दूरभाष / Tel No : (020) 24604408
फैक्स /Fax No. : (020) 24389411
वेबसाईट / Website : www.diat.ac.in
ईमेल / E-mail: registrar@diat.ac.in

उत्तर " कुलपती" को भेजे जाएं ।
Replies are to be addressed
To "The Vice Chancellor"

उन्नत प्रौद्योगिकी रक्षा संस्थान
(सम विश्वविद्यालय), गिरिनगर, पुणे - 411025
Defence Institute of Advanced Technology
(Deemed University), **Girinagar, Pune-25**
(रक्षा अनुसंधान एवं विकास संगठन से पूर्णवित्तीय पोषित
स्वायत्त संस्थान, रक्षा मंत्रालय)
(An Autonomous Organisation fully funded by
Deptt of Defence R&D, Ministry of Defence)

No. DIAT/F/ADM/32nd BoM/2023/   Dated 06th Sept, 2023

All Members of the Board of Management
Defence Institute of Advanced Technology
(Deemed to be University), Pune

> Subject: Minutes of the 32nd meeting of the Board of Management held on 22/08/2023
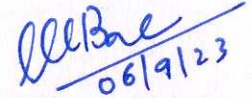
Dear Sir / Madam,

The Minutes of the 32nd BoM meeting held on 22/08/2023, approved by the Chairman, BoM is attached herewith for your perusal and comments please.

2.   It is requested that comments, if any, on these minutes may please be communicated to the undersigned by email (registrar@diat.ac.in) within one week. If no comments are received, it would be presumed that minutes as recorded are in order and further action on the implementation of the decision shall be taken accordingly.

Thanking you.

Yours faithfully,

Encl: As above.

(Kamal Kumar Bajre)
Registrar & Secretary-BoM
Ph: 020-24604408

To,

DRDO Members

1. Smt. U. Jeya Santhi, OS & DG (HR), DRDO, DRDO Bhawan, Rajaji Marg, New Delhi 110011, Telephone - 011-23016163, Fax: 011-23016127

2. Shri Vedveer Arya, Addl. FA & JS - DRDO, DRDO Bhawan, Rajaji Marg, New Delhi - 110011, Telephone: 011-23010159, Fax: 011-23016217

3. Dr. Makarand G. Joshi, OS & Director, Research & Development Establishment (RDE), Pune, R & DE (Engrs), Kalas, Alandi Road, Pune 411 015

External Members

4. Prof. Devang Khakkar, Former Director & Professor, Department of Chemical Engg, Indian Institute of Techanology Bombay, Powai, Mumbai - 400076, Email:- khakhar@iitb.ac.in

..2/-

5. Prof. B. S. Murthy, Director, Indian Institute of Technology, Hyderabad, Kandi, Sangareddy, Telangana - 502284, Email:- office.director@iith.ac.in, director@iith.ac.in

6. Prof. Madhavan Mukund, Director, Chennai Mathematical Institute, Siruseri, Kelambakkam, Tamilnadu - 603103 , Email:- madhavan@cmi.ac.in

Internal Members

1. Prof. Balasubramanian K, Dean (Academics), DIAT
2. Prof. A. Kumaraswamy, Dean (Students Affairs), DIAT
3. Prof. P. K Khanna, HoD, Deptt. of Applied Chemistry, DIAT
4. Dr. Suwarna Datar, Associate Prof & HoD, Applied Physics, DIAT

Copy to:

VC, DIAT (DU) Pune

प्रबंधन बोर्ड की बतीसवी बैठक का कार्यवृत्त

MINUTES OF THE 32nd MEETING OF THE BOARD OF MANAGEMENT

22nd August, 2023

उन्त प्रौद्योगिकी रक्षा संस्थान
(सम–विश्वविद्यालय)
गिरीनगर, पुणे – 411025

Defence Institute of Advanced Technology
Pune- 411025, Maharashtra

DEFENCE INSTITUTE OF ADVANCED TECHNOLOGY
PUNE, MAHARASHTRA

MINUTES OF THE 32nd MEETING OF THE BOARD OF MANAGEMENT

TUESDAY, AUGUST 22, 2023

ITEM NO.	Particulars
Bom 32.1	Opening Remarks by Vice Chancellor & Chairman, Board of Management
Bom 32.2	Action taken report on the decisions taken during the 31st Meeting of BoM held on 03/05/2023
Bom 32.3	Confirmation of the Minutes of the 31st Meeting of BoM
Bom 32.4	**REPORTING ITEMS**
Bom 32.5	**AGENDA ITEMS FOR DISCUSSION**
Bom 32.5.1	To consider 5-years vision document for DIAT
BoM 32.5.2	Establishment of Centre of Excellence in Advanced Nano Alloys at DIAT, funded by Ministry of Heavy Industries
BoM 32.5.3	Adoption of revised emoluments for DIAT institutional fellowship to full time PhD Scholars
BoM 32.5.4	To consider award of MSc (Defence Technology) Degree to MILIT personnel
BoM 32.5.5	Approval of DIAT Consultancy Policy
BoM 32.6	**Any other item with the permission of the Chair.**
BoM 32.6.1	Centre of Excellence – cryptanalysis
BoM 32.6.1	Upgradation of DATA Centre servers

DEFENCE INSTITUTE OF ADVANCED TECHNOLOGY

Minutes of 32nd Meeting of the Board of Management held on 22nd August, 2023 from 14:30 hrs. in the 4th Floor Conference Room, DIAT, Pune.

The following were present:

1)	Dr. C.P. Ramanarayanan Chairperson, BoM DIAT	Chairperson
2)	Prof. Devang Khakkar Former Director, IIT Bombay & Professor IIT Bombay	Member
3)	Prof. B. S. Murthy Director, IIT Hyderabad	Member
4)	Prof. Madhavan Mukund Director, Chennai Mathematical Institute	Member
5)	Dr. Makarand Joshi Director, R&DE Engg, Pune	Member
6)	Prof. Balasubramanian K. Dean (Acad), DIAT(DU)	Member
7)	Prof A. Kumarswamy Dean (Student Affairs), DIAT(DU)	Member
8)	Prof. P. K. Khanna Prof. & HoD, AC, DIAT(DU)	Member
10)	Dr. Suwarna Datar Asso. Prof. & HoD, AP, DIAT(DU)	Member
11)	Prof. Sangeeta Kale Director (P&C), DIAT(DU)	Invitee
12)	Prof. S.K. Panigrahi Dean (Sponsored Research), DIAT(DU)	Invitee
13)	Dr. Bhaskar Majumdar Sc 'G', Dept of M&ME, DIAT(DU)	Invitee
14)	Dr. Vidya K. Gargote Finance Officer, DIAT(DU)	Invitee
15)	Prof. Shaibal Banerjee Director, SDT, DIAT(DU)	Invitee

16)   Dr. Manisha Nene   Invitee
       Director, SOCE&MS, DIAT(D)

17)   Shri Kamal Kumar Bajre   Secretary
       Registrar, DIAT

Leave of absence has been granted to the following:

1)   Smt. U. Jeya Santhi   Member
      DG, HR, DRDO

2)   Shri Vedveer Arya   Member
      Addl. FA(SM) & JS, DRDO

The Chairperson welcomed all present at the meeting.

Item No. 32.1:   **Opening Remarks by Vice Chancellor & Chairman, Board of Management.**

At the outset, the Chairman, BoM welcomed all members in particular, newly joined three Eminent Academicians nominated by Hon'ble RM and Chancellor, DIAT:

i)   Prof. Devang Khakar, Former Director, IIT Bombay and Professor,Department of Chemical Engineering
ii)   Prof. B. S. Murthy, Director, IIT Hyderabad
iii) Prof. Madhavan Mukund, Director, Chennai Mathematical Institute.

The Chairman observed that the members are par excellence academicians and most renowned in their respective fields and he is delighted to have such an esteemed panel on BoM. He sought their blessings and guidance to achieve the aims and objectives of the institute.

Further, the Chairman, heartily welcomed Smt. U. Jeya Santhi, newly appointed DG-HR, DRDO and Chancellor's nominee and Dr. Makarand Joshi, OS & Director, R&DE Engg.

The Chairman also placed on record the valuable contribution and support by the outgoing members of BoM.

He further, placed on record the continuous support and guidance of BoM members that DIAT secured 57th rank in NIRF ranking and next year aims to be within 50, subsequently sets goal for 25 and first 10 rankings.

Thereafter, the agenda items were taken up as follows:

Item No. 32.2   Action taken report on the decisions taken during the 31st Meeting of BoM held on 03/05/2023.

Agenda Points	Agenda points discussed	Decision	Progress / Action taken
Item No. 31.5.1	Approval of the MTech, M.Sc. and Ph.D. Results of the Academic year 2021 - 23	After detailed discussion, the BoM RESOLVED to approve the M. Tech, M. Sc. and Ph.D. results of the Academic Year 2021– 23 as per the Annexure-31.5.1 under the clause 11.6 (xi) of the institute.	Degrees awarded in the 12th Convocation held on 15/05/2023
Item No. 31.5.2	Approval of the Audited Accounts of the Institute for the F. Y. 2022 - 23	The BoM Resolved to approve the Audited Accounts of the Institute for FY 2022 -23, with the following remarks: a) Surplus income from Hostel be transferred to Institute corpus funds for future requirement of the Institute. b) Efforts should be made for early settlement of advances disbursed on account of institute civil works c) In addition to the fixed deposits, options to be explored for better returns.	a) Action in process, will be done in the Annual Accounts of 2023-24. b) Reminders sent to CCE(W) / MES through EWO c) Noted for compliance in F&A
Item No. 31.5.3	Policy for utilization Institute Scientific Instruments and facilities by other Organisations /users	The BoM appreciated the proposal. After detailed deliberations, the BoM RESOLVED to approve the draft policy document for **utilization of institute Scientific Instruments and facilities by other organizations / users as per Annexure- 32.5.3**, with following remarks: a) A detailed Standard Operating Procedure (SOP) to utilize the institute scientific equipment by other organizations / users may be prepared. A clause for provision of insurance in the event of any accidents while utilizing scientific instruments may also be provided. The calibrations of the institute scientific instruments to be done at the frequent intervals and adequate protection to be taken care while operating the high-end scientific equipment. b) Discounts for startup companies / incubation centers is not required. Startups or incubation centers located within the campus only may be provided discount. c) Institute students may not be charged except when they are deployed on projects.	Action completed
Item No. 31.5.4	To consider 5-years vision documents for DIAT	The BoM decided that the vision document may be circulated among the members for detailed review/ suggestion and matter be considered in the next BoM	Being presented in 32nd BoM (Previous agenda of 31st BoM)

While reviewing the Action Taken Report of agenda Item No: 31.5.3, the Board of Management advised that all Scientific Instruments and facilities of the institute should be uploaded on ISTEM https://www.istem.gov.in/ web portal for effective utilization by a larger community of academia. Revenue credited under the scheme should be used for upkeep of the equipments.

The BoM **noted** the action on the decisions taken in 31st BoM meeting as above.

[Action: Prof. S.N. Kale]

| Item No. 32.3 | To confirm the minutes of the 31st meeting of the Board of Management held on 03/05/2023 |

It was noted that the minutes of 31st meeting of the Board of Management (BoM) held on 03/05/2023 have been circulated and no comments have been received. Therefore, the minutes of 31th meeting of the Board of Management (BoM) meeting held on 03/05/2023 was **confirmed,** as circulated.

| Item No.32.4: | **Reporting Items:** |

I. APPROVALS

Following decision / action taken by the Chairman, BoM on behalf of BoM are submitted for ratification of BoM.

a) The Chairman, BoM has approved opening of two ICICI bank accounts for creation of Letter of Credit for GeM Pool Account.

b) The Chairman, BoM has approved SBI Cash Management Product Service transactions limit Rs. 400 lakhs from Rs. 100 Lakhs for all DIAT Grant in Aid Account, Sponsored Project Account, Hostels Account and Fee Collect Account.

c) The Chairman, BoM has approved collection of Hostel fees through SBI Collect Platform so as to ease of payment receipts from students.

d) The Annual Report-2022-23 approved by the Chairman, BoM has been forwarded to DRDO HQ for onward submission to the Parliament of India.

e) The recommendation of the Chairman, BoM has been approved by the Secretary DD(R&D) & Chairman, Governing Council DIAT to waive off M.Tech course fee, (except caution deposit and alumni fee) for sponsored Service officers. This shall be implemented from the next Academic Year.(2024 - 25) .

BoM while reviewing the above approvals advised the following:

i) Administration of waiver of fees to Service Officers for M. Tech programme be in such manner so as to appear that the fee is there.

