

शैक्षणिक परिषद की 02/2023-24 बैठक का कार्यवृत्त
१९ दिसंबर २०२३

MINUTES OF THE 02/2023-24 MEETING OF THE
ACADEMIC COUNCIL

19th Dec, 2023



DEFENCE INSTITUTE OF ADVANCED TECHNOLOGY
(DEEMED TO BE UNIVERSITY UNDER SECTION 3 OF UGC ACT 1956)

GIRINAGAR, PUNE - 411025

DEFENCE INSTITUTE OF ADVANCED TECHNOLOGY

(DEEMED TO BE UNIVERSITY), GIRINAGAR, PUNE



MEETING No. 02/2023-24 OF THE ACADEMIC COUNCIL
HELD AT 10:00 HRS ON MONDAY, 19th DEC 2023

Schedule of the Meeting:

Item. No.	Details
1	Opening remarks by the Vice-Chancellor and Chairman, Academic Council
2	Progress/Action taken report on minutes of the last Academic Council Meeting (No. 01/2023-24) held on 21 Aug 2023.
3	Confirmation of the minutes of the last Academic Council Meeting (No. 01/2023-24) held on 21 st Aug 2023.
4	Reporting Items- i. Patent - Industrial Design update - Dean (Acad.) ii. CTP - Placement update - Dean (Acad.) iii. MoU Update - Dean (Sponsored Research) iv. Extension of contingency facility to all other, M.Tech, M.Sc. & Ph.D students other than scholarship students- JR(Acad.) I/c
5	AGENDA ITEMS FOR DISCUSSION i. Introduction of M.Sc. in Tank Technology for Service Officers in association with "Armoured Corps Centre and School (ACC&S)", Ahmednagar. ii. Academic collaboration with IIM-Visakhapatnam. iii. Minor Revision in Course Curriculum: Addition of new elective subject CE-66A (Algorithmic Cryptanalysis) for M.Tech in Cyber Security & M.Tech in Computer Science & Engineering (Artificial Intelligence). iv. Any other point with the permission of the chair



**DEFENCE INSTITUTE OF A DEFENCE INSTITUTE OF ADVANCED
TECHNOLOGY**

(Deemed to be University under Section 3 of UGC Act 1956)
Girinagar, Pune-411 025

DIAT/F/REG/ACAD/AC/02/2023-24

Dated 19th Dec 2023

**Minutes of the 2nd Meeting of Academic Council held on 19th Dec, 2023 at 1000 Hrs,
4th Floor Conference Room, DIAT (DU), Pune**

1. The Following Members were present: -

a.	Dr. C. P. Ramanarayanan Vice Chancellor	Chairman
b.	Dr. R. K. Jain Sc'G', Assoc Director, HRD, DRDO HQ, New Delhi	Member (Rep DHRD) (Attended through Video Conf.)
c.	Prof. K. Sudhakar Dept. of Aerospace Engg, IIT, Bombay, Powai	Member (Attended through Video Conf.)
d.	Prof. Rajeev Srivastava Dept. of Computer Science and Engg, IIT(BHU), Varanasi	Member (Attended through Video Conf.)
e.	Prof. Avinash Mahajan Dept. of Physics, IIT Bombay, Powai, Mumbai	Member (Attended through Video Conf.)
f.	Prof. K. Balasubramanian, Dean (Academics), HoD, Metallurgical & Materials Engg. & Dir-IQAC	Member
g.	Prof. K. P. Ray HoD, Dept. of Electronics Engg.	Member
h.	Prof. A. Kumaraswamy Dean (Student Affairs) & Director-School of Robotics & HoD, Dept. of Mech Engg	Member
i.	Prof. P. K. Khanna HoD, Dept. of Applied Chemistry	Member
j.	Prof. Sangeeta Kale Dept. of Applied Physics / CoE	Member/ Permanent invitee
k.	Prof. S. K. Panigrahi Dept of Mech Engg, Dean (Sponsored Research)	Member
l.	Prof. Somanchi V.S.S.N.V.G. Murthy School of Computers Engg and Mathematical Science	Member
m.	Prof. Prashant Kulkarni Director-School of Energy and Environment	Member
n.	Prof. Shaibal Banerjee Dept. of Applied Chemistry, & Chairman PGC	Member

