

2022-23

ANNUAL REPORT



**National Institute of Technical Teachers Training and Research
(Ministry of Education, Government of India)**

Sector – 26, Chandigarh –160 019 (India)
(An ISO 9001 : 2015 Certified Institute)

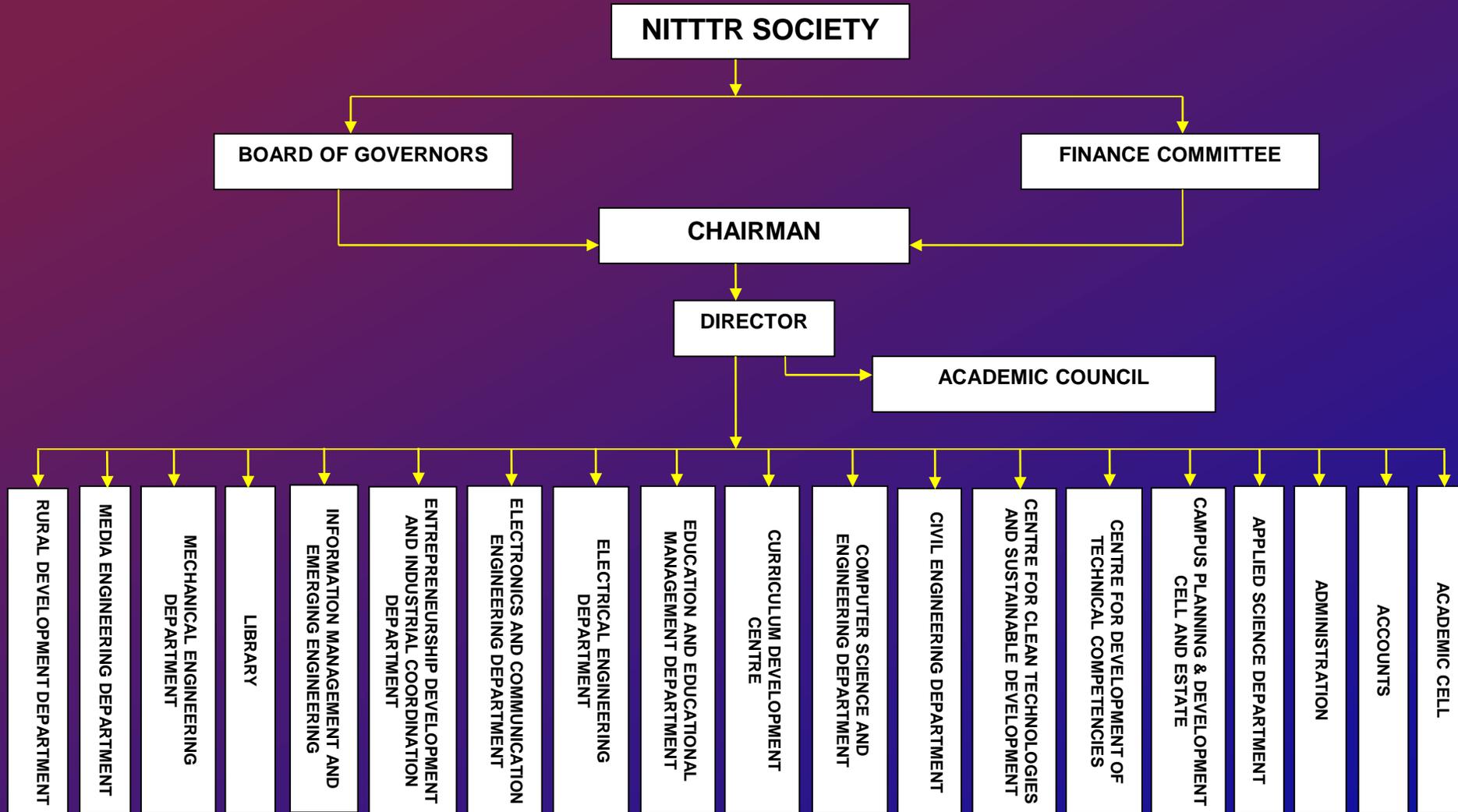
 www.nitttrchd.ac.in  <https://www.facebook.com/NITTTRCHANDIGARH>

 [nitttr_chandigarh](https://www.instagram.com/nitttr_chandigarh)  [@NITTTR_CHD](https://twitter.com/NITTTR_CHD)  [NCTEL](https://www.youtube.com/channel/UC...)

 www.linkedin.com/company/nitttrchandigarh

Teaming Together

ORGANISATIONAL STRUCTURE OF NITTTR CHANDIGARH



Contents

Organizational Structure

- Members of NITTTR Chandigarh Society i
- Members of Board of Governors ii
- Members of Finance Committee iii
- Members of Academic Council iv

1.0 The Institute

- Broad Objectives 3
- Operational Objectives 3
- Programmes and Activities 5
- Management 6

2.0 Achievement Highlights

- Staff Development 24
- Instructional Material Development 29
- Curriculum Development 52
- Research and Development 53
- Extension Services and Consultancy 55
- Academic Achievements of the Departments 57

3.0 Institutional Resources

- Land and Constructed Space 155
- Equipment 156
- Furniture 156
- Expenditure 156
- Library 157

4.0 Audited Accounts 160

LIST OF HON'BLE MEMBERS OF THE NITTTR CHANDIGARH SOCIETY AS ON 31.3.2023

Sr. No.	Name and Designation with full address	Status
1.	Vacant	Hon'ble Chairman
2.	Smt. Gupta, Saumya JS (NIT) Govt. of India Ministry of Education Shastri Bhawan News Delhi – 110 001	Member
3.	Shri Kapoor, Sanjog Joint Secretary and Financial Adviser (IFD) Govt. of India Ministry of Education Shastri Bhawan News Delhi – 110 001	Member
4.	Prof. Vig, Renu Vice Chancellor Panjab University Sector – 114 Chandigarh 160 014	Member
5.	Prof. Kakde, R.B. Adviser – I All India Council for Technical Education Nelson Mandela Marg Vasant Kunj New Delhi – 110 070	Member
6.	Prof. Gurjar, Bhol Ram Director & Member Secretary NITTTR, Sector – 26 Chandigarh – 160 019	Member Secretary

LIST OF HON'BLE MEMBERS OF BOARD OF GOVERNOR MEMBERS OF NITTTR, CHANDIGARH AS ON 31.03.2023

Sr. No.	Name and Designation with full address	Status
1.	Vacant	Hon'ble Chairman
2.	Smt. Gupta, Saumya JS (NIT) Govt. of India Ministry of Education Shastri Bhawan News Delhi – 110 001	Member
3.	Shri Kapoor, Sanjog Joint Secretary and Financial Adviser (IFD) Govt. of India Ministry of Education Shastri Bhawan News Delhi – 110 001	Member
4.	Prof. Vig, Renu Vice Chancellor Panjab University Sector – 114 Chandigarh 160 014	Member
5.	Prof. Kakde, R.B. Adviser – I All India Council for Technical Education Nelson Mandela Marg Vasant Kunj New Delhi – 110 070	Member
6.	Prof. Mathew, Lini Professor & Head Electrical Engineering Department NITTTR, Sector – 26 Chandigarh – 160 019	Member
7.	Prof. Gurjar, Bhol Ram Director & Member Secretary NITTTR, Sector – 26 Chandigarh – 160 019	Member Secretary

LIST OF HON'BLE MEMBERS OF FINANCE COMMITTEE OF NITTTR, CHANDIGARH AS ON 31.03.2023

Sr. No.	Name and Designation with full address	Status
1.	Vacant	Hon'ble Chairman
2.	<p>Smt. Gupta, Saumya JS (NIT) Govt. of India Ministry of Education Shastri Bhawan News Delhi – 110 001</p>	Member
3.	<p>Shri Kapoor, Sanjog Joint Secretary and Financial Adviser (IFD) Govt. of India Ministry of Education Shastri Bhawan News Delhi – 110 001</p>	Member
4.	<p>Prof. Gurjar, Bhol Ram Director & Member Secretary NITTTR, Sector – 26 Chandigarh – 160 019</p>	Member Secretary

LIST OF HON'BLE MEMBERS OF ACADEMIC COUNCIL OF NITTTR, CHANDIGARH AS ON 31.03.2023

Sr. No.	Name and Designation with full address	Status
1.	Prof. Gurjar, Bhola Ram Director NITTTR, Chandigarh	Chairman
External Members		
1.	Shri Garnaik, SP Regional Lead (GB&I) Asia & Lead (Energy Efficiency) Global Green Growth Institute (GGGI) M-6, Hauz Khas, New Delhi-110016	Expert Member
2.	Shri Nagaraju, Supreeth Head, Education Adobe Systems India Pvt. Limited Bangalore	Expert Member
Internal Members		
1.	Prof. Bala, Niraj Professor & Head EDIC Department NITTTR, Chandigarh	Member
2.	Prof. Banwait, S.S. Professor Mechanical Engineering Department NITTTR, Chandigarh	Member
3.	Prof. Choudhary, B.C. Professor Applied Science Department NITTTR Chandigarh	Member
4.	Dr. Dhaliwal, Balwinder Singh Associate Professor ECE Department NITTTR, Chandigarh	Member
5.	Prof. Dhameja , S.K. Professor EDIC Department NITTTR, Chandigarh	Member

LIST OF HON'BLE MEMBERS OF ACADEMIC COUNCIL OF NITTTR, CHANDIGARH AS ON 31.03.2023

Sr. No.	Name and Designation with full address	Status
6.	Prof. Dhami, Sukhdeep Singh Professor Mechanical Engineering Department NITTTR, Chandigarh	Member
7.	Prof. Dutt, Sunil Professor EMGT Department NITTTR, Chandigarh	Member
8.	Prof. Gill, Sandeep Singh Professor IMEE Department NITTTR Chandigarh	Member
9.	Prof. Gupta, AB Professor and Head Curriculum Development Centre NITTTR, Chandigarh	Member
10.	Dr. Gupta, S.K. Associate Professor Curriculum Development Centre NITTTR, Chandigarh	Member
11.	Prof. Kumar, Amod Professor and Head Electronics and Communication Engineering Department, NITTTR, Chandigarh	Member
12.	Dr. Kumar, Ashok Associate Professor Applied Science Department NITTTR Chandigarh	Member
13.	Prof. Mathew, Lini Professor and Head Electrical Engineering Department NITTTR, Chandigarh	Member

LIST OF HON'BLE MEMBERS OF ACADEMIC COUNCIL OF NITTTR, CHANDIGARH AS ON 31.03.2023

Sr. No.	Name and Designation with full address	Status
14.	Prof. Mehra, Rajesh Professor Curriculum Development Centre NITTTR, Chandigarh	Member
15.	Prof. Pabla, B.S. Professor Mechanical Engineering Department NITTTR, Chandigarh	Member
16.	Prof. Pattnaik, S.S. Professor Media Engineering Department NITTTR, Chandigarh	Member
17.	Prof. Rama Krishna, C. Professor & Head CSE Department NITTTR, Chandigarh	Member
18.	Prof. Roy, U.N. Professor & Head EMGT Department NITTTR, Chandigarh	Member
19.	Prof. Sharma, Pankaj Professor & Head Applied Science Department NITTTR Chandigarh	Member
20.	Prof. Sharma, Sanjay Professor and Dean, Industrial Coordination and Extension Services, Civil Engineering Department NITTTR, Chandigarh	Member
21.	Er. Singh, Amardev Assistant Professor EDIC Department NITTTR, Chandigarh	Member

LIST OF HON'BLE MEMBERS OF ACADEMIC COUNCIL OF NITTTR, CHANDIGARH AS ON 31.03.2023

Sr. No.	Name and Designation with full address	Status
22.	Prof. Singh, Rupinder Professor & Head Mechanical Engineering Department NITTTR Chandigarh	Member
23.	Er. Singla, P.K. Associate Professor & Faculty Incharge (Administration) NITTTR, Chandigarh	Member
24.	Dr. Shimi, SL Assistant Professor Electrical Engineering Department NITTTR, Chandigarh	Member
25.	Prof. Sood, Hemant Professor & Head Civil Engineering Department NITTTR, Chandigarh	Member
26.	Prof. Syal, Poonam Professor and Head Rural Development Department NITTTR, Chandigarh	Member
27.	Prof. Verma, Piush Professor Electrical Engineering Department NITTTR, Chandigarh	Member
28.	Prof. Wats, Rakesh Professor & Head Media Engineering NITTTR, Chandigarh	Member
29.	Prof. Dutta, Maitreyee Dean (Academics, Research and Development) NITTTR Chandigarh	Member Secretary

1.0 The Institute



National Institute of Technical Teachers Training and Research, Chandigarh, is one of the four such national institutes in the country with focus on development of technical education in the country. However, being situated in the northern region, the main attention of the institute is focusing on the states of Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan, Uttar Pradesh, Uttarakhand, Delhi and Union Territory of Chandigarh. Presently, the outreach of the programs and activities of the institute covers the entire gamut of technical education. It is now reckoned as a resource institute for the technical education system providing services to its clientele covering faculty/staff of technical institutions, officials of directorates/boards of technical education, central and state government departments, industry, students from technical institutes, community and trainees from overseas. NITTTR, Chandigarh is an ISO 9001- 2015 certified organisation.

The institute is an autonomous organisation registered under the Societies Registration Act 1860 with Director as the executive head and managed by a Board of Governors. The institute is situated in a well-developed campus in Sector 26, Chandigarh covering an area of over 6.85 hectares housing the academic buildings, hostels, guest house and residential accommodation for faculty and staff. The institute also has residential campus in sectors 29 and 42 of Chandigarh. The institute is about 10 kms from Inter State Bus Terminus (ISBT) in Sector 43 and 05 kms each from Chandigarh Railway Station and ISBT, Sector 17. The clean campus with innovative digital approach makes the institute unique not only in city but also in the country.

Vision and Mission

Vision

To be a lead resource Institute for promoting excellence in technical education system



Mission

- *To offer continuing education and training programs for the faculty and staff of the technical education system.*
- *To develop need-based curricula for technical education program.*
- *To develop instructional material to enhance effectiveness of teaching-learning process.*
- *To undertake research and development in engineering & technology and technical education.*
- *To provide extension and consultancy services to technical education system.*

1.1 Broad Objectives of the Institute

To provide professional education and training for teachers of engineering and technology disciplines in technical institutions for advancement of learning towards promoting excellence in technical education and industry.

To strive for continuous improvement in instruction and research in engineering and technology disciplines and research in management of technical education.

To actively support the growth and quality improvement of technical education in the country through involvement in activities at national and state levels.

1.2 Operational Objectives

To act as a centre for offering quality training programs for teachers as per need of the system, covering the entire gamut of technical education including polytechnics, engineering colleges, vocational and management education at national level

01

To arrange for practical training of technical teachers in industries

02

To undertake systematic research to provide research inputs for development of technical education, training systems and its management

03

To undertake action research for development of innovative methods, processes and practices for improvement of teaching learning environment in technical and vocational education institutions

04

1.2 Operational Objectives (contd..)

To design new instructional system and strategies for production of online learning materials

05

To develop and disseminate learning resources like Text books, Laboratory Manuals, Video Programs, Computer Assisted Instructional Multimedia Packages to technical and vocational institutions and other organisations

06

To offer programs for technical teachers through SWAYAM and NCTEL web portal

07

To offer courses/programs for technical and vocational teachers to suit overseas demand especially for SAARC and ASEAN countries

08

To collaborate with community and industry in organising Continuing and Nonformal vocational education programs

09

To undertake consultancy and extension work for industry, technical institutions/organizations

10

To provide support services to Government of India schemes related to technical and vocational education system and as entrusted by MHRD, Government of India, from time to time

11

To cooperate with educational or other institutions in any part of the world having objectives wholly or partly similar to those of the institute by exchange of teachers and scholars and generally in such manner as may be conducive to their common objectives

12

The Institute is continually striving to achieve its stated objectives and remain in the forefront in all its functional areas.

1.3 Programs & Activities

To achieve its stated objectives, the Institute undertakes the following spectrum of activities:

Education & Training Programs

Research and Development

Instructional Material Development

Extension Services

(mainly focusing on digital resources or MOOCs for Swayam and NCTEL)

Curriculum Development

Consultancy in Technical Education and Technology Areas

Keeping in view the emerging needs of the country, the Institute is presently actively involved in the following areas as well:

- Development of various instructional resources with emphasis on digital content including educational video films and e-content generation providing easy access to the users across the nation. This also includes development and offering programs through MOOCs.
- Continuing Education for Working Engineers/ Technicians/ Managers

In addition to the above programs and activities, the institute offers consultancy services to international, national and state level organisations in the above areas.

1.4 Management

The Institute is managed by a Board of Governors, which is responsible for its general direction and control, as laid down in the Memorandum of Association and Rules and Regulations of the National Institute of Technical Teachers Training and Research, Chandigarh Society. The Director is the Chief Academic and Executive Authority and also an ex-officio member secretary of the Society/Board/Finance Committee. Under provisions of the Memorandum of Association (MoA), the Board of Governors is assisted by the following committees:

- *Academic Council*
- *Finance Committee*



Director of the Institute is the Chairman of the Academic Council

2.0

Achievement Highlights



Academics

52918 Total participants trained

210 ICT based courses - 27540 participants

116 Contact based courses – 2016 participants

22 consultancy projects – 766 participants

04 sponsored projects – 181 participants

6 MOOCs and 3 NITTT Modules in SWAYAM Portal – 22415 participants

60 Students

on roll for Ph.D. Programs in different disciplines

34 Video films produced **169** Video films uploaded in NCTEL YouTube Channel

490 Curricula of subjects

of Diploma programmes developed

13 Consultancy programmes

conducted for principals and instructors of ITI of Uttarakhand state

85 Students

admitted in ME Regular & Modular Mode during 2022-23

121 Papers

published in SCI journals by the faculty of the institute

10 Ph.D.s

completed and defended during 2022-23

2.0 Achievement Highlights

Infrastructure

Renovation of Consultancy Room

Before



After



2.0 Achievement Highlights

Glimpses of Events

5 Days' National Conference on the theme 'Creating Future Path of Scientific Development in 75th Year of Independence' in context of Celebrating Azadi ka Amrit Mahotsav



5 Days' National Conference on the theme 'Creating Future Path of Scientific Development in 75th Year of Independence' in context of Celebrating Azadi ka Amrit Mahotsav was conducted jointly by NITTTR, Chandigarh and Vigyan Parishad Panchnad from 18 - 22 April, 2022. It was comprised of 10 technical sessions traversing across 5 themes viz.-a-viz. Freedom Struggle; Ideas@75; Resolve@75; Actions@75; Achievements@75. The inaugural function was attended by more than 200 participants in both contact as well as online mode. More than 10 Keynote speakers interacted with the conference participants during the five days.

Need of Entrepreneurship Development

One Day National Conference on the theme 'Need of Entrepreneurship Development' organized at NITTTR, Chandigarh on 21st April, 2022

A One Day National Conference on the theme 'Need of Entrepreneurship Development' was organized on April 21, 2022, by NITTTR, Chandigarh in collaboration with Young Hopes of India Foundation. It was comprised of technical sessions traversing across 2 themes viz.-a-viz. Generation of Ecosystem for Entrepreneurship Promotion and Three Phased Entrepreneurship Development Programme. The Conference was attended by more than 120 Heads of different academic institutions in contact mode in addition to those connected through online mode.



2.0 Achievement Highlights

Glimpses of Events

Har Ghar Tiranga

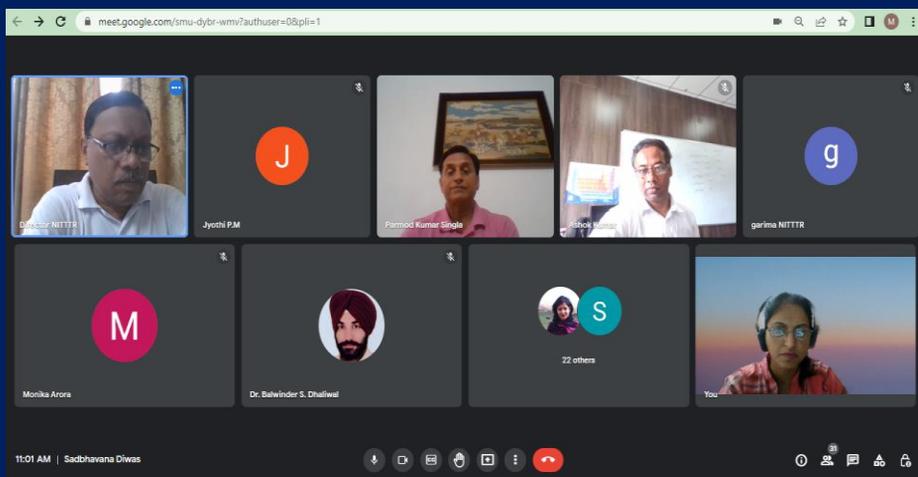


NITTTR Chandigarh had taken part in the “Har Ghar Tiranga” Movement and strengthened it by pinning the flag in the website <https://rashtragaan.in/> and uploading selfie with the National flag in the website <https://harghartiranga.com/>. All faculty, staff, students, alumni had pinned the flag in the said website. NITTTR, Chandigarh has shared the website links to almost 1 lakh participants and requested to pin the flag as well as to upload the selfie with the national flag.

On the initiative of Director, a movement for Har DP Tiranga was also launched. NITTTR Chandigarh set up AR/VR Lab in 2021 which was inaugurated online by Hon’ble Minister of education Sh. Dharmendra Pradhanji on 7th September, 2021. On the occasion of Azadi ka Amrit Mahotsav, on 15th August, 2022, NITTTR Chandigarh launched VR based App for hoisting the flag in Mount Everest which was experienced by many faculty, staff and students.



Sadbhavana Diwas



National Institute of Technical Teachers Training and Research, Sector-26, Chandigarh celebrated Sadbhavana Diwas on 20th August, 2022. Prof. S.S. Pattnaik, Director, NITTTR, Chandigarh administered Sadbhavana Diwas pledge to all faculty and staff members of the institute.

2.0 Achievement Highlights

Glimpses of Events

Teachers Day Celebration on 5th Sept.2022



The Teacher's Day was celebrated on 5th September, 2022 in physical as well as through online mode. Professor Amitava Patra, Director, Institute of Nano Science and Technology (INST) Mohali was the Chief Guest for the occasion. After the welcome address by our director, Prof. Shyam Sunder Pattnaik, an expert talk was delivered by the chief guest on "Contribution of Indian Scientists in pre-post-Independence Era". The talk was well appreciated by the faculty, staff and Students.

Workshop for Artisans, Innovators, Farmers and Polytechnic Faculty on 6th September, 2022

The workshop for artisans, innovators, farmers and polytechnic faculty was organized by Rural Development Department on 6th September, 2022 at NITTTR Chandigarh to commemorate the 75 glorious years of progressive independence. The main objective of the workshop was to bridge the gap between academia and implementers.



During the inaugural session, the significance and details about the workshop for promoting innovation and rural entrepreneurship through technical institutes was highlighted. The workshop was inaugurated by the Chief Guest, Sh D.P.S. Kharbanda (IAS) Director, Directorate of Technical Education, Punjab. During his inaugural address he stressed upon to develop entrepreneurial environment and have linkages with rural industries in the vicinity of polytechnic institutes so as to promote innovation and increase productivity of rural industries. Dr. Meena, Honorary Director, Adivasi Academy, Bhasha Research and Publication Centre Vadodara, Gujarat delivered the talk about the Kasota loom revival project at Tejgadh, Gujarat and Kalbelia craft revival project with Kota Heritage Society for encouraging rural handicraft entrepreneurship.

2.0 Achievement Highlights

Glimpses of Events

Expert talk on Millets and its Recipes on 6th September, 2022

Dr. Namrata Sethi passionate nutritionist, Gold medallist from Delhi University, interned in prestigious institutes, an entrepreneur and presently Assistant Professor in the Department of Foods and Nutrition, Government Home Science College, Chandigarh delivered a talk on significance of millets for human health and different millets recipes. Dr. Sethi highlighted processing methods of millets. She emphasized that various millets ingredients add high quality nutrients and antioxidants to our food. She also elaborated recipes from millets as well as their nutritional content.



Kargil Vijay photo exhibition and Workshop/Exhibition for Artisans, Innovators, Farmers, and Polytechnic Staff



An exhibition on Defending Motherland: Glimpses of Kargil Vijay was held on 6th and 7th September 2022 to commemorate the 75 glorious years of progressive independence. This exhibition was inaugurated by Sh. Vineet Joshi, Chairman, Joshi foundation, Member Advisory Council to Administrator, UT, Chandigarh. During the exhibition, more than 300 photographs of Kargil war, 130 currencies, 250 coins and 110 postal stamps of various countries were displayed by Jagdish Singh Bisht from Uttarakhand.

Exhibition cum Mela on 6th and 7th September 2022

A two days' exhibition cum mela was organised on 6th and 7th September 2022. The various exhibitors including Farmer Producer Organisation, Self Help Groups, Non-Governmental Organisation, startup Entrepreneurs from northern region displayed and marketed their products during this event. The Exhibition cum Mela was inaugurated by Sh. D.P.S. Kharbanda (IAS), Director, DTE, Punjab programme on 6th September 2022



2.0 Achievement Highlights

Glimpses of Events

Institute Day Celebration



55th Annual Day of the Institute was celebrated on 7th September, 2022. On this auspicious occasion, Sh. Vijay Sampla, Hon'ble Chairman, National Commission for SC, Govt. of India delivered the Presidential Address & congratulated and appreciated the contribution of the NITTTR, Chandigarh in the upliftment of the society with its interventions. Prof. Rajive Kumar, Member Secretary, AICTE, New Delhi was the chief guest on the occasion. He propounded that a lot has been talked about National Education Policy and in fact it is now the time to implement it. Dr. Kumar further emphasized on skill based education in the institutions on the footprints of the institutes like NITTTR, Chandigarh. Our Guest of Honour, Prof. N.P. Padhy, Director, MNIT Jaipur, an eminent academician, said that NITTTR, Chandigarh has the immense potential to become an university of excellence, and the way of imparting training to teachers of technical institutions is praise worthy. Professor S.S. Pattnaik, Director NITTTR Chandigarh while presenting the Annual Report for the year 2021-22 highlighted the achievements of the institute for the year 2021-22. Professor Pattnaik dedicated the achievement to the sincerity, team work and commitment of its faculty, staff and students. During the Annual function, the Institute awarded the best performing employees, meritorious students, best performing Polytechnics, and Engineering Colleges of the northern region. Also, a brainstorming workshop "Manthan on effective implementation of NEP-2020" with a focus on implementing Academic Bank of Credits, (ABC credit framework) was conducted with the aim to help students embrace a multi-disciplinary educational approach, Nearly 80 DTEs, Principals, and Joint Directors of Haryana, Himachal Pradesh, Rajasthan, Punjab, Chandigarh, Uttarakhand, besides HODs, Deans and faculty of NITTTR Chandigarh participated. A video film on Freedom Fighters "Virasat-e-Balidaan – Humara Tiranga Humari Shaan" was screened.

2.0 Achievement Highlights

Glimpses of Events

Cultural Function on the occasion of Institute Annual Day



A cultural function was organized by the institute on the occasion of Annual Day on 7th September, 2022. All institute faculty and staff members participated in the cultural programme, either as performers or spectators.

International Literacy Day

NITTR Chandigarh celebrated International Literacy Day on 8th September, 2022 (Thursday) at 4.00 pm in hybrid mode (offline and online mode). Dr. Neeraj Saxena, Advisor I and Head Institutional Development Cell (IDC), AICTE, New Delhi was the chief guest on the occasion. After a welcome address by Director Prof. SS Pattnaik, Dr. Neeraj Saxena delivered a keynote address on “Changing Landscape of Education and Learning”. The audience appreciated his valuable address.

International Literacy Day 2022 Celebration (8th September, 2022)



NATIONAL INSTITUTE OF TECHNICAL TEACHERS
TRAINING AND RESEARCH CHANDIGARH



Dr. Neeraj Saxena,
Advisor-I and Head
Institutional Development
Cell (IDC), AICTE



Prof. D.J.S. Pattnaik
Director, NITTR,
Chandigarh



Mrs. Shama Sahani
[Coordinator, Int Literacy Day]
NITTR, Chandigarh



Dr. Ashok Kumar
[Co-Coordinator, Int Literacy Day]
NITTR, Chandigarh

WOMEN- PAKHWADA from 25th November to 9th December, 2022



Awareness through Display of Banners: National Institute of Technical Teachers Training and Research has observed the period between 25th November, 2022 and 10th December, 2022 as Elimination of Discrimination against Women-Pakhwada, raising awareness about elimination of all forms of violence and discrimination. During the observance of the pakhwada, banners were displayed at prominent places for awareness of all concerned.