However, they are exempted / reimbursed on special consideration as a defence personnel.

ii) BoM further recommended the fee exemption as above may also be extended to self-sponsored service officers.

iii) The BoM still further recommended that exemption may be extended to Ph.D / M.Sc. courses also in respect of Service Officers.

[Action: Dean (Acad)]

II. APPOINTMENTS

SN	Name	Designation	Date of Appointment	Dept	Remarks
1.	Mr. Akash Uthale	Assistant	24.07.2023	HMC	
2.	Dr. Shweta Saxena	Scientist 'F'	17.07.2023	Applied Chemistry	On Deputation from DIHAR, DRDO
3.	Dr. Shanmugasundaram T	Associate Professor	01.08.2023	M&ME	
4.	Dr. Amrita Kaurwar-Nighojkar	Assistant Professor	04.08.2023	Tech. Mgmt.	
5.	Dr. Nikhil A. Bhave	Assistant Professor	09.08.2023	School of E&E Systems	
6.	Dr. Hari Om Verma	Assistant Professor	-	Aerospace Engg	Expected to join on 28/08/2023
7.	Dr. Rahul Yadav	Assistant Professor		School of E&E Systems	Expected to join on 03/10/2023

III. PROMOTION

a) Dr. Sumathi Sidharth has been promoted as Associate Professor (Academic Pay Level-13A) w.e.f. 18/05/2023 under CAS.

IV. EXTENSION OF CONTRACT

b) The contract term of Dr. Jitendra Ingole, MD (Medicines) has been extended for a further period of one year w.e.f. 25/05/2023.

c) The contract term of Dr. Arti Suryvawanshi, MBBS has been extended for a further period of one year w.e.f. 15/06/2023.

d) The contract term of Shri Rajan S. V. as Consultant (on contract) at CTP has been extended for a further period of one-year w.e.f. 08/06/2023

e) The contract term of Shri Sanjeev Kumar Saini as Consultant (on contract) at CTP has been extended for a further period of one-year w.e.f. 01/07/2023

V. ACHIEVEMENTS / AWARDS / RECOGNITIONS

a) DIAT has achieved 57th rank in Engineering category in NIRF 2023.

b) Professor C.R.S. Kumar, School of Computer Engineering & Mathematical Sciences (SoCE&MS) of DIAT, Pune has been nominated as fellow of the British Computer Society (BCS), UK.

c) A team of 2nd year M.Tech students of Department of Aerospace Engineering won the 1st prize in the competition of National Aerospace Conceptual Design Competition (NACDeC) organized by Aeronautical Society of India

d) Following patents / provisional patents have been granted since the last BoM to till date:

Sr. No.	Patent No. & Date	Patent Title	Inventors
1	Patent Appn. No. 437134	A Method of Trust evaluation by a Node by itself	Dr Manisha J. Nene & Gp.Cpt S Sundeep Desai

VI. WORKSHOP / TRAINING PROGRAMME

a) A team of 2nd year M.Tech students of School of Computer Engineering and Mathematical Sciences has been shortlisted in the Cyber Suraksha Hackathon at New Delhi being organized by KAVACH-2023 (AICTE along with Bureau of Police Research and Development (BPR&D) (MHA) and Indian Cybercrime Coordination Centre (I4C) (MHA).

VII. PROJECTS THE INSTITUTE HAS UNDERTAKEN SINCE LAST BOM :

Sr. No.	Type of Project	Sanctioned	
		No. of Projects	Amount (in lakh)
1	Research Projects	06	108.2

PROJECT DETAILS

Sl. No.	Project Title	Name of PI & Co-PI	Duration of the Project	Name of Dept/ School	Grant in Lakhs	Funding Agency
1	Thermal Barrier Coatings with Enhanced Radiation Rejection Performance: Computational Design to Prototype Fabrication	Prof. R K Satapathy - PI Dr. Fiyanshu Kaka - Co-PI	01 Year	Aerospace Engg	₹ 7.85	DIAT

2	Machine Learning and Experimental Validation for Fabricating Hybrid Battery Type Supercapacitor	Dr. Himanshu Panda - PI	02 Years	Metallurgical & Materials Engg	₹ 9.98	DIAT
3	Development of Functionally Graded Adhesive Material for Defence Applications	Dr. Sunil Nimje - PI Prof. S K Panigrahi - Co-PI	02 Years	Mechanical Engg	₹ 9.98	DIAT
4	Numerical Investigation of flow separation control for laminar (Incompressible & Isothermal) air flow over a step	Dr. Pankaj Nadge- PI	1.5 Years	Mechanical Engg	₹ 9.58	DIAT
5	Transition Metal Oxides (TMOs) as charge injection layer for enhanced performance of Spin-Organic Spin-Organic Light Emitting Diode (S-OLED) and Organic Spin-Valves (OSVs)	Dr. Suwarna Datar - Mentor Dr. Vaishali Pathak Londhe- RA	03 Years	Applied Physics	₹ 26.16	DST (Woman Scientist)
6	Aerodynamic Characterization of Grid Fins in Subsonic Regime	Dr. Ajay Misra - PI Dr. Ganpati Joshi - Co-PI	03 Years	Aerospace Engg.	₹ 44.65	DRDO (ARMREB)

VIII.   STUDENTS STRENGTH, AT A GLANCE

M. Tech (Academic Year 2023-25)

Army	Navy	Air force	DRDO	ICG	Scholarship	Total
13	10	10	10	03	* 94	140

* Subject to physical reporting at the Institute. May change after CCMT NSR Result Declaration.

PHD / MS [BY RESEARCH] STRENGTH

PROGRAM	2023
PhD	35
MS	00

32.5   **AGENDA FOR DISCUSSION:**

32.5.1   **To consider 5-years' vision document for DIAT**

Prof. S. N. Kale, Director (Policy and Planning) briefed about the 5-years' vision document for DIAT which was presented during the last BoM (31st) vide item No.31.5.4. As decided therein the proposed 'Vision document of DIAT' was circulated among the BoM members for review / suggestions. The BoM noted that no comments were received.

The BoM appreciated the proposal. After detailed deliberations, the BoM **RESOLVED** to approve the 5- year vision document **as per Annexure- 32.5.1**, with following inclusions:

     a) Provision of Faculty Development Programme which includes, strengthening of faculty numbers, attracting better faculty and nurturing them.
     b) Road map to be a top-ranking Institute in NIRF.

[Action: Prof. S. N. Kale]

32.5.2   **Establishment of Centre of Excellence in Advanced Nano Alloys at DIAT, funded by Ministry of Heavy Industries.**

Dr. B Majumdar, Sc 'G'(On Deputation), made a brief presentation on the aforesaid subject as per **Annexure-32.5.2** and the proposal in brief is as under:

DIAT, as 'Principal Investigating Organization (PIO)' along with M/s Vikarsh Nano Technology and alloys Pvt Ltd, Pune, the 'Industry Partner (IP)' have jointly submitted a detailed project report (DPR) entitled "Centre of Excellence for Manufacturing Nanocrystalline Advanced Soft Magnetic Alloys and Ribbons using a Vacuum pressurized Planar flow Casting method" to the Ministry of Heavy Industry, Govt of India under the scheme for 'Enhancement of Competitiveness in the Indian Capital Goods Industry Phase-II'.

Through this Industry-Academia interaction, both PIO and IP will work together for establishing a laboratory to carry out research activities on developing high saturation ultra soft magnetic materials for high frequency applications and developing a process flow sheet for producing these alloys in 200 kg batch size using a vacuum planar flow casting technology. If the project is sanctioned, the industry partner is keen to erect a structure of around 5000 square feet area for housing the equipment's/Lab space under the project funded by Ministry of Heavy Industries (MHI). The pre-fabricated structure shall be build on the campus of DIAT.

The BoM appreciated the proposal. After detailed deliberation, the BoM **RESOLVED** to establish Centre of Excellence in Advanced Nano Alloys at DIAT on sanction of project by the Ministry of Heavy Industry.

The BoM further considered the proposal of Institute Partner to erect a structure of around 5000 square feet area for housing the equipment's / Lab

space and advised that the structure should be compatible with existing infrastructure including power, water, and sewage system.

With above advised BoM further resolve to recommend the following for approval of Chairman, Governing Council:

Permission may be accorded to M/s Vikarsh Nano Technology and Alloys Pvt. Ltd., Pune, the 'Industry Partner (IP)' to construct a building of approximately 5000 square foot area at DIAT premises at their cost to house equipments for the Centre of Excellence.

[Action Dr. B. Majumdar]

32.5.3   Adoption of revised emoluments for DIAT institutional fellowship to full time PhD Scholars

The Secretary-BoM presented the item before BoM and stated that Department of Expenditure vide OM No. 33(14)/PFC-11/2018 has conveyed approval for enhancement of the fellowships for research personnel. Further, DRDO also vide letter No. 01/RD/HRD/89-90/751/D(R&D) dtd. 08/08/2023 have enhanced the fellowship w.e.f. 01/01/2023.

The BoM after detailed deliberations **RESOLVED** to approve the revision of DIAT institutional fellowship to full time PhD scholars w.e.f from 01/09/2023, as under:

Category	Current emoluments	Revised emoluments applicable w.e.f. 01/09/2023
JRF	31,000/-	37,000/-
SRF	35,000/-	42,000/-

[Action: JR (Acad)]

32.5.4   To consider award of MSc (Defence Technology) Degree to MILIT personnel

Prof. Shaibal Banerjee, Director, School of Defence Technology and Chairman PGC, made a brief presentation before the BoM as per Annexure 32.5.4. He informed that Military Institute of Training (MILIT), an Armed Forces Establishment, co-located in the same campus conducts training courses for armed forces officer. MILIT has requested DIAT to award MSc (Defence Technology) Degree to Indian Navy officers which was earlier done by University of Pune. He further informed that matter was discussed in Board of Studies and accordingly the course structure has been finalized by DIAT. School of Defence Technology while DIAT will oversee the programme and MILIT will be in charge of teaching classes.

The Academic Council in its meeting held on 21/08/2023 considered the proposal and recommended to the BoM for approval.

[Action: Chairman-Data Centre]

The BoM after detailed deliberation **RESOLVED** to approve award of MSc (Defence Technology) Degree to MILIT personnel from the current academic year.

[Action: Chairman, PGC]

32.5.5   Approval of DIAT Consultancy Policy

The Dean (Sponsored Research) presented the proposal before the BoM the Consultancy Policy of the Institute as per Annexure-32.5.5.

The BoM after detailed deliberation **RESOLVED** to approve DIAT Consultancy Policy **as per Annexure- 32.5.5** and advised that proposed for distribution of proceeds of Consultancy fees be presented to the BoM for consideration.

[Action: Dean (SR)]

32.6   Any other items with the permission of the Chair.

Following additional items were presented with the permission of Chairman, BoM

32.6.1   Establishment of Centre of Excellence – Cryptanalysis

Dr. Manisha Nene, Head Data Centre, Associate Professor & Director, School of Computer Engineering and Mathematical Sciences presented the proposal before BoM as per Annexure- 32.6.1.

The BoM appreciated the proposal and resolve to establish Centre of Excellence in Cryptanalyst at DIAT.

[Action: Director, SCE&MS]

32.6.2   Upgradation of DATA Centre servers

Dr. Manisha Nene, Associate Professor & Chairman, DATA Centre of DIAT presented the proposal before BoM as per Annexure-32.6.2. She informed that there is an urgent need for upgradation / procurement of new servers (indicated in ppt) at DATA Centre in view of old age of existing servers and stoppage of support from service providers due to age of the equipments.

The BoM noted that the proposal has following 3 components:
i)   Hyper Converged Infra HCI. Comprising three nodes & two fabric switches along with one management server (Approx. Cost Rs. 6 Cr.)
ii)   High Performance Computing HPC. Centralised CPU & GPU equipped setup. AIML & Data Sciences and Analysis. (Approx. Cost Rs. 6 Cr.)
iii) Network Infra. Wired/Wireless Controller and Access Pts. Network Infra. Wired Comprising CORE Switches, Distribution Switches (Approx. Cost Rs. 6 Cr.)

The BoM after detailed discission agreed for the need as above. However, the BoM advised to obtain expert /wider opinion on the platforms and configuration before moving forward.

[Action: Chairman-Data Centre]

There being no other agenda items, the Secretary- BoM extended vote of thanks to members of Board for their active participation and attending the meeting. The meeting concluded with thanks to the Chair.

06/09/23.

(Kamal Kumar Bajre)
Registrar & Secretary-BoM

Defence Institute of Advanced Technology (DIAT)
Office of Director (Policy & Planning)

Academic and Co-curricular Vision Document for DIAT in 05 Years (2023 – 2028)

Defence Institute of Advanced Technology, under the aegis of Department of Defence Research and Development, Ministry of Defence, Government of India, has grown in strength and stature, since its recognition as Deemed to be university on 1st April 2006. The Institute has also acquired ISO 9001:2000 certification from DNV Norway. Having conferred the status of category "A" Deemed to be University by the Ministry of Human Resource Development, Government of India, the institute is on its way to NBA and NAAC accreditations.