o.	Dr. Manisha Nene Director, School of Computers Engineering and Mathematical Science	Member
p.	Dr. Sumati Sidharth HoD, Technology Mgmt.	Member
q.	Dr. Ajay Misra, HoD, Dept. of Aerospace Engineering	Member
r.	Dr. Suwarna Datar HoD, Dept. of Applied Physics	Member
s.	Dr. Tejashree Bhawe Assoc. Prof, Dept of Applied Physics	Member
t.	Dr. Vidya K. Gargote Finance Officer	Member
u.	Dr. T. U. Patro Joint Registrar (Academics)I/c	Permanent Invitee
v.	Lt Col Manikandan, ACCS - Ahmednagar	Special Invitee
w.	Shri. Kamal Kumar Bajre Registrar	Secretary

Leave of absence was granted to the following members:

- a. Prof. G. Raghavan, Director, School of Quantum Technology
- b. Prof. C. R. S. Kumar, School of Computers Engineering and Mathematical Science
- c. Prof. D.G. Thakur, Dept of Mech Engg
- d. Dr. Debashish Pradhan, Assoc Professor, School of Computer Engg & Mathematical Science.
- e. Dr. Sunita Dhavale, Asst. Prof, School of Computers Engineering and Mathematical Science
- f. Dr. A. A. Bazil Raj, Assoc. Prof, Dept of Electronics Engg.

2. Welcome Remarks by Vice Chancellor & Chairman, Academic Council:

At the outset, the VC & Chairman welcomed all the members of the Academic Council, including esteemed external members, namely, Prof. K. Sudhakar, Prof. Rajeev Srivastava, Prof. Avinash Mahajan and Shri R. K. Jain. The VC & Chairman, then, briefed about recent updates about the implementation of "New Education Policy (NEP) 2020". He informed that the UGC had decided year 2030 as the target year for complete implementation of the NEP-2020. He further stated that while DIAT has made some progress in implementation of the NEP-2020, the Institute needed to be more liberal and considerate in offering new subjects, academic schedules, etc to the students. He informed that in view of significant reduction in Turn-Around-Time (TAT) from more than 11 months to less than 05 months in implementation of new technologies. The schools should conduct meetings of Boards of Studies frequently so that the courses/syllabus are reviewed, revised, updated at regular & minimum possible intervals.

3. Progress/Action Taken Report (ATR) on Minutes of the Last Academic Council

Meeting: The Registrar presented the ATR on the decisions taken in the last Academic Council Meeting (No. 01/2023-24) held on 21st Aug 2023 as:

Sr No	Para of Minutes of AC Meeting No. 01/2023-24 dt 21 Aug 2023	Action taken on	Status	Remarks
a.	2(3)	Proposal for starting new programme- Integrated PhD	It has been decided not to start the integrated Ph.D. program – No further action	A.C. Meeting dated- 01 May 2023
b.	2(4)	Exit option for PhD students after completion of three years (Either by institute or student). Student may be awarded MS (by research) degree, provided student must fulfil credit and other academic requirements of DIAT for MS(by research)	Since integrated Ph.D. course is no longer under consideration, it is no longer relevant – No further action	A.C. Meeting dated- 01 May 2023
c.	5	Introduction of M.Sc. in Defence Technology	Course has been introduced w.e.f Jul 2023, action completed.	A.C. Meeting dated – 21 Aug 2023
d.	7	Implementation of updated syllabus for M.Sc. Data Science	Updated syllabus has been introduced w.e.f Jul 2023, action completed.	A.C. Meeting dated – 21 Aug 2023
e.	6(i) & (ii)	i. Printing of Booklet for Courses of Study for Postgraduate Programs 2023-25 ii. Circulation of Academic Calendar 2023-24	i. Booklets printed – Action completed ii. Academic Calendar 2023-24 circulated – Action completed	A.C. Meeting dated - 21 Aug 2023

Regarding ATRs at Sl. (a) & (b) above, Dr. Tejashree Bhawe, Chairperson-DRC informed that some more ground work was required to be done as these actions were relevant to graduates with exceptional academic credentials and seeking admission to Ph D programs. After further discussions, the Chairman directed DRC to work out on the modalities and start integrated Ph D programs from next Academic Session starting Jul 2024.