2.0 Achievement Highlights

Glimpses of Events

WOMEN- PAKHWADA from 25th November to 9th December, 2022



The opening ceremony was conducted on 25th November, 2022 in the Auditorium, which was attended by all faculty, staff and students. The Guest of Honour, Dr. Deepthi Gupta, Department of English and Cultural Studies, Panjab University, delivered her talk on women empowerment. She stressed upon the mindset change for safer and better environment for women in our society. The Director addressed the gathering with a message that we should do the change which we want from society. He also emphasized that the change starts from our homes. The opening ceremony ended with a vote of thanks.



Declamation Contest (English/Hindi): A declamation contest was conducted on 29th November, 2022 in Conference Hall-1, on the theme of 'Elimination of discrimination against women'. Entries were invited from all faculty, staff and students for the declamation contest. A total of 11 participants participated in the contest. The Judges for the contest were Dr. HV Samalia & Wg Cdr DS Malik (Veteran). The jury committee evaluated the declamation. The awards were distributed during closing ceremony. Dr. Suniti Dutt, Ms. Neha Ahuja and Dr. Himmi Gupta were the winners in that order.



2.0 Achievement Highlights

Glimpses of Events

WOMEN- PAKHWADA from 25th November to 9th December, 2022



Essay Writing Contest (English/Hindi): An essay writing contest was conducted on 02nd December, 2022 (Friday) in Conference Hall-1, on the theme of 'Conducive Workplace'. Prof. Pankaj Sharma and Dr. Garima Saini were the coordinators for this essay writing competition. Ten M.E. students, Ph.D. scholars, staff members participated in the activity. The Judges for the contest were Dr. Ashok Kumar, Mrs. Amandeep, and Sh. Ranbir Singh.

The essays were evaluated by panel of judges and three prizes were announced for this essay writing competition. Mr. Prerak Mittal, Visualizer, Media Engineering Department bagged the third prize, Ms. Neelam Kumari, Library Staff won the second prize and first prize was won by Dr. Suniti Dutt, Research Assistant, Media Engineering Department.



Poster Making Competition: Poster making competition was organised for faculty, staff and students on 06th December, 2022 in Conference Hall-1, on the theme of 'Recognition of Strengths and Talents of Women for Equal Rewards in Workplace'. Prof. Poonam Syal and Prof. Niraj Bala were the coordinators for this competition. Fifteen M.E. students, Ph.D. scholars, and staff members participated in the activity. The Judges for the competition were Dr. Rajesh Mehra, Dr. Meenakshi Sood, and Mrs. Shano Solanki.

The posters were evaluated by panel of judges and three prizes were announced for this competition. Ms. Tejinder Kaur of Establishment Section, bagged the third prize, Mr. Ankit Dwivedi, ME (CTM) student, won the second prize and first prize was won by Dr. Suniti Dutt, Research Assistant, Media Engineering Department.



2.0 Achievement Highlights

Glimpses of Events

WOMEN- PAKHWADA from 25th November to 9th December, 2022



Poem Recitation Competition: Poem Recitation competition was organised for faculty, staff and students on 8th December, 2022, in conference hall-1 on the theme 'Need of attitudinal change towards women in workplace'. Prof. Pankaj Sharma, Prof. Niraj Bala and Er. PK Singla were the coordinators for this competition. Fourteen M.E. students, PhD scholars, staff members participated in the activity. The Judges for the competition were Dr. Poonam Syal, Dr. Hemant Vinayak and Dr. Amit Goel.

The poem recitation competition was evaluated by panel of judges and three prizes were announced for this competition. Mr. Bhagya Vardhan, ME (Mechanical) bagged the third prize, Ms. Neha Ahuja, Accounts Department won the second prize and first prize was won by Dr. Suniti Dutt, Research Assistance, Media Engineering Department.



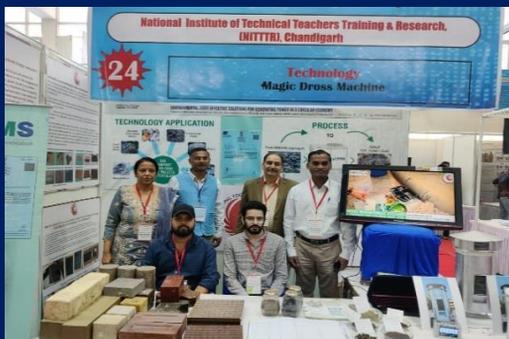
Closing Ceremony: The closing ceremony for the 'Women Pakhwara' was conducted on 9th December, 2022 (Friday) in the Institute Auditorium. All faculty, staff and students attended the ceremony. Mrs. Shano Solanki coordinated the event and welcomed the chief guest and guest speaker, Mrs. Jyoti Choudhary, Advocate, High Court Punjab & Haryana. She delivered an informative talk on "Prevention of Sexual Harassment at Workplace" in details which generated a lot of interest in the audience. The prizes were announced and distributed to awardees.

Prof (Dr.) SS Pattnaik in his speech elaborated on the duties of individuals to promote the equal opportunities for women. He also stressed upon the awareness of rights and duties for all members of the Institute. A digital tribute to women was introduced by Media Engineering Department wherein after scanning the QR Code through cellphone, anyone could visualize the acclaimed women of India through AR/VR technology.

2.0 Achievement Highlights

Glimpses of Events

CRIKC-CII Exhibition cum Industry Academia Meet organized by DST- Technology Enabling Centre, Punjab University, Chandigarh, in collaboration with Confederation of Indian Industry (CII)- organized on November 12, 2022.



NITTTR, Chandigarh has participated in above said exhibition and show cased the technology/developed construction materials under the theme of “Waste Management”. These technologies and construction materials were developed under the guidance of Dr. Sanjay Kumar Sharma, Professor, In Charge-Centre for Clean Technologies and Sustainable Development (CCTSD). The details of technology/developed construction materials are given below: -

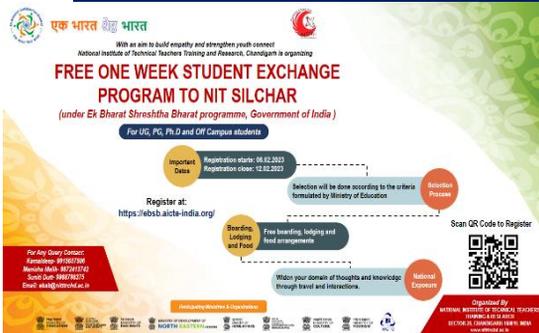
1. DROSS- MAGIC Machine: For management of Municipal Solid Waste Management.
2. Construction Materials: Superior construction materials like paver tiles, paver blocks, bricks etc. were developed by reusing electroplating waste sludge and polymers.
3. Light Weight Concrete: Light weight concrete was developed by using synthetic resin composite and fillers. The compressive strength up to 110 Mpa and flexural strength up to 11 Mpa was achieved with low density.

2.0

Achievement Highlights

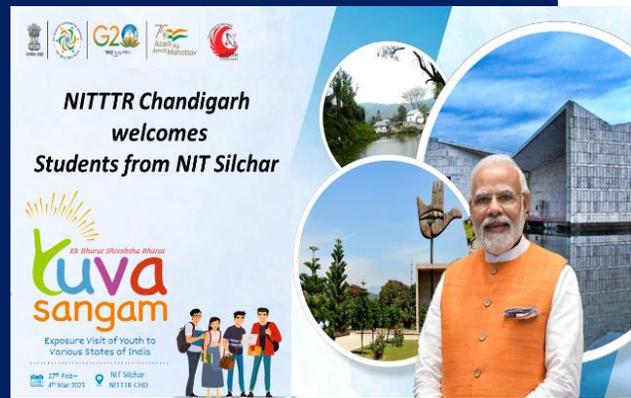
Glimpses of Events

Yuva Sangam Programme under the initiative of EBSB by NITTTR Chandigarh



Ministry of Education, Government of India, has conceptualized an initiative of 'Yuva Sangam' under Ek Bharat Shreshtha Bharat (EBSB) to strengthen people-to-people connect and build empathy between youth of the North Eastern States and other States of our country. This program is being organized in collaboration with various other ministries and departments such as Culture, Tourism, Railways, Information & Broadcasting, Youth Affairs & Sports, Home Affairs, Department for Development of North-East Region (DoNER) and IRCTC.

The program is fully funded by Government of India and there is no expenditure on the part of visiting students. It is an excellent initiative taken by Government of India under the visionary leadership of Shri. Narendra Modi ji. As a pilot initiative, 11 Higher Education Institutions from North Eastern States and 14 institutions from rest of the country have been paired. NITTTR Chandigarh was paired with NIT Silchar. Students from Chandigarh were to visit Silchar and students from Assam were to visit Chandigarh. NITTTR, Chandigarh prepared the flyer and advertised to all colleges around Chandigarh.



Total 180 registrations were received by NITTTR Chandigarh in the centralised portal developed by AICTE, New Delhi and finally 45 students were selected from various colleges of Chandigarh region (viz. MCM DAV College, Chandigarh University, Panjab University, Chitkara University, NITTTR Chandigarh etc.) according to the criteria formulated by Ministry of Education. The students from Chandigarh visited Silchar, Assam from 23rd February, 2023 to 1st March, 2023 and students from Silchar, Assam visited Chandigarh from 27th February, 2023 to 4th March, 2023. Banners were designed by NITTTR Chandigarh for all activities as communicated by Ministry of Education.

2.0 Achievement Highlights

Glimpses of Events

Yuva Sangam Programme under the initiative of EBSB by NITTTR Chandigarh



Visit of Chandigarh students: Flag off ceremony for the visit of Chandigarh students to Silchar Assam was organized at NITTTR Chandigarh. Prof. (Dr.) Baldev Setia, Director, Punjab Engineering College (Deemed to be University) flagged off on 23rd February, 2023 and the students started their journey.

The news of Flag Off Ceremony were covered in some papers like online Dainik Bhaskar, Jagmarg news, Chandigarh Today etc.

नेशनल इंस्टीट्यूट ऑफ टेक्निकल टीचर्स ट्रेनिंग एंड रिसर्च, चंडीगढ़ में फ्लैग-ऑफ समारोह आयोजित

जगमार्ग न्यूज

चंडीगढ़। प्रो. बलदेव सेतिया, निदेशक, पंजाब इंजीनियरिंग कॉलेज (खिम्ड यूनिवर्सिटी), प्रो. निशा भार्गव, प्रिंसिपल, एमसीएम डीएलजी कॉलेज फॉर वूमन, चंडीगढ़ के साथ एनआईटीटीआर चंडीगढ़ के प्रभारी निदेशक प्रो. बी.एस. पाब्ला ने 'एक भारत श्रेष्ठ' को झंडे दिखाकर खाना किया। भारत सरकार के शिक्षा मंत्रालय ने एक भारत श्रेष्ठ भारत (ईबीएसबी) के तहत 'युवा संगम' की पहल की परिकल्पना की है ताकि पूर्वोत्तर राज्यों और हमारे देश के अन्य राज्यों के युवाओं के बीच लोगों से लोगों के बीच संपर्क को मजबूत किया जा सके और सहानुभूति का निर्माण किया जा सके। यह कार्यक्रम विभिन्न अन्य मंत्रालयों और विभागों जैसे संस्कृति, पर्यटन, रेलवे, सूचना और प्रसारण, युवा मामलों और खेल, गृह मामलों, पूर्वोत्तर क्षेत्र विकास विभाग और आईआरसीटीसी के सहयोग से



आयोजित किया जा रहा है। यह कार्यक्रम उड़ान, ट्रेन और बस द्वारा यात्रा, मुफ्त भोजन और आवास के लिए भारत सरकार द्वारा पूरी तरह से वित्त पोषित है और आने वाले छात्रों की ओर से कोई खर्च नहीं है। यह श्री के दूरदर्शी नेतृत्व में भारत सरकार द्वारा की गई एक उत्कृष्ट पहल है। यह कार्यक्रम मुख्य रूप से उच्च शिक्षण संस्थानों में पढ़ने वाले छात्रों और उत्तर पूर्वी राज्यों के कुछ ऑफ-केम्पस युवाओं को अन्य राज्यों में और इसके विपरीत युवाओं के एक्सचेंजर टूर आयोजित करने पर जोर देता है। एक पायलट पहल के रूप में, पूर्वोत्तर राज्यों के 11 उच्च शिक्षा संस्थानों और शेष देश के 14 संस्थानों को जोड़ा गया है। युवाओं को पांच व्यापक क्षेत्रों - पर्यटन, परम्परा, प्रगति, प्रौद्योगिक और पारस्परिक संपर्क के अंतर्गत जीवन के विभिन्न पहलुओं और बहु-आयामी जोखिम का व्यापक अनुभव मिलेगा। कार्यक्रम भारत की विविधता का जन्म मनाएगा, एकता की भावना को फिर से जीवंत करेगा और भारत के लोकतंत्र की ताकत को उजागर करेगा।



Flag-off Ceremony on Thursday 23rd February 2023, 3:00 pm at National Institute of Technical Teachers Training and Research (NITTTR), Chandigarh



Ek Bharat Shrestha Bharat (EBSB) Yuva Sangam tour of the Chandigarh students' team to Silchar, Assam. -
Flag-off Ceremony on Thursday 23rd February 2023, 3:00 pm at National Institute of Technical



Ek Bharat Shrestha Bharat (EBSB) Yuva Sangam tour of the Chandigarh students' team to Silchar, Assam. <https://onlinebhasakar.com/2023/02/24/flag-off-ceremony-onthursday23rdfbruary2023-300-pmat-national-institute-of-technical-teachers-training-and-research-nitttr-chandigarh/>



एक भारत श्रेष्ठ भारत (ईबीएसबी) युवासंगम ने चंडीगढ़ के छात्रों की टीम का सिलचर, असम का दौरा किया। गुरुवार 23 फरवरी 2023 को दोपहर 3:00 बजे फ्लैग-ऑफ समारोह राष्ट्रीय तकनीकी शिक्षक प्रशिक्षण और अनुसंधान संस्थान (एनआईटीटीआर), चंडीगढ़ प्रो. बलदेव सेतिया, निदेशक, पंजाब इंजीनियरिंग कॉलेज (डीम्ड टू बी यूनिवर्सिटी) के सहयोग से आयोजित किया गया।

एक भारत श्रेष्ठ भारत (ईबीएसबी) युवासंगम ने चंडीगढ़ के छात्रों की टीम का सिलचर, असम का दौरा किया। <https://onlinebhasakar.com/2023/02/24/ek-bharat-shrestha-bharat-ebbs-yuvasangam-students-team-from-chandigarh-visited-silchar-assam/>

2.0 Achievement Highlights

Glimpses of Events

Yuva Sangam Programme under the initiative of EBSB by NITTTR Chandigarh



The students visited many places at Silchar Assam specially Tea processing Industry, Sonbeel Wetland of Silchar, various labs such as Robotics lab, Condition Monitoring lab, and Advanced Biofuel lab of NIT Silchar. Also students have done YOGA in the morning.



Students from Chandigarh showcased their culture through Bhangra dance in the Cultural programme at NIT Silchar. Also all students of Chandigarh had essence of North East cuisine and life style.

Visit of students from Silchar, Assam who visited Chandigarh:

22 students along with 3 faculty members from Assam visited NITTTR Chandigarh from 27th February, 2022 to 4th March, 2022. The students were welcomed by NITTTR faculty and students at 3 am in the morning. On the first day, the students were welcomed and honored by the Director, NITTTR Chandigarh. They were provided food prepared by millets, which they relished.



2.0 Achievement Highlights

Glimpses of Events

Yuva Sangam Programme under the initiative of EBSB by NITTTR Chandigarh



Students visited many local places as well as some specific places like Anandpur Sahib, Veerasat-e Khalsa, National Institute of Sports (NIS) of Patiala, Kurukshetra, Art and Museum Gallery of Chandigarh, Panjab University, Gandhi Bhawan etc. Students also experienced Kirtan and Dance at Iskcon Temple. They had enjoyed taking langar at Gurudwara as well as prasadam at ISKCON temple. Some glimpses are hereby given. In NIS Patiala, students met Meerabai Chanu and Jeremy, Commonwealth Gold medal winners.



Last day, Governor of Punjab, His Excellency, Sh. Banwarilal Purohit ji met the student in Punjab Raj bhawan. Students shared the culture of North East with him.



2.0 Achievement Highlights

Glimpses of Events

International conference on “Artificial Intelligence of Things” from 30th to 31st March 2023



International conference on “Artificial Intelligence of Things” was organised by Computer Science and Engineering Department, Electronics and Communication Engineering Department and Electrical Engineering Department of NITTTR Chandigarh from 30th – 31st March, 2023. An overwhelming response had been received from the delegates across the country as well as from countries like UK, Saudi, Vietnam, Nepal, and Singapore etc. Around 400 papers were received to the conference, out of which 60 papers were selected for presentation. The conference paper presentations were divided into 8 tracks. The title of the tracks were related to papers categorised into recent themes of artificial intelligence, IoT and Industry 4.0. The invited talks were delivered by international, national and industry experts. The conference was sponsored by Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India, New Delhi. Several other organisations like IETE Chandigarh Centre, Syngient Technologies, Alakh Infotech, Design Tech Systems, Gigabyte Networks, Fore Solutions, Hitech Solutions, Pinnacle Enterprises etc. have also extended sponsorship for this conference. Organizing team includes Prof. C. Rama Krishna, Dr. Gagangeet Singh Aujla, Prof. Lini Mathew, Prof. Amod Kumar, Dr. Mala Kalra, Dr. Shimi S L, Dr. Garima Saini and Dr. Kanika Sharma.



2.1 Staff Development

The Institute continued to grow in terms of academic activities, both qualitatively and quantitatively. The qualitative dimensions covered related to continued improvements by way of increased emphasis on applications, case studies and industrial exposure in training programs besides more efficient and effective use of e-contents, videos, in teaching-learning process. During 2022-23, the details of the long term and short term training programs conducted by the institute for faculty/staff of Engineering colleges and Polytechnics are given below:

2.1.1 Long Term Programmes

2.1.1 (a) Ph.D. Programs

Institute is an approved Research Centre of Panjab University, Chandigarh, I.K. Gujral Punjab Technical University, Kapurthala and H.P. University, Shimla for Ph.D. Program as on March 2023, 60 students are undergoing Ph.D. programs in different disciplines. The Institute is also a Ph.D. Centre under QIP (Poly) Scheme of AICTE.

2.1.1 (b) M.Tech. / M.E. Programs

The Institute offers full-time industry-oriented and practice-based Master's Degree Programs of 02 years duration affiliated to Panjab University, Chandigarh and approved by AICTE in the following disciplines:

- Mechanical Engineering (Manufacturing Technology)
- Civil Engineering (Construction Technology and Management)
- Computer Science and Engineering
- Electrical Engineering (Instrumentation and Control)
- Electronics and Communication Engineering

The institute is also offering these Master's Degree Programs on modular basis. The modular program is of 3½ years duration. These ME programs are duly approved by AICTE and affiliated to Panjab University and mainly for the working personnel who undergoes the course work during Summer and Winter break but are evaluated along with the regular students on the same question paper as they appear examination with regular students. This unique model of the institute is a platform for the service personnel to upgrade quality knowledge through a flexi mode degree awarding programme ensured with quality. This programme was launched in the year 2005. Since then majority of the polytechnic faculty members could enhance their qualification spreading to all parts of the country.

Admissions made in these programs during 2022-23 are given below:

Staff Development through Education and Training

LONG TERM PROGRAMMES

SESSION:2022-23							
ME (Modular) Programme 2022-23							
Sr. No	Name of the Programme	No. of Participants				Total	State wise breakup
		Poly	EC	Ind.	Gen		
1.	Mechanical Engineering	13	-	-	03	16	RJ-09, BIHAR-03, DELHI-01, HR-01, WB-01, JHARKHAND-01
2.	Civil Engineering (Construction Tech. & Management)	20	-	01	01	22	RJ-11, NAGALAND-03, BIHAR-06, KOLKATA-01, ASSAM-01
3.	Computer Science and Engineering	07	-	01	01	09	RJ-01, TELEGANA-01, CHD-01, MH-01
4.	Electrical Engineering (Instrumentation and Control)	21	-	-	-	21	RJ-20, UP-01
5.	Electronics and Communication Engineering	06	-	-	01	07	RJ-05, CHD-01, BIHAR-01
Total		67	-	02	06	75	

ME (Regular) Programme 2022-23							
Sr. No.	Name of the Programme	No. of Participants				Total	State wise breakup
		Poly	EC	Ind.	Gen		
1.	Mechanical Engineering	-	-	-	-	-	
2.	Mechanical Engineering (Robotics)	-	-	-	-	-	
3.	Civil Engineering (Construction Tech. & Management)	-	-	-	10	10	UP-01, HP-03, HR-01, J&K-01
4.	Computer Science and Engineering	-	-	-	-	-	
5.	Electrical Engineering (Instrumentation and Control)	-	-	-	-	-	
6.	Electronics and Communication Engineering	-	-	-	-	-	
7.	Electronics and Communication Engineering (Artificial Intelligent)	-	-	-	-	-	
Total					10	10	

Regular: 10 (Batch 2022) and Modular: 260 (Batch - 2020 to 2022)
Total ME Students as on roll – M.E. (Modular & Regular) Total= 355

2.1.2 Short Term Courses (STCs) (Faculty Development Programme)

The Faculty Development Programmes were broadly of 5 categories viz: industry oriented, industry supported, research oriented, skill oriented and advanced level.

The institute offers need-based and customized short-term courses of one to two weeks' duration for faculty/staff of engineering colleges, polytechnics and working professionals from industry. During the year 2022-23, **352** short-term programs were conducted through contact and ICT mode for faculty/staff of engineering colleges and polytechnics which were attended by **30503** teachers from various states of the country. Besides this, **22415** participants were trained through MOOCs / NITTT Modules.

Conferences/Seminars, Training Workshops, Curriculum Development Workshops and Students Training etc. were other development programmes conducted by the institute.

	Type of Training Programs	No. of Courses/ Programs	No. of Teachers Trained
A)	Short Term Courses		
	Contact Mode	116	2016
	ICT Mode	210	27540
	Consultancy programmes	22	766
	Sponsored Programmes	04	181
	Total:	352	30503
B)	Conferences/Seminars:		
	(i) International	01	102
	(ii) National	02	344
C)	Workshops:		
	(i) Training Workshops (other than Curriculum Development Workshop)	29	1997
D)	Students Training Programs	17	395
E)	Curriculum Development Workshops	136	1178

INTERNATIONAL CONFERENCES ORGANIZED

Sr. No.	Name of the Seminar/Conference	No. of Participants
1.	Springer CCIs series - International Conference on Artificial Intelligence of Things (ICAIoT 2023) from 30-31 March 2023.	102

NATIONAL CONFERENCES/ SEMINARS ORGANIZED

Sr. No.	Name of the Seminar/Conference	No. of Participants
1.	Conference on 'Need of Entrepreneurship Development' for Principals of Schools, Polytechnics and Engineering College on 21. 04.22 at NITTTR Chandigarh.	165
2.	'Creating Future Path of Scientific Development in 75 th Year of Independence' - National Seminar organized by National Institute of Technical teacher Training and Research (NITTTR) Chandigarh and Vigyan Prishad Panchnad, Punjab, April 18-22, 2022 at NITTTR Chandigarh	179

WORKSHOPS CONDUCTED (OTHER THAN CURRICULUM DEVELOPMENT WORKSHOPS):

Sr. No.	Name of the Workshop along with dates and venue	No. of Participants
1.	Three days' workshop on 'Engineering Materials: Design and Simulation' held on 15-17 Feb 2023	171
2.	Workshop on 'New India Using Digital Devices and Technology' from 15-16.10.2022 at NITTTR, Chandigarh	71
3.	OPLAN 2023-24 Workshop for Himachal Pradesh	40
4.	Workshop on 'Manthan on the Indian Knowledge System, for Effective Implementation on NEP- 2020' from 09.09.2022 to 11.09.2022	152
5.	Online Orientation Workshop on 'NSQF' for J&K State on 14.07.2022	52
6.	Online Workshop to Develop Guidelines for Diploma Programmes on 15.07.2022	19
7.	Professional Competency update Programme, Pilot Study- TNA for Haryana (Online), May 2022	161
8.	Workshop for O-Plan 2023-24 Finalization at DTE Sundernagar, HP, 4th January 2023	25
9.	Organised Workshop on 'Vetting NBA SAR Proposal of UG CSE Programme' on 25-26 April 2022 for College of Engineering, Roorkee at NITTTR, Chandigarh under AICTE Margdarshan Scheme	4
10.	Organised Online Workshop on 'Vetting NBA Compliance Report of UG Pharmacy Programme' on 4 May 2022 for MIET, Meerut under AICTE Margdarshan Scheme	3
11.	Organised Workshop on 'Vetting NBA SAR Proposal of UG CSE Programme II' on 6 May 2022 for College of Engineering, Roorkee at NITTTR, Chandigarh under AICTE Margdarshan Scheme	33
12.	Tech 4 Seva Workshop on 6 th July 2022	20

WORKSHOPS CONDUCTED (OTHER THAN CURRICULUM DEVELOPMENT WORKSHOPS):

Sr. No.	Name of the Workshop along with dates and venue	No. of Participants
13.	Organised Workshop on 'Vetting Pre-Qualifiers of SSM College of Engineering, Kashmir' on 19 July 2022 for SSM College of Engineering, Kashmir under AICTE Margdarshan	04
14.	Organised Workshop on 'Vetting NBA SAR Proposal of Diploma in CSE Programme' on 25 August 2022 for SJPP, Damla under AICTE Margdarshan Scheme	04
15.	Lecture on 'Creating Awareness About Millets (Types, Importance, Climate Resilient and Economic Security)' on 12 th August, 2022	35
16.	Lecture on 'Potential of Millets (Nutritional Value, as Nutraceutical and Functional Food) as well as Awareness through social media' on 13 th August 2022	36
17.	One day workshop on 'Basics of Entrepreneurship' at NITTTR Chandigarh on 31 st August, 2022	227
18.	Organized Mock NBA Visit of UG Programme in CSE under AICTE Margdarshan Scheme from 2-3 September 2022 at College of Engineering, Roorkee under AICTE Margdarshan Scheme	25
19.	Workshop For Artisans, Innovators, Farmers and Polytechnic Faculty Involved in Skill Development Work Held on 06 th September, 2022	82
20.	Exhibition And Mela of Organic Products, Millets, Handicrafts, Food Processing Machinery etc. for Self-Help Groups, Artisans, Organic Farmers, Innovators and Polytechnic Faculty Held on 06 th and 7 th September, 2022	300
21.	Recipe Formulation Competition on 'Traditional Recipes From Millets and Expert Talk on Millets and its Recipes ' held on 6 th September	15
22.	Two days' Workshop on 'Industry Supported Refresher workshop for Training and Placement Officers of Northern Region' from 06.09.2022 to 07.09.2022 in online mode at NITTTR Chandigarh	
23.	Organised Online Workshop on 'CO-PO Attainment' under AICTE Margdarshan Scheme on 17.09.2022 for MIET, Meerut under AICTE Margdarshan Scheme	15
24.	VVM Workshop, October 15-16,2022,NITTTR Chandigarh	22
25.	Organized Quiz on Millets held on 18th November 2022	301
26.	Visit for Millets Processing Industry at Batala on 23 rd January 2023	30
27.	Technology Awareness and Demonstration Program held at Village Bari, Ropar District on 10.11.2022	46
28.	One Day Online Workshop for Preparation of Operation Plan for Year 2023-24 for Rajasthan State on 23 rd December 2022	58
29.	Organised Workshop on 'Vetting NBA Compliance Report of UG Engineering Programmes' on 23-24 March 2023 for MIET, Meerut under AICTE Margdarshan Scheme	46

2.2 Instructional Material Development

During the year 2022-23, institute continued its efforts to promote development of instructional material, both print (text books, laboratory manuals, modules, readers etc.) and non-print (video programme, MOOCs videos). Emphasis was made to develop course material for MOOCs as it is thrust area of MHRD.

