professors, Joint Faculty, Adjunct Faculty, Distinguished Faculty, Honorary Professor, and Visiting Faculty appointments - The Institute may create Chair Professorship(s) which may be funded partially or fully from the Institute's own resources or from the funds received from donations.
- (2) The Institute may make joint appointments of faculty who could share his or her time along with another Institution within or outside the country either for research or for teaching or both, on such terms and conditions as the Board may in each case decide. In the case of a foreign faculty member, the terms and conditions of appointment shall be subject to the guidelines of the Government of India.
- (3) The Institute may from time to time appoint honorary, distinguished, adjunct faculty and visiting faculty at different levels keeping in view the needs of the Institute and the availability of such persons as are considered necessary. The Board shall frame guidelines relating to these appointments from time to time."

In addition to the positions mentioned in the Statutes, based on the input from IIT Council, additional designation of Professor/Associate Professor of Practice is also being proposed along with the position of Emeritus Professor which is prevalent in most IITs.

Based on the need of the School/Institute and the availability of such persons through nominations, invitations, applications such appointments may be considered. The purpose of such appointments may include internationalization or increasing industry-Institute interaction. The detailed process for handling the selection is as follows:

Step 1: The Chairperson of the concerned school may consult faculty members of the school/Program Faculty Group (PFG) Chair(s) and recommend the CV(s) of potential candidates to the Dean Faculty.

Step 2: The Dean Faculty would further examine the recommendation of the Chair and forward the comments to the Director along with the proposed Standing Faculty Selection Committee (SFSC).

Constitution of the SFSC may be as follows:

Director - Chair

Dean (Academics) - Member

Dean (Faculty) - Member

Chair, School - Member

The Director may decide to invite expert(s).

Step 3: The Director will constitute the SFSC. The SFSC may interview/evaluate the candidate's CV as deemed fit. Positive recommendation of the SFSC would be presented to Chair, BoG for approval which would be reported in the ensuing meeting of the Board.

Details of appointment, extension of tenure, pay, allowances and financial support for teaching and research are summarized in the below table. ●

Sr. No.	Position	Eligibility & Other Norms	Remuneration	Perks
01	Visiting Faculty*	Academicians / Faculty members / Scientists / Engineers. Engagement may be for short durations like one or two months up to a period of three years which may be extended for two more years totalling a maximum period of five years.	Consolidated Salary up to Rs.2,00,000/- p.m.	<ul style="list-style-type: none"> • Faculty Research Grant from School. • Un-furnished accommodation on payment of standard license fee, based on availability. • Relocation allowances as per the regular faculty members, if the engagement is for 3 years or more.
02	Adjunct Faculty*	Academicians/ Faculty members/ Scientists/ Engineers/ Professionals May be required to spend a few days to a few months per year at IIT Mandi.	Rs.3,000/- to Rs.6,000/- per diem	<ul style="list-style-type: none"> • Travel allowance for approved visits • Local hospitality at IIT Mandi during visits to the campus.
03	Distinguished Professor	Outstanding Academicians / Faculty members/ Scientists /Engineers Engagement may be for short durations like one or two months to a few years.	Consolidated Salary up to Rs.3,00,000/- p.m.	<ul style="list-style-type: none"> • Travel allowance for approved visits. • Faculty Research Grant from School. • Free furnished accommodation, based on availability.
04	Emeritus Professor	Outstanding Professors who super annuated from IIT Mandi and had served the Institute for at least ten years continuously on a regular position. Engagement may be initially for two years, which may be extended to a maximum of five years	Consolidated Salary up to Rs.3,00,000/- p.m.	<ul style="list-style-type: none"> • Travel allowance for approved visits. • Faculty Research Grant from School. • Free furnished accommodation, based on availability.
05	Chair Professor	For duration up to 5 years in accordance with terms of the Chair.	In specific pay Scale with additional remuneration in accordance with terms of the Chair. May also be on deputation with associated terms.	<ul style="list-style-type: none"> • Travel allowance for joining and return. • Free furnished accommodation, based on availability.
06	Joint Faculty*	Appointments of faculty who could share his or her time	Consolidated Salary up to	<ul style="list-style-type: none"> • Faculty Research Grant from School.

		along with another Institution within or outside the country either for research or for teaching or both. Positions for short durations like one to a few semesters.	Rs.2,00,000/- p.m.	<ul style="list-style-type: none"> • Un-furnished accommodation on payment of standard license fee based on availability. • Relocation allowances as per the regular faculty members, if the assignment is for 3 years or more.
07	Professor / Associate Professor of Practice	Candidates should have at least 15 years of managerial or professional experience and should have worked in senior management position such as CEO/CTO/UP/Director for at least 5 years. They should have at least a Master's degree in Engineering/ Sciences/ Humanities or a related field. PhD is desirable but not essential. However, a lack of Ph.D. must be offset by demonstrated domain knowledge, obtained from deep experience in the 'field'.	Contractual appointment on regular scale depending on experience. Initial appointment will be for three years, which may be extended based on performance.	<ul style="list-style-type: none"> • Faculty Research Grant from School. • Un-furnished accommodation on payment of standard license fee based on availability. • Relocation allowances as per the regular faculty members, if the assignment is for 3 years or more.

Other terms & Conditions

- * The post may be offered with Suffix Professor, Associate Professor or Assistant Professor.
1. Institute may assign academic administration/Institute services as and when required.
 2. May be allowed to supervise research scholars jointly as per the Senate approved norms.
 3. May be allowed to take up sponsored projects in collaboration with other colleagues of the Institute as Co-Principal Investigator.
 4. Institute as Co-Principal Investigator.
 5. Suitable office/lab space may be allocated based on availability.

Expectations from the faculty:

- ✓ To participate in overall academic environment as required by the Institute.
 - To teach some courses.
 - To collaborate and assist in R&D activities of the Institute.
 - To interact/ mentor UG/PG students

Emoluments:The emoluments will be decided and recommended by SFSC in view of credentials of candidates. The salary may be revised by SFSC annually.

Leave and Miscellaneous Benefits (Not applicable to Honorary position):There will not be any terminal benefits. The incumbents would be eligible for Earned leave @2.5 days for completed month of continuous service, besides casual leave on pro rata basis. The leave at credit would lapse on secession of service or on completion of tenure or otherwise. The Faculty would be entitled for Vacation leave. HRA will not be admissible.

Medical Benefits:

- i) OPD facility for self and dependent if the incumbent is not in receipt of OPD facility from any other organisation. In case OPD facility is being availed by incumbent from any other organisation, OPD facility may be availed by self and dependent on payment of Rs.300 per month.

ii) IPD reimbursement for Self may be considered if the incumbent is not in receipt of medical reimbursement from any other source.