Action: Chairperson - DRC

4. **Confirmation of the Minutes of the Last Academic Council Meeting held on 21st Aug 2023:** The Registrar informed that the minutes of meeting of the Academic Council held on 21st Aug 2023 were circulated and no comments were received. Therefore, the minutes of Academic Council meeting held on 21st Aug 2023 were confirmed, as circulated.

5. **Following Reporting Items were noted:**

- a. Patents - Industrial Designs update: Dean (Academics) (Annexure-1).
- b. CTP - Placement update: Dean (Academics) (Annexure-2).

The A.C. inquired about the status of students who were not placed through CTP. The Dean (Acad) informed that there are some students who go for higher studies or take up short term jobs, etc and therefore, details of such students were not available. The A.C. suggested to conduct exit interviews of such students and maintain that data which would be then useful to know their status regarding higher studies/jobs/start-ups, etc. The Dean (Acad) informed that the Institute has a dedicated Centre for Training & Placement for this purpose and information as suggested by the A.C. shall be collected and maintained in future. He thanked the A.C. for this valuable suggestion.

Action: Director – CTP

- c. MoU Update: Dean (Sponsored Research) (Annexure-3)

The A.C. inquired about outcomes of these MoUs. The Dean (SR) stated that he would compile all relevant data and present it in next meeting of A.C.

Action: Dean (SR)

6. **Agenda Items for discussion:**

- a. **Agenda – 1: Introduction of M.Sc. in Tank Technology for Service Officers in association with Armoured Corps Centre and School (ACC&S)**

The proposal for introduction of M.Sc. in Tank Technology was presented by Prof. Shaibal Banerjee, Director – School of Defence Technology (SDT) and Lt. Col. Manikandan, O i/c Tank Tech. Course. The A.C. was informed about requirements of the Indian Army in this regard and the need for a PG degree in Tank Technology for the Officers of Indian Army. He further informed that after multiple discussions & brain storming sessions with ACCS, the proposal was considered by the BoS which finalised the program structure and the syllabus, and now, the SDT has come up with present proposal.

The A.C. inquired about financial implications, if any, to the Institute. Dir, SDT informed that there would not be any additional financial implication and the students shall pay fees as applicable to M Sc program. He further informed that arrangements/expenses regarding tours/industrial visits shall be met by ACCS, Ahmednagar. The A.C. suggested to formulate the program structure and syllabus to clearly indicate the numbers of lectures/tutorials/practicals, etc along with relevant hours. Dir, SDT thanked for the suggestion and agreed to the same. The A.C. suggested to formulate eligibility criteria more clearly and also inquired about compliance with UGC guidelines. Dean (Acad) informed that the proposal was in compliance with UGC guidelines and the NEP-2020 which encourages inter-disciplinary education. After due discussion, the A.C. resolved to approve the proposal to start new course – M Sc in Tank Technology. Final proposal along with detailed syllabus is given as **Annexure -4**.

Action: Dir, School of Defence Technology & Chairman PGC

- b. **Agenda – 2: Academic collaboration with IIM-Visakhapatnam:** Dr. Sumati Siddarth, HoD-Technology Management briefed the Council about proposed collaboration with IIM – Visakhapatnam regarding dual degree of M.Tech-MBA. She informed that various modalities for implementation of the program were being worked out. The A.C. directed to revert with final proposal after completing necessary ground work in this regard.

Action: HoD, Technology Management

- c. **Agenda – 3: Minor Revision in Course Curriculum: Addition of new elective subject CE-66A (Algorithmic Cryptanalysis) for M.Tech in Cyber Security & M.Tech in Computer Science & Engineering (Artificial Intelligence):**

Dr. Manisha Nene, Director-School of Computer Engineering & Mathematical Science briefed the A.C. that the BoS, in view of technological advances, had recommended for some minor revision, i.e., addition of a new elective subject CE66A (Algorithmic Cryptanalysis) for M. Tech in Cyber Security & M.Tech in (AI). The A.C. suggested to include latest books as references. Dir-SoCE&MS thanked for the suggestion and agreed to the same. After brief discussion the A.C. resolved to approve to the revision. Details are given at Annexure-5.