The following instructional material was produced during the year under report:

Print Material

Type of Instructional Material	No. Completed during 2022-23
Books	02
Edited Books	07
Book Chapters	95
Laboratory Manuals	01
Instructional Material for Training Programs	03

Books

Sr. No.	Title
1.	Indoor Air Quality Assessment for Smart Environments, Editors: Jagriti Saini, Maitreyee Dutta, Goncalo Marques, Malka N. Halgamuge. Series: Ambient Intelligence and Smart Environments. IOS press, 978-1-64368-276-1
2.	IoT Enabled Computer-Aided Systems for Smart Buildings. Editors: Goncalo Marques, Jagriti Saini, Maitreyee Dutta, https://link.springer.com/book/10.1007/978-3-031-26685-0

Text Books Edited

Sr. No.	Title
1.	An Introduction to Hard Ferrites: From Fundamentals to Practical Applications Eds. Gagan Kumar Bhargava, Pankaj Sharma, Sumit Bhardwaj, Indu Sharma Materials Research Foundations Vol. 142 Publication Date 2023, 218 Pages Print ISBN 978-1-64490-230-1 (release date March 2023) ePDF ISBN 978-1-64490-231-8 DOI: https://doi.org/10.21741/9781644902318
2.	Advanced Circuits and Systems for Healthcare and Security Applications CRC Press, Taylor & Francis, 8 September 2022 (ISBN 9781032039077) Balwinder Raj B B Gupta and Jeetendra Singh
3.	AI for Big Data Based Engineering applications from the Security Perspectives, CRC Press, Taylor & Francis, Dec 2022 (ISBN 9781032136134). Balwinder Raj B B Gupta and Sandeep Singh Gill

Text Books Edited (contd..)

Sr. No.	Title
4.	3D Printing of Sensors, Actuators, and Antennas for Low-Cost Product Manufacturing CRC Press, Taylor & Francis Ltd., February, 2023. ISBN 9781032046808, eBook ISBN 9781003194224 DOI: https://doi.org/10.1201/9781003194224 . Rupinder Singh, Balwinder Singh Dhaliwal, Shyam Sundar Pattnaik
5.	Materials today: Proceedings for Symposium on Synthesis, Characterization & Processing of Inorganic, Bio and Nano Materials – 2021, (Edited by Jasgurpreet Singh Chohan, Rupinder Singh, Harjot Singh Gill, Raman Kumar), Volume 48, Part 5, 2022, pp 927-1774 (Elsevier).
6.	4D Printing: Fundamentals and Applications, Elsevier, 2022 (ISBN: 9780128237250). Rupinder Singh
7.	Advances in Manufacturing Technology: Computational Materials Processing and Characterization, S. S. Dhama, B. S. Pabla CRC Press, Taylor & Francis, 2022.

Book Chapters

Sr. No.	Title
1.	Spintronics for AI, in Book AI for Big Data-Based Engineering Applications from The Security Perspectives”, CRC Press, Taylor & Francis, Parul Sharma, Sandeep Singh Gill and Balwinder Raj, Dec 2022
2.	Feature -Based AD Assessment Using ML. In: Sharma, H., Saraswat, M., Yadav, A., Kim, J.H., Bansal, J.C. (eds) Congress on Intelligent Systems. CIS 2020. Advances in Intelligent Systems and Computing, vol 1335, Dutt Mishra, S., Dutta, M. Springer, Singapore. https://doi.org/10.1007/978-981-33-6984-9_16
3.	Adaptive Memetic Algorithm on Novel CBLSP Algorithm for O-Tree Implementation. In: Darji, A.D., Joshi, D., Joshi, A., Sheriff, R. (eds) Advances in VLSI and Embedded Systems. Lecture Notes in Electrical Engineering, vol 962, Gupta, R., Gill, S.S. Springer, Singapore. https://doi.org/10.1007/978-981-19-6780-1_22,2022
4.	A Comprehensive Analysis in Recent Advances in 3D VLSI Floorplan Representations. In: Darji, A.D., Joshi, D., Joshi, A., Sheriff, R. (eds) Advances in VLSI and Embedded Systems. Lecture Notes in Electrical Engineering, vol 962, Gupta, R., Gill, S.S. Springer, Singapore. https://doi.org/10.1007/978-981-19-6780-1_20
5.	Role of 2D Materials in Environmental Monitoring. In Emerging Two Dimensional Materials and Applications, (2022) pp. 195-216. CRC Press, R. Dhahiya, M. Saha, Ashok Kumar, Pankaj Sharma, R. S. Singh, Varun Rai, and K. Behera.
6.	Role of Graphene-Based Materials in Gas Sensing Applications: From Synthesis to Device Fabrication in the book, Materials Horizons: From Nature to Nanomaterials- Handbook of Porous Carbon Materials (Springer), R.Deji, Rahul, B.C.Choudhary and Ramesh K. Sharma, 2023
7.	2D Materials for Energy Harvesting in Emerging two dimensional materials and applications (eds., A K. Singh, R S Singh, A Singh), CRC Press doi: 10.1201/9781003247890-8, Astakala Anil Kumar, Sharmila Kumari Arodhiya, Shashank Priya, Ashok Kumar*and Shyam Sundar Pattnaik (2023)

Book Chapters (contd...)

Sr. No.	Title
8.	2D Materials: Mechanical Properties and Applications in Emerging two dimensional materials and applications (eds., A K. Singh, R S Singh, A Singh), CRC Press doi: 10.1201/9781003247890-7, Deeksha Nagpal, Astakala Anil Kumar, Jashandeep Singh, Ajay Vasishth, Shashank Priya, Ashok Kumar*and Shyam Sundar Pattnaik, 2023
9.	MOF Based Nanocomposites for Supercapacitor Applications in Polymer nanocomposites in supercapacitor (eds. Soney C George, Sam John, Sreelakshmi Rajeevan), CRC Press doi: 10.1201/9781003174646-10, Deeksha Nagpal, Astakala Anil Kumar, Ajay Vasishth, Shashank Priya, Ashok Kumar*and Shyam Sundar Pattnaik, 2022
10.	SS-DDOS: Spark-Based DDoS Attacks Classification Approach Security and Resilience of Cyber Physical Systems, pp.l. 80-90, Champan and Hall/CRC, Nilesh Vishwasrao Patil, C. Rama Krishna, and Krishan Kumar, 2022
11.	Brain Tumor Segmentation Using Deep Learning: Taxonomy, Survey and Challenges, Editor(s): Jyotismita Chaki, Brain Tumor MRI Image Segmentation Using Deep Learning Techniques, Academic Press, Ranjeet Kaur, Amit Doegar, 2022, Pages 225-238, ISBN 9780323911719
12.	Artificial Intelligence in Precision Oncology, in Computational Intelligence Aided Systems for Healthcare Domain. CRC Press, Ranjeet Kaur, Sabiya Fatima, Amit Doegar, C. Rama Krishna, Suyash Singh, ISBN 9781003368342
13.	Design and Investigation of Various Memristor Models for Neuromorphic, in Nanoscale Memristor Device and Circuits Design, Micro & Nano Technology Books, Elsevier, June 2022. Shailendra Singh Raghav Dwivedi Jeetendra Singh and Balwinder Raj
14.	Spintronics for AI, in AI for Big Data Based Engineering Applications from the Security Perspectives CRC Press, Taylor & Francis, Dec 2022 Parul Sharma Sandeep Singh Gill and Balwinder Raj
15.	Emerging Non-volatile Memories for AI Applications, in Book AI for big data based engineering applications from the Security perspectives CRC Press, Taylor & Francis, Dec 2022 Mandeep Singh, Tarun Chaudhary and Balwinder Raj
16.	Advancement of Neuromorphic Computing Systems with Memristors, in Nanoscale Memristor Device and Circuits Design Micro & Nano Technology Books, Elsevier, June 2022 Jeetendra Singh Vikas Patel Balwant Raj Shailendra Singh and Balwinder Raj
17.	3D Printing in Antenna Design, in 3D Printing of Sensors, Actuators, and Antennas for Low-Cost Product Manufacturing CRC Press, eBook ISBN9781003194224 doi.org/10.1201/9781003194224 Atul M. Kulkarni Garima Saini Shyam S. Pattnaik Ravindra A. Pardeshi
15.	Investigation of Impact of Mobile Phone Radiations on EEG/ECG and Modeling of Their Coherence Using ANN Ensemble, in Artificial Intelligence and Sustainable Computing. Algorithms for Intelligent Systems Pandit, M., Gaur, M.K., Rana, P.S., Tiwari, A. (eds) pp. 441–449, Springer, Singapore. https://doi.org/10.1007/978-981-19-1653-3_33 Suman Pattnaik Balwinder S. Dhaliwal Shyam S. Pattnaik
16.	Introduction to 3D Printing of Sensors, Actuators, and Antennas for Low-Cost Product Manufacturing, in 3D Printing of Sensors, Actuators, and Antennas for Low-Cost Product Manufacturing R. Singh, B.S. Dhaliwal, S.S. Pattnaik (eds), pp. 1–12, CRC Press, Taylor & Francis Ltd., February, 2023.

Book Chapters (contd...)

Sr. No.	Title
17.	3D Printing in Antenna Design, in 3D Printing of Sensors, Actuators, and Antennas for Low-Cost Product Manufacturing CRC Press, eBook ISBN9781003194224 doi.org/10.1201/9781003194224 Atul M. Kulkarni Garima Saini Shyam S. Pattnaik Ravindra A. Pardeshi
18.	Investigation of Impact of Mobile Phone Radiations on EEG/ECG and Modeling of Their Coherence Using ANN Ensemble, in Artificial Intelligence and Sustainable Computing. Algorithms for Intelligent Systems Pandit, M., Gaur, M.K., Rana, P.S., Tiwari, A. (eds) pp. 441–449, Springer, Singapore. https://doi.org/10.1007/978-981-19-1653-3_33 Suman Pattnaik Balwinder S. Dhaliwal Shyam S. Pattnaik
19.	Introduction to 3D Printing of Sensors, Actuators, and Antennas for Low-Cost Product Manufacturing, in 3D Printing of Sensors, Actuators, and Antennas for Low-Cost Product Manufacturing R. Singh, B.S. Dhaliwal, S.S. Pattnaik (eds), pp. 1–12, CRC Press, Taylor & Francis Ltd., February, 2023.
20.	3D printing of sensors, actuators, and antennas: Materials & Processes, in 3D Printing of Sensors, Actuators, and Antennas for Low-Cost Product Manufacturing R. Singh, B.S. Dhaliwal, S.S. Pattnaik, (eds.), pp. 13-30, CRC Press, Taylor & Francis Ltd., February, 2023.
21.	A Unique Multident Wide Band Antenna for TV White Space Communication Applications, published in Proceedings of the International Conference on Paradigms of Computing, Communication and Data Sciences, July 05-07, 2022, MNIT, Jaipur, India, in Algorithms for Intelligent Systems, R.P., Yadav, S.J., Nanda, P.S., Rana, M.-H. Lim. (eds), pp 745-756, Springer Singapore, February 24, 2023 https://doi.org/10.1007/978-981-19-8742-7_60 .
22.	Singh, H., Pallavi, K., Samalia, H.V. (May, 2022). Exploring the Dark Side of Gig Economy, Markets and Jobs. in Sustainability in the Gig Economy, Gupta, A., Tewary, T., Gopalakrishnan, B.N. (eds), Springer, Singapore. https://doi.org/10.1007/978-981-16-8406-7_12
23.	Fabrication of PLA-HAP-CS Based Feed-Stock Filament by Twin-Screw Extrusion Using Matrix Co-Relation in Encyclopedia of Materials: Plastics and Polymers, Nishant Ranjan and Ranvijay Kumar, Rupinder Singh, IPS Ahuja 2022, Vol. 3, pp 279-287 DoI: 10.1016/B978-0-12-820352-1.00181-4 Oxford: Elsevier
24.	Flexible and Wearable Patch Antennas Using Additive Manufacturing: A Framework in Encyclopedia of Materials: Plastics and Polymers Chahat Jain, Balwinder S Dhaliwal and Rupinder Singh 2022, Vol. 1, pp 168-177 DoI:10.1016/B978-0-12-820352-1.00093-6 Elsevier Publications
25.	On Innovative Profile of Intramedullary Pins for Canine by Direct Metal Laser Sintering in Encyclopedia of Materials: Plastics and Polymers Rupinder Singh, J.S Sidhu, Rishab, B.S. Pabla, Ashwani Kumar 2022, Vol. 1, pp 343-349 DoI:10.1016/B978-0-12-820352-1.00160-7 Elsevier Publications
26.	Investigations of Graphene Reinforced Acrylonitrile-Butadiene-Styrene Matrix Prototypes Produced Via Functional Deposition Modeling in Encyclopedia of Materials: Composites: Brabazon, Dermot (ed), Rupinder Singh, Gurleen Singh Sandhu 2021, Vol. 2, pp. 847–854 DoI:10.1016/B978-0-12-803581-8.11915-0 Elsevier Publications

Book Chapters (contd...)

Sr. No.	Title
27.	Investigations on Chemical Assisted Mechanically Blended 3D Printed Functional Prototypes of PVDF-BaTiO ₃ -Gr Composite in Encyclopedia of Materials: Plastics and Polymers, Ravinder Sharma, Rupinder Singh, Ajay Batish, N. Ranjan 2022, Vol. 1, pp 194-203 DoI:10.1016/B978-0-12-820352-1.00144-9 Elsevier Publications
28.	Mechanical and Morphological Analysis of Ni-Cr Based Partial Dentures: A Comparative Study on Traditional and 3D Printed Assisted Investment Casting in Encyclopedia of Materials: Plastics and Polymers, Gurpartap Singh, Rupinder Singh 2022, Vol. 1, pp 238-252 DoI: 10.1016/B978-0-12-820352-1.00152-8 Elsevier Publications
29.	Multi-Factor Optimization for Preparation of Mechanical Blended and Chemical Assisted Mechanical Blended ABS-Graphene Composite for 3D Printing in Encyclopedia of Materials: Plastics and Polymers, Vinay Kumar, Rupinder Singh, IPS Ahuja 2022, Vol. 1, pp 281-287, DoI: 10.1016/B978-0-12-820352-1.00216-9 Elsevier Publications
30.	Manufacturing of Conducting Polymer-Based Flexible Batteries in Encyclopedia of Materials: Plastics and Polymers, Rupinder Singh, R. Kumar, A. K. Bhartee, N. Anand, S. Kumar, A. Kumar 2022, Vol. 1, pp 229-237 DoI:10.1016/B978-0-12-820352-1.00085-7 Elsevier Publications
31.	Matrix Co-Relation for PLA-HAp-CS Based Scaffold for Rapid Joining Using Friction Stir Spot Welding in Encyclopedia of Materials: Plastics and Polymers, N.RanjanR Kumar Rupinder Singh, IPS Ahuja 2022, Vol. 1, pp 388-396 DoI:10.1016/B978-0-12-820352-1.00183-8 Elsevier Publications
32	Mechanical Extrusion for Recycling of Thermosetting Polymers in Encyclopedia of Materials: Plastics and Polymers, KS Boparai, Rupinder Singh 2022, Vol. 1, pp 265-270 DoI:10.1016/B978-0-12-820352-1.00150-4 Elsevier Publications
33.	On Co-Relational Analysis for Properties of PLA Composite Reinforced with Mn Doped ZnO Nano Particles in Encyclopedia of Materials: Plastics and Polymers, R. Kumar, Rupinder Singh, Vinay Kumar, Pawan Kumar, N. Ranjan 2022, Vol. 1, pp 300-307 DoI:10.1016/B978-0-12-820352-1.00138-3 Elsevier Publications
34.	On Correlation of Rheological, Thermal, Mechanical and Morphological Properties of Mechanically Blended PVDF-Graphene Composite for 4d Applications in BEncyclopedia of Materials: Plastics and Polymers, Vinay Kumar, Rupinder Singh, IPS Ahuja 2022, Vol. 1, pp 308-317, DoI: 10.1016/B978-0-12-820352-1.00192-9 Elsevier Publications
35.	On Dynamic Mechanical Analysis of Mechanically Blended 3D Printed Functional Prototypes of PVDF-BaTiO ₃ -Gr Composite in Encyclopedia of Materials: Plastics and Polymers, R. Sharma, Rupinder Singh, A Batish, N. Ranjan 2022, Vol. 1, pp. 318-326 DoI: 10.1016/B978-0-12-820352-1.00145-0 Elsevier Publications
36.	On Electro-Chemical Machining of Thermosetting Polymer Matrix in Encyclopedia of Materials: Plastics and Polymers, Rupinder Singh 2022, Vol. 3, pp. 436-443. DOI:10.1016/B978-0-12-820352-1.00147-4 Elsevier Publications

Book Chapters (contd...)

Sr. No.	Title
37.	On Electro-Chemical Machining of ABS-15% Al in Encyclopedia of Materials: Plastics and Polymers, Rupinder Singh and A D Sharma 2022, Vol. 3, pp. 425–435, DOI: 10.1016/B978-0-12-820352-1.00146-2 Elsevier Publications
38.	On Establishing a Co-Relational Matrix for Recycling of HDPE by Mn Doped ZnO Nano Particles Reinforcement in Encyclopedia of Materials: Plastics and Polymers, Ranvijay Kumar, Rupinder Singh, V Kumar, P Kumar, N. Ranjan 2022, Vol. 1, pp. 327-335 Dol: 10.1016/B978-0-12-820352-1.00139-5 Elsevier Publications
39.	On Investigations of Co-Relational Matrix for Preparation of Feedstock Filament by Mn Doped ZnO Reinforcement in Nylon 6 in Encyclopedia of Materials: Plastics and Polymers, R Kumar, Rupinder Singh, V Kumar, P Kumar, N.Ranjan 2022, Vol. 3, pp. 454-462 Dol: 10.1016/B978-0-12-820352-1.00142-5 Elsevier Publications
40.	On Preparation of CaCO ₃ Reinforced Polypropylene Composite With 3D Printing for Biomedical Application in Encyclopedia of Materials: Plastics and Polymers, Sudhir Kumar, Rupinder Singh 2022, Vol. 1, pp. 378-385 Dol: 10.1016/B978-0-12-820352-1.00180-2 Elsevier Publications
41.	Intramedullary Pins for Veterinary Patients Using 3D Printing' in Encyclopedia of Materials: Plastics and Polymers, Rupinder Singh, J.S, Sidhu, Rishab, BS. Pabla, A Kumar 2022, Vol. 1, pp 186-193 Dol:10.1016/B978-0-12-820352-1.00166-8 Elsevier Publications
42.	On Investigating the Acrylonitrile Butadiene Styrene-Melamine Formaldehyde Composite Matrix for 4D Applications in Encyclopedia of Materials: Plastics and Polymers, Gulraj Singh, Rupinder Singh, Gurinder Singh Brar 2022, Vol. 1, pp 350-360 Dol: 10.1016/B978-0-12-8203521.00179-6 Elsevier Publications
43	On Multi-Factor Optimization for Hybrid Feed-Stock Filament of PLA Using TOPSIS in Encyclopedia of Materials: Plastics and Polymers, Sudhir Kumar, Rupinder Singh, Tejinder Paul Singh, Ajay Batish, 2022, Vol. 1, pp 361-367 Dol: 10.1016/B978-0-12-8203521.00165-6 Elsevier Publications
44.	On Wear Properties of Mechanical Blended and Chemical Assisted Mechanical Blended ABS-Graphene Reinforced Composites in Encyclopedia of Materials: Plastics and Polymers, Vinay Kumar, Rupinder Singh, IPS Ahuja 2022, Vol. 1, pp 434-441, Dol: 10.1016/B978-0-12-8203521.00109-7 Elsevier Publications
45.	Optimization of FDM for Fabrication of PLA-HAp-CS Based Functional Prototypes/Scaffolds Using Matrix Co-Relation in Encyclopedia of Materials: Plastics and Polymers, Nishant Ranjan, Rupinder Singh, IPS Ahuja, Ranvijay Kumar 2022, Vol. 3, pp 475-484 Dol: 10.1016/B978-0-12-820352-1.00182-6 Elsevier Publications
46.	Post Treatment for Super Finishing of 3d Printed Thermosetting Polymers Based Functional Prototypes in Encyclopedia of Materials: Plastics and Polymers, JS Chohan, Rupinder Singh 2022, Vol. 1, pp 463-470 Dol: 10.1016/B978-0-12-820352-1.00155-3 Elsevier Publications

Book Chapters (contd...)

Sr. No.	Title
47.	Process Capability of Mechanical Blended and Chemical Assisted Mechanical Blended ABS-Graphene Composite in Encyclopedia of Materials: Plastics and Polymers, V Kumar, Rupinder Singh, IPS Ahuja, Suraj Prakash, BS Pabla 2022, Vol. 1, pp 486-494, DoI: 10.1016/B978-0-12-820352-1.00215-7 Elsevier Publications
48.	Recycling of Medical Waste Thermoplastics in Encyclopedia of Materials: Plastics and Polymers, KS Boparai, Rupinder Singh 2022, Vol. 1, pp 503-509 DoI: 10.1016/B978-0-12-820352-1.00154-1 Elsevier Publications
49.	Thermoplastic Polymers: A Review on Primary, Secondary, Tertiary and Quaternary Recycling in Encyclopedia of Materials: Plastics and Polymers, Jasgurpreet S Chohan, Rupinder Singh, 2022, Vol. 1, pp 558-566 DoI: 10.1016/B978-0-12-820352-1.00151-6 Elsevier Publications
50.	Thermoplastics as Meta-materials in Encyclopedia of Materials: Plastics and Polymers, JS Chohan, Rupinder Singh 2022, Vol. 1, pp 567-575 DoI: 10.1016/B978-0-12-820352-1.00143-7 Elsevier Publications
51.	Thermosetting Polymer Application as Meta Materials in Encyclopedia of Materials: Plastics and Polymers Jasgurpreet S Chohan, Rupinder Singh 2022, Vol. 1, pp 576-583 DoI: 10.1016/B978-0-12-820352-1.00159-0 Elsevier Publications
52.	Thermosetting Polymers: A Review on Primary, Secondary, Tertiary and Quaternary Recycling in Encyclopedia of Materials: Plastics and Polymers Jasgurpreet S Chohan, Rupinder Singh, 2022, Vol.1, pp 603-610 DoI: 10.1016/B978-0-12-820352-1.00116-4 Elsevier Publications
53.	Development of Rectangular Patch Antenna on Primary Recycled ABS Substrate Using Additive Manufacturing for Wireless Communication Applications in Encyclopedia of Materials: Plastics and Polymers Chahat Jain, B.S Dhaliwal, Rupinder Singh, 2022, Vol. 3, pp 200-210 DoI:10.1016/B978-0-12-820352-1.00229-7 Elsevier Inc.
54.	On Development of Thermoplastics Based Meta-structures by FFF Based 3D Printing in Encyclopedia of Materials: Plastics and Polymers RKumar, N.RanjanRupinder Singh, Vinay Kumar 2022, Vol. 3, pp 416-424 DoI:10.1016/B978-0-12-820352-1.00240-6 Elsevier Inc.
55.	On Process Capability Analysis for Commercial Fabrication of ABS Based Multi-Structured Products Using 3D Printing in Encyclopedia of Materials: Plastics and Polymers Nishant Ranjan, Ranvijay Kumar, Rupinder Singh 2022, Vol. 3, pp 463-474 DoI:10.1016/B978-0-12-820352-1.00230-3 Elsevier Inc.
56.	Secondary Recycling of HDPE Domestic Waste by Reinforcement of Cu Doped ZnO Nanoparticles for 3D Printing Applications in Encyclopedia of Materials: Plastics and Polymers Ranvijay Kumar, Rupinder Singh, Vinay Kumar, Nishant Ranjan, Pawan Kumar 2022, Vol. 3, pp 699-707 DoI:10.1016/B978-0-12-820352-1.00232-7 Elsevier Inc.
57.	On 3D printed multi-blended and hybrid-blended poly(lactic) acid composite matrix for self-assembly in 4D Printing: Fundamentals and Applications, Rupinder Singh, Sudhir Kumar, T.P. Singh, Ajay Batish 2022, Chapter-1, pp 1-15 Elsevier Publications ISBN: 9780128237250

Book Chapters (contd...)

Sr. No.	Title
58.	Graphene-reinforced acrylonitrile butadiene styrene composite as smart material for 4D applications in 4D Printing: Fundamentals and Applications, Rupinder Singh, Vinay Kumar, IPS Ahuja 2022, Chapter-2, pp 17-32 Elsevier Publications ISBN: 9780128237250
59.	Two-way programming of secondary recycled poly(lactic)acid composite matrix using magnetic field as stimulus in 4D Printing: Fundamentals and Applications, Rupinder Singh, Sudhir Kumar, T.P. Singh, Ajay Batish 2022, Chapter-3, pp 35-50 Elsevier Publications ISBN: 9780128237250
60.	3D printed graphene-reinforced polyvinylidene fluoride composite for piezoelectric properties in 4D Printing: Fundamentals and Applications, Rupinder Singh, Vinay Kumar, IPS Ahuja 2022, Chapter-4, pp 51-65 Elsevier Publications ISBN: 9780128237250
61.	On characterization of rechargeable, flexible electrochemical energy storage device in 4D Printing: Fundamentals and Applications, Rupinder Singh, KS Boparai, A. Kumar 2022, Chapter-5, pp 67-87 Elsevier Publications ISBN: 9780128237250
62.	On dual/multi-material composite matrix for smart structures: a case study of ABS-PLA, HIPS-PLA-ABS in 4D Printing: Fundamentals and Applications, Rupinder Singh, Sudhir Kumar, Ranvijay Kumar 2022, Chapter-6, pp 89-100 Elsevier Publications ISBN: 9780128237250
63.	PVDF-graphene-BaTiO ₃ composite for 4D applications in 'in 4D Printing: Fundamentals and Applications, Rupinder Singh, Ravinder Sharma, Ajay Batish 2022, Chapter-7, pp 103-117 Elsevier Publications ISBN: 9780128237250
64.	Hydrothermal stimulus for 4D capabilities of PA6-Al-Al ₂ O ₃ composite in 4D Printing: Fundamentals and Applications, Rupinder Singh, Kamaljit S Boparai 2022, Chapter-8, pp 121-144 Elsevier Publications ISBN: 9780128237250
65.	On PLA-ZnO composite matrix for shape memory effect in 4D Printing: Fundamentals and Applications, Rupinder Singh, Kumar, Vinay Kumar, Pawan Kumar 2022, Chapter-9, pp 147-158 Elsevier Publications ISBN: 9780128237250
66.	Investigations on Mechanical Properties of Reinforced Secondary Recycled ABS as Filament for 3D Printing Applications in Additive, Subtractive, and Hybrid Technologies, Mechanical Engineering Series, Rupinder Singh, K. Chawla and J. Singh 2022, pp 41-50 DoI: 10.1007/978-3-030-99569-0_3 Springer Publications
67.	Mechanical and Morphological Properties Correlation of PLA-PVC-Wood Powder-Fe ₃ O ₄ Composite Matrix for 3D Printing in Additive, Subtractive, and Hybrid Technologies, Mechanical Engineering Series, Rupinder Singh, S. Kumar, T.P. Singh and A. Batish 2022, pp 51-58 DoI: 10.1007/978-3-030-99569-0_4 Springer Publications
68.	Correlation of Mechanical and Rheological Properties of Al-Al ₂ O ₃ -Nylon 6 Composite Feedstock Filament for Rapid Tooling in Additive, Subtractive, and Hybrid Technologies, Mechanical Engineering Series, Rupinder Singh, K.S. Boparai 2022, pp 101-106 DoI: 10.1007/978-3-030-99569-0_8 Springer Publications

Book Chapters (contd...)