The institute, a premier autonomous educational entity, equipped with modern laboratories, well-qualified faculty members is engaged in post graduate education and research leading to M. Tech and Ph. D degrees. Efforts are continuously on to maintain higher standards of quality training in the critical area of modern Defence Technologies, thereby enhancing the technical capabilities of DRDO Scientists, Service Officers, officers from defence Industries and fresh engineering graduates. The Institute also prepares trained manpower for industries engaged in" Make in India "campaign of Government of India.

At DIAT, to meet the needs of Armed Forces, DRDO, Defence Quality Assurance, Defence Ordnance Factories, Directorate of Aeronautical Quality Assurance and other Public Sector undertakings many specialized /customized PG Courses are conducted. In addition to the Ph. D & M. Tech Courses, the Institute also conducts 1-1.5yr duration specific limited courses and a variety of specialised short-term courses. DIAT opened its gates in the year 2006 for the general public and since then has been admitting students in open category with scholarships to join its Ph.D/M.Tech programmes. To boost the ongoing research programmes and also to enhance quality of teaching and training the institute has introduced a scheme of "Visiting Professors /Scientists". The institute is on its way to take a quantum leap in the domain of technical education & research, specific to defence needs.

The Vision of DIAT is to be a Centre of Excellence of International repute for Education, Training and research in Advanced Technologies with a view to strengthen national security and self-reliance. To evolve as an Innovative Unique Research University to develop indigenous contemporary Defence related technologies in Navigation Systems, Wireless Sensors, Efficient Propulsion Systems for DRDO and Defence Services, provide technological solutions to the services to optimise combat battlefield effectiveness and above all produce qualified quality manpower which can truly become an instrument for building a strong indigenous Base in India, is the Mission of DIAT.

In order to achieve its Vision and Mission, Defence Institute of Advanced Technology (DU) is committed to creating a centre of Excellence for Education, Training by way of continual improvement and consistent innovation in material as well as Intellectual Infrastructure towards customer's delight.

The recent National Education Policy (NEP) which has been made mandatory for all Universities, are also considered while framing this document. Following points are considred while framing this Vision document:

- ✓ Towards a More Holistic Education
- ✓ Optimal Learning Environments and Support for Students
- ✓ Motivated, Energised, and Capable Faculty
- ✓ Equity and Inclusion in Higher Education
- ✓ Reimagining Vocational Education
- ✓ Professional Education

Therefore, the Office of Policy and Planning has a mandate to frame the vision plan in such a way that following objectives are nurtured by DIAT:

- To cultivate core Competencies in Basic & Applied Research in contemporary & Futuristic Technologies.
- To attract and nurture Intellectual capital.
- To maintain an Eco-friendly and appropriate Academic Ambience.
- To promote professional Development of personnel for productive performance.
- To strengthen collaborations with the Armed Forces, Academia, R&D Institutions and Industry.
- To generate adequate financial resources for sustainable Growth and Development.

To attain these objectives, following plans are underway, so that in upcoming 5 years the objectives are met to a large extent.

1. **New Schools and Centre's:**

   This is an era of interdisciplinary research. The times of working in silo have gone past and unless collaborations between various departments does not occur, major technologies cannot be realized. Quantum Technology, Robotics, Radar Technology are in place. In the upcoming years, additional schools on Energy and Environment, Sensor Technology, Metallurgy and Manufacturing, Cyber Technologies would be on anvil. Project Management is one area in Defence Sector which is of prime importance. This can also be initiated in the coming years.

   This concept of Schools will be immensely beneficial to the students studying their M. Tech curriculum since they can choose from wide range of electives from where a seamless education can be offered to them. DIAT Post Graduate Committee (PGC) has already done this exercise for students in Quantum Technology and this will be done all across the institute. The idea in the upcoming 5 years would be to have the university in the form of Schools and Centre's which would be supported by individual Departments.

2. **Involving students for Development of new technologies to address challenging times:**

Entire country has witnessed Pandemic challenges in past few years. The country has rose to the occasion and therefore, India has seen immense developments of indigenous technologies in the products as simple as face-mask to, as complicated as, Ventilators. DIAT has geared up in the same way and has developed more than 8 products right from face masks, sanitizers, quarantine zones, AI-based imaging for diagnostics, nanomaterials based anti-covid formulations and many similar products. Students and faculty have worked hard to recognize such products. Patent have come up to safeguard the technologies. These technologies have been given to industries and upscaled products are available in the market.

In upcoming years, this momentum is planned to continue. The synergy between students and faculty members to develop a product indigenously would be harnessed more. In-house funding would be given to faculty and students together for developing such ideas. DIAT has developed "Innovation Cell" to handle such ideas from students and faculty. This cell is backed by Dean (Sponsored Research) so that more such project ideas are initiated and realized. Constant lectures from Industry personnel would be conducted on such lines for student motivation. Entrepreneurships and start-up will be encouraged for faculty and students alike.

3. **Research towards product development under "Atmanirbhar Bharat"**

DIAT is a post-graduate University. Many international and National project competitions are conducted world-wide. DIAT is motivating students to participate in such competitions so that indigenous technologies and research is encouraged. Students are given good exposure to challenging problems of DRDO and are motivated to do projects on those lines.

Involving students in DRDO projects and boosting them to participate in project competitions would make them industry -ready. This will be further boosted in the coming 5 years. Acquiring more projects from PSUs, Tri-Services and Industry would be the main focus. DIAT will strive as Research University and develop technologies which can compete at National level, minimum. Becoming an Institute of National Importance is the final aim of DIAT in coming couple of years. The documentation is already in the pipeline and the efforts have already started on these lines.

4. **Establishment of Hobby Clubs for Co-curricular development of Students**

Students are the back-bone of every university. They are the stake holders and their overall development is the main motto of any good university. Hobby clubs are mainly initiated to uncover the hidden talents in the students. Literary club, Robotics Club, Additive manufacturing club, Quantum-Club are already thought of. Such clubs would be formed by the student sand for the students. Many such co-curricular activities would be planned in upcoming years. Social responsibility would also form a part of this planning. These include CSR activities, tree plantations,

rural upliftment and education, cleanliness drives, water treatment and recycling activities would form the agenda in upcoming years. Making students more socially responsible, is the aim.

5. **Strengthening Alumni Network**

Alumni of DIAT is very strong and rich. Though DIAT is a young University, the alumni comprise of personalities from DRDO and Army-Navy-Air Force backgrounds. Many civilian students have gone overseas for higher education in excellent universities in USA and Europe. They bring fresh ideas for curriculum development, more options for placement cell and more exposure to the current students. Strengthening the DIAT Alumni will be one agenda in upcoming years.

6. **Establishment of Chair Professor / Professor of Practice Positions**

DRDO, Tri-Services (Army-Navy-Air Force), Industry and PSU sponsored chair Professors would be highly beneficial to add to the Vision and Mission of the University. They work as excellent Guru's to the faculty as well. DIAT is already taking steps to have such luminaries on the campus. In next 5 years it will be one main agenda. Institutionalization of Chairs will be done and at least 5 such positions would be created.

7. **Strengthening Placement Cells**

The name of the institute is strongly dependent upon the industry and academia where the students get placed. Placement cell is highly strengthened in past 2 years and it will continue to grow and become more professional to attract more companies towards DIAT. DIAT will have a dedicated Placement officer so that he/she can take care of all civilian students and uplift placement statistics.

8. **International Networking for Research and Training**

National and International MoUs are important to diversify the research domain and collaborate to learn better. This pushes the faculty and students to work at competitive edge and deliver to an international community. MoUs with Universities in the UK, USA and Australia already exist. In next 5 years joint research has to be explored. Joint post-graduate programmes would be targeted. At least 4-5 such dual degree programmes with international universities would be target.

9. **Innovation and Incubation Centre for more Start-ups on campus**

The era of conventional jobs is rapidly diminishing and a culture of self -employment is on the anvil. Recent government grants are being offered to boost Incubation of start-ups on the campus. DIAT is already working on those lines. DIAT has established an Innovation and Incubation Centre and the policy is already framed. Two companies are incubated in this facility. At least 3-4 more companies should start on campus would be the agenda for upcoming 5 years.

10. Inviting more projects from Industry, PSUs and Private sector

Government funding for conventional research is largely reduced in recent years. It will continue to reduce in coming years. The industry, other hand becoming more aware of indigenization and "Make in India" philosophy. Industry, therefore has many research ideas which can eventually become novel products. DIAT is gearing up their faculty in this direction. Faculty and students are encouraged to take projects from industry so that they learn to work on deadlines and focused deliverables. This will be encouraged more in the coming years. Atleast 2 Industry project per Department would get the target for upcoming 5 years. This will also help DIAT to become more self-reliant and take lesser grants from DRDO in coming times. Large financial asset development and striving towards financial autonomy and self-reliance would be main focus in upcoming years.

11. DIAT as an Online Education Hub

Online mode of study has become a new normal. Many institutes like IITs in India and Boston/Harvard in the USA have uploaded lectures and small course module in specific topic, which is of large interest to students. Few of such lecturers are compiled together to give small certification courses. DIAT also wishes to develop such resource material for online platforms. These could be used for MOOC courses (by AICTE) or CEP (Continuing Education Programme) programmes which are conducted on national platforms. Such material is being developed by different faculty members at DIAT. In coming 5 years such resource material will be made available by DIAT in the form of lectures and videos.

12. DIAT will strive to excel on following grounds:

1. DIAT will substantially <u>increase the student intake</u>, multidisciplinary capacity and residential facilities in the upcoming years.
2. DIAT will try to run <u>Open Distance Learning (ODL) and online programs</u>, and provide increased opportunities for lifelong learning.
3. DIAT will gradually <u>move towards full autonomy</u> - academic and administrative - to enable a flexible and vibrant culture. The new regulatory system envisioned by this Policy will foster this overall culture of empowerment and autonomy to innovate.
4. DIAT has already geared-up to become an <u>"Institute of National Importance"</u>. We are awaiting a response from the Parliament, which will enable DIAT to achieve higher goals, which would be commensurate with the NEP 2020 vision.

The Attachment to this document is the actual implementation to realise this vision, via complying to National Education Policy (Attachment 1)

Note : This is an evolving document and will keep on getting up-graded from time-to-time as per the recommendations from National Education Policy of 2020.

Proposed by

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Approved by

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DEFENCE INSTITUTE OF ADVANCED TECHNOLOGY (DIAT)

Document for Implementation of

National Education Policy (NEP) 2020

National Education Policy 2020

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Ministry of Human Resource Development

Government of India

INDEX: <mark>DIAT Focus</mark>

9. Quality Universities and Colleges: A New and Forward-Looking Vision for India's Higher Education System

9.1. As India moves towards becoming a knowledge society and economy - and keeping in view the requirements of the fourth industrial revolution, characterised by increasing proportion of employment opportunities for creative, multidisciplinary and highly skilled workforce - the higher education system must, at the earliest, be re-adjusted, re-vamped, and re-energised to meet these requirements.

9.2. Given these requirements of the 21st century, the aim of a quality university or college education must be to develop good, well-rounded, and creative individuals. It must enable an individual to study one or more specialised areas of interest at a deeper level, while at the same time build character, ethical and Constitutional values, intellectual curiosity, scientific temper, creativity, spirit of service, and 21st century capabilities across a range of disciplines including the sciences, social sciences, arts, humanities, languages, as well as professional, technical, and vocational crafts. A quality higher education must enable personal accomplishment and enlightenment, constructive public engagement, and productive contribution to society. It must prepare students for more meaningful and satisfying lives and work roles, and enable economic independence. Quality university and college education must, therefore, aim to be both a joy and an opportunity, to which all citizens must have access if they so desire.

9.3. At the level of society, the aim of higher education must be to enable the development of an enlightened, socially-conscious, knowledgeable, and skilled nation that can uplift its people and construct and implement robust solutions to its own problems. Higher education must thus form the basis for knowledge creation and innovation in the nation and thereby contribute deeply to a growing national economy. The purpose of quality higher education is, therefore, more than simply the creation of greater opportunities for individual employment; it represents the key to more vibrant, socially-engaged, and cooperative communities and a happier, cohesive, cultured, productive, innovative, progressive, and prosperous nation.