Action: Dir, School of Computer Engg., & Mathematical Sciences

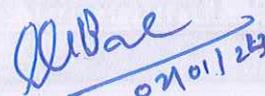
- d. **Agenda – 4: Extension of contingency facility to all other categories of M.Tech., M.Sc. & Ph. D. students:**

Dr. Umasankar Patro, Joint Registrar (Acad) I/c briefed the proposal to A.C. He informed that the Contingency Grant facility, at present is available only to scholarship students. It is now proposed to extend this facility to all students (PG & Ph D) except to those who are sponsored by industry. The A.C. inquired about financial implications of this proposal. Jt Reg (Acad) i/c informed that total annual implications would be appx Rs. 27,50,000/- (Rs 5,000 X 400 PG students plus Rs15,000 X 50 PhD students). He further informed that this amount includes contingency grants being given at present to eligible students. The A.C. also, inquired about utilisation of the proposed facility. The Dean (Acad) informed that the students utilise contingency grant for purposes of seminars, conferences, buying stationery, consumables, fabrications, etc. After detailed discussion, the A.C. resolved to recommend the proposal for approval of BoM. Details are given at Annexure- 6.

Action: Jt. Registrar (Acad) I/c

8. **Concluding remarks by Chairman:**

With no further items for discussion, the Chairman extended his gratitude to all the members for their valuable suggestions. The meeting concluded with a vote of thanks to the Chair.



(Kamal Kumar Bajre)
Registrar & Secretary, Academic Council

Patent – Industrial Design update

DIAT(DU), PATENT DETAILS FOR THE LAST SIX MONTHS
(FROM JULY – DECEMBER, 2023)

Granted patents- 03	Granted date	Inventor
A Method of Trust Evaluation of a Node by itself.	06/07/23	Dr. Manisha Nene
A Phase Change Material And A Process For Preparing The Same.	27/09/2023	Dr. Prashant S Kulkarni
A Strip For Mercury Ion Detection.	20/10/2023	Dr. P K Khanna

Provisional patent- 01	Applied date	Inventor
O-Allylated Ferrocene Grafted HTPB as Burn Rate Modifier.	07/11/2023	Dr. Shaibal Banerjee

Filed industrial Design- 02	Filed date	Inventor
Conical Doser with a Helical Blade	08/11/2023	Dr. Balasubramanian K.
Hexagonal Hopper with Triangular folds	08/11/2023	Dr. Balasubramanian K.

CTP – PLACEMENT UPDATE 2023&2024

PLACEMENT RECORD 2021-23

Students Register for Placement – 184

Students placed - 114

PLACEMENT RECORD 2022-24

Students Register for Placement – 153

Students placed - 06 *(On going)*

NOTABLE COMPANIES INCLUDE:

L&T TSL, TATA Adv.Sys.Ltd, Agnikul, Walchandnagar Industries , C-DAC, Paras Defence, BitMapper (Phoenix Group), BOSCH, Dassault, Captronics, Bharat Forge Ltd, University of Norway

UPDATE ON CURRENT MoUs

LIST OF MoUs: 2022-23

A. MoUs - Operational

S. No.	Details of MoU	Date of MoU	Validity
1	SMTU, Russia	10.01.2022	10.01.2027
2	Open University, UK	10.03.2022	10.03.2027
3	VIT, Vellore	13.04. 2022	13.04. 2027
4	Walchandnagar Industries Ltd.	09.06.2022	09.06.2027
5	National Institute of Naturopathy (NIN), Pune	05.09.2022	-----
6	Acoustics India Pvt. Ltd, Trichi, Tamilnadu	03.10.2022	03.10.2025
7	Zagreb University, Croatia	05.07. 2023	05.07.2028
8	Tarxya Technologies Pvt. Ltd. Bengaluru	05.04. 2023	-----