Sr. No.	Title
69.	A Framework on Electrochemical Machining of ABS-15% Al Composite in Additive, Subtractive, and Hybrid Technologies, Mechanical Engineering Series, Rupinder Singh, Arun Dutt Sharma 2022, pp 107-113 DoI: 10.1007/978-3-030-99569-0_9 Springer Publications,
70.	Hybrid mechanical and chemical recycling of plastics in Additive Manufacturing for Plastic Recycling, Rupinder Singh, R. Sharma, Ajay Batish, N. Ranjan 2022, pp 37-50 Chapter-3, DoI:10.1201/9781003184164-3 Taylor and Francis, CRC Press
71.	Primary and secondary melt processing for plastics in Additive Manufacturing for Plastic Recycling, Rupinder Singh, Kamaljit Singh Boparai, A. Kumar 2022, pp 51-65 Chapter-4, DoI:10.1201/9781003184164-4 Taylor and Francis, CRC Press
72.	Fused Deposition Modeling as A Secondary Recycling Process for The Preparation of Sustainable Structures in Additive Manufacturing for Plastic Recycling, Rupinder Singh, J Singh, K Chawla 2022, pp 67-92 Chapter-5, DoI:10.1201/9781003184164-5 Taylor and Francis, CRC Press
73.	Tertiary Recycling of Plastic Solid Waste for Additive Manufacturing in Additive Manufacturing for Plastic Recycling, Rupinder Singh, Vinay Kumar, IPS Ahuja 2022, pp 93-109 Chapter-6 DoI:10.1201/9781003184164-6 Taylor and Francis, CRC Press
74.	Economic and Environment Justification in Additive Manufacturing for Plastic Recycling, Rupinder Singh, Ranvijay Kumar 2022, pp 111-124 Chapter-7 DoI:10.1201/9781003184164-7 Taylor and Francis, CRC Press
75.	Twin-screw extrusion for processing thermoplastics in biomedical scaffolding applications in Additive Manufacturing for Plastic Recycling, Rupinder Singh, Nishant Ranjan, R. Kumar, Sharma 2022, pp 125-140 Chapter-8, DoI:10.1201/9781003184164-8 Taylor and Francis, CRC Press
76.	Case study for the development of a hybrid composite structure of thermosetting and thermoplastics in Additive Manufacturing for Plastic Recycling, Rupinder Singh, S. Kumar, AP Singh, Yang Wei 2022, pp 141-157 Chapter-9 DoI:10.1201/9781003184164-9 Taylor and Francis, CRC Press
77.	Hybrid feed stock filament processing for the preparation of composite structures in heritage repair in Additive Manufacturing for Plastic Recycling, Rupinder Singh, Vinay Kumar, IPS Ahuja 2022, pp 159-170 Chapter-10, DoI:10.1201/9781003184164-10, Taylor and Francis, CRC Press
78.	On dimensional accuracy modeling of hot chamber die casting in Advances in Manufacturing Technology: Computational Materials Processing and Characterization, Rupinder Singh, Vinay Kumar 2022, pp 3-10 Chapter-1, DoI:10.1201/9781003203681 Taylor and Francis, CRC Press
79.	Electrochemical machining of Cu substrate with Cu tool: A case study in Advances in Manufacturing Technology: Computational Materials Processing and Characterization Rupinder Singh, Gurwinder Singh, P.S. Rao 2022, pp 89-97 Chapter-11, DoI:10.1201/9781003203681 Taylor and Francis, CRC Press

Book Chapters (contd...)

Sr. No.	Title
80.	RCM Implementation in Electric Power Generation Unit in Advances in Manufacturing Technology: Computational Materials Processing and Characterization, Rupinder Singh, N.S. Bhangu, G.L. Pahuja, S.R. Pradhan 2022, pp 175-188 Chapter-19, Dol:10.1201/9781003203681 Taylor and Francis, CRC Press
81.	3D Printing of ABS-Cu-ZnO Based Composite Structures: Mechanical and Morphological Investigations in Encyclopedia of Materials: Plastics and Polymers, R. Kumar, Rupinder Singh, Vinay Kumar, N. Ranjan, P. Kumar 2022, Vol. 3, pp 1-9, Dol:10.1016/B978-0-12-820352-1.00250-9 Elsevier Publications
82.	Twin Screw Extrusion for Recycling of LDPE Domestic Waste by Cu Doped ZnO Nanoparticles Reinforcement in Encyclopedia of Materials: Plastics and Polymers, Ranvijay Kumar, Rupinder Singh, V. Kumar, N. Ranjan, P Kumar 2022, Volume 3, pp. 743-751, Dol:10.1016/B978-0-12-820352-1.00233-9 Elsevier Inc.
83.	Bio-Compatible Polymer Matrix for 3D Printing: A Review in Encyclopedia of Materials: Plastics and Polymers, Sudhir Kumar, Rupinder Singh 2022. Vol. 1, pp 39-46, Dol:10.1016/B978-0-12-820352-1.00231-5 Elsevier Inc.
84.	Electrospinning Based Nanofibers for 3D Printing Applications in Encyclopedia of Materials: Plastics and Polymers, Ranvijay Kumar, Mohit Kumar, Rashi Tyagi, Rupinder Singh 2022, Vol. 3, pp 253-263 Dol:10.1016/B978-0-12-820352-1.00247-9 Elsevier Inc.
85.	Hydrogel-Nanofiber Composites for Tissue Reconstruction Applications: A State-of-the-Art Review in Encyclopedia of Materials: Plastics and Polymers, R Kumar, K. Badogu, K. Kaur, S Farooq, Rupinder Singh 2022, Vol. 3, pp 306-316 Dol:10.1016/B978-0-12-820352-1.00251-0 Elsevier Inc.
86.	On Development of Cu Doped ZnO Nanoparticles Reinforced with ABS as Feedstock Filament for 3D Printing Applications in Encyclopedia of Materials: Plastics and Polymers, RKumar, Rupinder Singh, V Kumar, N Ranjan, P. Kumar 2022, Vol. 3, pp 407-415 Dol:10.1016/B978-0-12-820352-1.00234-0 Elsevier Inc.
87.	On Flame Retardant and Dielectric Properties of Acrylonitrile Butadiene Styrene-Melamine Formaldehyde Composite in Encyclopedia of Materials: Plastics and Polymers, Gulraj Singh, Rupinder Singh, G S Brar 2022, Vol. 1, pp. 336-342 Dol:10.1016/B978-0-12-820352-1.00269-8 Elsevier Inc.
88.	On Flexural Strength of 3D Printed ABS Based Meta-structure in Encyclopedia of Materials: Plastics and Polymers, Rupinder Singh, Nishant Ranjan 2022, Vol. 3, pp. 444-453 Dol:10.1016/B978-0-12-820352-1.00254-6 Elsevier Inc.
89.	On Multi-factor Optimization for Preparation of Feedstock Filament of PVC-PP-HAp Composite for 3D Printing in Encyclopedia of Materials: Plastics and Polymers, Rupinder Singh, Nishant Ranjan 2022, Vol. 1, pp. 368-377 Dol:10.1016/B978-0-12-820352-1.00270-4 Elsevier Inc.
90.	On Process Capability of PVC-PP Composite Feedstock Filament for 3D Printing Applications in Encyclopedia of Materials: Plastics and Polymers, Rupinder Singh, Nishant Ranjan, Ranvijay Kumar 2022, Vol. 1, pp. 393-403 Dol:10.1016/B978-0-12-820352-1.00253-4 Elsevier Inc.

Book Chapters (contd...)

Sr. No.	Title
91.	Process Parametric Optimization for 3D Printing of ABS Based Multi-Structured Functional Prototypes in Encyclopedia of Materials: Plastics and Polymers, Rupinder Singh, Vinay Kumar, N. Ranjan 2022, Vol. 3, pp 591-598 Dol:10.1016/B978-0-12-820352-1.00262-5 Elsevier Inc.
92.	Additive manufacturing for 4D applications in 4D Printing: Fundamentals and Applications, Rupinder Singh 2022, Dol:10.1016/B978-0-12-823725-0.00011-4 Elsevier Publications ISBN: 9780128237250
93.	3D Printing Assisted Fabrication of Dental Crowns for Veterinary Patients S. R. Pradhan, Rupinder Singh, S.S. Banwait, Arun Anand 2022, Dol: 10.1016/B978-0-323-86011-6.00007-6 Elsevier Publications In Innovative Processes and Materials in Additive Manufacturing © 2022. ISBN 978-0-323-86011-6
94.	Parametric optimization of TSE for PVDF-Graphene-Mn ZnO composite based filament fabrication for 3D/4D printing applications in Numerical Modelling and Optimization in Advanced Manufacturing Processes, Vinay Kumar, Rupinder Singh, IPS Ahuja 2022, pp 75-92 Dol:10.1007/978-3-031-04301-7 Springer Publications ISBN: 978-3-031-04301-7
95.	Multi-factor Optimization for Joining of Polylactic acid -Hydroxyapatite-Chitosan based Scaffolds by Rapid Joining Process in Numerical Modelling and Optimization in Advanced Manufacturing Processes, Nishant Ranjan, Rupinder Singh, IPS Ahuja 2022, pp 93-104 Dol:10.1007/978-3-031-04301-7 Springer Publications ISBN: 978-3-031-04301-7

Lab Manual

Sr. No.	Title
1.	VLSI Design by Balwinder Raj

Non Print Material (Digital Resources)

34

Educational Video Films produced



169

**Lecture based Video Films
uploaded in NCTEL Youtube
channel**

List of Video Films Edited: 34

Sr. No.	Name of the Video
1.	Road Opening And Convoy Protection
2.	Immersive Technologies In Education Part 1
3.	Immersive Technologies In Education Part 2
4.	OBS Studio Part 1
5.	OBS Studio Part 2
6.	OBS Studio Part 3
7.	First Aid
8.	Communication Set Up During Election
9.	Internal Security And Election MCP & Flag March
10.	Internal Security And Election Camp Security
11.	Crowd Control
12.	Engine Efficiency
13.	Engine Performance Improvement
14.	Online Survey And Promotion Of Products And Services Module 7part 3
15.	Human Resource Management Module 8 Part 4
16.	Blue Ocean Strategy Module 8 Part 5
17.	Student Evaluation And E Assessment Tools By KG Srinivasa
18.	Ensuring Examination Sancity In Virtual Learning By KG Srinivasa
19.	Demo Of Canvas E-Learning Tool By KG Srinivasa
20.	Technology Development Part-1 : Features and Processes by Prof. SK KAK
21.	Technology Development Part-2: Technology Development Models by Prof. SK KAK
22.	Technology Development Part-3: New Product, Technology or System Development
23.	Technology Development Part-4: Innovation - Processes and Models
24.	Technology Development Part-5: Creativity, Innovation and Future of TechDev
25.	Various forms of business organisations by Prof. SK Dhameja
26.	Virtual Education Need, Concept, Features and Challenges by Dr. KG Srinivasa
27.	Virtual Education : Learning Outcomes and Setting Question Paper (part-1) by Dr.PK Tulsi
28.	Virasat E Balidan Hamara Tiranga Hamari Shaan(Baji Raut, Bhagat Singh, Birsa Munda, Mahatma Gandhi) For Independence Day
29.	Virasat E Balidan Complete Hamara Tiranga Hamari Shan Bal Gangadhar Tilak
30.	Veer Bal Divas Film
31.	Film on Anant Kanhere, Freedom Fighter
32.	A Film on Ek Bharat Shreshth Bharat – A National Mission
33.	Virtual Tour of the Institute
34.	Film on Women Pakhwara – A National Mission

Video Lectures Uploaded in YouTube = 169

Sr. No.	Title	Completed	Remarks
1.	Expert Session by Dr. Bedi and Dr. Arun Grover	Completed	NCTEL Edited and uploaded film
2.	Inauguration of 5 Days National Conference on Creating Future paths	Completed	NCTEL Edited and uploaded film
3.	Expert Talk on IIT System by Dr. Dharamvir	Completed	NCTEL Edited and uploaded film
4.	75 year of Independence by Mr. Vivek Talwar	Completed	NCTEL Edited and uploaded film
5.	Expert Talk on Smart cities and Progressive Villages by Mr. Panthdeep Singh	Completed	NCTEL Edited and uploaded film
6.	Digital Revolution by Dr. Kuldeep Chand	Completed	NCTEL Edited and uploaded film
7.	Science and Technology for Sustainable Architecture by Dr. Rakesh Sharda	Completed	NCTEL Edited and uploaded film
8.	Technology Development for Affordable Health Care by Dr. Varinder Garg	Completed	NCTEL Edited and uploaded film
9.	Science and Technology for Sustainable Agriculture Part II by Dr. Sanjeev Chouhan	Completed	NCTEL Edited and uploaded film
10.	Atma Nirbhar - Significant Aspects by Dr. Poonam Syal	Completed	NCTEL Edited and uploaded film
11.	Entrepreneurship and Start-Ups Contributing to Atma Nirbhar Bharat by Dr. JS Saini	Completed	NCTEL Edited and uploaded film

Video Lectures Uploaded in YouTube (contd..)

Sr. No.	Title	Completed	Remarks
12.	Science and Technology 2047 by Dr. Rupinder Singh	Completed	NCTEL Edited and uploaded film
13.	Indian Contribution to Science by Sh Sanjeev Duggal	Completed	NCTEL Edited and uploaded film
14.	Pulsify Me: A Musical Night-2022	Completed	NCTEL Edited and uploaded film
15.	Scientific Methods of preserving Historical Archives by Ms Namita Jaspal	Completed	NCTEL Edited and uploaded film
16.	Opportunity Identification for Entrepreneurship by Dr. Harsh Vardhan Samalia	Completed	NCTEL Edited and uploaded film
17.	Opportunities in Agri and Rural Startups by Dr. Hemant Kumar Vinayak	Completed	NCTEL Edited and uploaded film
18.	Organic Farming for Sustainable Agriculture by Dr. Amandeep Singh Sandhu	Completed	NCTEL Edited and uploaded film
19.	Converting Waste to Valuable: An Affordable Solution for Earthquake Resistant Construction by Dr Am	Completed	NCTEL Edited and uploaded film
20.	Renewable Energy based Technologies by Dr Poonam Syal	Completed	NCTEL Edited and uploaded film
21.	Day 1 Session 3, Free & Open Source Platforms for Paper Setting by Dr. Gaurav, 11 - 15 July 2022	Completed	NCTEL Edited and uploaded film
22.	Day 1 Session 2, Online Evaluation Tools by Dr. Gaurav, 11 - 15 July 2022	Completed	NCTEL Edited and uploaded film
23.	Day 2 Session 2, Evaluation Concept, Types & Validity & Reliability by Dr.Sunil Dutt, 11-15 July'22	Completed	NCTEL Edited and uploaded film
24.	Day 2 Session 1, Task-1 by. Dr .Sunil Dutt, 11-15 July 2022	Completed	NCTEL Edited and uploaded film
25.	Day 2 Session 3, Writing Learning Outcomes by Dr. PK Tulsi, 11 - 15 July 2022	Completed	NCTEL Edited and uploaded film
26.	Day 3 Session 1, Assessment of Learning Outcomes in Affective Domain by Dr .Sunil Dutt, 11-15 July'22	Completed	NCTEL Edited and uploaded film
27.	Day 3 Session 2, Evaluating Practical and Project Work by Mr. PK Singla, 11-15 July 2022	Completed	NCTEL Edited and uploaded film
28.	Day 3 Session 3, Setting of Question Papers & Designing Marking Scheme Expert by Dr.PK Tulsi	Completed	NCTEL Edited and uploaded film

Video Lectures Uploaded in YouTube (contd..)

Sr. No.	Title	Completed	Remarks
29.	Day 4 Session 3, Feedback on Assessment and Evaluation Expert by Dr.Vidhu Mohan, 11-15 July 2022	Completed	NCTEL Edited and uploaded film
30.	Day 5 Session 2 , Mapping Learning Outcomes with Test Items by Dr. Ritula Thakur, 11-15 July 2022	Completed	NCTEL Edited and uploaded film
31.	Day 5 Session 1, Design of Rubrics by Ms. Amandeep Kaur, 11-15 July 2022	Completed	NCTEL Edited and uploaded film
32.	Day 4 Session 2 - Task on TP8 and its Report back by Ms. Amandeep Kaur, 11-15 July 2022	Completed	NCTEL Edited and uploaded film
33.	Day 4 Session 1, Writing Test Items-- Supply and Selection Type by Ms. Amandeep Kaur	Completed	NCTEL Edited and uploaded film
34.	Expert Talks on Ayat se atam Nirbharta ki Aur	Completed	NCTEL Edited and uploaded film
35.	Subhash Swaraj Sarkar	Completed	NCTEL Edited and uploaded film
36.	Day 1 Session 1, Curriculum Design for Developing Job Related Competencies, 9-13 January 2023	Completed	NCTEL Edited and uploaded film
37.	Day 1 Session 2, Curriculum Design for Developing Job Related Competencies, 9-13 January 2023	Completed	NCTEL Edited and uploaded film
38.	Day 2 Session 1, Curriculum Design for Developing Job Related Competencies, 9-13 January 2023	Completed	NCTEL Edited and uploaded film
39.	Day 2 Session 2, Curriculum Design for Developing Job Related Competencies, 9-13 January 2023	Completed	NCTEL Edited and uploaded film
40.	Day 2 Session 3, Curriculum Design for Developing Job Related Competencies, 9-13 January 2023	Completed	NCTEL Edited and uploaded film
41.	Day 3 Session 1, Curriculum Design for Developing Job Related Competencies, 9-13 January 2023	Completed	NCTEL Edited and uploaded film
42.	Day 3 Session 3, Curriculum Design for Developing Job Related Competencies, 9-13 January 2023	Completed	NCTEL Edited and uploaded film
43.	Day 3 Session 2, Curriculum Design for Developing Job Related Competencies, 9-13 January 2023	Completed	NCTEL Edited and uploaded film
44.	Day 4 Session 1, Curriculum Design for Developing Job Related Competencies, 9-13 January 2023	Completed	NCTEL Edited and uploaded film

Video Lectures Uploaded in YouTube (contd..)

Sr. No.	Title	Completed	Remarks
45.	Day 4 Session 2, Curriculum Design for Developing Job Related Competencies, 9-13 January 2023	Completed	NCTEL Edited and uploaded film
46.	Day 5 Session 1, Curriculum Design for Developing Job Related Competencies , 9-13 January 2023	Completed	NCTEL Edited and uploaded film
47.	Day 5 Session 2, Curriculum Design for Developing Job Related Competencies, 9-13 January 2023	Completed	NCTEL Edited and uploaded film
48.	Day 5 Session 3, Curriculum Design for Developing Job Related Competencies, 9-13 January 2023	Completed	NCTEL Edited and uploaded film
49.	Monitoring and Control for Project Management, Dr. Sanjeev Sharma	Completed	NCTEL Edited and uploaded film
50.	Education Project Planning and Management and Phases of Project, Dr. Sunil Dutt	Completed	NCTEL Edited and uploaded film
51.	Project Identification & Writing Goals/Objectives, Dr. PK Tulsi	Completed	NCTEL Edited and uploaded film
52.	Project Evaluation, Dr. Sanjeev Sharma	Completed	NCTEL Edited and uploaded film
53.	Breakdown of Tasks and Writing Activities, Project Planning and Management, Dr. Sunil Dutt	Completed	NCTEL Edited and uploaded film
54.	Communication during Project Implementation, Project Planning and Management, Dr. Vidhu Mohan	Completed	NCTEL Edited and uploaded film
55.	Risk Taking & Creativity, Project Planning and Management, Ms. Amandeep Kaur	Completed	NCTEL Edited and uploaded film
56.	Project Implementation-Motivating Self & Team, Project Planning & Mgmt., Dr. Manjula Sularia	Completed	NCTEL Edited and uploaded film
57.	Project Scheduling (Bar Charts & PERT/CPM) - II, Project Planning & Management, Dr. Salil Dey	Completed	NCTEL Edited and uploaded film
58.	Project Implementation- Team Building, Project Planning and Management, Ms. Rama Chhabra	Completed	NCTEL Edited and uploaded film
59.	Project Scheduling (Bar Charts & PERT/CPM) - I , Project Planning & Management, Dr. Salil Dey	Completed	NCTEL Edited and uploaded film
60.	Writing Project Proposal/Report, Project Planning and Management, Dr. Sunil Dutt	Completed	NCTEL Edited and uploaded film

Video Lectures Uploaded in YouTube (contd..)

Sr. No.	Title	Completed	Remarks
61.	Emotional Quotient, Ms. Anuradha Gupta	Completed	NCTEL Edited and uploaded film
62.	Human Nature and Human Relations, Dr. Shilpa Suri	Completed	NCTEL Edited and uploaded film
63.	Empathetic Listening, Dr. Shilpa Suri	Completed	NCTEL Edited and uploaded film
64.	Transactional Analysis, Dr. Shilpa Suri	Completed	NCTEL Edited and uploaded film
65.	Assertive Communication, Ms. Anuradha Gupta	Completed	NCTEL Edited and uploaded film
66.	Inter Personal Skills, Mr. PK Singla	Completed	NCTEL Edited and uploaded film
67.	Interpersonal Skills: Life Beyond Judgement, Mr. PK Singla	Completed	NCTEL Edited and uploaded film
68.	Communication Skills-Foundation of Human Behaviour, Ms. Amandeep Kaur	Completed	NCTEL Edited and uploaded film
69.	Conflict Management, Dr. Manjula Sularia	Completed	NCTEL Edited and uploaded film
70.	Discipline and Morale for Human Relations, Dr. Shilpa Suri	Completed	NCTEL Edited and uploaded film
71.	Counselling for Human Relations, Dr. Vidhu Mohan	Completed	NCTEL Edited and uploaded film
72.	Transactional Analysis, Dr. Vidhu Mohan	Completed	NCTEL Edited and uploaded film
73.	Team Building, Mrs. Rama Chhabra	Completed	NCTEL Edited and uploaded film
74.	Self Awareness, Dr. Sunil Dutt	Completed	NCTEL Edited and uploaded film
75.	Motivating Self and Others, Dr. Sunil Dutt	Completed	NCTEL Edited and uploaded film
76.	Foundations of Human Behaviour: Human Nature & Human Relations, Dr. Shilpa Suri	Completed	NCTEL Edited and uploaded film

Video Lectures Uploaded in YouTube (contd..)

Sr. No.	Title	Completed	Remarks
77.	Empathetic Leadership, Dr. Sanjeev Chadha	Completed	NCTEL Edited and uploaded film
78.	Managing Stress for Better Human Relations, Dr. Manjula Sularia	Completed	NCTEL Edited and uploaded film
79	Cloud Computing, Mr. Vipin Gupta	Completed	NCTEL Edited and uploaded film
80.	Basic Smart Automation Programming, Prof. (Dr.) Rajesh Mehra	Completed	NCTEL Edited and uploaded film
81.	Artificial Intelligence, Dr. Gaurav Kumar	Completed	NCTEL Edited and uploaded film
82.	Advanced Smart Automation Programming, Prof. (Dr.) Rajesh Mehra	Completed	NCTEL Edited and uploaded film
83.	Smart Automation, Prof. (Dr.) Rajesh Mehra	Completed	NCTEL Edited and uploaded film
84.	Internet of Things, Er. Ajay Kumar Godara	Completed	NCTEL Edited and uploaded film
85.	IoT Applications, Er. Ajay Kumar Godara	Completed	NCTEL Edited and uploaded film
86.	Industrial IoT, Prof. (Dr.) Rajesh Mehra	Completed	NCTEL Edited and uploaded film
87.	FOSS For Employability, Dr. Mohammad Ahsan Chishti	Completed	NCTEL Edited and uploaded film
88.	Data Science Analytics, Dr. Gaurav Kumar	Completed	NCTEL Edited and uploaded film
89.	Cyber Security, Mr. Vipin Gupta	Completed	NCTEL Edited and uploaded film
90.	An Overview of Curriculum Development, Prof. (Dr.) A B Gupta	Completed	NCTEL Edited and uploaded film
91.	Curriculum Design for Technical Programs, Prof. (Dr.) A B Gupta	Completed	NCTEL Edited and uploaded film
92.	Curriculum Design Models, Prof. (Dr.) Anil Kumar	Completed	NCTEL Edited and uploaded film

Video Lectures Uploaded in YouTube (contd..)

Sr. No.	Title	Completed	Remarks
93.	Education 4.0 and Industry Expectations, Dr. Sanjiv Gupta	Completed	NCTEL Edited and uploaded film
94.	Norms and Standards for Resources, Dr. S K Gupta	Completed	NCTEL Edited and uploaded film
95.	Bloom's Taxonomy, Prof. (Dr.) A B Gupta	Completed	NCTEL Edited and uploaded film
96.	Philosophy of Curriculum Decisions, Prof. (Dr.) Y K Anand	Completed	NCTEL Edited and uploaded film
97.	Project based Teaching-Learning, Prof. (Dr.) P S Grover	Completed	NCTEL Edited and uploaded film
98.	Networking with Industry, Dr. S K Gupta	Completed	NCTEL Edited and uploaded film
99.	Skill Development, Prof. (Dr.) A B Gupta	Completed	NCTEL Edited and uploaded film
100.	Blended Learning, Er. Amandeep Kaur	Completed	NCTEL Edited and uploaded film
101.	Effective Classroom Communication, Dr. Suditi Jindal	Completed	NCTEL Edited and uploaded film
102.	Redefining Learning Space, Er. Amandeep Kaur	Completed	NCTEL Edited and uploaded film
103.	Role and Importance of Social Media in Education, Ms. Rama Chhabra	Completed	NCTEL Edited and uploaded film
104.	Understanding Learners and Learning, Ms. Rama Chhabra	Completed	NCTEL Edited and uploaded film
105.	Developing Employable Skills, Dr. Shilpa Suri	Completed	NCTEL Edited and uploaded film
106.	Effective Use of Google Classroom, Dr. Jagriti Saini	Completed	NCTEL Edited and uploaded film
107.	Planning, Organizing and Assessment of Practical Work, Er. Amandeep Kaur	Completed	NCTEL Edited and uploaded film
108.	Design a Lesson Plan, Ms. Suditi Jindal	Completed	NCTEL Edited and uploaded film

Video Lectures Uploaded in YouTube (contd..)

Sr. No.	Title	Completed	Remarks
109.	Developing Creativity, Er. Amandeep Kaur	Completed	NCTEL Edited and uploaded film
110.	Writing Learning Outcomes, Dr. PK Tulsi	Completed	NCTEL Edited and uploaded film
111.	Curriculum Design and Implementation, Dr. S K Gupta	Completed	NCTEL Edited and uploaded film
112.	Active Learning- Individual, Cooperative and Collaborative Techniques, Er. Amandeep Kaur	Completed	NCTEL Edited and uploaded film
113.	Learner Centered Instructional Methods, Dr. PK Tulsi	Completed	NCTEL Edited and uploaded film
114.	Using MOODLE for Blended Learning, Dr. Jagriti Saini	Completed	NCTEL Edited and uploaded film
115.	Development of a Rubric, Er. Amandeep Kaur	Completed	NCTEL Edited and uploaded film
116.	Importance of Ethics, Values and Morals for Excelling in Every Sphere of Life, Dr. Jagriti Saini	Completed	NCTEL Edited and uploaded film
117.	Curriculum Evaluation, Prof. (Dr.) A B Gupta	Completed	NCTEL Edited and uploaded film
118.	Assessment of Student Performance, Dr. PK Tulsi	Completed	NCTEL Edited and uploaded film
119.	Government Funding and Schemes to Promote Entrepreneurial Skills, Er. Amardev Singh	Completed	NCTEL Edited and uploaded film
120.	Writing Test Items, Dr. Sunil Dutt	Completed	NCTEL Edited and uploaded film
121.	Setting Question Papers, Dr. PK Tulsi	Completed	NCTEL Edited and uploaded film
122.	Design of Various Online Evaluation Tools, Dr. Jagriti Saini	Completed	NCTEL Edited and uploaded film
123.	Design and Development of AR VR Integrated Teaching Sessions, Dr. Jagriti Saini	Completed	NCTEL Edited and uploaded film
124.	Motivating Students, Ms. Manjula Sularia	Completed	NCTEL Edited and uploaded film

Video Lectures Uploaded in YouTube (contd..)