9.4. Some of the major problems currently plaguing the higher education system in India include: i) a severely fragmented higher educational ecosystem, with more than 50,000 higher

education institutions (HEIs), a large proportion of which offer only a single programme and have fewer than 100 students and a large percentage of which are commercial enterprises in which little or no education is taking place; ii) poor learning outcomes and development of cognitive skills of students; iii) rigid separation of disciplines, with too much early specialisation and streaming of students into narrow areas of study; iv) a lack of access to higher education, especially in socio-economically disadvantaged areas; v) a lack of teacher and institutional autonomy to innovate and excel; vi) inadequate mechanisms for merit-based career management and progression of faculty and institutional leaders; vii) a lack of research at most universities and colleges, and transparent and competitive peer-reviewed research funding across disciplines; viii) suboptimal governance and leadership of HEIs; ix) a regulatory system that is not empowered to close down fake colleges, while constraining excellent and innovative institutions; x) problems associated with large affiliating universities resulting in poor undergraduate education in colleges.

9.5. This policy envisions a complete overhaul and re-energising of the higher education system to overcome these challenges and thereby deliver high-quality higher education, with equity and inclusion, to all young people who aspire to it. The policy's vision includes the following key changes to the current system: (a) moving towards a higher educational system consisting of large, multidisciplinary universities and colleges, with at least one in or near every district; (b) moving towards a more multidisciplinary undergraduate education;

(c) moving towards faculty and institutional autonomy; (d) re-vamping curriculum, pedagogy, assessment, and student support for enhanced student experiences; (e) reaffirming the integrity of faculty and institutional leadership positions through merit-appointments and career progression based on teaching, research, and service; (f) establishment of a National Research Foundation to fund outstanding peer-reviewed research and to actively seed research in universities and colleges; (g) governance of HEIs by highly-qualified independent boards having academic and administrative autonomy; (h) "light but tight" regulation by a single regulator for all of higher education, including professional education; and (i) increased access, equity, and inclusion through a range of measures, including open schooling, online education and Open Distance Learning (ODL), keeping in view needs of learners with disabilities, and substantial increases in scholarships at private/philanthropic universities for disadvantaged and underprivileged students.

DIAT being a higher education institute, the above points may be adhered without any modifications.

Implementation Details:

10.   Institutional Restructuring and Consolidation

10.1. The main thrust of this policy in higher education is to end the fragmentation of higher education by transforming higher education institutions into large multidisciplinary universities, colleges, and HEI clusters, each of which will aim to have 3,000 or more students. This would help build vibrant communities of scholars and peers, break down harmful silos, enable students to become well-rounded across disciplines (including artistic, creative, and analytic subjects as well as sports), develop active research communities across disciplines (including cross-disciplinary research), and increase resource efficiency, both material and human, across higher education. DIAT has been following this from its very beginning, as a university.

10.2. DIAT has been striving to move to large multidisciplinary university

10.3. DIAT is a multidisciplinary institution of higher learning that offers postgraduate programs, with high-quality teaching, research, and community engagement. It aims to evolve into research-intensive universities (RUs), where it is largely focused on research.

10.4. As per NEP 2020, an Autonomous degree-granting College (AC) will refer to a large multidisciplinary institution of higher learning that grants undergraduate degrees and is primarily focused on undergraduate teaching though it would not be restricted to that and it need not be restricted to that and it would generally be smaller than a typical university. DIAT is an autonomous institute does not have any affiliated colleges.

10.5. In addition to teaching and research, DIAT will also have other crucial responsibilities, which it will discharge through appropriate resourcing and structures. These include supporting other HEIs in their development, community engagement and service, contribution to various fields of practice, faculty development for the higher education system, and support to school education.

10.6. By 2040, DIAT will become multidisciplinary institution and shall have good (in thousands) student enrolments, for optimal use of infrastructure and resources. Since this process will take time, DIAT will firstly plan to become multidisciplinary; and gradually increase student strength to the desired levels. DIAT will substantially increase the student intake, multidisciplinary capacity and residential facilities in the upcoming years.

10.9.   DIAT will make an effort to run Open Distance Learning (ODL) and online programs, and provide increased opportunities for lifelong learning (SDG4). All ODL programs (and their

components) leading to any diploma or degree will be of standards and quality equivalent to the highest quality programs run by the DIAT.

10.10. Each program running at DIAT, if it a single-stream program, will move towards becoming vibrant multidisciplinary program. DIAT will gradually move towards full autonomy - academic and administrative - to enable this vibrant culture.

10.11. The new regulatory system envisioned by this Policy will foster this overall culture of empowerment and autonomy to innovate.

10.12. The overall higher education sector will be integrated into one higher education system - including professional and vocational education. In the above line, DIAT will be the part of AICTE vision.

10.13. A university has only one definition worldwide, namely, a multidisciplinary institution of higher learning that offers undergraduate, graduate, and PhD programs, and engages in high-quality teaching and research. The present complex nomenclature of HEIs in the country as 'deemed to be university', 'affiliating university', 'affiliating technical university', 'unitary university' shall be replaced by 'university'. In this context, DIAT is proposing to change its nomenclature.

The following points which are as per NEP 2020 are discussed in detail (Point-wise) and is documented in **Annexure-1.**

11. **Towards a More Holistic Education**
12. **Optimal Learning Environments and Support for Students**
13. **Motivated, Energised, and Capable Faculty**
14. **Equity and Inclusion in Higher Education**
15. **Reimagining Vocational Education**
16. **Professional Education**
17. **Promoting high-quality research: National Research Foundation**
18. **Effective Governance and Leadership for Higher Education Institutions**
19. **Transforming the Regulatory System of Higher Education**

Annexure 1
National Education Policy: Higher Education

Ref.No.	Policy Content	Complied/Not-complied	Comments/Recommendations [if not-complied]	Responsible Section
9.2	Enable an individual to study one or more specialized areas of interest at a deeper level, while at the same time build character, ethical and Constitutional values, intellectual curiosity, scientific temper, creativity, spirit of service, and 21st century capabilities across a range of disciplines including the sciences, social sciences, arts, humanities, languages, as well as professional, technical, and vocational crafts.	Complied	1. All M.Tech. courses are specialized and hence offer deep-level understandings. 2. To invoke scientific curiosity, frequent interactions with DRDO laboratories, PSU's and industries are ensured throughproject dissertations and arranged lectures. 3. Professional and Vocational trainings are offered through specialized lectures conducted from time-to-time 4. Inclusion of social sciences, arts, humanities, languages is to be implemented / commented by PGC	PGC: With reference to AICTE model PG curriculum and PGC meeting dated 13th Dec. 2021, the points are complied.
9.2	Prepare students for more meaningful and satisfying lives and work roles, and enable economic independence	Complied	Efforts towards economic independence starts from BoS level itself. This ensures industry and defence experts, who ensure employability. The Placement cell is active in this regard, and continuous feedback is taken from stake-holders, for continual improvements in syllabus.	Placement cell & Department
9.3	Higher education must thus form the basis for knowledge creation and innovation in the nation and thereby contribute deeply to a growing national economy.	Complied	1. Industry interactions through projects is ensured. 2. Institute encourages product development and ToT transfers. This helps incontributing towards	IIC center and IQAC Cell

			indigenous product development and hence the economy.	
9.5	Moving towards faculty and institutional autonomy	Complied	DIAT is an autonomous institute	--
9.5	Revamping curriculum, pedagogy, assessment, and student support for enhanced student experiences	Complied	This is a continuous process, at DIAT	PGC
9.5	Reaffirming the integrity of faculty and institutional leadership positions through merit-appointments and career progression based on teaching, research, and service;	Complied	Merit appointments and CAS schemes are meticulously followed	Registrar
9.5	Increased access, equity, and inclusion through a range of measures, including open schooling, online education and Open Distance Learning (ODL), keeping in view needs of learners with disabilities, and substantial increases in scholarships at private/philanthropic universities for disadvantaged and underprivileged students.	NA	-- This is mainly at the central level (at AICTE/UGC level) Online courses conducted by various departments are hosted on cloud/You tube etc. The programs are conducted for various Govt. Organisations and educational institutes across the country.	--
10.2	Moving to large multidisciplinary universities and HEI clusters is thus the highest recommendation of this policy regarding the structure of higher education.	Complied	DIAT has multi-disciplinary approach.	PGC
10.3	It is envisioned that over a period of time all existing HEIs and new HEIs will evolve into research-intensive universities (RUs), teaching universities (TUs), and autonomous degree-granting colleges (ACs)	Complied	DIAT aims to be a RU	IQAC Cell
10.3	All colleges shall eventually become ACs, which are large multidisciplinary institutions of higher learning primarily focused on undergraduate teaching. A college should therefore either be an autonomous degree-granting institution, or a constituent college of a university - in the latter case, it would be fully a part of the university.	Complied	DIAT is autonomous degree-granting institution	IQAC Cell

10.5	Supporting other HEIs in their development, community engagement and service, contribution to various fields of practice, faculty development for the higher education system, and support to school education.	Complied	DIAT is engaged in hand-holding Kendriya Vidyalaya, National Defence Academy to support their education.	Registrar's Office
10.6	By 2040, all higher education institutions (HEIs) shall become multidisciplinary institutions and shall have student enrolments in the thousands, for optimal use of infrastructure and resources	Action in Progress	In future DIAT can go for increasing students subscriptions	Dean Academics
10.9	There will be a fair and transparent system for determining (increased) levels of public funding support for public HEIs. This system will give an equitable opportunity for all public institutions to grow and develop	Complied	DIAT has transparent systems to obtain and justify funding support from MoD (DDR&D)	Registrar's Office
10.10	All types of institutions will have the option to run Open Distance Learning (ODL) and online programmes.	Complied	Online courses conducted by various departments are hosted on cloud/You tube etc. The program are conducted for various Govt. Organizations and educational institutes across the country.	TPC and Departments
10.14	The present complex nomenclature of HEIs in the country as 'deemed to beuniversity', 'affiliating university','affiliating technical university', 'unitary university' shall be replaced by 'university'.	Action in Progress	DIAT is in the process of applying for change of nomenclature.	Action by UGC
11.1	The very idea that all branches of creative human endeavour - includingmathematics, science, vocational subjects, professional subjects, and soft skills - should be considered 'arts' indeed has distinctly Indian origins.	Complied	PGC has circulated revised M.Tech structure by including these courses in the of Audit courses	PGC

11.4	Even engineering schools, such as the IITs, will move towards more holistic education with more arts and humanities, while arts and humanities students will aim to learn more science -while all will make an effort to learn more vocational subjects. India's rich legacy in the arts as well as in the sciences and beyond will significantly help in making the move towards a holistic arts education an easy and natural transition.	Complied	PGC has circulated revised M.Tech structure by including these courses in the of Audit courses	PGC
11.5	Graduate-level (master's and doctoral) education in large multidisciplinary universities, while providing rigorous research-based specialisation, would also provide opportunities for multidisciplinary work, including in academia, government and industry.	Complied	DIAT has excellent research-based education. All M.Tech. programmes have options of chosing elective courses from other disciplines. The second year of M.Tech. is mainly dedicated towards research / development based projects. The PhD programs have more applied topics to inculcate industry-oriented research	Dean Academics and Dean Research
11.9	HEIs will have the flexibility to offer different designs of Masters programs, (a) there may be a two-year program with the second year devoted entirely to research forthose who have completed the three-year Bachelors program; (b) for students completing a four- year Bachelors program with Researchthere could be a one-year Masters program and (c) there may be an integrated five-year Bachelor's/Mastersprogram. Undertaking a PhDshall require either a Master's degree or a 4-year Bachelor's degree with Research. The M.Phil. program shall be discontinued.	Complied	DIAT has 2 year M.Tech. program.