B. MoUs - Under process

S. No.	Details of MoU	Date of MoU	Validity	Remark
1	Homi Bhabha National Institute	----	----	Under process
2	KIMS Foundation & Research Centre (KFRC), Secunderabad	----	----	Under process
3	Cranfield University, Cranfield, Bedfordshire, MK43 OAL	15.05.2017	14.05.2022	Expired, Renewal is under progress
4	MIST, Dhaka	11.04.2019	11.04.2024	Renewal initiation under process
5	Military Technical Academy (MTA), Vietnam	----	----	Under process
6	IIM, Visakhapatnam	----	----	Under process

M.Sc. in Tank Technology Programme

Jointly conducted by

School of Defence Technology, DIAT
&
Armoured Corps Centre and School,
Ahmednagar

Eligibility

- Bachelor's degree in Engineering/Science
- Bachelor's degree in other disciplines and completion of at least two Technical training modules

Mode of Admission

Candidates Sponsored by Indian Army

Semester I

Ser No	Course Code	Topics	L	T/P	Credit	Total Marks
1	TTC501	Orientation and Introduction to Tank & ICV/BMP.	3	1	04	100
2	TTC502	Orientation and Introduction to ICV/BMP.	3	1	04	100
3	TTC503	Basic Science & Technology - I	3	1	04	100
4	TTC504	Fundamentals of Armament Technology	3	1	04	100
5	TTC505	Advance Science & Technology- I	3	1	04	100
Total Credits						20

(500Mks)

Semester II

Ser No	Course Code	Topics	L	T/P	Credit	Total Marks
1	TTC506	Basic Science & Technology – II	3	1	04	100
2	TTC507	Military Autonomous System	3	1	04	100
3	TTC508	Armoured Fighting Vehicle Armament Technology	3	1	04	100
4	TTC509	Armoured Fighting Vehicle Propulsion Technology	3	1	04	100
5	TTC510	Advanced Science & Technology– II	3	1	04	100
Total Credits					20 (500Mks)	

Semester III

Ser No	Course Code	Topics	Credit	Total Marks
1	TTC511	Combat Power Application : Doctrine	4	100
2.	TTC512	Combat Power Application : Operations	4	100
3	TTC513	Combat Power Application : SD Aspects	4	100
4	TTC514	Syndicate Technical Studies	8	200
Total Credits 20 (500			Mks)	

Semester IV

Ser No	Course Code	Topics	Credit	Total Marks
1	TTC 541	Dissertation	16	400
2		Elective	04	100
Total Credits 20				500
Grand Total 80 (200			0 Mks)	

Note :-

(a). **Dissertation**. To be submitted to school of Defence Technology, DIAT for assessment including viva and award of marks.

(b). **Open Electives**

Students may choose from following subjects as Elective: -

- (i) Advance Presentations Skill.
- (ii) Leadership and Combat Management.
- (iii) Massive Open Online Course (MOOC).

Board of Studies (BoS): M.Tech in Cyber Security



M.Tech in Cyber Security

- Started in **AY July 2021**.
- Academic Year (Jun 202325): **3rd Batch (Approved Strength 24)**
- BoS Updates & approvals:
 1. On 09th Sept 2023 (Minor Changes, approvals for mid course via emails). Revised Course in effect for **Sem-II of July 2023-25 onwards** Batch. Open Elective of four credits. Details: subject code: **CE 66A & Title: Algorithmic Cryptanalysis** .
 2. On 05th July 2022 (Major changes). Revised Course in effect for (I) **July 2023-25 & (II) July 2022-24 onwards** Batch.
 3. On 24th may 2021. Revised Course in effect for **July 2021-23** Batch (Passed Out)

Board of Studies (BoS): M.Tech in CSE (Artificial Intelligence)



M.Tech in Computer Science & Engineering (AI)

- AI Specialisation started in **AY July 2019**.
- Batch/Academic Year (Jun 202325): **5th Batch (Approved Strength 24)**
- BoS Updates & approvals:
 1. On 09th Sept 2023 (Minor Changes, approvals for mid course via emails). Revised Course in effect for **Sem-II of July 2023-25 onwards** Batch. Open Elective of four credits. Details: subject code: **CE 66A & Title: Algorithmic Cryptanalysis** .
 2. On 05th July 2022 (Major changes). Revised Course in effect for (I) **July 2023-25 & (II) July 2022-24 onwards** Batch.
 3. On 24th may 2021. Revised Course in effect for **July 2021-23** Batch (Passed Out)