Sr. No.	Title	Completed	Remarks
125.	Polynomial and Ordinary Differential Equation in Scilab, Dr. Maitreyee Dutta	Completed	NCTEL Edited and uploaded film
126.	Filter Design Using Scilab, Dr. Maitreyee Dutta	Completed	NCTEL Edited and uploaded film
127.	Optimization Techniques, Dr. Jagriti Saini	Completed	NCTEL Edited and uploaded film
128.	Artificial Neural Network using Scilab, Dr. Gaurav Kumar	Completed	NCTEL Edited and uploaded film
129.	OpenCV, Dr. Gaurav Kumar	Completed	NCTEL Edited and uploaded film
130.	Digital Image Processing in Scilab (Session-II), Dr. Amit Doegar	Completed	NCTEL Edited and uploaded film
131.	Signal Processing using Scilab, Dr. Maitreyee Dutta	Completed	NCTEL Edited and uploaded film
132.	Digital Image Processing in Scilab (Session-I), Dr. Amit Doegar	Completed	NCTEL Edited and uploaded film
133.	Self-Awareness, Prof. (Dr.) Sunil Dutt	Completed	NCTEL Edited and uploaded film
134.	Emotional Intelligence – An Overview, Dr. Vidhu Mohan	Completed	NCTEL Edited and uploaded film
135.	Emotional Intelligence – An Overview (Part II), Dr. Vidhu Mohan	Completed	NCTEL Edited and uploaded film
136.	Transactional Analysis, Dr. PK Tulsi	Completed	NCTEL Edited and uploaded film
137.	Effective Communication for Managing Your Ego & Emotions, Dr. Sunil Dutt	Completed	NCTEL Edited and uploaded film
138.	Conflict Management Strategies, Dr. Vidhu Mohan	Completed	NCTEL Edited and uploaded film
139.	Conflict Management Strategies (Part-II), Dr. Vidhu Mohan	Completed	NCTEL Edited and uploaded film
140.	Managing Stress for better Human Relations, Dr. Manjula Sularia	Completed	NCTEL Edited and uploaded film

Video Lectures Uploaded in YouTube (contd..)

Sr. No.	Title	Completed	Remarks
141.	Developing Interpersonal Relations, Dr. Shilpa Suri	Completed	NCTEL Edited and uploaded film
142.	Creativity –Concept, Process and Developing Creativity, Dr. Sunil Dutt	Completed	NCTEL Edited and uploaded film
143.	Team Building – Concept, Stages & Creating High Performing Teams, Dr. Shilpa Suri	Completed	NCTEL Edited and uploaded film
144.	Bootstrap for Responsive Website Designing, Dr. Shikha Sharma	Completed	NCTEL Edited and uploaded film
145.	Design Websites for Persons With Disabilities, Dr. K G Srinivasa	Completed	NCTEL Edited and uploaded film
146.	Function and Arrays in PHP, Ms. Shruti Wadhwa	Completed	NCTEL Edited and uploaded film
147.	Javascript for Web, Ms. Shruti Wadhwa	Completed	NCTEL Edited and uploaded film
148.	Cookies and Session in PHP, Dr. Gurdit Singh	Completed	NCTEL Edited and uploaded film
149.	Introduction to web designing and Basics of HTML, Mrs. Shano Solanki	Completed	NCTEL Edited and uploaded film
150.	PHP MYSQL Connectivity, Ms. Sangeeta Gupta	Completed	NCTEL Edited and uploaded film
151.	Installation of XAMPP, Dr. Amit Doegar	Completed	NCTEL Edited and uploaded film
152.	Recovery and Maintenance, Ms. Shruti Wadhwa	Completed	NCTEL Edited and uploaded film
153.	Anti Plagiarism Tools, Dr. Neeraj Kumar	Completed	NCTEL Edited and uploaded film
154.	Data Augmentation, Dr. Akashdeep Sharma	Completed	NCTEL Edited and uploaded film
155.	Hardware Internals, Dept. of Computer Science and Engineering	Completed	NCTEL Edited and uploaded film
156.	Implementation of Deep Learning Models, Dr. Varun Gupta	Completed	NCTEL Edited and uploaded film

Video Lectures Uploaded in YouTube (contd..)

Sr. No.	Title	Completed	Remarks
157.	ML and DL Benchmark Datasets , Dr. Gaurav Kumar	Completed	NCTEL Edited and uploaded film
158.	Open Source Tools in Education , Dr. Amit Doegar	Completed	NCTEL Edited and uploaded film
159.	Open Source Software, Dr. Amit Doegar	Completed	NCTEL Edited and uploaded film
160.	Linux Installation Step by Step , Dr. Amit Doegar	Completed	NCTEL Edited and uploaded film
161.	Open Source in Engineering, Scientific Applications and Research, Dr. Amit Doegar	Completed	NCTEL Edited and uploaded film
162.	Looking Beyond Supervised Learning, Er. Anuj Shah	Completed	NCTEL Edited and uploaded film
163.	Data Analysis Using Python Libraries, Er. Sumit Rohilla	Completed	NCTEL Edited and uploaded film
164.	Nittr Chandigarh Eleventh Annual Alumni Meet, 27 March 2023	Completed	NCTEL Edited and uploaded film
165.	Learning outcomes and setting question paper -2	Completed	NCTEL Edited and uploaded film
166.	Team Working, Mr. PK Singla	Completed	NCTEL Edited and uploaded film
167.	Communication Skills and Interpersonal Relations, Mr. PK Singla	Completed	NCTEL Edited and uploaded film
168.	Developing Positive Attitudes, Mr. P K Singla	Completed	NCTEL Edited and uploaded film
169.	Managing Stress for better Human Relations, Dr. Manjula Sularia	Completed	NCTEL Edited and uploaded film

2.3 Curriculum Development



*The institute continued to undertake curriculum development activities including the design and review of curricula for courses in engineering and non-engineering areas through a scientific approach, which has been considerably internalised by the polytechnic system enabling them to take up similar projects by themselves with some guidance from this institute. The institute now started developing curricula considering NEP 2020. During the year 2022-23, curricula of **490** subjects of diploma programmes have been designed. The institute conducted **136** Curriculum Development Workshops of 1-2 days' duration which were attended by **1178** participants.*

2.4 Research and Development

Research and development activities in technology and technical education form an important aspect of the institute's programme. During the year 2022-23, **10 Ph.D.** and **86 ME thesis** were completed under the guidance of faculty of this institute.

Ph.D. Viva Voce from 1st April 2022 to 31st March 2023

Sr. No.	Name of Candidate	Date of conduct of Viva-voce Examination	Title	Supervisor
1.	Tanvi Sood (ECE)	07.04.2022	"Cross Layer Framework Based On Clustering and Adaptive Scheduling For Heterogeneous Wireless Sensor Network"	Dr. Kanika Sharma
2.	Amit Doegar (CSE)	13.07.2022	"Development of an Approach for Image Forgery Detection Using Machine Learning Algorithms"	Prof. Maitreyee Dutta
3.	Shweta Sharma (CSE)	10.08.2022	"A Framework for Analysis and Detection of Android Malware"	Prof. Rakesh Kumar
4.	Rachit Manchanda (ECE)	02.09.2022	"Design of a Routing Framework Based on Compressive Data Gathering Scheme for Heterogeneous Wireless Sensor Network"	Dr. Kanika Sharma
5.	Pawan Kumar (CSE)	09.09.2022	"Improved Load Balancing Technique for Efficient Resource Utilization in Cloud Computing"	Dr. Rakesh Kumar
6.	Poonam Rani (CSE)	11.10.2022	"Multi-Objective Workflow Scheduling Based on Hybrid Meta-Heuristics Approach in Cloud Environment"	Prof. Maitreyee Dutta
7.	Jagriti (ECE)	20.12.2022	"Design and Development Of Intelligent Indoor Air Quality Monitoring and Prediction System- "Vayurveda"	Prof. Maitreyee Dutta
8.	Rajeev Kumar (MECH.)	02.02.2023	"Performance Evaluation of Nanoparticles Based Lubricants on Static Thermal Behaviour of Non-Circular Journal Bearings"	Prof. S.S. Dhami
9.	Smruti Ranjan Pradhan (MECH.)	13.03.2023	"Investigations On Crown Fabrication Using Additive Manufacturing For Veterinary Applications"	Prof. S.S. Banwait
10.	Yeole Sanjay Ashok (Civil)	22.03.2023	"Strengthening of High Performance Concrete Beam Column Joints Using Fibre Reinforced Polymer"	Dr. S.K. Sharma

Patents/Copyright

- 3 patents were granted to the faculty members of the institute.

Sr. No.	Name of Patents/Copyright	Author (s) Name
1.	A Device of Developing a BIS (Sulfanylidene) tungsten and a Spiroometad based Efficient Pervoskite Solar Cell, with Patent no. 2022/05837	Prof. Rajesh Mehra, & Er. Srishtee Chaudhary
2.	Spatial Tactile Apparatus and Method for Creation and Navigation of Virtual Graphics for Visually Challenged, Patent No.: 411091, Application No. : 1739/DEL/2012, Date of Filing : 06/06/2012	Prof. Poonam Syal
3.	Patent (No. 405613) granted on 2/09/22 on Methods and Systems for Resource Allocation in Cognitive Radio Networks for 20 years (12/08/2016 to 11/08/2036)	Prof. S S Gill

121 papers were published in SCI Indexed Journals by the faculty members of the institute, 76 papers in International Journals and 03 papers of the institute faculty were published in National Journals. 81 papers were presented by the faculty in various International Conferences & Seminars.

Research Grants received by faculty

- Research Grant of Rs 2.25 crore from HP Disaster Management Authority for conducting structural safety audit of hospitals and school buildings in district Chamba, Bilaspur, Solan, Shimla and Una.
- Research Grant of Rs 18.30 Lac only for the year 2021-24, for the project, "Teachers Associateship for Research Excellence (TARE). (Mechanical & Manufacturing Engineering & Robotics)" to Dr. Jasgurpreet Singh Chohan, Chandigarh University, Gharuan, Mohali, Chandigarh, Punjab-140413- under the mentorship of Dr. Rupinder Singh, at National Institute of Technical Teachers Training and Research, Chandigarh by SERB.
- Research Grant of Rs 18.30 Lac only for the year 2021-24, for the project, "Teachers Associateship for Research Excellence (TARE). (Mechanical & Manufacturing Engineering & Robotics)" to Dr. Ranvijay Kumar, Chandigarh University, Gharuan, Mohali, Chandigarh, Punjab-140413- under the mentorship of Dr. Rupinder Singh, at National Institute of Technical Teachers Training and Research, Chandigarh by SERB.
- Research Grant of Rs 18.30 Lac only for the year 2022-25, for the project, "Teachers Associateship for Research Excellence (TARE). (Mechanical & Manufacturing Engineering & Robotics)" to Dr. P. Jindal, Panjab University, Chandigarh, - under the mentorship of Dr. S.S.Dhami, at National Institute of Technical Teachers Training and Research, Chandigarh by SERB.
- Grant of Rs 79 Lac only as PI for the 05 years 2021-26, for the project, "FIST Level 0 category" by Department of Science and Technology.

2.5 Extension Services and Consultancy

Policy Planning and Service to Industry and Community

The Institute has continued to play a proactive role to influence the planning and development of technical education and also collaborated with institutions and organisations at national and international levels having similar objectives. The institute also provided consultancy services to government, public sector and other national and state level organisations, technical education system and industry in the area of engineering and technology, educational management, curriculum development, entrepreneurship development and rural development. The institute earned consultancy projects of amount **Rs. 1477.70 lakhs** and generated IRG of amount **459.28 lakhs**.

Sr.No.	Name of the Consultancy Projects	Status of Project
1.	Training Programme for SDEs/JEs of Chandigarh. (2 Programmes)	Completed
2.	Two Weeks academic and administrative competency update programme for Principals, HoDs, TPOs in H.P. State (3 Programmes)	Completed
3.	“Evaluation and Setting of Question Papers” for Indian Air force officers. (23-24 June, 2022)	Completed
4.	Induction Training Programme for SDEs/ JEs of UT, Chandigarh from 1-26 August, 2022.	Completed
5.	Professional Competency Update Programme for Principals, HoDs, TPOs of Engineering Colleges/ Polytechnics of Haryana (1-3 Sept)	Completed
6.	“Administration, Planning, Monitoring & training” under UKWDP from 5-9 September, 2022.	Completed
7.	Professional Competency update Programme for Principals, HoDs, ToPs of Engineering Colleges/ Polytechnic of Haryana (12-14 Sept)	Completed
8.	“Competence Based Trade Specific Training” under UKWDP from 5-14 September, 2022.	Completed
9.	“Administration, Planning, Monitoring & training” under UKWDP from 26-30 September, 2022.	Completed
10.	“Pedagogy (Advanced)” under UKWDP from 12-17 December, 2022.	Completed
11.	Soft Skills Training Programme for Airport Staff of Chandigarh International Airport (Under G-20)	Completed
12.	Competence Based Trade Specific Training, under UKWDP from 9-18 Jan, 2023.	Completed

Sr.No.	Name of the Consultancy Projects	Status of Project
13.	Three days training programme on Rural Development and Watershed Management, 6 to 8 Feb, 2023.	Completed
14.	Competence Based Trade Specific Training, under UKWDP from 13-18 Feb, 2023.	Completed
15.	Pedagogy (Advanced), under UKWDP from 23-28 Feb, 2023.	Completed
16.	Evaluation and Setting of Question Papers, for Indian air Air force officers.	Completed
17.	Capacity Enchantment Programme for Instructor of GITIs of Punjab form 2-7 March, 2023.	Completed

Signing of Memorandum of Understanding

Sr. No.	Organisation	Date of Signing	Date of Maturity	Signing Authority
1.	Dr. Fixit Institute of Structural Protection & Rehabilitation, Mumbai	27.04.2022	26.04.2027	Tirtha Pratim Banerjee, Head- Training & CSG
2.	Young Hopes of India Foundation, 3255, Sector-37 D, Chandigarh	26.08.2022	25.08.2027	Director, Young Hopes for India Foundation
3.	A.J. Sustainology Renewable Pvt. Ltd., SCO 1096-97, First Floor, Sector- 22 B, Chandigarh	11.10.2022	10.10.2027	Akshat K. Patni Director
4.	Scanpoint Geomatics Limited (SGL),9, Mahakant Complex, Ashram Road, Ahmedabad	11.10.2022	10.10.2027	Kantilal Ladani, Director
5.	NIT, Uttarakhand Srinagar Garhwal	23.01.2023	22.01.2028	Lalit Kumar Awasthi, Director, NIT Uttarakhand
6.	Khalsa College of Engineering and Technology, Amritsar	15.02.2023	14.02.2026	Director, KCET, Amritsar
7.	IIT Ropar	21.02.2023	20.02.2028	Director, IIT Ropar

2.6

Academic Achievements of the Departments

*Applied Science Department
Civil Engineering Department*

*Computer Science and Engineering Department
Curriculum Development Centre*

*Electrical Engineering Department
Electronics and Communication Engineering Department*

*Entrepreneurship Development & Industrial Coordination Department
Education and Educational Management Department*

*Information Management and Emerging Engineering
Mechanical Engineering Department*

*Media Engineering Department
Rural Development Department*

APPLIED SCIENCE DEPARTMENT



Prof. (Dr.) B. C. Choudhary

Professor

Research Areas - Fiber Optics, Radiation Physics

Prof. (Dr.) Pankaj Sharma

Professor

Research Areas: Chalcogenide Glasses, Thin Films, Nanomaterials, Ferrites.



Dr. Ashok Kumar

Associate Professor

Research Areas: Physics of nanomaterials and thin films, Nanotechnology enabled energy devices.

Dr. Kailash Chandra Lachhwani

Assistant Professor

Research Areas - Operation Research, Mathematical Programming



APPLIED SCIENCE DEPARTMENT

During the year **2022-23**, the department has conducted **29** short term training programs in ICT and Contact Mode, which were attended by **4114** teachers from polytechnics and engineering colleges. The department has conducted **04** workshops with **434** participations. The department also conducted **03** Student Training Programme of **06** Weeks/Months Duration and total of **09** student's participation. The department faculty published **18** papers in SCI Journals, **01** paper in Non-SCI Journal and **01** in National Journal. The department also published **04** papers in proceedings of International Conferences. The department also conducted **01** National Conference in Collaboration with CSE Department with **50** participants. The faculty of the department attended online training programs and online webinars during the year. The faculty also submitted research proposals to various agencies.

Sr. No.	Short Term Programmes Conducted
1.	Newer Experiments in Applied Physics
2.	Laboratory Practice in Applied Physics
3.	Fibre Optic Test and Measurements
4.	Nanotechnology enabled wireless communication and IOT (In Collaboration with GGU Bilaspur)
5.	Essential Industrial Chemistry for Engineers
6.	Energy Harvesting & Storage Materials & Devices
7.	Optimization Techniques for Engineering Problems with LINGO
8.	Nanotechnology: Developments and Challenges
9.	2D Nanomaterials: Potential & Applications
10.	OFC Systems: Design & Simulation
11.	Refresher Course in Engineering Physics
12.	Optimization for Engineering Problems with MATLAB
13.	Materials Characterization Techniques
14.	Optical Materials and Devices
15.	Advances in Laser Technology
16.	Numerical and Statistical Methods with Engineering Application
17.	Refresher Course in Engineering Materials Science
18.	Nuclear Energy & Power Options
19.	Mathematical Techniques for Solving Engineering Problems
20.	Spectroscopic Techniques & Instrumentation
21.	Optical Communication Technologies-Wired and Wireless
22.	MATHEMATICA For Engineering and Science Teachers
23.	Nanotechnology for electronic and photonic devices
24.	Refresher Course in Nanoscience and Nanotechnology
25.	Lasers: Fundamentals and Applications
26.	Smart Materials Processing and Applications
27.	MATLAB for Science and Engineering Teachers
28.	Nanosensors & Devices
29.	Nuclear Radiations for Societal Applications

RESEARCH AND DEVELOPMENT
Papers published by the Applied Science Department Faculty in SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	DFT based study of transition metals (Au,Ag,Pd & Pt) doped graphitic carbon nitride (gCN) monolayer as a CO gas sensor; Physica Scripta 97(2022)067506	Nihal, Rahul Sharma, Navjot Kaur, B.C. Choudhary and J.K. Goswamy
2.	DFT based Comparative Study of Pristine gCN and GCN-ZnO Composite as a Sensor for CO and CO ₂ Gases; Materials Letters 324 (2022) 132649	Nihal, Rahul Sharma, Navjot Kaur, B.C. Choudhary and J.K. Goswamy
3.	Adsorption Study of Pristine and Manganese Doped Graphene nanoribbon for Effective Methane Gas Sensing – A DFT Study; Physica B: Condensed Matter 644 (2022)414212	Jyoti Rani, Rajiv Kashyap, Moondeep Chauhan, B.C. Choudhary, Anil Kumar and Ramesh K Sharma
4.	A DFT Modulated analysis of Manganese doped Graphene Nanoribbon as a potential material for sensing of high toxic gases CO, PH ₃ , and SbH ₃ ..Physica Scripta 98 (2023) 045803	Jyoti Rani, Moondeep Chauhan, Rajiv Kashyap, Mehar Singh, B.C. Choudhary, and Ramesh K Sharma
5.	Recent advances in two-dimensional MXenes for power and smart energy systems, Journal of Energy Storage, Volume 50, 2022, 104604.	Nikhil Thakur, Pawan Kumar, Dinesh C. Sati, R. Neffati, Pankaj Sharma
6.	Comparative structural and optical studies of Al-/Sn-doped ZnO-textured films for optoelectronic application. J Mater Sci: Mater Electron 33, 13757–13770 (2022).	Sumit Bhardwaj, Aayush Gupta, GaganvKumar, Pankaj Sharma, Ravi Kant, O. P. Pandey & Kamal Sharma
7.	Optical characterization and theoretical investigations of (Ge ₂ S ₈) 100-xTex chalcogenide system for the IR applications. Optical Materials 133 (2022): 113063.	Ekta Sharma, Sunanda Sharda, K. A. Aly, R. Neffati, Dinesh C. Sati, and Pankaj Sharma
8.	Correlation of optical parameters of pure and doped Ge ₁₇ Sb ₈ Se _{75-x} Er _x chalcogenides films using transmission spectra. Optical Materials 132 (2022): 112748.	Chandresh Kumari, Pankaj Sharma, S. C. Katyal, and Sandeep Chhoker
9.	Unveiling quaternary GeSbSeEr chalcogenides as photocatalyst: Degradation of cationic and anionic pollutant in visible light. Optical Materials 134 (2022): 113122.	Chandresh Kumari, Pankaj Sharma, Manushree Tanwar, Himani Sharma, Rajesh Kumar, and Sandeep Chhoker.
10.	Investigation of structural, electrical and magnetic properties of MnAl _x Fe _{2-x} O ₄ ferrite nanoparticles processed by solution combustion route. Physica B: Condensed Matter 646 (2022): 414368.	H. R. Sharma, K M Batoo, R. Neffati, P. Dhiman, S. Bhardwaj, P. Sharma, S. Hussain, I. Sharma, R. Goel, and G. Kumar

Papers published by the Applied Science Department Faculty in SCI Journals (contd..)

Sr. No.	Name of the Paper Published	Author (s) Name
11.	The effect of Ge addition on the optical and physical properties of thermally evaporated amorphous $Pb_{15}Se_{85-x}Ge_x$ ($x = 0, 3, 6, 9, 12$) thin films and bulk glasses, <i>Physica B: Condensed Matter</i> 639 (2022): 413968.	I. Sharma, A. Jayaprakash, Pankaj Sharma
12.	Optical properties and optoelectrical parameters of the quaternary chalcogenide amorphous $Ge_{15}Sn_xS_{35-x}Te_{50}$ films. <i>Journal of Non-Crystalline Solids</i> 590 (2022): 121673.	I. Sharma, Pankaj Sharma, A. S. Hassanien
13.	Annealing effect on $Dy:(GeSe_2)_{80}(In_2Se_3)_{20}$ thin films-Oscillator, dielectric, absorption and nonlinear parameters. <i>Materials Chemistry and Physics</i> 288 (2022): 126372.	S. Sharda, E. Sharma, A. El-Denglawey, K. A. Aly, A. Dahshan, D. C. Sati, P. Kumar, and Pankaj Sharma
14.	Complex Er-doped selenium-based chalcogenides in the far-infrared region: a structural bonding arrangement study. <i>Physica Scripta</i> 97, no. 8 (2022): 085707.	C. Kumari, S. C. Katyal, S. Chhoker, and Pankaj Sharma
15.	Nanocrystallization and optical properties of quaternary Sn–Se–Bi–Te chalcogenide thin films. <i>Journal of Materials Science: Materials in Electronics</i> 33, no. 20 (2022): 16320-16333.	R. Sharma, S. Sharda, K. A. Aly, A. Dahshan, and Pankaj Sharma
16.	Electrochemical energy storage behavior of hydrothermally synthesized Y_2ZnCoO_6/rGO nanocomposite, <i>Materials Science in Semiconductor Processing</i> (SCI I.F. 4.644) 151, 106980 (2022) doi: 10.1016/j.mssp.2022.106980	Manju Devi, Deeksha Nagpal, Anup Singh, Ajay Vasishth, Ashavani Kumar and Ashok Kumar
17.	Structural and energy storage properties of hydrothermally synthesized, Y_2MnCoO_6 , double perovskite, <i>Physica Status Solidi A</i> (SCI I.F. 2.170) (2023) doi: 10.1002/pssa.202200444	M. Devi, D. Nagpal, Ajay Vasishth, Ashavani Kumar and Ashok Kumar
18.	Experimental investigations on the effect of textile substrate nanomaterial coating on wearable antenna performance, <i>National Academy Science Letters</i> 46, 251–255 (2023) doi:10.1007/s40009-023-01238-7	Balwinder S Dhaliwal, Vikas Jain, Ashok Kumar, Amit Kumar Vats and Suman Pattnaik

Papers published by the Applied Science Department Faculty in International Journal other than SCI Journals

Sr.No.	Name of the Paper Published	Author (s) Name
1.	Photocatalytic activity of $GeSbSeEr$ quaternary chalcogenide for efficient methylene blue degradation in visible light. <i>Results in Surfaces and Interfaces</i> 9 (2022): 100088.	Kumari, Chandresh, Pankaj Sharma, S. C. Katyal, Manushree Tanwar, Priyanka Bamola, Himani Sharma, Rajesh Kumar, and Sandeep Chhoker

Papers published by the Applied Science Department Faculty in National Journal

Sr. No.	Name of the Paper Published	Author (s) Name
1..	Science Teacher's Perspective on National Education Policy 2020 Implementation in Journal of Engineering & Technology Education, Special Issue on NEP 2020, Vol. 16, No. 1 & 2, pp. 56-60 (2022) (ISSN 2229-631 X)	Dr. KC Lachhwani, Dr. Ashok Kumar, Dr. Pankaj Sharma, Dr. BC Choudhary

Papers published / presented by the Applied Science Department Faculty in International Conferences/Seminars

Sr. No.	Title of the Paper Presented/Accepted along with a Name of the Conference/Seminar (venue, with date)	Author (s) Name
1	Insight into Yttrium embedded graphitic carbon nitride(Y/2CN) monolayer as a promising material for acetone sensing": A DFT Investigations; International Conference on Emerging Materials for Sustainable Development held at CSIO-CSIR CHD from 9-11 October, 2022	Nihal, Rahul Sharma, Navjot Kaur, Mamta Sharma, B.C. Choudhary, JK Goswamy
2	Photocatalytic Performance of Quaternary Chalcogenides for Degradation of Cationic Dye: A UV-cut Study." In 2022 8th International Conference on Signal Processing and Communication (ICSC), pp. 644-647. IEEE, 2022. (Conference Location: IIIT, Noida, India, 1-3 December, 2022).	C. Kumari, Pankaj Sharma, and S. Chhoker
3.	Simplified TOPSIS for MLN-MODM problems published in Proceedings of International Conference on Computational Intelligence (ICCN – 2021) - Springer Book Series and presented at ICCN organized at IIIT Pune in Dec 2022	Kailash Lachhwani
4.	A Comprehensive Review Analysis on PSO and GA techniques for Mathematical Programming Problems published in Proceedings of International Conference on Computational Intelligence (ICCN – 2021) - Springer Book Series and presented at ICCN organized at IIIT Pune in Dec 2022.	Kailash Lachhwani

Research and Development

No. of Ph.D Thesis Awarded	04
-----------------------------------	----

Training Programmes attended by the Applied Science Department Faculty/Staff

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	National Conference on Creating Future Path for Scientific Development in 75 th year of Independence Organized by NITTTR, Chandigarh and Vigyan Parishad Panchnad	18-22 April 2022	NITTTR, Chandigarh	Dr. B.C. Choudhary
2.	AICTE recognized One week STC on Neuro-linguistic programming organized by Education and Education Management dept. and Planet Psychology at NITTTR Chandigarh	06 – 10 Feb., 2023	NITTTR Chandigarh	Dr. KC Lachhwani

In-House Training Programmes attended by the Faculty/Staff

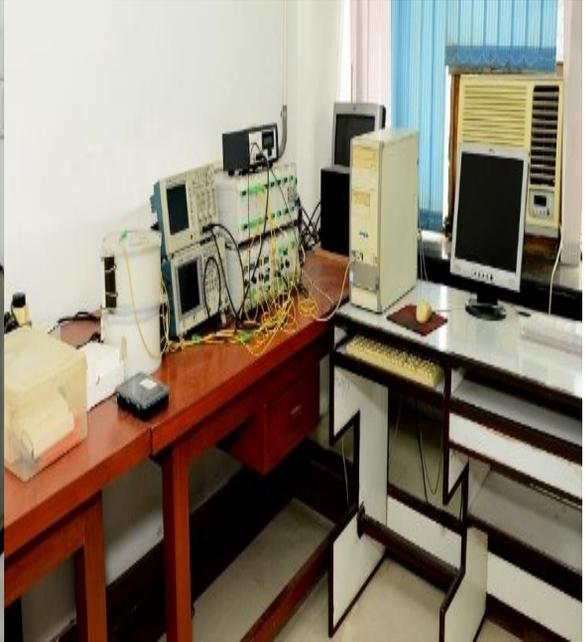
Sr. No.	Title of Training Programme	Period of Training	Attended by
1.	Attended training workshop on AR/VR equipment on 23-26 May 2022 conducted by IMEE Department.	23-26 May 2022	Dr. K.C. Lachhwani

Research Project Submitted

Sr. No.	Name of Project	Funding Agencies	Team
1.	Exploring the Synergistic Effects of MXenes and Reduced Graphene Oxide in Novel Nanostructured Double Perovskites for High-Performance Asymmetric Energy Storage Devices	SERB	PI- Ashok Kumar (Rs 24,07,372)

Research Project Received

Sr. No.	Name of Project	Funding Agencies	Amount	Team
1.	Novel cobalt-free nanostructured double perovskites for energy storage application	UGC-DAE CSR	PI – Grant received, Rs 2,43,240/-	Ongoing March 31, 2021 onwards
2.	FIST Program -2020	DST	One of the team member to work on the use of agriculture waste for supercapacitor application- Grant received Rs 77 lacs)	Ongoing 2020-2025



CIVIL ENGINEERING DEPARTMENT



Prof. (Dr.) Hemant Sood

Professor

Research Areas - Concrete Technology, Pavement Design, Transportation Engineering

Prof. (Dr.) Sanjay Kumar Sharma

Professor

Research Areas - Hydraulics & Irrigation, Environmental Engg., Building Maintenance



Er. Ajay Kumar Duggal

Associate Professor

Research Areas - Transportation Engineering, Foundation Engineering, Highway Engineering

Er. Vinod Kumar Sonthwal

Associate Professor

Research Areas - Geo-technical Engineering, Construction Management, Soil Mechanics



CIVIL ENGINEERING DEPARTMENT



Er. Himmi Gupta

Assistant Professor

Research Areas - Structural Engineering, Bridge Engineering, Project Management

Dr. Amit Goyal

Assistant Professor

Research Areas - Structure Dynamics, Masonry Structure, Low Cost Housing



Dr. Suresh Kumar Gupta

Joint Associate Professor

Research Areas - Curriculum Development, Civil Engineering

CIVIL ENGINEERING DEPARTMENT

During the year **2022-23**, the department has conducted **37** short term training programs in ICT and Contact Mode, which were attended by **1846** teachers from polytechnics and engineering colleges. The department faculty published **45** papers in Non-SCI Journals. The department also published **03** paper in proceedings of International Conferences. The faculty of the department attended online training programs and online webinars during the year. The faculty also submitted research proposals in various agencies. The department also conducted **2** consultancy programmes name in which **60** participants trained. The title of the program was "Induction Training Program for SDE/JEs, UT, Chandigarh Administration".