DIAT also has MS-by Research as one year program. | PGC |
| 11.10 | Model public universities for holistic education, at par with IITs, IIMs, etc., called MERUs (Multidisciplinary Education and Research Universities) will be set up and will aim to reach the global status of, e.g., the Ivy League Universities in the U.S. They will help set the highest standards for holistic education across India. | Partially-complied | DIAT has applied for it to be a Institute of National Importance | IQAC Cell and Deans |

Ref.No.	Policy Content	Complied/Not-complied	Comments/Recommendations [if not-complied]	Responsible Section
11.13	HEIs as part of multidisciplinary education will focus on research & innovation by setting up start-up incubation centres, technology development centres, centres in frontier areas of research, greater industry-academic linkages, and inter-disciplinary research including humanities/social science research.	Partially-Complied	DIAT is well equipped with: a) Multidisciplinary education b) Research Innovations c) Incubation Centre d) Schools and Centres for high-end research in upcoming technological domains A connect to social science requires some policy at DIAT level	IQAC Cell and Deans
12.	**Optimal Learning Environments and Support for Students**			
Ref.No.	Policy Content	Complied/Not-complied	Comments/Recommendations [if not-complied]	Responsible Section
12.1	Effective learning requires a comprehensive approach that involves appropriate curriculum, engaging pedagogy, continuous formative assessment, and adequate student support. The curriculum must be interesting andrelevant, and updated regularly to align with the latest knowledge requirements and to meet specifiedlearning outcomes. High-quality pedagogy is then necessary to successfully impart the curricular material to students; pedagogical practices determine the learning experiences that are provided to students, thus directly influencing learning outcomes. The assessment methods must be scientific, designed to continuously improve learning andtest the application of knowledge. Last but not least, the developmentof capacities that promote student wellness such as fitness, good health, psycho-social well-being, and sound ethical grounding are also critical for high-quality learning.	Partially-Complied	1. BOS being conducted periodically with appropriate time gap to update the curriculum to align with the latestknowledge requirements and to meet specified learning outcomes. 2. Suitable continuous formativeassessments being adopted. 3. Student activity centre (SAC) should be established to promotestudent wellness such as fitness, good health, psycho-social well- being, and sound ethical grounding etc. 4. The institute level resources and infrastructure, such as qualitylibraries, classrooms, labs, technology, sports/recreation areas, student discussion spaces, and dining areas are being provided / enhanced.	Dean Academics

| 2.2 | First, in order to promote creativity, institutions and faculty will have the autonomy to innovate on matters of curriculum, pedagogy, and assessment within a broad framework of higher education qualifications that ensures consistency across institutions and programs and across the ODL, online, and traditional 'in-class' modes. Accordingly, curriculum and pedagogy will be designed by institutions and motivated faculty to ensure a stimulating and engaging learning experience for all students, and continuous formative assessment will be used to further the goals of each programme. All assessment systems shall also be decided by the HEI, including those that lead to final certification. The Choice Based Credit System (CBCS) will be revised for instilling innovation and flexibility. HEIs shall move to a criterion-based grading system that assesses student achievement based on the learning goals for each programme, making the system fairer and outcomes more comparable. HEIs shall also move away from high-stakes examinations towards more continuous and comprehensive evaluation. | Complied | 1. Autonomy given to the Faculty to propose course curriculum, pedagogy and assessment with support of BOS and academic council. 2. DIAT may offer refresher courses, workshops & training to the Tri Services, Govt. Officers, &PSU in addition to the civilians. | TPC and Department |

12.3	Second, each institution will integrate its academic plans ranging from curricular improvement to quality of classroom transaction - into its larger Institutional Development Plan (IDP). Each institution will be committed to the holistic development of students and create strong internal systems for supporting diverse student cohorts in academic and social domains both inside and outside formal academic interactions in the classroom. For example, all HEIs will have mechanisms and opportunities for funding of topic-centred clubs and activities organized by students with the help of faculty and other experts as needed, such as clubs and events dedicated to science, mathematics, poetry, language, literature, debate, music, sports, etc. Over time, such activities could be incorporated into the curriculum once appropriate faculty expertise and campus student demand is developed. Faculty will have the capacity and training to be able to approach students not just as teachers, but also as mentors and guides.	Complied	1. Skill enabling courses can be adopted as per faculties own interest other than teaching. 2. Topic-centred clubs and activities should be established.	Dean Academics, Departments and SCEC Committee
12.4	Third, students from socio-economically disadvantaged backgrounds require encouragement and support to make a successful transition to higher education. Universities and colleges will thus be required to set up high-quality support centres and will be given adequate funds and academic resources to carry this out effectively. There will also be professional academic and career counselling available to all students, as well as counsellors to ensure physical, psychological and emotional well-being.	Partially Complied	Students from Socio-economically disadvantaged backgrounds should be encouraged by providing: i. Enhance the number of text books from Library. ii. Special professional & academic training should be arranged iii. Concession in the tuition fees as per norms.	Director Policy and planning along with IQAC, Library
12.3				

12.5	Fourth, ODL and online education provide a natural path to increase access to quality higher education. In order to leverage its potential completely, ODL will be renewed through concerted, evidence-based efforts towards expansion while ensuring adherence to clearly articulated standards of quality. ODL programmes will aim to be equivalentto the highest quality in-class programmes available. Norms, standards, and guidelines for systemicdevelopment, regulation, andaccreditation of ODL will be prepared, and a framework for quality of ODL that will be recommendatory for all HEIs will be developed.	Complied.	Online courses conducted by various departments are hosted oncloud/You tube etc. The programs are conducted for various Govt. Organisations and educational institutes across the country.	PGC
12.6	Finally, all programmes, courses, curricula, and pedagogy across subjects, including those in-class, online, and in ODL modes as well as student support will aim to achieve global standards of quality.	Compiled	ALL programmes such as M.Tech / M.Sc / Ph.D etc. at DIAT maintain the Global Standards.	PGC and DRC
12.7	The various initiatives mentioned above will also help in having larger numbers of international students studying in India, and provide greatermobility to students in India who maywish to visit, study at, transfer creditsto, or carry out research at institutions abroad, and vice versa. Courses and programmes in subjects,such as Indology, Indian languages, AYUSH systems of medicine, yoga, arts, music, history, culture, and modern India, internationally relevant curricula in the sciences, social sciences, and beyond, meaningful opportunities for social engagement, quality residential facilities and on-campus support, etc.will be fostered to attain this goal of global quality standards, attract greater numbers of internationalstudents, and achieve the goal of 'internationalization at home'.	Complied	PGC has circulated revised M.Tech structure by includingthese courses in the of Audit courses	PGC

| 12.8 | India will be promoted as a global study destination providing premium education at affordable costs therebyhelping to restore its role as a VishwaGuru. An International Students Office at each HEI hosting foreign students will be set up to coordinate all matters relating to welcoming and supporting students arriving from abroad. Research/teaching collaborations and faculty/student exchanges with high-quality foreign institutions will be facilitated, and relevant mutually beneficial MOUs with foreign countries will be signed. High performing Indian universities will be encouraged to set up campuses in other countries, andsimilarly, selected universities e.g., those from among the top 100 universities in the world will be facilitated to operate in India. A legislative framework facilitating suchentry will be put in place, and such universities will be given special dispensation regarding regulatory,governance, and content norms on par with other autonomousinstitutions of India. Furthermore,research collaboration and student exchanges between Indianinstitutions and global institutions willbe promoted through special efforts. Credits acquired in foreign universities will be permitted, where appropriate as per the requirements of each HEI, to be counted for the award of a degree. | Complied | | PGC |

12.9	Students are the prime stakeholders in the education system. Vibrant campus life is essential for high-quality teaching-learning processes. Towards this end, students will be given plenty of opportunities for participation in sports, culture/arts clubs, eco-clubs, activity clubs, community service projects, etc. In every education institution, there shall be counselling systems for handling stress and emotional adjustments. Furthermore, a systematized arrangement shall be created to provide the requisite support to students from rural backgrounds, including increasing hostel facilities as needed. All HEIs willensure quality medical facilities for all students in their institutions.	Complied	Existing facilities in DIAT has tobe enhanced in the larger scale.	TM Deptt
12.10	Financial assistance to students shall be made available through various measures. Efforts will be made to incentivize the merit of students belonging to SC, ST, OBC, and other SEDGs. The National ScholarshipPortal will be expanded to support, foster, and track the progress ofstudents receiving scholarships. Private HEIs will be encouraged to offer larger numbers of free ships and scholarships to their students.	Complied	AICTE and DIAT funding isgiven to students	DIAT
13. Motivated, Energized, and Capable Faculty				

13.1	The most important factor in the success of higher education institutions is the quality and engagement of its faculty. Acknowledging the criticality of faculty in achieving the goals of highereducation, various initiatives havebeen introduced in the past several years to systematize recruitment and career progression, and to ensure equitable representation from variousgroups in the hiring of faculty. Compensation levels of permanent faculty in public institutions have alsobeen increased substantially. Various initiatives have also been taken towards providing faculty with professional development opportunities. However, despite these various improvements in the status of the academic profession, faculty motivation in terms of teaching, research, and service in HEIsremains far lower than the desiredlevel. The various factors that lie behind low faculty motivation levels must be addressed to ensure that each faculty member is happy, enthusiastic, engaged, and motivatedtowards advancing her/his students, institution, and profession. To this end, the policy recommends the following initiatives to achieve the best, motivated, and capable faculty in HEIs.	Partially-Complied	Faculties are encouraged by providing: Continuing Professional Development (CPD), yearly grant to purchase academic text books, seed moneyfor initial take up initial research, to attend conferences in India and abroad to enhance their domain knowledge.	Dean Academics
13.2	As the most basic step, all HEIs will beequipped with the basic infrastructure and facilities, including clean drinking water, clean workingtoilets, blackboards, offices, teaching supplies, libraries, labs, and pleasant classroom spaces and campuses. Every classroom shall have access to the latest educational technology that enables better learning experiences.	Complied	Basic facilities should be maintained.	Registrar

13.3	Teaching duties also will not be excessive, and student-teacher ratios not too high, so that the activity of teaching remains pleasant and there is adequate time for interaction with students, conducting research, and other university activities. Faculty willbe appointed to individual institutions and generally not be transferable across institutions so that they may feel truly invested in, connected to, and committed to their institution and community.	Complied	Implemented	Dean Academics
13.4	Faculty will be given the freedom to design their own curricular and pedagogical approaches within the approved framework, including textbook and reading material selections, assignments, and assessments. Empowering the facultyto conduct innovative teaching, research, and service as they see bestwill be a key motivator and enabler forthem to do truly outstanding, creative work.	Complied	Implemented	Dean Academics and HoDs
13.5	Excellence will be further incentivizedthrough appropriate rewards,promotions, recognitions, and movement into institutional leadership. Meanwhile, faculty not delivering on basic norms will be held accountable.	Complied	Implemented	Vice Chancellor

| 13.6 | In keeping with the vision of autonomous institutions empowered to drive excellence, HEIs will have clearly defined, independent, and transparent processes and criteria forfaculty recruitment. Whereas the current recruitment process will be continued, a 'tenure-track' i.e., suitable probation period shall be put in place to further ensure excellence. There shall be a fast-track promotion system for recognizing high impact research and contribution. A system of multiple parameters for proper performance assessment, for the purposes of 'tenure' i.e., confirmed employment after probation, promotion, salary increases, recognitions, etc., including peer and student reviews, innovations in teaching and pedagogy, quality and impact of research, professional development activities, and other forms of service to the institution andthe community, shall be developed byeach HEI and clearly enunciated in it 's Institutional Development Plan (IDP). | Complied | Adopted | Registrar |

13.7	The presence of outstanding and enthusiastic institutional leaders that cultivate excellence and innovation isthe need of the hour. Outstanding andeffective institutional leadership is extremely important for the success of an institution and of its faculty. Excellent faculty with high academic and service credentials as well as demonstrated leadership andmanagement skills will be identified early and trained through a ladder of leadership positions. Leadershippositions shall not remain vacant, butrather an overlapping time period during transitions in leadership shall be the norm to ensure the smooth running of institutions. Institutional leaders will aim to create a culture of excellence that will motivate and incentivize outstanding and innovative teaching, research, institutional service, and community outreach from faculty members and all HEI leaders.	Complied	Adopted	Deans, IIC, SCEC

Ref.No.	Policy Content	Complied/Not-complied	Comments/Recommendations [if not-complied]	Responsible Section
16. Reimagining Vocational Education				
16.5	Higher education institutions will offer vocational education either on their own or in partnership with industry and NGOs. The B.Voc.degrees introduced in 2013 will continue to exist, but vocational courses will also be available to students enrolled in all other Bachelor's degree programmes, including the 4-year multidisciplinary Bachelor's programmes. HEIs will also be allowed to conduct short-term certificate courses in various skills including soft skills. 'Lok Vidya', i.e., important vocational knowledge developed in India, will be made accessible to students through integration into vocational education courses. The possibility of offering vocational courses through ODL mode will also be explored.	Partially Complied	1. The students should be given practical skill based training, like lab equipments, software and other soft skills in sync with industry requirements. 2. Special workshops are conducted for this. 3. Professional and Vocational trainings are offered through specialised lectures conducted from time-to-time.	TPC
16.6	Vocational education will be integrated into all school and higher education institutions in a phased manner over the next decade. Focus areas for vocational education will be chosen based on skills gap analysis and mapping of local opportunities.	Partially Complied	Input may be taken from local or relevant industries for skill requirements	TPC and HoDs
16.7	Different models of vocational education, and apprenticeships, will also be experimented by higher education institutions.	Action in Progress	HOD may give input about their respective Depts on this.	TPC and HoDs
16.7	Incubation centres will be set up in higher education institutions in partnership with industries.	Complied	DIAT has set-up an incubation cell for entrepreneurship.	IIC
17. Catalysing Quality Academic Research in All Fields through a new National Research Foundation				