NEW OPEN ELECTIVE ADDED:

M.Tech in Cyber Security & M.Tech in CSE (AI) Sem II

Subject Title	Algorithmic Cryptanalysis	Course Code: CE66A
Course Credits:	04	
Course Objectives	This course discusses cryptanalysis from basics to advanced application from algorithmic point of view. / completion of the course, the students should be able to identify and apply the suitable algorithm for m sophisticated cryptographic applications, including LFSR based stream ciphers and index calculus methods. The students should be able to observe the advancements in current computer architectures and its imp on implementation aspects of cryptanalysis methods.	
Prerequisite	Preferred if subjects related to cryptography and algorithms are studied in graduation or semester	
Pre-requisite training	One week training on basics of Cryptography & algorithms	
Syllabus Description		
UNIT-I	Preliminaries, Defining security in cryptography, Elementary Number Theory and Algebra, Evolution in Computing Devices, Evolution in Communication Media, Evolving Programming Environments, Three Generic Forms of Cryptanalysis: Cipher text only, Known cipher text/plain text pairs, and Chosen plain text chosen cipher text.	
UNIT-II	General Approaches to Cryptanalysis (i) based on properties on encryption algorithms & (ii) brute force, Linear Algebra, Sieve Algorithms, Brute Force Cryptanalysis, The Birthday Paradox: Sorting or Not? Birth Based Algorithms for Functions, Algorithmic complexities & computational costs.	
UNIT-III	Birthday Attacks through Quadrisection Fourier and Hadamard Walsh Transforms, Lattice Reduction, Polynomial Systems and Gröbner Bases Computations; Study of protocols for cryptanalysis.	
UNIT-IV	Attacks on Stream Ciphers, Lattice Based Cryptanalysis, Elliptic Curves and Pairings, Index Calculus Algorithms	
Text Book Reference Books	Algorithmic Cryptanalysis, by Antoine Joux, 2010 1. Cryptanalysis: A Study of Ciphers and Their Solution (Dover Brain Games), by Helen F. Gaines , 1956 2. Cryptanalysis of Number Theoretic Ciphers, By Samuel S. Wagstaff, Jr., 2002	

1. Joux, A. (2009). Algorithmic Cryptanalysis (1st ed.). Chapman and Hall/CRC. <https://doi.org/10.1201/9781420070033>

2. Mihailescu, Marius Iulian, and Stefania Loredana Nita. *Pro Cryptography and Cryptanalysis: Creating Advanced Algorithms with C# and .NET*. Apress, 2021.

Reference Books

1. Petrenko, Alexei. Applied Quantum Cryptanalysis. CRC Press, 2023.

2. Derbez, Patrick. Tools and Algorithms for Cryptanalysis. Diss. Université Rennes 1, 2022.

3. Wagstaff Jr, Samuel S. *Cryptanalysis of number theoretic ciphers*. Chapman and Hall/CRC, 2019.

4. Gaines, Helen F. *Cryptanalysis: A study of ciphers and their solution*. Courier Corporation, 2014.

AGENDA – 4

EXTENSION OF CONTINGENCY FACILITY TO ALL OTHER CATEGORIES OF M.TECH, M.SC. & PHD STUDENTS

Programme	Category	Remark
M.Tech	Self-Financed Category	At present, Contingency Grant is provided by DIAT ONLY to scholarship students (M.Tech & Ph.D): Ph.D: Rs 15,000 per Year, & M.Tech: Rs 5,000 per Year
	Service Officers /DRDO: Self Sponsored	
	Foreign Students	
M.Sc.	All M.Sc programmes (excluding Sponsored Category: Services/Industry)	It is proposed to extend above facility to all students falling under categories listed here.
Ph.D/ MS(by Research)	Internal Part time	
	Service Officers /DRDO: Self Sponsored	
	Foreign Students	

Proposal submitted for consideration and recommendation to BoM
- Joint Registrar (Acad) I/c