Sr. No.	Short Term Programmes Conducted
1.	Non Destructive Techniques in Civil Engineering
2.	Earthquake Risk Management
3.	Alternate Technologies in Road Construction
4.	Mapping by Total Station
5.	Energy Efficient and Innovative Building Construction Practices
6.	Affordable Housing in Disaster Prone Areas
7.	Lab Practices in Highway Engineering
8.	Innovative Technologies for Village Development
9.	Laboratory Practices in Civil Engineering
10.	Application of Auto CAD in Engineering
11.	Yoga and Meditation
12.	Concrete Lab Practices
13.	Design and Construction of Foundation for Bridges
14.	Artificial Intelligence & IoT Applications in Civil Engineering
15.	Innovation in Construction and Green Building Materials
16.	Making Villages Smart
17.	Recycling Materials in Highway Construction
18.	Low Cost Housing Techniques and Practices (Cluster)
19.	Water Resource Management
20.	Evaluation and Rehabilitation of Pavements
21.	Advanced Construction Materials and Techniques for Road, Buildings Bridges and Other Civil Engineering Structures
22.	Bearing Capacity Estimation for Foundations
23.	Testing of Latest Civil Engineering Materials
24.	Construction Management
25.	Structural Design with STAAD PRO
26.	Concrete Mix Design- New Directions
27.	Application of Auto CAD in Engineering

Sr. No.	Short Term Programmes Conducted (contd..)
28.	Artificial Intelligence & IoT Applications in Civil Engineering
29.	Latest Analysis and Design Trends for Civil Engineering Structures
30.	Earthquake Risk Management
31.	Laboratory Practices in Civil Engineering
32.	Laboratory Practices in Soil Engineering
33.	Green Buildings and materials for Sustainable Development
34.	Sustainable Environmental Management
35.	Defect free Construction Repair and Maintenance
36.	Remote Sensing, GPS and GIS in Engineering
37.	Quality Control of Concrete

RESEARCH AND DEVELOPMENT

Papers published by the Civil Engineering Department Faculty in International Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	Analysis of rigid pavement joints under different shoulder types, International Journal for Research in Applied Science & Engineering Technology (IJRASET), Volume 10, Issue IV Apr 2022.	Abhishek, Abhishek Pandit and Dr. Hemant Sood
2.	Optimization of Rigid Pavement, International Journal for Research in Applied Science & Engineering Technology (IJRASET), Volume 10, Issue IV Apr 2022.	Abhishek Pandit, Abhishek, Dr. Hemant Sood and Er. Jyothi PM
3.	Development of Self-Compacting Concrete using Composite Cement with partial replacement of Potable water with Treated Wastewater, International Journal For Research in Applied Sciences and Engineering Volume 10, Issue III, Mar 2022.	Abhishek Kumar, Sayantan Ghosh, Dr. Hemant Sood
4.	Development of Self-Compacting Concrete of Grades M25, M30 and M35 Using Composite Cement, International Journal For Research in Applied Sciences and Engineering Technology, Volume 10, Issue III, March 2022 .	C Praneeth Sudharsan, Sayantan Ghosh, Dr. Hemant Sood
5.	Experimental Investigation on M25 & M30 Concrete with Construction & Demolition (C&D) Waste, International Journal for Research in Applied Science & Engineering Technology, Volume 10 Issue VII, July 2022.	Ankaj Kumar, Dr. Hemant Sood
6.	Determination of Level of Service of Arterial Road in Kohima, International Research Journal of Engineering and Technology (IRJET), Volume: 08, Issue: 04, Apr 2021.	David Tsela, Ajay K Duggal
7.	Development of Geopolymer Brick Using Fly Ash, International Journal for Research in Applied Sciences and Engineering Technology, Volume 10, Issue IV, Apr 2022.	V.S. Kandoria, Dr. Amit Goyal, Loveleen Kaur, Ishan Tank and Khushwant
8.	A Comparative Study of different Sewage Treatment Technologies, International Research Journal of Engineering and Technology (IRJET), Volume: 09 Issue: 06, Jun 2022.	Dr. Sanjay Kumar Sharma & Harpreet Kaur

Papers published by the Civil Engineering Department Faculty in International Journals (contd..)

Sr. No.	Name of the Paper Published	Author (s) Name
9.	Review on Effect of Anti – Stripping Agent and Cement on Indirect Tensile Strength of Bituminous Concrete, International Journal for Research in Applied Science and Engineering Technology, Volume 10, Issue VII, July 2022.	Vinod Kumar Vishwakarma, Ajay Kumar Duggal
10.	Comparative analysis between different antistripping agents used in hot mix asphalt, International Journal For Research in Applied Sciences and Engineering Technology (IJRASET), Volume 10, Issue VI, June 2022.	Burhan Rashid, Dr Hemant Sood & Dr Ankit Kathuria
11.	Recycling cupola slag in concrete as partial replacement of fine aggregate for sustainable construction, International Journal For Research in Applied Sciences and Engineering Technology (IJRASET), Volume 10, Issue VII July 2022.	Sameeulah Bhat, Dr Hemant Sood & Dr S.A. Waseem
12.	Study on identified blackspots and rectification measures : A case study, International journal for research in applied science and engineering technology (IJRASET), Volume 10, Issue V, May 2022.	Surbhi semwal, E. Ajay K. Duggal and Dr. Sanjay Sharma
13.	Indexing of Factors Affecting Time and Cost Overrun in Construction Projects, International Journal For Research in Applied Sciences and Engineering Technology (IJRASET), Volume 10, Issue VII, July 2022.	Kumar Gourav Shaky. Er. Himmi Gupta.
14.	Comparative Study on Strength and Durability Properties of High Strength Self Compacting Concrete With and Without Steel Fibres, International Journal For Research in Applied Sciences and Engineering Technology (IJRASET), Volume 10, Issue V, May 2022.	Vishal Prashar, Dr. Sanjay Sharma, Er. Jagjeet Singh, Priyanka Tyagi
15.	Utilization of Processed Inorganic Mixed Municipal Solid Waste by Mechanical Device in Manufacturing of Bricks, International Journal For Research in Applied Sciences and Engineering Technology (IJRASET), Volume 10, Issue VII, July 2022.	Bhavana Jangir, Dr. Sanjay Sharma, Dr.Narsi Visharad
16.	Study Trend of PM10 as Air Pollutant in Chandigarh: Case Study, International Journal for Research in Applied Sciences and Engineering Technology (IJRASET), Volume 10, Issue VII, JULY 2022.	Loveleen Kaur, Dr. Sanjay Sharma, Ashmita Rupal and Khushwant V.S. Kandoria, Amit Goyal
17.	Development of Geopolymer Brick Using Fly Ash, International Journal For Research in Applied Sciences and Engineering Technology (IJRASET), Volume 10, Issue IV, Apr 2022.	Loveleen Kaur, Ishan Tank and Khushwant
18.	Development of Municipal Solid Waste Re-Derived Fuel Pellets from Mixed Municipal Solid Waste Using Smart Machine, International Journal For Research in Applied Sciences and Engineering Technology (IJRASET), Volume 10, Issue VII, July 2022.	Nikita Singh, Dr. Sanjay Sharma, Dr. Narsi Visharad
19.	A Review Study on Behavioural Similarity Between Marshall Stability & Indirect Tensile Strength Values for B.C. using VG-30 & VG-40 Grade Binder, International Journal for Research in Applied Science & Engineering Technology (IJRASET), Volume 10, Issue VII, July 2022.	Narender Singh Er. Ajay K. Duggal

Papers published by the Civil Engineering Department Faculty in International Journals (contd..)

Sr. No.	Name of the Paper Published	Author (s) Nam
20.	A Review on Behavioural Similarity Between Marshall Stability & Indirect Tensile Strength Values for D.B.M. using VG-30 & VG-40 Grade Binder, International Journal for Research in Applied Science & Engineering Technology (IJRASET), Volume 10, Issue VII, July 2022.	Subrat Gupta Er. Ajay K. Duggal
21.	A Review on Improvement of Road Accident Black spots using Corridor Approach International Journal for Research in Applied Science & Engineering Technology (IJRASET), Volume 10, Issue 8, August 2022.	Er. Ajay K. Duggal, Dr. Navdeep Asija and Kalpesh Shrivastava
22.	A Review on Work Zone Safety During Blackspot Improvement Construction under Blackspot Management, International Journal for Research in Applied Science & Engineering Technology (IJRASET), Volume 10, Issue VIII, August 2022.	Prashant Yadav, Er. Ajay K. Duggal and Dr. Navdeep Asija
23.	Improving the Engineering Properties of Soil using Rice Husk Ash with Sisal Fibre, International Journal for Research in Applied Science & Engineering Technology (IJRASET), Volume 10, Issue V, May 2022.	Vishal Rana Prof. Vinod Kumar Sonthwal
24.	Performance and Evaluation of Sewage Treatment Plant Based on MBBR and EBB Technologies, International Journal for Research in Applied Science & Engineering Technology (IJRASET), Volume 10 Issue X, October 2022.	Rajiv Kumar Dr. Amit Goyal Dr. Sanjay Sharma
25.	Quality Prediction of Treated Water in Sewage Treatment Plant Using Machine Learning, International Journal of Research in Engineering and Science (IJRES), Volume 10, Issue 12, Dec 2022.	Adit Rana and Dr. Sanjay Kumar Sharma
26.	A Study on Reduction of Carbon Footprint by Partial Replacement of Cement with Kiln Dust and Blast Furnace Slag, International Journal of Research in Engineering and Science (IJRES), Volume 10, Issue 12, December 2022.	Abhishek Kumar Tiwari, Dr. Sanjay Sharma and Dr. Amit Goyal
27.	Comparative Analysis of Modified Aerated Concrete Blocks and Conventional Fired Clay Bricks, International Research Journal of Engineering and Technology (IRJET), Volume: 09, Issue: 12, Dec 2022.	Varun Kumra & Dr. Hemant Sood
28.	Engineering Properties Improvement of Black Cotton Soil by using Iron Ore Tailing and Polypropylene Fibre, International Research Journal of Engineering and Technology, Volume 9, Issue 11, Nov 2022.	Koustubh Shanker Pandey & Er. Vinod Kumar Sonthwal
29.	Development of fly ash bricks using alccofine as partial replacement of cement, International journal of composite materials and matrices, Volume 8, Issue 02; Dec 2022.	Chintu ram gupta, Dr. Sanjay sharma, Er. Himmi gupta
30.	Study on utilization of lime mud from paper industry as a Construction material. Journal of University of Shanghai for Science and Technology, ISSN: 1007-6735, Volume 24, Issue 03.	Mayank, Dr. Sanjay Sharma and Er. Himmi Gupta
31.	Evaluation of an Existing Building for Transforming to Sustainable Building Journal of University of Shanghai for Science and Technology ISSN: 1007-6735 Volume 24, Issue 4, April 2022.	Prince Bansal, Dr. Sanjay Sharma Er. Himmi Gupta
32.	Experimental Study on Marble Squanders as a Partial and Complete Substitute of Coarse Aggregate in Concrete, Published In JETIR Volume 9, Issue 7, July-2022.	Tilkesh Sharma and Dr. Hemant Sood

Papers published by the Civil Engineering Department Faculty in International Journals (contd..)

Sr. No.	Name of the Paper Published	Author (s) Nam
33.	A Review Paper on Partial Replacement of Cement with Cow Dung Ash (CDA) in Concrete, Journal of Emerging Technologies and Innovative Research (JETIR), Vol.8, Issue 12, December 2021.	Vinita Meena Dr. Hemant Sood
34.	Analysis of Concrete Properties using Kota Stone Waste and Cow Dung Ash for Sustainable Development, Journal Of Emerging Technologies and Innovative Research, Volume 9, Issue 7, July 2022.	Vinita Meena Dr. Hemant Sood
35.	Experimental Study on Marble Squanders as a Partial and Complete Substitute of Coarse Aggregate in Concrete, Published In JETIR, Published in Volume 9 Issue 7 , July 2022.	Tilkesh Sharma and Dr. Hemant Sood
36.	Performance of Concrete by Partial Replacing Raw Material with Sugarcane Bagasse Ash and Ceramic Waste Aggregate Published In JETIR, Published in Volume 9, Issue 8 , August 2022.	Arvind Kumar & Dr. Hemant Sood
37.	A study on performance of concrete by partial replacing aggregates with recycled construction demolition waste and sand stone quarry waste. Published In JETIR, Published in Volume 9 Issue 11 , November 2022.	Mahaveer Prasad, Dr. Hemant sood
38.	Effect of Full Replacement of Natural River Sand with Manufactured Sand (M Sand) and Partial Replacement of Granite Slurry with Cement, Concrete Journal of Emerging Technologies And Innovative Research (JETIR), Volume 9, Issue 9, September 2022.	Suman Chaudhary Dr. Hemant Sood
39.	Spatial Analysis for the Sustainability of Glass Aggregate as replacement of Fine Aggregate, Concrete Journal of Emerging Technologies and Innovative Research, (JETIR), Published in Volume 9, Issue 6 , June-2022 .	Lokendra Narayan Tripathi and Er. Himmi Gupta
40.	Analysis of carbon footprint in coal mines of bastacolla area, Jharkahnd Journal of Emerging Technologies and Innovative Research(JETIR), Volume 9, Issue 6, June 2022.	Rohit Kumar Bhoxa & Er. Himmi Gupta
41.	Analytical approach to Evaluate the Behavior of Overhead Tanks with P-Delta Analysis	Shubham Kumar, Himmi Gupta
42.	Development of Fly ash Bricks using Alccofine as Partial Replacement of Cement	C.R. Gupta, S. Sharma, H. Gupta
43.	Designing of rural roads by nanotechnology materials Review, Journal of Emerging Technologies and Innovative Research (JETIR), Volume 10, Issue 1, Jan 2023.	Sandeep Yadav and Er. Ajay K Duggal
44.	Stabilization of Soil by using Terrazyme & Coconut Coir Fibre, Journal of Emerging Technologies and Innovative Research (JETIR), Volume 9, Issue 11, November 2022.	Nargis qurashi & Er. Vinod kumar Sonthwal
45.	Design and analysis of Cement Treated Base for Flexible Pavement as per IRC 37-2018, Journal of Emerging Technologies and Innovative Research (JETIR), Volume 9, Issue 11, November 2022.	Anirban Chakraborty Dr. Hemant Sood

Papers published/presented by the Civil Engineering Department Faculty in International Conferences/Seminars

Sr.No.	Title of the Paper Presented/Accepted along with the Name of the Conference/Seminar (venue, with date)	Author (s) Name
1.	Performance Evaluation of Acrylic Based Coating on Carbonation Depth on Different Grades of Concrete, In Proceedings of International Conference on Innovative Technologies for Clean and Sustainable Development (ICITCSD-2021), pp. 603-614. Springer, Cham, 2022.	Abhishek Thakur, Sanjay K. Sharma and Amit Goyal.
2.	Development of Correlation Between Ultrasonic Pulse Velocity and Rebound Hammer Test Results for Condition Assessment of Concrete Structures for Sustainable Infrastructure Development, Proceedings of International Conference on Innovative Technologies for Clean and Sustainable Development (ICITCSD – 2021). Springer, Cham, Published: 29 April 2022.	Sahoo, K.P., Gupta, H., Sharma, S.K.
3.	Earned Value Analysis Using Software For a Project, International Conference on Science, Engineering and Technology (ICSET 2022) ISBN: 978-81-959326-0-3 ICSET 2022 Conference Proceedings; page 310-323 ICSET 2022 Conference Proceedings © RK University, Rajkot, India	Vipul Kumar Khatri, Vinod Kumar Sonthwal , Mrs. Jyothi PM

Research and Development

No. of M.E. Thesis Guided	53
No. of Ph.D Thesis Awarded	01

Consultancy Programmes

Sr. No.	Consultancy Project	Gross Value	Net IRG	Remarks
1.	<ul style="list-style-type: none"> • Testing of Materials, Design, Quality Control • Third Party Audit of Quality Control Inspection Stability of Structure 	1,25,65,223	1,06,61,312	All Faculty



COMPUTER SCIENCE AND ENGINEERING DEPARTMENT



Prof. (Dr.) Rama Krishna Challa

Professor

Research Areas - Wireless Communication & Networks, Cryptography & Cyber Security

Er. Shano Solanki

Assistant Professor

Research Areas - Algorithm Analysis & Design, Multimedia System Design, Web Based Training



Dr. Amit Doegar

Assistant Professor

Research Areas – Networking, Image Processing, Open Source Technologies

Dr. Mala Kalra

Assistant Professor

Research Areas - Cloud Computing, Information Retrieval, Swarm Intelligence



COMPUTER SCIENCE AND ENGINEERING DEPARTMENT



Prof. (Dr.) Maitreyee Dutta

Professor

***Research Areas - Digital Signal & Image Processing,
Data Warehousing & Data Mining***

Prof. (Dr.) Srinivasa KG

Joint Professor (on lien to IIIT Raipur, Chhattisgarh)

***Research Areas - High Performance Computing,
Cloud Computing, Data Science, IoT, Digital Pedagogy***



COMPUTER SCIENCE AND ENGINEERING DEPARTMENT

During the year **2022-23**, the department has conducted **27** short term training programs in ICT and Contact Mode, which were attended by **2769** teachers from polytechnics and engineering colleges. The department has conducted **8** workshops under AICTE Sponsored Margdarshan Scheme with **134** participants. The department also conducted **3** Student Training Programme of 4-6 Weeks Duration and a total of **73** students have been trained. The department faculty published **2** papers in Non-SCI Journals. The department also published **15** papers in proceedings of International Conferences. The department also conducted **1** International Conference with **102** participants. The faculty of the department attended **3** training programs, **1** workshop and **1** online webinar during the year. The faculty also submitted research proposals in various agencies.

Sr. No.	Short Term Programmes Conducted
1.	Web Application Security & Ethical Hacking
2.	Machine Learning using Python
3.	Linux Applications in Engineering Education
4.	Computer Programming using Python
5.	Cloud Computing: A Hands on Approach with AWS Cloud
6.	Data Science using Python
7.	Block chain Technology
8.	Internet of Things
9.	Deep Learning
10.	Mobile Application Development using Android
11.	Computer Vision using Open CV
12.	Data Science using R
13.	Computer Network and Hardware Maintenance
14.	Cyber Vulnerabilities and Safeguards
15.	Deep Learning
16.	Open Source Tools for Research
17.	Social Network Analysis
18.	Cryptography and Network Security
19.	Wireless Networks
20.	Data Science using Python
21.	Open Source Technologies
22.	Cryptography for Information Security
23.	Cloud, Fog and Edge Computing
24.	MATLAB for Engineering Applications
25.	Data Analytics using Python
26.	2D & 3D Graphic Designing using open source tools
27.	Machine Learning and Predictive Analysis using Python

RESEARCH AND DEVELOPMENT
Papers published by the Computer Science and Engineering Department Faculty in International Journals other than SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	An Approach for Secure Data Transmission in Smart Grid, International Journal of Information and Computer Security, Vol. 20, Nos. 3/4, 2023 (Scopus Indexed).	Jagdish Chandra Pandey and Mala Kalra
2.	Cost Effective Hybrid Genetic Algorithm for Scheduling Scientific Workflows in cloud under deadline constraint, International Journal of Advanced Intelligence Paradigms, Vol. 24, No. 3-4, Feb 2023 (Scopus Indexed).	Gursleen Kaur, Mala Kalra
3.	Ubiquitous Micro Mapping of Air Pollution Using Vehicular Edge-Based Connected IoT Services, IEEE Internet of Things Magazine, vol. 5, no. 4 (2022): 156-161.	Mahajan, Palvi, C. Rama Krishna, Gagangeet Singh Aujla, Rasmeet Singh Bali, and Neeraj Garg

Papers published/presented by the Computer Science and Engineering Department Faculty in International Conferences/Seminars

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author (s) Name
1.	Anomaly Detection for IoT-Enabled Kitchen Area Network using Machine Learning, International Conference on Data Science and Computational Intelligence (ICDSCI-2022) 10th to 12th of November 2022, Chandigarh University, Punjab, India (Scopus indexed)	Mohd Ahsan Siddiqui, Dr. Mala Kalra, Dr. C. Rama Krishna
2.	Detection and prevention of phishing attacks on banking website IEEE International Conference on Futuristic Technologies (INCOFT) , 25th to 27th Nov- 2022, Belgaum, India, (Scopus indexed)	Prajwal Jaswal, Shweta Sharma, Naveen Bindra, C. Rama Krishna
3.	Enhancement of PCA-Based Dimensionality Reduction Using BB-BC Optimization Algorithm, International Interdisciplinary PhD Workshop 2023", IIPhDW 2023, IEEE, Germany.	Jasmeet Singh, Supreet Grewal, C. Ram Krishna
4.	A Detection Approach for IoT Traffic based DDoS Attacks, International Conference on Artificial Intelligence of Things (ICAIoT-2023) (Scopus indexed)	Praveen Shukla, C. Rama Krishna, Nilesh Vishwasrao,
5.	Driver Inattentiveness Detection Techniques for Intelligent for Intelligent Transportation Systems: A Review, 2nd edition of DELCON 2023 (An IEEE Delhi section conference) - February 24-26, 2023, Chitkara University, Rajpura, Punjab, India	Anwasha Patel, Rishu Chhabra, C. Rama Krishna
6.	A blockchain-based Model for Healthcare Across Intelligent Transportation Systems BlockCPS 2022 -- 2nd International Workshop on Blockchain for Smart Cyber-Physical Systems, 6-9 December 2022, Portland, Oregon, USA	Aditya Bhardwaj, Dipesh Singla, C. Rama Krishna

Papers published/presented by the Computer Science and Engineering Department Faculty in International Conferences/Seminars (contd..)

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author (s) Name
7.	Strawberry Disease Detection using Transfer Learning, International Conference on Futuristic Computation Techniques: Approaches, Implementations and Applications (ICFCT-2022) organised by PIET, Panipat, Haryana, 16-17 December 2022.	Manoj Gupta, Anand Kumar Jain, Amit Doegar
8.	Comparative Analysis of Deep Learning Models for Flower Dataset, International Conference on Futuristic Computation Techniques: Approaches, Implementations and Applications (ICFCT-2022) organized by PIET, Panipat, Haryana, 16-17 December, 2022.	Anand Kumar Jain, Manoj Gupta, Amit Doegar
9.	Comparative Analysis of Machine Learning Techniques for Currency Recognition for Visually Impaired, International Conference on Contemporary Research on Mathematics and Computer Science (ICCRMCS 2022), organized by SRMS College of Engineering and technology, Bareilly (U.P), 29-30 April, 2022.	Nitika Katnoria, Maitreyee Dutta and Amit Doegar
10.	Predictive Maintenance for Commercial Vehicles Tyres Using Machine Learning, 13th International Conference on Computing, Communication and Networking Technologies (ICCCNT), 3-5 October, 2022, IIT, Mandi, (Scopus Indexed)	Neeraj Sharma ,Mala Kalra
11.	COVID-19 Classification of CT Lung Images Using Intelligent Wolf Optimization Based Deep Convolutional Neural Network, International Conference on Data Science and Computational Intelligence (ICDSCI-2022 10-12 November 2022, Chandigarh University (Scopus indexed)	Om Ramkisan Varma, Dr. Mala Kalra
12.	Citrus Plant Leaves Disease Detection Using CNN and LVQ Algorithm, 4th International Conference on Data Analytics & Management (ICDAM-2023), 23 - 24 June, 2023 ,Springer conference series (Scopus indexed)	Roop Singh Meena, Shano Solanki
13.	Comparative Analysis of Structural Characteristics of Social Networks and their relevance in Community Detection, International Conference on Artificial Intelligence of Things (ICAIoT 2023), 30-31 March, 2023, NITTTR, Chandigarh, Springer CCIS Series (Scopus indexed)	Shano Solanki, Mukesh Kumar, Rakesh Kumar
14.	Recommender System Based on Network Structure Link Analysis Technique Through Community Detection in Social Network to Handle the Cold Start Problem, 2nd International Conference on Information Technology from 03-04 March, 2022. (Theme: Computational Intelligence: Automate your world) (Lecture Notes in Electrical Engineering) available online from 16 February 2023 (LNEE, volume 968)	Honey Pasricha, Shano Solanki, Sumit Kumar
15.	Cost-Deadline Constrained Robust Scheduling of Workflows Using Hybrid Instances in IaaS Cloud, International Conference on Artificial Intelligence of Things (ICAIoT 2023), 30-31 March, 2023, NITTTR, Chandigarh, Springer CCIS Series (Scopus indexed)	Urvashi Nag, Amrendra Sharan, Mala Kalra

Patents/Copyright

Sr. No.	Name of Patents/Copyright	Author (s) Name
1.	A Smart Change over Switch Integrated with Diesel Generator Monitoring and Control System [under examination]	Mr.Mohd Ashan Siddiqui, Dr. Rama Krishna Challa, Dr.Mala Kalra, Dr. Syed Mohammad Shoaib, Mr. Adikl Zaidi, Mr. Pushparaj, Mr. Banoth Krishna, Dr.Sandeep Singh Gill, Dr. Amod Kumar, Dr. Garima Saini

Research and Development

No. of M.E. Thesis Guided	10
No. of Ph.D Thesis Awarded	02

Sponsored Programmes

Sr. No.	Title of the Programme
1.	Sponsored Project "Share and Mentor Institutions" under AICTE Margdarshan Scheme

Training Programmes attended by the Computer Science and Engineering Department Faculty/Staff

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	Data Science and Machine Learning	26 August - 4 September 2022	Online (Organized by E&ICT academy, NIT Warangal and VIT, Vellore)	Dr.Mala Kalra
2.	Attended Webinar on Introduction to Deep Learning using Convolutional Neural Network (CNN)- Hands on using Keras organized by CDAC Noida & NIELIT Imphal under FutureSkills PRIME Programme	29 th August, 2022	Online	Dr. Amit Doegar
3.	Soft Computing Techniques	20 February - 3 March 2023	NITTTTR Chandigarh	Dr. Mala Kalra
4.	Attended two days' workshop on Prevention, Prohibition and Redressal of Sexual Harassment of Women at Workplace.	13-14 Feb, 2023	ISTM, New Delhi (Offline)	Ms. Shano Solanki

In-House Training Programmes attended by Faculty/Staff

Sr. No.	Title of Training Programme	Period of Training	Attended by
1.	AR/VR	23 rd May, 2022 to 26 th May, 2022	Shano Solanki, Amit Doegar, Amrendra Sharan

Student Training/ Internship/ Apprenticeship organized

Sr. No.	Name of the Course along with dates & place	No. of weeks	Participation		Total No. of Participants	Coordinator
			Poly	Engg.		
1.	Data Science (A project based Learning) from 13/06/22 to 22/07/22, at NITTTR Chandigarh	04-06 weeks	-	30	30	Prof. C. Rama Krishna, Er. Amrendra Sharan
2.	Python Programming, from 13/06/22 to 22/07/22, at NITTTR Chandigarh	04-06 weeks	-	17	17	Prof. C. Rama Krishna, Er. Amrendra Sharan
3.	Data Science (a project based Learning) from 04/07/22 to 12/08/22, at NITTTR Chandigarh	04-06 weeks	1	25	26	Prof. C Rama Krishna, Er. Amrendra Sharan

Other Activities

1. **STC on Outcome based Education for Program Accreditation (Hybrid Mode) from 20.06.2022 to 25.06.2022 under AICTE Margdarshan Scheme (SP-25). (Course Coordinators: Dr. C. Rama Krishna and Dr. Mala Kalra). Total no. of participants: 49.**
2. **STC on “Outcome based Education for Program Accreditation” from 9-13 May 2023 under AICTE Margdarshan Scheme (SP-25). (Course Coordinators: Dr. C. Rama Krishna and Dr. Mala Kalra). Total no. of participants: 39.**
3. **Re-run of MOOCS Course on “Graphics and Animation Development” from 29 July, 2022 to October, 2022: Learners enrolled: 2149**
4. **Re-run of MOOCS Course on “Graphics and Animation Development” from 30 Jan to 31 March, 2023: Learners enrolled: 2945**



CURRICULUM DEVELOPMENT CENTRE



Prof. (Dr.) A B Gupta

Professor

**Research Areas - Curriculum Development,
Curriculum Implementation**

Prof. (Dr.) Rajesh Mehra

Professor

**Research Areas - VLSI Design, Advanced Digital
Signal Processing, Embedded Design**



Dr. Suresh Kumar Gupta

Associate Professor

**Research Areas - Curriculum Development, Civil
Engineering**

Dr. Meenakshi Sood

Associate Professor

**Research Areas - ANN, Antenna, Antenna (Plana,
Metamaterial, Fractal), Curriculum Development, Digital
Signal & Image Processing, Machine Learning**



CURRICULUM DEVELOPMENT CENTRE

During the year **2022-23**, the department has conducted **24** short term training programs in ICT and Contact Mode, which were attended by **2,999** teachers from polytechnics and engineering colleges. The department has conducted **136** workshops with **1178** participations. The department faculty published **5** papers in SCI Journals, **2** papers in Non-SCI Journals and **1** in National Journal. The department also published **3** papers in proceedings of International Conferences. **1** patent was also awarded during the year to a faculty member of department. **2** ME Thesis were guided and completed during the year. The faculty of the department attended **2** online training programs and **2** offline training programs during the year.