17.2	A robust ecosystem of research is perhaps more important than ever with the rapid changes occurring in the world today, e.g., in the realm of climate change, population dynamics and management, biotechnology, an expanding digital marketplace, and the rise of machine learning and artificial intelligence.	Partially Complied	DIAT has excellent research infrastructure and output. It needs to strengthen further.	Dean Research
17.4	The societal challenges that India needs to address today, such as access for all its citizens to clean drinking water and sanitation, quality education and healthcare, improved transportation, air quality, energy, and infrastructure, will require the implementation of approaches and solutions that are not only informed by top-notch science and technology but are also rooted in a deep understanding of the social sciences and humanities and the various socio-cultural and environmental dimensions of the nation. Facing and addressing these challenges will require high- quality interdisciplinary research across fields that must be done in India and cannot simply be imported; the ability to conduct one 's own research also enables a country to much more easily import and adapt relevant research from abroad.	Action to be taken	DIAT is in the right direction for addressing the issues and striving to achieve excellence in supporting Defence technologies.	Registrar

17.6	Research and innovation at education institutions in India, particularly those that are engaged in higher education, is critical. Evidence from the world's best universities throughout history shows that the best teaching and learning processes at the higher education level occur in environments where there is also a strong culture of research and knowledge creation; conversely, much of the very best research in the world has occurred in multidisciplinary university settings.	Complied	DIAT is actively engaged in multidisciplinary research and development activities. It needs to strengthen further in days to come.	Dean Research
18. Transforming the Regulatory System of Higher Education				
18.3	NHERC will be set up to regulate in a 'light but tight' and facilitative manner, meaning that a few important matters particularly financial probity, good governance, and the full online and offline public self-disclosure of all finances, audits, procedures, infrastructure, faculty/staff, courses, and educational outcomes will be very effectively regulated. This information will have to be made available and kept updated and accurate by all higher education institutions on a public website maintained by NHERC and on the institutions' websites. Any complaints or grievances from stakeholders and others arising out of the information placed in public domain shall be adjudicated by NHERC.	Complied	--	Registrar
18.4	The primary mechanism to enable such regulation will be accreditation. The second vertical of HECI will, therefore, be a 'meta-accrediting body', called the National Accreditation Council (NAC). Accreditation of institutions will be based	Partially complied	It is a continuous Process.	IQAC

	primarily on basic norms, public self-disclosure, good governance, and outcomes, and it will be carried out by an independent ecosystem of accrediting institutions supervised and overseen by NAC. The task to function as a recognized accreditor shall be awarded to an appropriate number of institutions by NAC. In the short term, a robust system of graded accreditation shall be established, which will specify phased benchmarks for all HEIs to achieve set levels of quality, self-governance, and autonomy. In turn, all HEIs will aim, through their Institutional Development Plans (IDPs), to attain the highest level of accreditation over the next 15 years, and thereby eventually aim to function as self-governing degree-granting institutions/clusters. In the long run, accreditation will become a binary process, as per the extant global practice.			
18.5	The third vertical of HECI will be the Higher Education Grants Council (HEGC), which will carry out funding and financing of higher education based on transparent criteria, including the IDPs prepared by the institutions and the progress made on their implementation. HEGC will be entrusted with the disbursement of scholarships and developmental funds for launching new focus areas and expanding quality programme offerings at HEIs across disciplines and fields.	Complied	Adopted	Registrar and Finance
	19. Effective Governance and Leadership for Higher Education Institutions			

| 19.5 | While being provided with adequate funding, legislative enablement, and autonomy in a phased manner, all HEIs, in turn, will display commitment to institutional excellence, engagement with their local communities, and the highest standards of financial probity and accountability. Each institution willmake a strategic Institutional Development Plan on the basis of which institutions will develop initiatives, assess their own progress, and reach the goals set therein, which could then become the basis for further public funding.The IDP shall be prepared with the joint participation of Board members, institutional leaders, faculty, students, and staff. | Presently practiced | This is a continuous process. | Registrar and Deans |

Ref.No.	Policy Content	Complied/Not-complied	Comments/Recommendations [if not-complied]	Responsible Section
20. Professional Education				
20.1	Preparation of professionalsmust involve an education inthe ethic and importance of public purpose, an education in the discipline, and an education for practice. It must centrally involve critical and interdisciplinary thinking, discussion, debate, research, and innovation.	Complied	--	Dean Academic/ IQAC

20.2	Professional education thus becomes an integral part of the overall higher education system. Stand-alone agricultural universities, legal universities, health science universities, technical universities, and stand-alone institutions in other fields, shall aim to become multidisciplinary institutions offering holistic and multidisciplinary education.	Complied	Multidisciplinary specialization already at place	PGC
20.6	Technical education includes degree and diploma programs in, engineering, technology, management, architecture, town planning, pharmacy,	Complied	DIAT gives Master in Technology Degrees	PGC

	hotel management, catering technology etc.,			
23. Technology Use and Integration				
23.2	Given the explosive pace of technological developmentallied with the sheer creativity of tech-savvy teachers and entrepreneurs including studententrepreneurs, it is certainthat technology will impact education in multiple ways, only some of which can be foreseen at the present time.	Complied	New technologies are discussed and taught here such as AI; VR; Block chain; python; Quantum computing, etc.	HoDs
23.3-23.9	Use and integration of technology to improve multiple aspects of education will be supportedand adopted, provided these interventions are rigorously and transparentlyevaluated in relevant contexts before they are scaled up.	Complied	DIAT has various modes of ICT technology in placed	HoDs

	The thrust of technological interventions will be for the purposes of improving teaching-learning and evaluation processes, Supporting teacher preparation and professional development, enhancing educational access, and streamlining educational planning, management, and administration including processes related to admissions, attendance, assessments, etc. Particular attention will need to be paid to emerging disruptive technologies that will necessarily transform the education system This policy has been formulated at a time when an unquestionably disruptive technology - Artificial Intelligence (AI) 3D/7D Virtual Reality - has emerged in response to MHRD's formal recognition of a new disruptive technology, the National Research Foundation will initiate or expand research efforts in the technology.	Complied	DIAT's administrative and academic work is mostly complied through ICT technology. Research on core and advance study on AI applications are present.	HoDs
23.10	A rich variety of educational software, for all the above purposes, will be developed and made available for students and teachers at all levels.	Partially Complied	Faculties and students should promote all their knowledge domain through ICT technology and make it available online.	HoDs

23.11	Universities will aim to offer Ph.D. and Masters programmes in core areas such as Machine Learning as well as multidisciplinary fields "AI + X" and professional areas like health care, agriculture, and law.	Complied	DIAT's some specializations fall under this category.	HoDs
24. Online and Digital Education: Ensuring Equitable Use of Technology				
24.1	The National Education Policy 2020 recognizes the importance of leveraging the advantages of technology while acknowledging its potential risks and dangers.	Complied	• DIAT is using online education tools and faculties are aware about its use. • Infrastructure supported by ICT based blended class rooms. • However, for fostering creativity and promotion for using these; training and incentives for teachers can be given for creating towards digital platform.	TPC and Library
24.3	Teachers require suitable training and development to be effective online educators.			
24.4	The emergence of digital technologies and the emerging importance of leveraging technology for teaching-learning at all levels from school to higher education			
24.5	Creating a Dedicated Unit for Building of World Class, Digital Infrastructure, Educational Digital Content and Capacity			

Annexure 31.5.2

Establishment
of
Centre of Excellence
in
Advanced Nano Alloys

Department of Metallurgy and Materials Engineering
Defence Institute of Advanced Technology, Pune

Ministry of Heavy Industry, Govt of India

Scheme for
Enhancing Global Competitiveness of the Capital Goods Sector, Phase II

Aim : To address the technology gaps for development of new and improved indigenous technologies/products through Academia (Principal Investigating Organization, PIO) and Industry Partner (PI) interaction.

Funding Pattern : 80% GoI grant in aid, 20% industry contribution.

Outcome of the Project:

Ownership : Jointly by PIO, IP and MHI.

Lock in period :
- 3 to 5 years of Exclusive right by IP for commercialization and further technological upgradation.

Custodian of the Intellectual Property rights
- PIO as the custodian of IP on behalf of MHI and able to transfer them to any third party after the lock in period, with the consent of MHI.

Royalty sharing model
- Revenues from licensing of IP rights to third parties to be shared between PIO and MHI in ratio of 80% and 20%.

INDUSTRY- ACADEMIA JOINT PROJECT PROPOSAL
on
Centre of Excellence for Manufacturing Nanocrystalline Advanced Soft Magnetic Alloys and Ribbons using a Vacuum pressurized Planar flow Casting method.

SUBMITTED
to
MINISTRY OF HEAVY INDUSTRY, GOVT of INDIA
under CG Phase II Scheme

by

DEFENCE INSTITUTE OF ADVANCED TECHNOLOGY, PUNE

VIKARSH NANO TECHNOLOGY & ALLOYS PVT LTD, PUNE

Detailed Project Report

Title: Centre of Excellence for Manufacturing Nanocrystalline Advanced Soft Magnetic Alloys and Ribbons using a Vacuum pressurized Planar flow Casting method

Principal Investigating Organization (PIO): Defence Institute of Advanced Technology, Pune

Industry partner (IP): M/s Vikarsh Nano Technology & Alloys Ltd, Pune

PDC: 3 years

Total cost of proposed project: Rs. 96.53 Cr

Objectives

CENTRE OF EXCELLENCE:

To create a database on advanced soft magnetic alloys.

➢ **Research on high saturation ultra soft magnetic alloys for high frequency applications.**

➢ **To develop vacuum technology to produce nanocrystalline soft magnetic ribbons (14-26 mm thick) in 200 kg batch size.**
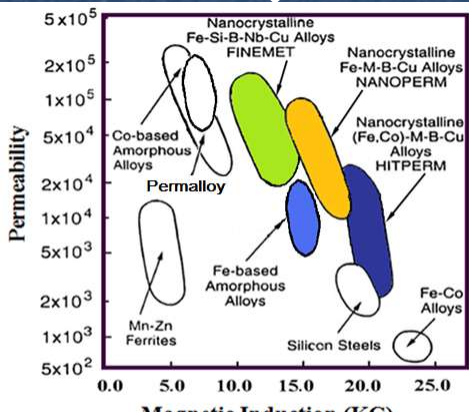

Ultra-Soft Magnetic Materials

Incorporation of Nanocrystalline phase in Amorphous Matrix

▷ **Unique combination of soft magnetic properties**

Alloy Systems

❖**FINEMET**
   Fe-Si-B-Nb-Cu

❖**NANOPERM**
   Fe-Zr-B-Cu

❖**HITPERM**
   Fe-Co-Zr-B-Cu

❖**NANOMET**
   Fe-Si-B-P-Cu

Induction - permeability diagram

Savings of unavoidable energy loss

≈

Production of energy WITHOUT COST

4% of energy savings can lighten 1000s of villages in India

Electrical power loss occurs during transmission

Uses of Ultra-Soft Magnets

❖**Transmission of electrical energy:**
  Reduction of wasteful energy in power transformer (70-80%)

❖**Aviation/ missile program:**
  Miniaturization/improved efficiency of SMPS (high ρ)

❖**Precision measurement and control of energy:**
  Reduction of Cost of Current transformer ($\mu \sim 3\times10^5$, $H_c \sim 0.1$ A/m)

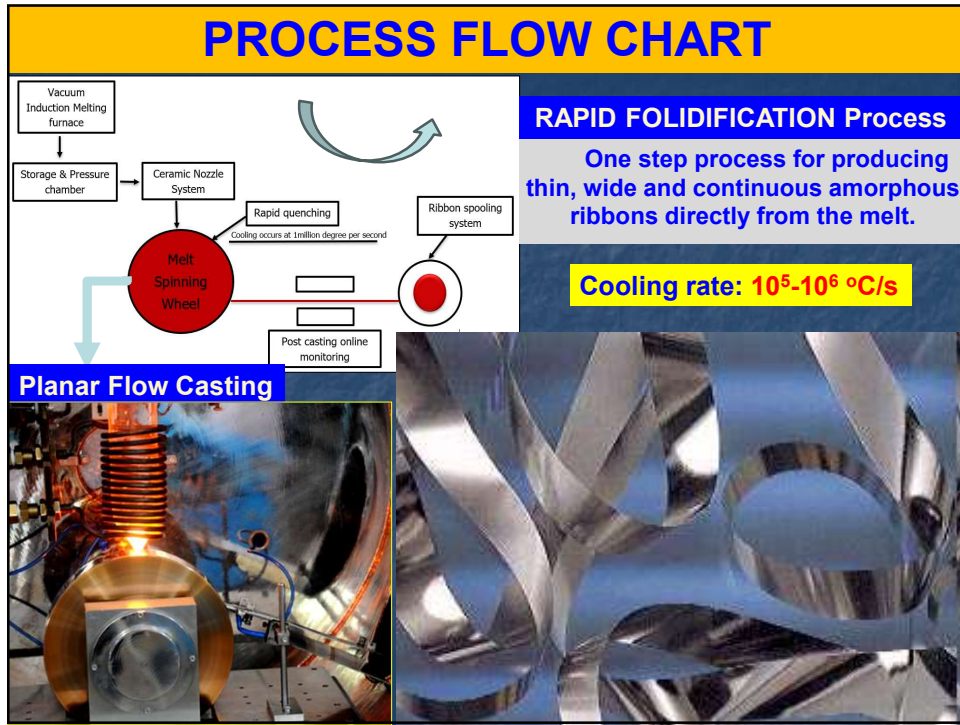❖**Life saving devices:**
  Device miniaturization/cost reduction of RCCB (5-7 limes)

❖**Magnetic sensors:**
  Giant magneto impedance

Replacing all conventional Soft magnetic materials

PROCESS FLOW CHART

Vacuum Induction Melting furnace

Storage & Pressure chamber → Ceramic Nozzle System

Rapid quenching

Cooling occurs at 1million degree per second

Ribbon spooling system

Melt Spinning Wheel

Post casting online monitoring

Planar Flow Casting

RAPID FOLIDIFICATION Process

One step process for producing thin, wide and continuous amorphous ribbons directly from the melt.