Sr. No.	Short Term Programmes Conducted
1.	Effective Curriculum Implementation
2.	Curriculum Design for Developing Job related Competencies
3.	Curriculum Design & Evaluation
4.	Curriculum Design & Evaluation
5.	Outcome Based Curriculum Design
6.	Effective Conduct of Laboratories and Workshops
7.	NSQF Aligned Curriculum Design and Implementation
8.	Curriculum Development Processes
9.	Developing Academic and Administrative Leadership
10.	NSQF Aligned Curriculum Design and Implementation
11.	Effective Curriculum Implementation
12.	Curriculum Design for Developing Job related Competencies
13.	Free & Open Source Softwares for Effective Curriculum
14.	Curriculum Design & Evaluation
15.	Outcome Based Curriculum Design
16.	Planning, Execution and Evaluation of Project Work
17.	Developing Healthy Work Culture
18.	Development of Automation Competencies
19.	NEP 2020 Implementation in Higher Education Institutes
20.	Computer Aided Design Practices
21.	Curriculum Development Processes
22.	Accreditation Criteria and Process
23.	Curriculum Design & Evaluation
24.	Skill Development for Employability

RESEARCH AND DEVELOPMENT
Papers published by the Curriculum Development Centre Faculty in SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	Mathematical Modelling and Simulation of CH ₃ NH ₃ Pb(I1-xBrx) ₃ based Perovskite Solar Cells for High Efficiency, Journal of Computational Electronics, Vol 22, Issue 1, Feb 2023	Divya Sharma, Rajesh Mehra & B. Raj
2.	Optimization of tin based Perovskite Solar Cell employing CuSbS ₂ as HTL: A numerical simulation approach, Optical Materials, Volume 134, Dec 2022	Divya Sharma, Rajesh Mehra & Balwinder Raj
3.	Comparative study of hole transporting layers commonly used in high-efficiency perovskite solar cells, Indian Journal of Engineering and Material Science, Vol 29, Oct 2022	Divya Sharma, Rajesh Mehra & Balwinder Raj
4.	Design and analysis of various solar cell technologies for improvements in efficiencies	Divya Sharma, Rajesh Mehra & B. Raj
5.	Numerical Model and Design of wideband band reject filter with closed loop rectangular resonator, Journal of Electronics Letters, June 2022	N. Kumari, M. Sood, Salman Raju Talluri & S. Kumar Khah

Papers published by the Curriculum Development Centre Faculty in International Journal other than SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	Classification and Pathologic Diagnosis of Gliomas in MR Brain Images, Procedia Computer Science Journal PROCS44165 218C (2023) pp.706-717	Meenakshi Sood, Shruti Jain
2.	A Review Analysis of Recent Lung Cancer Detection Techniques Using Deep Learning Vol. III, No. 1 (XXII), Pp-188-197, 2022 Shodhasamhita: Journal of Fundamental & Comparative Research ISSN: 2277-7067	Sitaram Meena, Dr. Meenakshi Sood

Papers published by the Curriculum Development Centre Faculty in National Journal

Sr. No.	Name of the Paper Published	Author (s) Name
1.	Curriculum Restructuring for Diploma level Programmes in the Light of NEP-2020 in Journal of Engineering and Technical Education, Vol. 16, No. 1 & 2 (Jan- June 2022 and July-Dec. 2022) published by NITTTR, Chandigarh (ISSN 2229- 631 X)	Dr. AB Gupta, Dr. SK Gupta, Dr. Meenakshi Sood

Papers published/presented by the Curriculum Development Centre Faculty in International Conferences/Seminars

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author (s) Name
1.	Hetronjunction Organic Solar Cell Design Materials and structures accepted for oral presentation in IEEE International Conference scheduled at Maldives, November 2022	Divya Sharma, Rajesh Mehra & Balwinder Raj & Lajwanti Singh
2.	Classification and Pathologic Diagnosis of Gliomas in MR Brain Images in International Conference on Machine Learning and Data Engineering (ICMLDE 2022) 7-8 th September 2022 UPES, Dehradun, India	Meenakshi Sood, Shruti Jain, Jyotsna Dogra
3.	Deep Learning Framework using CNN for Brain Tumor Classification, 5th International Conference on Multimedia, Signal Processing and Communication Technologies (IMPACT), 26-27 November 2022 Aligarh, India, 2022, pp. 1-5 DOI: 10.1109/IMPACT55510.2022.10029043	N. Bhardwaj, M. Sood and S. Gill

Patents/Copyright

Sr. No.	Name of Patents/Copyright	Author (s) Name
1.	Patent awarded on A Device of Developing a BIS (sulfanylidene) tungsten and a Spiroometad based Efficient Pervoskite Solar Cell with Patent no. 2022/05837	Rajesh Mehra, & Er. Srishtee Chaudhary

Research and Development

No. of M.E. Thesis Guided	02
---------------------------	----

Consultancy Programmes

Sr. No.	Consultancy Project	Remarks
1.	Academic and Administrative Competency update Programme for Principals and HODs (2 groups)	Overall conducted of the training programme, took sessions in the program.
2.	Curriculum Design of diploma programmes for HSBTE	Curriculum Workshops conducted. Submitted curricula (2 nd Year) for 25 diploma programs

Consultancy Programmes (contd..)

Sr. No.	Consultancy Project	Remarks
3.	Curriculum Design of diploma programmes for PSBTE	First Year Curricula of 21 diploma submitted to PSBTE Conducted workshops for developing 2 nd Year contents
4	Curriculum Development of diploma programmes for Jammu and Kashmir	First Year Curricula of 21 diploma developed and submitted
4.	Curriculum Design under Jal Jeevan Mission	Submitted to Punjab Skill Development Mission
5.	Academic and Administrative Competency Programme for Himachal Pradesh	Conducted, organized and took sessions
6.	Academic and Administrative Competency Programme for Principals, HODs, TPO of Haryana	Coordinated and organized the programme
7.	Administration, Planning, Monitoring and Training for foreman for Uttrakhand State	Coordinated and organized the programme
8.	Curriculum Design of 21 diploma programmes for PSBTE	Conducted workshops for developing 2 nd Year and 3 rd Year subject contents
9.	Advance Pedgogy for ITI Instructor of Uttrakhand State	Organized, Conducted

Training Programmes attended by the Curriculum Development Centre Faculty/Staff

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	Workshop for Liaison Officers for SC/ST	3 days (15-06-2022 to 17-06-2022)	ISTM, Delhi	Dr. Rajesh Mehra
2.	IGNOU-NEP PDP Project	27 Oct. – 2 Nov. 2022	Online	Dr. Meenakshi Sood
3.	Multicounty observational Study Mission on Industry 4.0 Digital Industrial Platform	23-25 Nov. 2022	SGPC, Singapore	Dr. Meenakshi Sood
4.	Reservation in services for SC/ST/OBC/PWBD/ExSM by ISTM GOI	6-9 Feb. 2023	Online	Dr. Meenakshi Sood

EDUCATION AND EDUCATIONAL MANAGEMENT DEPARTMENT



Prof. (Dr.) Upendra Nath Roy

Professor

Research Areas – Watershed Management, Rural Sanitation, Climate Change & Disaster Management, Organic Farming

Prof. (Dr.) Sunil Dutt

Professor

Research Areas - Educational Technology, Curriculum Development, Education and Education Management, Management, Personality Development



Er. Parmod Kumar Singla

Associate Professor

Research Areas: Curriculum, Communication Skills, Management, Appropriate Technology for Rural Development, Entrepreneurship Development

EDUCATION AND EDUCATIONAL MANAGEMENT DEPARTMENT



Er. Rama Chhabra

Associate Professor

Research Areas – Chemical Engineering, Information Management

Er. Amandeep Kaur Sandhu

Assistant Professor

Research Areas - Educational Management, Educational Technology



EDUCATION AND EDUCATIONAL MANAGEMENT DEPARTMENT

During the year **2022-23**, the Department has conducted **50** short term training programs in ICT and Contact Mode, which were attended by **3334** teachers from polytechnics and engineering colleges. The department has conducted **3** workshops with **231** participants. The department conducted **3** Student/other Training Programme of **1** Week Duration and total number of **235** students participated. The department faculty published **01** paper in International Journal and **01** paper in National Journal. The department published **01** paper in proceedings of International Conference. The department conducted **02** Sponsored programmes in which **65** participants got trained.

Sr. No.	Short Term Programmes Conducted
1.	Research Methodology
2.	Student-centred Instructional Strategies
3.	Unnat Bharat Abhiyaan
4.	Enhancing Performance at Work Place (for Technical & Supporting Staff)
5.	Digital Transformation of Teaching
6.	Team Building, Motivation & Creativity
7.	Rural Architecture and Rural Tourism
8.	Inter-personal Skills and Relationship Management
9.	Institutional Management and Quality Technical Education
10.	Stress Management
11.	Induction Training Programme for Newly Recruited Teachers
12.	Sustainable Fashion
13.	Latest Practices in Pharmacy Education
14.	Induction Training Programme for Newly Recruited Teachers
15.	Outcome Based Education
16.	Managerial Skills for Technical Teachers & Administrators
17.	Unnat Bharat Abhiyaan
18.	Team Building, Motivation & Creativity
19.	Inter-personal Skills and Relationship Management
20.	Developing Values & Ethics
21.	Climate Change, Disaster Management and Sustainable Development
22.	Life Skills Development
23.	Online Learning and Online Evaluation
24.	Research Methodology

Sr. No.	Short Term Programmes Conducted (contd..)
25.	Stress Management
26.	Latest Practices in Pharmacy Education
27.	Outcome Based Education
28.	Rural Enterprises and Rural Entrepreneurship
29.	Managerial Skills for Technical Teachers & Administrators
30.	Human Relations
31.	Rural Architecture and Rural Tourism
32.	Digital Transformation of Teaching
33.	Institutional Management and Quality Technical Education
34.	Project Planning and Management
35.	Corporate Social Responsibility for Community Development
36.	Induction Training Programme for Newly Recruited Teachers
37.	Managing Your Ego and Emotions at Workplace
38.	Blended Learning and Flipped Classroom
39.	Soft Skills & Classroom Teaching
40.	Guidance, Counselling & Mentoring Skills
41.	Research Methodology
42.	Communicating at Work
43.	Integrated Village Development
44.	Effective Teaching Learning using Social Media
45.	New CDTP Guidelines and Sustainable Rural Development
46.	Classroom Communication in Digital Era
47.	Evaluation and Setting of Question Papers
48.	Preparing Students for Job Interviews
49.	Developing Employable Skills
50.	Organic Farming and Organic Food Marketing

RESEARCH AND DEVELOPMENT

Papers published by the Education and Educational Management Department Faculty in International Journals other than SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	In situ synthesis, characterization of Z-scheme g-C ₃ N ₄ /Bi ₂ O ₃ as photocatalyst for degradation of azo dye, Amido black-10B under solar irradiation. <i>Ceramics International</i> 2022, 48(19, Part B), 29445–29459. doi: https://doi.org/10.1016/j.ceramint.2022.07.008	Kaur, A.; Kansal, S. K.

Papers published by the Education and Educational Management Department Faculty in National Journal

Sr. No.	Name of the Paper Published	Author (s) Name
1.	Emerging pedagogy trends in the light of NEP-2020. Journal of Engineering & Technology Education 2022. Vol.16, No. 1 & 2, 20-23	Kaur A., Chhabra R., Dutt S.

Papers published/presented by the Education and Educational Management Department Faculty in International Conferences/Seminars

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author (s) Name
1.	Integration of Social Media in Teaching Learning Process – Challenges and its Solutions, presented in International Conference on 'Best Innovative Teaching Strategies' organized by Teaching Learning Centre, BITS (Pilani), from 09 – 11 February, 2023	Ms Astha Arora and Dr. Sunil Dutt
2.	g-C ₃ N ₄ based Bi ₂ O ₃ composite as photocatalyst for the degradation of amido black -10 B dye from wastewater. Presented paper in International Conference "Chemical Engineering: Enabling Transition Towards Sustainable Future" September 08-10, 2022, Organized by IIT Roorkee.	Kaur, A.; Kansal, S. K .
3.	Bi ₂ O ₃ based semiconductor photocatalysts for the degradation of phenolic compounds from wastewater: A review" Presented paper in International Conference on Recent Advances in Applied Sciences (ICRAAS-2022) organized by the Deptt. Of Chemistry, M.M.U (Deemed to be University), Mullana, India in association with World Researchers Association (WRA) during March 23-24, 2022.	Kaur, A.; Kansal, S. K.

Consultancy Programmes

Sr. No.	Consultancy Programme	Number of Participants attended
1.	Evaluation & Setting Question Papers, from 23-24 June 2022 at NITTTR CHD	40
2.	Evaluation & Setting Question Papers, from 2-3 March 2023 at NITTTR CHD	25

Consultancy Programmes

Sr. No.	O-Plan No.	Consultancy Project	Status	Remarks
1.	CP - 141	Recruitment for the post of Supervisors in SSS Board, Mohali (Pb.)	In Progress IRG Rs. 3,50,98,665/-	Dr. Sunil Dutt as a Co-coordinator
2.	CP - 142	Recruitment for various posts in MILKFED (Punjab)	Completed IRG Rs. 4,25,00,318/-	Dr. Sunil Dutt as a Co-coordinator
3	CP-21-149	Recruitment for 10 Categories of posts The Punjab State Coop. Milk Producer's Federation Ltd., Chandigarh (MILKFED)	Completed IRG Rs. 36,21,972/-	Dr. Sunil Dutt as a Co-coordinator
4	CP – 22-171	Recruitment for 3 Categories of posts Subordinate Services Selection Board, Punjab	In Progress IRG Rs. 3,18,13,852/-	Dr. Sunil Dutt as a Co-coordinator
5	CP – 22-178	Recruitment for 7 Categories of posts of TGTs School Education, UT, Chandigarh under Samagra Shiksha	In Progress IRG Rs. 86,14,871/-	Dr. Sunil Dutt as a Co-coordinator
6	CP – 22-179	Recruitment for the posts of JBTs School Education, UT, Chandigarh under Samagra Shiksha	Completed IRG Rs.1,19,74,199/-	Dr. Sunil Dutt as a Co-coordinator

Student Training/ Internship/ Apprenticeship organized

Sr. No.	Name of the Course along with dates & place	No. of weeks	Total No. of Participants
1.	Pre-Job Training (Finishing School) on Technological Interventions for Sustainable Agriculture & Rural Dev, For MBA Rural Dev. Students	1 week	36
2.	Technologies and Technique for Sustainable Rural Development	2 weeks	33
3.	Soft Skills Training Programme	1 week	166

Other Activities

MOOCs SWAYAM COURSES

Sr. No.	Programme Title	Duration	Coordinator	No. of Participants
1.	MOOC on 'Development of Self Learning Material'	2022-2023 (29 July – 30 September, 2022)	Dr. Sunil Dutt	800

Other Activities (contd...)

MOOCs SWAYAM COURSES (contd..)

Sr. No.	Programme Title	Duration	Coordinator	No. of Participants
2.	MOOC on 'Research in Technical Education'	2022-2023 (29 July – 30 September, 2022)	Dr. PK Tulsi/Dr. Sunil Dutt	477
3.	MOOC on 'Development of Self Learning Material'	2022-2023 (30 January, 2023 – 31 March, 2023)	Dr. Sunil Dutt	1016
4.	MOOC on 'Research in Technical Education'	2022-2023 (30 January, 2023 – 31 March, 2023)	Dr. PK Tulsi/Dr. Sunil Dutt	655
5.	MOOC on 'Communication Skills, Modes & Knowledge Dissemination'	Term I training under NITTT-AICTE April –May,2022.	Er. Amandeep Kaur	1591
6.	Communication Skills, modes and Knowledge Dissemination	Term I training under NITTT-AICTE October-November, 2022	Er. Amandeep Kaur	1445
7.	MOOC on 'Communication Skills, modes and Knowledge Dissemination'	SWAYAM MOOC 29 July – 30 September, 2022	Er. Amandeep Kaur	1907
8.	Communication Skills, modes and Knowledge Dissemination	30 January – 31 March, 2023	Er. Amandeep Kaur	3432

ELECTRICAL ENGINEERING DEPARTMENT



Prof. (Dr.) Lini Mathew

Professor

Research Areas - Digital Signal Processing, ANN and Fuzzy Logic, Virtual Instrumentation

Dr. Ritula Thakur

Associate Professor

Research Areas - Power System, Microcontroller & Micro Processor, PLC and SCADA



Dr. Shimi S.L

Assistant Professor (on lien to PEC Chandigarh)

Research Areas – Power Electronics & Drives, Digital Control, FACTS, Artificial Intelligence & Optimization, LABVIEW & its hardware interface

Prof. (Dr.) Poonam Syal

Joint Professor

Research Areas - Sustainable Rural Development, Energy Management, Instrumentation for Env't. Engg., Assistive Technologies, Research Methodology



ELECTRICAL ENGINEERING DEPARTMENT

During the year **2022-23**, the department has conducted **30** short term training programs in ICT and Contact Mode, which were attended by **4694** teachers from polytechnics and engineering colleges. The department faculty published **2** papers in SCI Journals, **8** papers in Non-SCI Journals and **1** in National Journals. The department also published **16** papers in proceedings of International Conferences. The department also jointly organized **one** International Conference alongwith CSE and ECE Departments. The faculty of the department attended online training programs and online webinars during the year. The faculty also submitted research proposals in various agencies. The department faculty developed **20** videos for MOOCS program on "PLC and Microcontroller in Hindi language.

Sr. No.	Short Term Programmes Conducted
1.	E-learning using Open Source Software/Tools
2.	Hands on Experiences on Arduino
3.	Advanced IoT Applications using Arduino (Two Weeks)
4.	Implementation of IoT using Arduino
5.	Raspberry Pi and its Interfacing
6.	Basics of Hardware in Loop Simulation
7.	MATLAB and SIMULINK basics for Hardware Projects
8.	Transformation of Technical Education in Digital Mode
9.	LabVIEW Programming
10.	Smart Grid and Renewable Energy Sources
11.	Teaching Learning for Accreditation in Technical Education
12.	Raspberry Pi and its Interfacing
13.	IoT Enabled PLC
14.	Power Electronics for Renewable Energy Applications
15.	Advances in Electrical and Electronics Engineering
16.	MATLAB - Artificial Intelligence and Optimisation Techniques
17.	Wellness and Meditation
18.	Research Scope in Electric Vehicles (In collaboration with ANSYS)
19.	Developing Skill in Academic and Administrative Leadership
20.	Power Quality Problems and Solutions
21.	Big Data Applications in Electrical Engineering
22.	Integration, Control and Operation of Distributed Generation
23.	Image Processing Techniques and its Applications
24.	Tools for Engineering Research

Sr. No.	Short Term Programmes Conducted (contd..)
25.	MATLAB and Simulink for Beginners
26.	Soft Skills and Personality Development
27.	ANSYS-EM Software(in collaboration with ANSYS)
28.	Simulation of Smart Electric Vehicles(in collaboration with Typhoon HIL)
29.	Smart Grid Technologies
30.	Embedded C Programming of Microcontroller

RESEARCH AND DEVELOPMENT

Papers published by the Electrical Engineering Department Faculty in SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	Enhanced control of doubly fed induction generator based wind turbine system using soft computing assisted fractional order controller, Renewable Energy Focus, Volume 43, 2022.	Shivaji Ganpat Karad, Ritula Thakur
2.	Effects of dust on the performance of solar panels – A review update from 2015–2020, SAGE- Journal (Energy & Environment), Vol- 33, Issue-5, June 2022.	Raj Kumar Saini, Divender K. Sani, Rajeev Gupta, Piush Verma

Papers published by the Electrical Engineering Department Faculty in International Journal other than SCI Journals

Sr.No.	Name of the Paper Published	Author (s) Name
1.	Hybridization of Battery and Super Capacitor of an Electrical Vehicle - A Review, Mathematical Statistician and Engineering Applications, Vol. 71, No. 3, pages.1592 – 1609, 2022.	Namrata Narayan, Lini Mathew (Scopus Indexed)
2.	Effect of Body Posture on Heart Rate Variability Analysis of ECG Signal, International Journal of Engineering and Applied Computer Science, Volume- 04, Issue- 03, April 2022.	Ruchita, Lini Mathew,
3.	Design and Simulation of Tin- Halide $Cs_2 SnI_6$ based Perovskite Solar cell for Enhanced Efficiency, Empirical Economics Letters, 22 (Special Issue 2), January, 2023.	Hemant Kumar, Piush Verma , Balwinder Raj
4.	Review of Different Topologies of Multi-Level Inverter, Journal of University of Shanghai for Science and Technology, Volume 24, Issue 12, December, 2022.	Yogesh Joshi, Shimi S.L
5.	Power Quality Enhancement of DC Microgrid: A Review, Acta Energetica Vol 3, 46, pp. 35-41, 2022	Chandrakant Singh, Shimi S L, Lini Mathew
6.	Implementation of Half Bridge Compensator with Auto Tuned DC Link Capacitor for Electric Traction, International Journal of Creative Research Thoughts (IJCRT), Volume 10, Issue 8 August 2022.	Ashish Kumar, Shimi SL
7.	Arduino Microcontroller and IOT based systems for environment control of mushroom farms, Design Engineering, Issue 1, pp. 997-1008, 2022.	P.K.Angral, Ritula Thakur

Papers published by the Electrical Engineering Department Faculty in National Journal

Sr. No.	Name of the Paper Published	Author (s) Name
1.	Inter Turn Fault detection in Rotor of Hydro Generator using Fuzzy Interface System, International Journal Water & Energy, Vol, 65, pp 36-42, April 2022.	Atul Chadha, Piush Verma

Papers published / presented by the Electrical Engineering Department Faculty in International Conferences/ Seminars

Sr.No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author (s) Name
1.	Robotic Control by EOG-EEG-RFID based Multimodal Interface and Shared Control Technology, International Conference on Emerging Trends in Artificial Intelligence and Smart Systems, THEETAS 2022, April 2022, Jabalpur, India, http://dx.doi.org/10.4108/eai.16-4-2022.2318075 (Scopus Indexed) (Best Paper Awarded)	Preeti Kumari, Lini Mathew, Neelesh Kumar
2.	Real Time Analysis of Artificial Neural Network based Fault Detection and Fault Location in AC Microgrid, 2 nd International Conference on Soft Computing for Security Applications (ICSCS 2022), Salem, India, April 2022	Niharika, Lini Mathew,
3.	IoT based Measurement and Prediction of Water Quality Index: A Review, 2 nd International Conference on Emergent Converging Technologies and Biomedical systems (ETBS 2022), Jaypee University of Information Technology, Wanknaghat, HP, September 2022.	Pooja Kumari, Baban Kumar Bansod, Lini Mathew,
4.	Design and Simulation of Tin- Halide Cs ₂ SnI ₆ based Perovskite Solar cell for Enhanced Efficiency, International Conference on Sustainable Management Practices for Inclusive Growth: Issues, Challenges & Strategies, Dec, 2022 pp.24-29.	Hemant Kumar, Piush Verma, Balwinder Raj
5.	A Comparative Study of III-V and Silicon Tandem, materials for High Efficiency Multi- Junction Solar Cell Design, International Conference on Innovations in Technology & Management (ICITM-2-22) December, 2022.	Akam, Piush Verma, Balwinder Raj,
6.	A Review on Real-time Seismic Event Detector and Classification, International Conference on Advances in Engineering & Technology (ICAET-2022), November 2022, pp- 96-101	Rahul Walia, Piush Verma
7.	A Parallel Signal Detector Approach for detection of human activities using multiple Seismic Sensors, International Conference on Emerging Electronics and Automation (Springer), NIT, Silchar, December, 2022, pp 76-82.	R Walia, M. Singh, P Verma, R. Gosh
8.	Fault classification of Dry Type Transformer using Pattern Recognition Neural Network, International Conference on Advances in Energy Research, IIT Bombay, June 2022, pp.132-138.	Pankaj Kumar, Piush Verma

Papers published / presented by the Electrical Engineering Department Faculty in International Conferences/ Seminars (contd..)