Cooling rate: 10^5-10^6 °C/s

Products of SOFT MAGNETIC ribbons

Deliverables & Outcome of the project

➢ **Composition-process parameter-structure-magnetic property optimization in Fe(Co)-(Si,Zr,Nb)-B-Cu based alloy systems possessing soft magnetic properties such as:**
   Saturation magnetization: 1.2 to 1.7 T, permeability:10^4 to 10^6.

➢ **Demonstration of vacuum technology for alloy manufacturing and subsequent vacuum pressurized planar flow casting for obtaining continuous ribbons with uniform thickness between 14-26 μm up to a batch size of 200 kg followed by stress annealing under vacuum.**

Amount of Grant Proposed

SI No	Proposed expenditure	Year 1		Year 2		Year 3		Line total
		IP 20%	MHI 80%	IP 20%	MHI 80%	IP 20%	MHI 80%	
1.	Equipment	11.99	47.98	6.76	27.04	-	-	93.78
2.	Expendables	0.22	0.88	0.20	0.80	0.05	0.10	2.25
3.	Travel	0.02	0.08	0.20	0.80		-	0.20
4.	Contingency	0.20	0.80	0.20	0.80		-	0.20
5.	Workshops, seminar, conference, meeting.	0.10	0.40	0.10	0.40	-	-	0.10
	Column totals	12.53	50.14	7.46	29.84	0.05	0.1	96.53

TOTAL COST	Rs. 96.53 Cr

Equipment : Research Facility

Sl No	Equipment Details	Qty	Estimated Price (in Cr)
1	Lab scale Vacuum Induction melting furnace for Making of Alloy (up to 10 kg)	1	2.00
2	Lab scale Pressure/Vacuum metal spinning system (up to 10 kg)	1	3.50
3	Vacuum Annealing furnace	1	0.30
4	Vacuum arc melting furnace (500 g capacity)	1	0.50
5	Test set up consist of:-		
a)	DC and Low frequency B-H Tester with site preparation	1	0.30
b)	High Frequency B-H Tester with site preparation	1	2.00
c)	X-Ray Diffractometer with dust free environment	1	2.50
d)	Transmission Electron Microscope (TEM) with accessories and site preparation	1	4.50
e)	TEM sample preparation set up e.g precision cutting and ion milling equipment.	1	1.10
	TOTAL COST		**16.70**

Equipment: Heavy Machineries

Sl No	Equipment Details	Qty	Estimated Price	Total
1	Vacuum melting furnace for Making 200 kg of Alloy	2	11.00	22.00
2	Fumes extraction system (capacity 200 m³/h)	1	0.25	0.25
3	Water cooling system for vacuum alloy melting (capacity 15000 LPM)	1	0.20	0.20
4	Pneumatic system (Including dryer & lubricator) (capacity 200 CFM)	2	0.20	0.40
5	Jaw Crusher to brake alloy for 200 kg of alloy	1	2.00	2.00
6	Pressure/Vacuum metal spinning system (including vacuum melting) (capacity 200 kg)	2	19.00	38.00
7	Nozzle System of various widths ranging 10-60 mm	6	0.40	2.40
8	Cooling system for vacuum-pressure melt spinning (capacity 20000 LPM)	1	0.25	0.25
9	Ceramic Nozzle tool room (Cylindrical grinder, diamond tips tool kit, high accuracy high speed drilling machines, surface grinder 600 mm bed size)- one set	1	0.40	0.40
10	Ribbon slitting machine for making 5-60 mm width ribbon	5	0.40	2.00
11	Stress Annealing furnace with sub-zero treatment (capacity 200 kg)	2	0.80	1.60
12	Test set up consist of:-			
a)	LCR Meter up to 10 MHz	4	0.10	0.40
b)	Oscilloscope (100 to 110 MHz-GHz)	1	0.80	0.80
c)	Power analyser (6000 Watts)	2	0.15	0.30
d)	Instrument Transformer Analyser (115-120 Volts)	2	0.30	0.60
e)	Scanning Electron Microscope	1	0.80	0.80
f)	High Frequency B/H analyser	2	1.00	2.00
13	Automatic Epoxy potting/encapsulation plant up to 200 kg capacity	1	3.00	3.00
14	Partial discharge measurement set up	2	0.20	0.40
	TOTAL COST			**77.80 Cr**

Center of Excellence at DIAT

Space Requirement: ~5000 sq ft. with controlled ambient

IP is keen for donating a laboratory building of around 5000 square feet area to DIAT using a pre-fabricated building materials.

Permission may be accorded to allow the IP for constructing a building of approximately 5000 square foot area at DIAT premises to establish a Centre of Excellence on advanced nano alloys

Defence Institute of Advanced Technology (DU)

Consultancy Policy

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Policy of Consultancy

1. Introduction

Consultancy is well recognized as an effective way for Universities/Academic Institutes to disseminate knowledge and make early and direct impact on society. This is an important channel through which knowledge and expertise can flow to and from businesses and other external agencies and therefore contributes to the development of growing and productive relationships. Consultancy activity within the Universities/Academic Institutes is often associated with other contractual relationships, including research, service contracts and in some cases, the provision of funds to provide studentships. It is therefore, the Institute's core policy to encourage faculty/staff to engage in consultancy wherever appropriate and in a manner that is consistent with their contractual responsibilities. However, the balance between consultancy and the traditional roles of the academic faculty/staff needs to be managed and the interests of the Institute must also be protected.

▪ This policy is intended to provide the information required to undertake consultancy work in accordance with the Institute's approved procedures and also to ensure that consultancies undertaken by faculty/staff are consistent with the Institute's strategic and operational objectives and costs are sustainable.

2. Definitions and Scope of the Policy

2.1 Broad definition of what constitutes consultancy:

"The provision of expert advice and work crucially dependent on a high degree of intellectual input which is for commercial or non-commercial purpose and without the creation of new knowledge." This also includes an assignment or job basically for providing expert advice, problem solving, targeted training, testing and laboratory based experimental work, market research and survey.

2.2 Its essential features are:

- Consultancy is work of a professional nature, undertaken by the faculty/staff in their field of expertise, for clients outside the institution, for which some financial return is provided;

- Unlike research, it does not have as a prime purpose of generation of new knowledge;

- Consultancy will produce some form of contracted output which may be partly or wholly owned by the client;

- The Institution normally does not have freedom of publication over the results of consultancy;

- It tends to be governed by short-term contracts, making minimal use of Institution's resources and involves extra work for existing faculty/staff rather than the employment of new faculty/staff.

2.3 Excluded from the above definitions:

This policy does not apply to those activities, paid or unpaid, which is in furtherance of scholarship or general dissemination of knowledge, such as:

- Authorship of, or royalties from, the publication of books

- Service on public sector or charitable committees

- External examiner duties

- Lecture tours and conference presentations or attendance

- Editorship of academic journals or the publication of academic articles

- Professional arts performances

- Short Term and long term courses

3. Guidelines

All Research and Non-research consultancies as described in this Policy are governed by the following guiding principles:

a) There should be demonstrable benefit to the Institute from the consultancy through income, enhanced reputation, and/or expanding the expertise of the faculty/staff member.

b) The Consultancy must not be in conflict with Institute policies including those governing employment; such as the Code of Conduct Policy.

c) The Consultancy must not be in conflict with the functions, objectives or interests of the Institute or damage the Institute's reputation.

d) It should not interfere with the discharge of prime duties of the faculty/staff member or the department.

e) At a minimum, the salary and on-cost charges set by the Institute must be applied to all consultancy budgets. All Consultancies are required to include overheads.

f) Faculty/staff members shall not undertake external research activities where no formal agreement has been authorized by the Institute.

g) In the context of consultancy services, the consultant should not directly or indirectly get associated with any activity which may be unethical or inappropriate as per the prevailing Indian Laws and provisions thereof.

h) To ensure that the undertaking of consultancy and related work by members of the Institute does not interfere with the proper functioning of their duties as academic or research faculty/staff;

4. Objectives

Institute recognizes the value of academic and research faculty/staff undertaking consultancy. In supporting such external activity, the Institute's objectives are:

- To encourage faculty/staff participation in consultancies that bring opportunitiesand benefits to the Institute, its faculty/staff and its clients;
- To ensure that the benefits of consultancy and related work to the Institute and its faculty/staff are maximized;
- To facilitate and support the delivery of high quality services.; and

5. Benefits to the Institute

The benefits that the Institute expects to accrue from successful consultancies include:

- Development of useful business and academic contacts;
- Extension of the knowledge base, there by informing the learning and teaching of academic and research faculty/staff and providing them with the opportunity to test out and demonstrate the impact of their academic expertise on markets, sponsors or external organizations;

- Increased external stimulus for enriching intellectual activity;
- Greater knowledge of the relationships which exist with companies seeking specialist services;
- Development of possible opportunities for future partnerships (e.g. research projects, studentships, Knowledge Transfer Partnerships, commercialization and licensing of Intellectual Property Rights, spin- out companies, high quality Continuing Professional Development);
- Activities that may form the basis of impact case studies for the reference;
- Development of marketing opportunities;
- Financial benefits to the individual and/or Institute, in the form of additional income and diversification of income sources;
- Enhanced justification for external funding through the enhanced reporting ofconsultancy activity; and
- Contribution to faculty/staff development.

6. Benefits to Faculty/staff

The benefits that members of faculty/staff expect to accrue from successful consultancies include:

- Increased recognition of the consultancy work of members of faculty/staff through the annual appraisal process and through the standard academic CV;
- Strengthened contractual arrangements through use of the Institute approval process;
- To generate resources from the provision of their services to support their researchactivities through the transfer of funds to a discretionary balance account subject to income tax rules for use by faculty/staff either in serving or post retirement for academic up-gradation of knowledge, for attending National/International seminars/conferences/workshops and expenses connected thereto over and above the existing support from DIAT funds provided as per DIAT norms.

7. **Risk factors:**

The Institute recognizes that there are various risk factors (both corporate and personal) associated with academic and research faculty/staff undertaking consultancy and related activities. While considering approval for such activity the management of the following risks should be addressed:

- Commercial risks - the loss of intellectual property rights and potential tax liabilities;
- Potential use of resources and diversion of faculty/staff time from their main academic activities;
- Quality - poor quality work having an adverse impact on the reputation of the member of faculty/staff and the Institute;
- Legal - non-compliance with legislation and other potential liabilities arising from undertaking the consultancy work; and
- Reputational - the Institute or faculty/staff being associated with organizations that could harm the reputation of the Institute or the individual.

8. **Type of consultancies:**

- **Institute Research Consultancy**

A Research Consultancy exists where an academic faculty/staff member provides research skills or expertise in return for remuneration from an external funder. This would include, but not limited to, providing solutions of the prevailing problems of the Industry / Institution, guidance for establishment of R & D unit, guidance for initiation of new research program / strengthening existing research program.

- **Institute Non-Research Consultancy**

Non-research Consultancies include non-research activities performed under contract for a third party. Non-research Consultancy would include the provision of professional services to external agencies for a fee. This would include, but not be limited to, routine laboratory and other testing of materials, devices, products or produce; analysis of data; surveys, including market and opinion surveys; quality control; field trials; the provision of professional advice including possible expert witness advice; the provision of professional services such as design, legal, medical and allied health, participation in fee- paying non-

award courses, and community service activity undertaken by members of faculty/staff for charity, community or public purposes; guidance for drafting research proposal, IPR awareness etc, guidance for quality enhancement in teaching learningprocess and research & development, arranging special training sessions for academic institutions / industries / corporate sector.

9. **Permitted level of Consultancy:**

- Institute employees are permitted to undertake up to 30 working days consultancy activity per academic year with the approval of Head of the Department and Dean (Sponsored Research).
- In some circumstances, Department may authorize faculty/staff to undertake further consultancy work within aforesaid limit, but this must be discussed and approved by the Head of Department and Dean (Sponsored Research) on a case-to-case basis.

10. **Approval of Consultancy Activity:**

- The decision process for whether a faculty/staff is permitted to undertake the consultancy shall be handled at the Department level. All consultancy proposals should be submitted to Dean (Sponsored Research) for risk assessment as per point no 7 of this policy. Dean (Sponsored Research) may call the faculty/company for clarifications if any. This will further be approved by the Head of the Department. The process of approval shall be completed within one week's time.
- The review of the Consultancy work will only be carried out only in case any dispute/complaint. The review will be carried out by the Dean (Sponsored Research) and Head of the Department.

11. Income Distribution:

- **Institute costs identified on the Consultancy Project Form (CPF) will be recovered beforethe following income distribution model is applied.**

- The standard income distribution model is based on income per consultancy agreement per financial year.

Sr. No.	Type of consultancy	Institute	Professional Development Fund of the Faculty *	Faculty Personal Account **	Upkeep of the Equipment
01	Institute Research Consultancy	30 %	20 %	50%	-
02	Institute Non-Research Consultancy	30%	20 %	40%	10%

* **Faculty will receive their share, which will be held in the Institute account notionally as "Professional Development Fund" against their respective names in the ledger.**
** The amount received by the faculty shall be liable to Income Tax.

- If the consultancy work involves more than one faculty member from the beginning, share of the faculty will be divided equally amongst them.

- In case the consultant needs to seek advice of another faculty member the terms of share shall be decided on case to case basis. A proposal for the same shall be placed for approval as per the procedure laid in point no. 10.

- If the consultancy involves help from technical/non-technical staff, they shall be paid in cash @ Rs 1000/hour for technical staff and @ Rs. 500/hour for non-technical staff. **This amount shall be paid from the share of the consultant.**

- Finance Office shall facilitate this decision by providing Department with quarterly reports of the consultancy income (per financial year) generated by their faculty/staff.

- In case of Staff, consultancy share shall be paid to the concerned directly.

- JRF/SRF/RA/M.TECH student should not be involved in consultancy.

- If a PhD student is involved in the consultancy work, he shall be appropriately rewarded and the amount can be used by the student for Ph D contingency which will be over and above his/her fellowship contingency.

12. Costing/Pricing of Consultancy Activity:

- Normally, consultancy activity should be recorded using the CPF. This form provides recommended daily rates for consultancy and only in exceptional circumstances (and with the approval of the Head of Department) should consultancy be undertaken at below this rate.

- The form can be used to determine the consultant's net income (following deductions for Institute share, any direct costs, tax and national insurance). Any queries in this regard, should be placed before Finance Office for advice.

- Completed CPFs should be signed by faculty/staff member (Consultant) and approved by the Head of Department on the recommendation of Dean (Sponsored research). All cases of consultancy will be processed by HOD office of the concerned department.

- If services of any technician/lab attendant/faculty/staff/Ph D student are utilized by the consultant with the approval of the HOD of respective department to which the staff belongs to, they are to be compensated out of percentage of funds meant for consultant.

13. Contractual Requirements:

- **Standard Terms & Conditions:** The Institute has adopted standard contract terms & conditions and recommends that these are used. The Head of Department can authorize and sign off any work that is undertaken under the Institute's standard terms. A copy of the finalized contract must be forwarded to the Dean (Sponsored Research), together with the signed CPF. The Head of the Department office will record the information on the research system and arrange for the appropriate information to be sent to finance office to enable invoice(s) to be raised.

  Standard Terms and Conditions:

  a) The faculty/Staff should be a permanent employee of DIAT.

  b) The consultancy work should be proposed through proper channel and get approved before commencing the work.

  c) Institute must be indemnified appropriately against the probable losses arising from any of the risks as mentioned in para 7.

  d) A short report on every consultancy project, upon completion shall be submitted to the Vice Chancellor, DIAT by the consultant.

- **Non-Standard Terms & Conditions:** The Dean (Sponsored Research) must be involved in the contract negotiations and will advise the Head of Department on key issues arising from the terms of the contract. Where these issues are considered problematic, approval of the Dean (Sponsored Research) will be sought prior to final sign-off by an authorized individual from the Vice Chancellor / Dean's Office. A fully signed CPF will also be required.
- Faculty/staff is recommended to involve the Head of the Department Office in the processing of consultancy as early as possible so that any issues with the contract can be highlighted and, wherever possible, either resolved or mitigated.

14. Intellectual Property:

Any Intellectual Property arising from any Research and Non-Research Consultancies will be governed by Intellectual Property Policy of DIAT.

15. Recording activity:

- All faculties are required to record their consultancy activity with the Head of the Department / Dean (Sponsored Research) office.
- Original copies of the contracts and CPF must be forwarded to the Head of the Department / Dean (Sponsored Research) Office for the Institute records and for processing to the Finance Office.

16. Tax deduction:

The finance office shall ensure that the statutory deductions of income tax as applicable.

32ⁿᵈ BoM Meeting

CoE Cryptology
Focus on Cryptanalysis
22ⁿᵈ Aug 2023

Background

- **FEB 2023** The Vice Chancellor addressed the requirements, DIAT General Body Council Meeting, Chaired By Hon RM, the Chancellor, DIAT. Need to contribute in area of Cryptanalysis for self-reliant Nation.

- **Mar 2023** Meeting with Secretary DDR&D & Chairman DRDO, DGTM, DGHR & VC DIAT, at DRDO HQ New Delhi. Proposal to establish CoE.

- **May 2023** visit of Hon RM, DDR&D & Chairman DRDO & VC DIAT. Demo on readiness at DIAT.

- **June 2023** deputation of SIX members DRDO Delegation constituted by DDR&D & Chairman DRDO & their visit to DIAT to review.

Activities to Report

- Meeting/s with the USERS- SI/MI, NxxO
- Meeting/s with the Experts (Nation wide) in April 2023
- Meeting/s with the DRDO Delegation, Chairperson DG (MedCos &CS) in June 2023
  - Conduct of workshops by invitations.
  - Participants: 18 DIAT faculty (13 SoCE&MS; 02 EE, 01 AP, 02 SoQ)
- Collaborations
  - Prof. Veni Madhavan, Retd. IISc CSA CCRao Institute
  - Prof. Virendra Sule, Retd, IITB
  - Dr Prem Kumar Das, ScF, SETS, Chennai
  - Dr Yoginder Talwar, ScF, NIC, New Delhi
  - Col Jaiswal K. Dir M/SI Dte.
  - SAG DRDO
  - CAIR DRDO

TAKE UTMOST CARE. Privacy. Secure. Safe-guard. SOP.

- Understand the requirements. Know our strengths.

Submission, Ref. MoM June 2023

In compliance to the concluding remarks, action points as to seek go-ahead, approvals for the following:

1. **To start:** Approval for first Year Engagement of (i) Roping in three to five experienced experts for three/five years, like retired Professors (ii) Infra to compute, like higher-end workstations, qty=no. of resources. (Initial Approx. Rs. 70 Cr)

2. **In:** Pool of experts, skilled staff, infra for office, secure infra for compute, secure-zone, expenses towards travel/conduct workshops/frequent-trainings

3. **Short & Long Term:** Plan actions, observe for deliverables per plan, AGILE Development model to respond to reviews by users; form TASK-FORCE, Sustainable

4. **At Earliest:** Submit separate funding requirements for Short-TERM & Long-TERM with yearly cost outflow (along with breakups) for approvals by DRDO.

Jai Hind

Annexure-32.6.2

Defence Institute of Advanced Technology

DATA CENTRE (DC)

BoM Meeting 22nd Aug 2023

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DC Agenda BoM 22nd Aug 2023

- Services @DC, DIAT

- Current Infra Status

- Concerns

- Efforts

- Submission to the BoM Committee

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Services Provided by DC

Institute-wide TECHNICAL SUPPORT -

1. Internet & Intranet in Technical Campus.
2. Wired and Wireless Connectivity.
3. Maintenance of Network Devices/ Hardware for Internet & Intranet.
4. Maintenance of Hardware for User Machines.
5. Resolve issues via Phone/Emails. [Ticketing Systems]
6. Upgrade the software/Licenses, distribution and installation.
7. Daily Check of Servers-Status.
8. Daily Check of Internet Leased Line.

SERVICES to Admin, Faculties & Students -

1. Creation & Mgmt of E-MAIL and INTERNET ACCESS LOGIN CREDENTIALS.
2. Provide & maintain VMs for Emails, ERP Support, Server License copy installations, Bio-metric attendance, archives & registrations. Peripheral Setups like- UPS, Generator, Cooling, Archives, etc.
3. Conduct & train staff for conducting Video Conferences and Online Meetings at various locations on request.
4. Wi-Fi connectivity support to POINTS Batches, Capsule Courses & Hostels.

School of Computer Engineer & Mathematical Sciences

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Infra Status at DC

S. No.	Category	Item Description	Procurement Year	End of Life*
1	Hardware	HP BL460	2013	2017*
2	Hardware	HP EVA P6350	2013	2017*
3	Hardware	HP X1800 G2	2013	2017*
4	Hardware	iOSafe Backup NAS	2021	2023
5	Network	Ruckus Zone Director 3000	2012	2023
6	Network	Ruckus Access point zf7363	2012	2019*
7	Network	Cisco Catalyst 9410R	2019	2026
8	Network	Cisco 3750 Switches	2006	2012*
9	Network	Cisco 4431 Gateway Router	2019	2024
10	Software	VMware EXSi 5.5	2013	2017*
11	Software	VMware V-Centre 2017	2013	2017*
12	Software	Windows Server OS 2012 R2	2013	2023*
13	Passives	Fibre Optic & Ethernet Cables	2006	15 plus years old

*OEM Support STOPPED

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Concerns

- Need to Comply with IT & ISO Audits, & Data Threats.
  - DRDO Sponsored Projects, NxxO Projects in execution
    - USERs belong to R&D, TRI-SERVICES have their logins & data details
    - *DOMAIN CONTROLLERS essential

- Systems need to support evolving OS, and APPLICATION versions.

- Current setup a bottleneck.
  INCOMPATIBLE TO evolving IPS/IDPS, THREATS.

- Being Adv Technology secure digitisation & AIML based evolving DC implementations; for admin & training infra in niche area is an UTMOST need.

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Efforts

- Experts TEAM from IITB was invited in Nov 2022. Their two days inspection, audit report & Suggestions. Referred.

- Event in Oct 2022. Emails Backup in Institute unrecoverable. Visit of Mithi Experts TEAM in Nov 2022. Out of OEM Support Servers a concern.

- The threat of losing ERP Intranet DATA exists.

- Mismatch of hardware versions to enable compatibility with evolving OS: POSE CYBER threat.

- Recently July 2023, ISO & DRONA-Admin TEAM at institute level formed.

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Sincere Submission

1. **Hyper Converged Infra HCI.** Comprising three nodes & two fabric switches along with one management server (Approx. Cost Rs. 6 Cr.)

2. **High Performance Computing HPC.** Centralised CPU & GPU equipped setup. AIML & Data Sciences and Analysis. (Approx. Cost Rs. 6 Cr.)

3. **Network Infra.** Wired/Wireless Controller and Access Pts. **Network Infra.** Wired Comprising CORE Switches, Distribution Switches (Approx. Cost Rs. 6 Cr.)

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AGENDA

1. **Staff (I to VI)** Slide (3-8)
2. **Equipments** - Hardware (I, II) Slide (9, 10)
3. **Equipments** - Software Slide (11)
4. **Equipments** - IDS/ IPS Slide(12)
5. **Network Devices** (Slide 13)
6. **Network Bandwidth** (Slide 14)
7. **Services availed** by DC (Slide 15)
8. **Diagram of Network Deployed** in campus (Slide 16)
9. **Services given** by DC (Slide 17)

10. Network Inspection-I TEAM from IITB Dt. 29th Nov 2022 Slide (17-25)
11. Network Inspection-II TEAM from Mithi Rep. Dt. 30th Nov 2022 Slide (26,27)

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