Sr.No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author (s) Name
9.	Management of reactive power in industrial installation and economic analysis, AIP Conference Proceedings, Vol. 2357, AIP Publishing LLC, 2022.	Saini, Raj Kumar, Devender Kumar Saini, Rajeev Gupta, Piush Verma, R. P. Dwivedi, Ashwani Sharma, Pankaj Vaidya
10.	Dynamic modelling, Design and experimental analysis of closed loop controlled convertor using OPAL-RT, IEEE International Conference on Computer, Electronics and Electrical Engineering and their Applications (IC2E3 -2023), NIT, Uttarakhand, 2023.	Sumit Kumar, Shimi S.L
11.	Human Motion Detection Using Ultra-Wide Band Radar, 3rd International Conference on Computational Methods in Science & Technology (ICCMST 2022), CEC, Landran, January, 2023	Hanish Saini, Siddhartha Sarkar, Ashish Gaurav, Vaibhav Kumar, Lini Mathew, Satish Kumar
12.	A Review of Architecture and Control Strategies of Hybrid AC/DC Microgrid, IEEE International Conference on Intelligent Controller and Computing for Smart Power (ICICCSP 2022), Sreenidhi Institute of Science And Technology (SNIST), Hyderabad, July 2022.	Pragya, Ritula Thakur
13.	Disturbance Estimation and Compensation Based on Frequency Response in an Islanded Microgrid, IEEE International Conference on Intelligent Controller and Computing for Smart Power (ICICCSP 2022), Sreenidhi Institute of Science and Technology (SNIST), Hyderabad, July 2022	Yogesh Singh, Ritula Thakur
14.	Hybrid Energy Source Based BLDC Motor Drive for Electric Vehicle Application, 2 nd International Conference for Innovation in Technology (INOCON), Bangalore, India, 2023, pp. 1-6, doi: 10.1109/INOCON57975.2023.10101225.	Madhav Kumar; Kaibalya Prasad Panda; Jayakrushna Moharana; Ritula Thakur; Gayadhar Panda,
15.	Three Phase Multilevel Switched Capacitor Inverter for Low/High Voltage Applications using PD-PWM Technique, IEEE IAS Global Conference on Renewable Energy and Hydrogen Technologies (GlobConHT), The Maldives National University, Male City (Maldives), March, 2023.	Sumant Dalai, Kaibalya Panda, Ritula Thakur, Gayadhar Panda,
16.	Efficient Operation of Boiler using PLC – SCADA, 2nd International Symposium on Sustainable Energy and Technological Advancements (ISSETA 2023, National Institute of Technology Meghalaya, Shillong, India, February, 2023.	Tushar Sawarn, Ritula Thakur
17.	The Impacts of Voltage Disturbances Due to Faults in the Power Supply System of a Data Center, 20 th International Conference on Harmonics & Quality of Power (ICHQP), 2022, pp. 1-6, doi: 10.1109/ICHQP53011.2022.9808804.	K. M. U. Ahmed, M. H. J. Bollen, M. Alvarez and S. S. Letha

Patents/Copyright

Sr. No.	Name of Patents/Copyright	Author (s) Name
1.	Spatial Tactile Apparatus and Method for Creation and Navigation of Virtual Graphics for Visually Challenged, Patent No. : 411091, Application No. : 1739/DEL/2012, Date of Filing : 06/06/2012.	Poonam Syal

Research and Development

No. of M.E. Thesis Guided	22
---------------------------	----

Consultancy Programmes

Sr. No.	Consultancy Project	Remarks
1.	Induction Training Program for SDEs/JEs, Chandigarh Administration from 1 st August to 26 th August, 2022	Coordinated training program, arranged expert lectures, field visits and practical

Training Programmes attended by the Electrical Engineering Department Faculty/Staff

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	Webinar on EV Charging Infrastructure (Charging stations for electric vehicles).	10 th June, 2022	ISIE, India	Dr. Piush Verma
2.	Training Session EBSCO EBooks and IEEE	25 th May, 2022	NITTTR Chandigarh	Dr. Piush Verma
3.	The QIP cum CEP sponsored 2-Week online short term course on "MIMO Technologies" organized by IIT Delhi	18 - 29 April, 2022	Online (IIT, Delhi)	Dr. Shimi S.L

Research Project Submitted

Sr. No.	Name of Project	Funding Agencies	Team
1.	IoT Based Data Driven Monitoring and Intelligent Control of an Autonomous Microgrid with WECS-BESS-FC Hybrid System and Demand Side Response amounting Rs. 59,11,600/-	SERB, DST	Dr. Ritula Thakur (NITTTR, Chandigarh), Dr. Gayadhar Panda, Dr P Rangababu, (NIT, Meghalaya)
2.	Hybrid electric energy storage solutions for grid support and charging infrastructure.	Horizon, Europe	Dr. Ritula Thakur (NITTTR, Chandigarh), RINA CONSULTING SPA, Dr. Gayadhar Panda, Dr P Rangababu, (NIT, Meghalaya)



ELECTRONICS & COMMUNICATION ENGINEERING DEPARTMENT



Prof. (Dr.) Amod Kumar

Professor

Research Areas - Artificial Intelligence, Biomedical Engineering



Dr. Balwinder Raj

Associate Professor (on lien to NIT Jalandhar)

Research Areas - Nanoelectronic Devices and Circuits, VLSI & Embedded System Design, Modeling and Simulation, FPGA Based Design



Dr. Balwinder Singh Dhaliwal

Associate Professor

Research Areas : Antenna (Fractal, MIMO), ANN, Digital Signal Processing, Soft Computing

ELECTRONICS & COMMUNICATION ENGINEERING DEPARTMENT



Dr. Kanika Sharma

Assistant Professor

Research Areas – Embedded System Design, Digital System Design, Wireless Sensor Network



Dr. Garima Saini

Assistant Professor

Research Areas - Advanced Digital Communication, Wireless & Mobile Communication, Antenna



Prof. (Dr.) Sandeep Singh Gill

Joint Professor

Research Areas - VLSI CAD, Soft Computing Techniques, Engineering Management

ELECTRONICS & COMMUNICATION ENGINEERING DEPARTMENT



Prof. (Dr.) SS Pattnaik

Joint Professor

Research Areas - Soft Computing, Multimedia, Antenna & Microwave, RF & Bio-medical

Prof. (Dr.) Rajesh Mehra

Joint Professor

Research Areas - VLSI Design, Advanced Digital Signal Processing, Embedded Design



Dr. Meenakshi Sood

Joint Associate Professor

Research Areas : ANN, Antenna, Machine Learning, Multirate & Adaptive Signal Processing, Nature Inspired Algorithms, Soft Computing Techniques

ELECTRONICS AND COMMUNICATION ENGINEERING DEPARTMENT

During the year **2022-23**, the department faculty took **20** courses for Regular and Modular M.E. programmes. It conducted **37** short-term training programs in Contact and ICT Mode, which were attended by **2938** teachers from polytechnics and engineering colleges. The department has conducted **04** workshops with **592** participations. The department also conducted **04** Student Training Programmes of **38** Weeks Duration with total of **25** student's participation. The department faculty published **20** papers in SCI Journals, **05** papers in Non-SCI Journals and **01** in National Journals. The department published **20** papers in proceedings of International Conferences and **01** in National Conferences. **03** books and **09** book chapters were published. The department also conducted **01** International Conference with **102** participants and **01** National Conference with **179** participants. The faculty of the department attended online training programs and online webinars during the year. The faculty also submitted research proposals to various funding agencies.

Sr. No.	Short Term Programmes Conducted
1.	Digital Signal Processing using MATLAB
2.	Soft Computing Techniques
3.	Latest Technologies in Embedded Systems
4.	Free ICT Tool for Effective Research
5.	Antenna Design Technique & Tools
6.	Digital filter Design with MATLAB
7.	Deep Neural Networks and Applications
8.	Emerging Research Areas in Wireless Communication
9.	Technology Enabled Teaching-Learning
10.	Embedded Modelling Systems
11.	Antenna Design and Fabrication using Additive Manufacturing Techniques
12.	Free Simulators for ECE Lab Practices (Module-1)
13.	Nanoelectronics Devices and Circuits Design
14.	Advanced Embedded Systems
15.	Latest Wireless & Communication Technologies
16.	Research Trends in Wireless Sensor Network
17.	VLSI Devices and Circuits for AI Applications
18.	Free simulators for ECE Lab practices (Module-2)
19.	Specifications to System Design
20.	Arduino based system design using Tinker CAD Free Simulator
21.	Smart Materials and Nanotechnology

Sr. No.	Short Term Programmes Conducted (contd..)
22.	System Designing with controllers
23.	Academic Leadership for enhanced outcomes
24.	IoT and its Applications
25.	Branding of HEI's for Excellence
26.	Applications of AI in Electronics Design
27.	Antenna & Wireless Technologies
28.	VLSI Physical Design
29.	5G Communication & its Application
30.	OBE and NBA Accreditation
31.	Digital and Embedded Systems
32.	Biomedical Signal and Image Processing
33.	5G & IOT
34.	Basic Embedded Systems
35.	Antenna Design using Soft Computing Algorithms
36.	Challenges and Opportunities in VLSI Design
37.	Image Processing using MATLAB

RESEARCH AND DEVELOPMENT

Papers published by the Electronics and Communication Engineering Department Faculty in SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	Design and comparative analysis of various planar perovskite solar cells through numerical simulation using different HTLs to improve efficiency Optical Materials, Elsevier, Vol. 126, April 2022	Divya Sharma, Rajesh Mehra, Balwinder Raj
2.	Design and Performance Optimization of doping-less Vertical Nanowire TFET using Gate Stack Technique, Journal of Electronic Materials (JEMS) Springer, Vol. 51, Issue 7, pp. 4005-4013, May 2022	Anjana Bhardwaj, Pradeep Kumar, Balwinder Raj, Sunny Anand
3.	Comparative Analysis of Nanowire Tunnel Field Effect Transistor for Low Power Application, Journal of Silicon, Vol. 14, pp. 12075–12084, June 2022	Faizan Ansari, Tarun Chaudhary, Mandeep Singh, Balwinder Raj and R K Sunkaria
4.	Performance Assessment and Optimization of Vertical Nanowire TFET for Biosensor Applications Transactions on Electrical and Electronic Materials, Springer, Vol.23, pp. 685–692, June 2022	Parveen Kumar, Balwinder Raj

Papers published by the Electronics and Communication Engineering Department Faculty in SCI Journals (contd..)

Sr. No.	Name of the Paper Published	Author (s) Name
5.	Extended Gate to source overlap Heterojunction Vertical TFET: Design, Analysis, and optimization with Process parameter variations Materials Science in Semiconductor Processing, Elsevier, Vol. 145, July 2022	Tulika, Mamta Khosla, Balwinder Raj
6.	Design of Magnetic Tunnel Junction for Spintronic based STT-MRAM SPIN - World Scientific, Vol. 12, No. 03, pp. 2250022-30, Aug 2022	Parul Sharma, Sandeep Singh Gill and Balwinder Raj
7.	Design and Simulation Analysis of Silicon Germanium Nanowire FET for Low Power Applications, Journal of Silicon, Springer, Vol. 15, pp. 1491–1497, Sep 2022	Mandeep Singh, Tarun Chaudhary, Balwinder Raj
8.	Design and Performance Analysis of Zinc Oxide Thin Film Transistor (ZnO ₂ TFT) with High-k dielectric Materials WSPC Nano, Vol. 17, No. 11, pp. 2250083, September 2022	Parminder Kaur, Sandeep Singh Gill and Balwinder Raj
9.	Investigations on the Design of Compact Flexible Wearable Fractal Patch Antenna for Body Area Networks Applications, Wireless Personal Communications, Vol. 126, No.2, September 2022.	Vikas Jain, Balwinder Singh Dhaliwal
10.	GeSn based Hetrojunction Double-Gate Tripple metal layer Vertical TFET with Enhanced DC and Analog/RF Performance, Micro and Nanostructures, Elsevier, Volume 170, pp. 207392, October 2022	Tulika, Mamta Khosla, Balwinder Raj
11.	Analog Performance Analysis of High-K Spacer Dual Material Gate Graded Channel Nanotube, Journal of Electronic Materials Springer (SCIE), Vol. 52, pp. 422–428, October 2022	Ashima Rai, Vaithyanathan, Dhandapani, Balwinder Raj
12.	On 3D-Printed Acrylonitrile Butadiene Styrene- Based Sensors: Rheological, Mechanical, Morphological, Radio Frequency and 4D Capabilities, Journal of Materials Engineering and Performance, Vol. 31, No. 11, pp. 8760-74, Nov. 2022.	Chahat Jain, Balwinder Singh Dhaliwal, Rupinder Singh
13.	Analytical Modeling and Performance Assessment of High Performance Split-Gate Dielectric Modulated InGaAs Gate All Around Junctionless MOSFET, Biosensor Micro and Nanostructures, Vol. 171, pp. 207395, November 2022	Pawandeep Kaur, Avtar Singh Buttar, Balwinder Raj
14.	Comparative study of Hole Transporting Layers Commonly used in High Efficiency Perovskite Solar Cells, Journal of Materials Science, Springer, Vol. 57, pp. 21172–21191, November 2022	Divya Sharma, Rajesh Mehra, Balwinder Raj
15.	Optimization of Tin Based Perovskite Solar Cell Employing CuSbS ₂ as HTL: A Numerical Simulation Approach, Journal of Optical Materials, Elsevier, Vol. 134, pp. 113060, December 2022	Divya Sharma, Rajesh Mehra and Balwinder Raj
16.	Artificial neural network based character recognition using SciLab, Multimedia Tools and Applications, Vol. 82, No. 2, January 2023.	Priya Darshni, B.S. Dhaliwal, Raman Kumar, Vincent Aizebeoje Balogun Sunpreet Singh and Catalin Lulian Pruncu

Papers published by the Electronics and Communication Engineering Department Faculty in SCI Journals (contd..)

Sr. No.	Name of the Paper Published	Author (s) Name
17.	Characterization of 3D printed meta-structure PLA substrate for patch antenna applications in S-band, International Journal of Electronics, pp. 1–15, Feb 2023.	S. Bansal, S. Maithani, B. S. Dhaliwal, G. Saini
18.	On Comparison of 3D-Printed ABS and PVDF-Based Sensors for Body-Centric Utility, Arabian Journal for Science and Engineering, February 06, 2023.	Chahat Jain, Balwinder S. Dhaliwal, Rupinder Singh, Suman Pattnaik
19.	On 3D Printing of Primary Recycled Polyvinylidene-Fluoride-Based Miniaturized, Flexible, and Wearable Sensor, Journal of Materials Engineering and Performance, February 13, 2023	Chahat Jain, B.S. Dhaliwal, Rupinder Singh
20.	CL-HPWSR: Cross-layer-based energy efficient cluster head selection using hybrid particle swarm wild horse optimizer and stable routing in IoT-enabled smart farming applications, Transactions on Emerging Telecommunications Technologies, Vol. 34, No. 3, March 2023; e4725.	Amandeep Kumar, Balwinder Singh Dhaliwal, Damanpreet Singh

Papers published by the Electronics and Communication Engineering Department Faculty in International Journal other than SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	Energy Efficient unequal clustering routing algorithm based on Neuro-Fuzzy logic for Wireless Sensor Network, Journal of Algebraic Statistics, Vol. 13, Issue 2, June 2022	Swapnil Kapoor, Kanika Sharma, Balwinder S. Dhaliwal
2.	MOEES-Multi Objective Energy Efficient Clustering Scheme for Wireless Sensor Networks, International Journal of Intelligent Engineering and Systems, Vol.15, No.3, pp. 525-535, 2022.	Amandeep Kumar, Balwinder Singh Dhaliwal, Damanpreet Singh
3.	Cross-Layer based Energy Efficient Wireless Sensor Network for Large Farms, International Journal of Intelligent Engineering and Systems, Vol. 15, No. 5, pp. 483-493, 2022.	Amandeep Kumar, Balwinder Singh Dhaliwal, Damanpreet Singh
4.	Enhanced Approach for Image Edge Detection Using Histogram Equalization (BBHE) and Bacterial Foraging Optimization (BFO), International Journal of Computer Applications in Technology, Inderscience, Vol. 68, No. 4, pp. 875-880, November 2022	Tanvi, Parveen Kumar and Balwinder Raj
5.	Energy Efficient Multi-hop Multipath sub clustering routing protocol for Wireless Sensor networks, International Journal of Recent Technology and Engineering, Vol.11, Issue 6, March 2023	Kirti Bazar, Kanika Sharma

Papers published by the Electronics and Communication Engineering Department Faculty in National Journal

Sr. No.	Name of the Paper Published	Author (s) Name
1.	Design and Analysis of Various Solar Cell Technologies for Improvements in Efficiencies, Indian Journal of Engineering and Materials Sciences (IJEMS) Vol. 29, pp. 557-567, October 2022	Divya Sharma, Rajesh Mehra and Balwinder Raj

Papers published / presented by the Electronics and Communication Engineering Department Faculty in International Conferences/Seminars

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author (s) Name
1.	Design of a Computer Stereo Vision Based Road Marking System, IEEE International IoT, Electronics and Mechatronics Conference (IEMTRONICS), June 1-4, 2022 DOI - 10.1109/IEMTRONICS55184.2022.9795778	Suryakant Amod Kumar Garima Saini
2.	Enhanced DV-HOP Node Localization Algorithm Based on Nearest Neighbor Distance and Hop-Count Evaluation in WSNs, IEEE International IOT, Electronics and Mechatronics Conference (IEMTRONICS), June 1-4, 2022	Kanika Sood Kanika Sharma Amod Kumar
3.	Electrochemical Impedance Spectroscopy for the detection of degradation of edible oil, 9 th International Conference on Advances in Physical Sciences and Materials (ICAPSM), August 18-19, 2022	Apurva Amod Kumar Kanika Sharma Sudeshna Bagchi
4.	Design of Mixed Halide Perovskite Solar Cells for High Efficiency International Conference on Communication and Signal Processing (ICCSP-2022), September 23-24, 2022	Divya Sharma Rajesh Mehra Balwinder Raj
5.	Analysis of Thickness on the Dielectric Properties of PET Substrate for Antenna Design, International Conference on Communication and Signal Processing, September 27-28, pp.1-6, 2022	Sachin Maithani Shivam Bansal Garima Saini Balwinder Singh Dhaliwal
6.	Study of State-of-the-art Optimized Routing methods in WSNs for Various Applications, IEEE 2 nd International Conference on Technological Advancements in Computational Sciences (ICTACS), Uzbekistan, pp.180-184, October 2022	V.K. Meena Kanika Sharma Amod Kumar
7.	Design and Parametric Analysis of Pentacene Organic Field Effect Transistor with Varying Dielectric Thickness, 10 th International Conference on Advancements in Engineering and Technology (ICAET-2022), November 11-12, 2022	Yogesh Thakur Balwinder Raj and Sandeep Singh Gill
8.	Hetero-junction Organic Solar Cell Design Materials and Structures, 2nd International Conference on Electrical, Computer, Communications and Mechatronics Engineering (ICECCME 2022), Maldives, November 16-18, 2022	Divya Sharma Rajesh Mehra Balwinder Raj Lajwanti Singh

Papers published / presented by the Electronics and Communication Engineering Department Faculty in International Conferences/Seminars (contd..)

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author (s) Name
9.	Comparative Study of Materials for Low Voltage Organic and Inorganic Dielectric for OFET, 8 th International Conference on Nanoelectronics, Circuits, & Communication Systems (NCCS-2022) at ARTTC, BSNL Ranchi, November 19-20, 2022	Akanksha Mishra Balwinder Raj S.S.Gill
10.	Comparative Analysis of Multiplier Design for High Performance Applications, 9 th IEEE UP Section Conference on Electrical, Computer and Electronics, IIIT Allahabad, December 2-4, 2022	Pankaj Balwinder Raj and S S Gill
11.	Effect of Temperature Variations on the Linearity parameters of Graded Channel Nanotube Field Effect Transistor, Fourth International Conference on Recent Advances in Materials and Manufacturing (ICRAMM 2022), Velalar College of Engineering and Technology, Erode, Tamil Nadu, December 8-9, 2022	Ashima D. Vaithyanathan Balwinder Raj
12.	A Compact Flexible Crown Rectangular Fractal Antenna on low-cost PET substrate 2022, IEEE Microwaves, Antennas, and Propagation Conference (MAPCON 2022), Bangalore, India, pp. 1886–1890, 12-16 December 2022.	Simranjit Kaur Josan Balwinder S. Dhaliwal Sachin Maithani
13.	Design of a 3D printed meta-structure biosourced PLA substrate based patch antenna, IEEE Microwaves, Antennas, and Propagation Conference (MAPCON 2022), Bangalore, India, pp. 520-524, 12-16 December 2022 https://doi.org/10.1109/MAPCON56011.2022.10047095	B. S. Dhaliwal S. Bansal G. Saini
14.	Design and Simulation of Tin-Halide Cs ₂ SnI ₆ -Based Perovskite Solar Cell for Enhanced Efficiency, International Conference on Sustainable Management Practices for Inclusive Growth: Issues, Challenges and Strategies, December 15-16, 2022	Hemant Kumar Piush Verma and Balwinder Raj
15.	Simulation Analysis of Energy-Optimized Routing Techniques for Wireless Sensor Networks, 5 th International Conference on Contemporary, Computing and Informatics, December 2022	V.K. Meena Kanika Sharma Amod Kumar
16.	Foam Based Flexible Z Shaped Microstrip Patch Antenna for 5G Applications, Proceedings of 3rd International Conference on Energy Control Computing and Electronic Systems (ICECCES 2022), Tirupati, Andhra Pradesh, December 29-31, 2022.	Yashica, Garima Saini Balwinder S. Dhaliwal Jayant G. Joshi
17.	Design and Analysis of Flexible Foam based Antenna for UWB Application, Proceedings of 3rd International Conference on Energy Control Computing and Electronic Systems (ICECCES 2022), Tirupati, Andhra Pradesh, December 29-31 2022.	Kulbhaskar Singh Balwinder S. Dhaliwal Garima Saini
18.	AMC Loaded Modified Circular Shaped Antenna for 5G Sub-6 GHz Applications, Proceedings of 3rd International Conference on Energy Control Computing and Electronic Systems (ICECCES 2022), Tirupati, Andhra Pradesh, December 29-31 2022.	Alka Yadav Garima Saini Balwinder S. Dhaliwal

Papers published / presented by the Electronics and Communication Engineering Department Faculty in International Conferences/Seminars (contd..)

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author (s) Name
19.	Facial Paralysis Severity Assessment via Convolutional Neural Network, International Conference NCETET-23	Sakshi Awasthi, Amod Kumar, Kanika Sharma
20.	Design and Performance Analysis of InSb/InGaAs/InAlAs High Electron Mobility Transistor for High Frequency Applications, Congress on Control, Robotics, and Mechatronics (CRM 2023), Modi Institute of Technology, Kota, India, March 25-26, 2023	Prajwal, Sandeep Singh Gill and Balwinder Raj

Papers published / presented by the Electronics and Communication Engineering Department Faculty in National Conferences/Seminars

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author (s) Name
1.	Design and Analysis of Patch Antenna for Three Substrate Operating at 2.4 GHz, Proceedings of National Conference on Recent Trends in Communication, Computing and IOT (RTCCI), Feb. 12, 2023, Nashik, India	Shivam Bansal Sachin Maithani Balwinder Singh Dhaliwal Garima Saini

Patents/Copyright

Sr. No.	Name of Patents/Copyright	Submitted/Granted	Author (s) Name
1.	A Smart Changeover Switch Integrated with Diesel Generator Monitoring and Control System	Submitted	Mohd Ahsan Siddiqui, C. Rama Krishna Challa, Mala Kalra, Syed Mohammad Shoab, Adil Zaidi, Pushparaj, Banoth Krishna, Sandeep Singh Gill, Amod Kumar, Garima Saini

Research and Development

No. of M.E. Thesis Guided	16
No. of Ph.D. Thesis Awarded	03

Training Programmes attended by the Electronics and Communication Engineering Department Faculty/Staff

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	Attended Five Days Online Summer Workshop on Recent Algorithms for Remote Sensing Applications (RARSA2022)	12-07-2022 to 16-07-2022	NIT Karnatka, Surathkal	Dr Balwinder Raj
2.	Embedded Systems	16-08-2022 to 25-08-2022	NIT Warangal	Dr. Kanika Sharma
3.	National Seminar on Information Systems & Services for Research & Innovation (NSISS)	22-09-2022	Indian Institute of Technology (IIT), Roorkee	Dr Balwinder Singh Dhaliwal
4.	Reservations in Services for SC/ST/OBC/ExSM/PWDs	06-02-2023 to 09-02-2023	Online by The Institute of Secretariat Training and Management (ISTM), New Delhi	Dr Balwinder Singh Dhaliwal

Research Studies and Development Projects

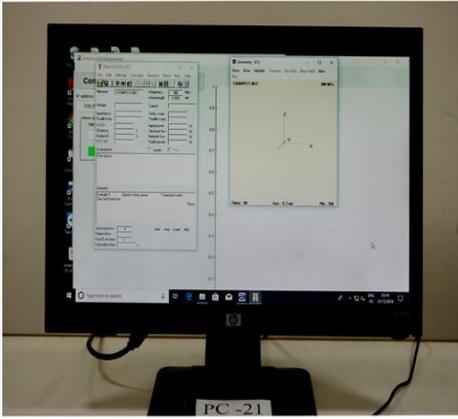
Sr. No.	Name of Project	Team	Amount (Rs.)	Status of Project completed/ In progress	Target date of completion
A. RESEARCH STUDIES					
1.	Design and Development of Junctionless Nanowire TFET Biosensor	Dr Balwinder Raj	37 Lakhs	Completed	Oct-2022
2.	FIST: To strengthen research facilities in the college	Dr. Rupinder Singh Dr Balwinder Raj	80 Lakhs	Ongoing	2025
3.	Memristive Non-volatile SRAM Cell Design for AI Applications	Dr Balwinder Raj Dr S S Gill	11.42 Lakhs	Ongoing	2025
4.	Design of FinFET architectures for analog/RF and biomedical applications	Dr Balwinder Raj Dr Suman Lata	18 Lakhs	Ongoing	2025
5.	Design of Low Power Area Efficient 8-Bit CMOS Flash ADC for Biomedical Applications	Dr S S Gill Dr Balwinder Raj	86 Lakhs	Presentation Done	-

Research Studies and Development Projects (contd..)

Sr. No.	Name of Project	Team	Amount (Rs.)	Status of Project completed/ In progress	Target date of completion
A. RESEARCH STUDIES					
6.	Design and Development of System-on-Chip for Single-Lead Wearable Electrocardiogram (ECG) for medical devices	Dr S S Gill Dr Balwinder Raj	97 Lakhs	Presentation Done	-
7.	Design, Fabrication and Characterization of Vertical TFET based Ammonia Gas Sensor for Industrial Applications	Dr Balwinder Raj	45 Lakhs	Submitted	-
B. DEVELOPMENT PROJECTS					
1.	Design of FinFET architectures for analog/RF and biomedical applications	Dr. Suman Lata, LPU Dr. Balwinder Raj, NITTTR, Chandigarh	18 Lakhs SERB funded project under TARE	Ongoing (Started in Nov, 2022)	Nov, 2025

Student Training organized

Sr. No.	Name of the Course along with dates & place	No. of weeks	Participation		Total No. of Participants
			Poly	Engg.	
1.	Industrial Training of B. Tech ECE students of CCET, Chandigarh in Embedded Systems Design, 28-01-2022 to 27-07-2022 at NITTTR, Chandigarh	24	-	04	04
2.	Industrial Training of B.Tech ECE students of GNA University, Phagwara in Embedded Systems Design, 27-06-2022 to 05-08-2022 at NITTTR, Chandigarh	06	-	05	05
3.	Industrial Training of students of CCET, Chandigarh in Electronic Design Automation, 06-07-2022 to 02-08-2022 at NITTTR, Chandigarh	04	-	04	04
4.	Industrial Training of students of University of Kashmir in Internet of Things, 20-02-2023 to 26-03-2023 at NITTTR, Chandigarh	04	-	-	12



ENTREPRENEURSHIP DEVELOPMENT & INDUSTRIAL COORDINATION DEPARTMENT



Prof. (Dr.) Niraj Bala

Professor

Research Areas - Entrepreneurship Development, Patenting, Business Startup, Skill Promotion and Rural Development, Industrial Coordination, Manufacturing processes

Prof. (Dr.) Suresh Kumar Dhameja

Professor

Research Areas – Entrepreneurship Development, Industry Institute Interaction, Technical and Vocational Education and Training



Dr. Harsh Vardhan Samalia

Associate Professor

Research Areas - Strategic Management, Informal Competition, Digital Transformation of Organizations, Behavioral Aspects of Information Systems

ENTREPRENEURSHIP DEVELOPMENT & INDUSTRIAL COORDINATION DEPARTMENT



Dr. Hemant Kumar Vinayak

***Associate Professor (on lien to NIT Hamirpur)
Research Areas - Entrepreneurship Development
including Technical, Rural, Women Entrepreneurship,
Micro, Small and Medium Enterprises (MSME) Start up***



Er. Amardev Singh

***Assistant Professor
Research Areas – Entrepreneurship Development, IPR,
Technology Adoption and Mgmt***

ENTREPRENEURSHIP DEVELOPMENT & INDUSTRIAL COORDINATION DEPARTMENT

During the year **2022-23**, EDIC department had conducted a total of **twenty-four (24)** short term training programs in either ICT and / or Contact Mode, which were attended by around two thousand and eleven (**2011**) faculty and staff members of various polytechnics and engineering colleges from across the country. The department has also conducted one workshop on “**Industry Supported Refresher workshop for Training and Placement officers of Northern Region**” which was successfully attended by **22** participants from the Northern India. The department also conducted **03** Student Training Programmes in which total of **51** students participated successfully. In the year 2022-23 EDIC department faculty members published **02** papers in SCI Journals, **02** papers in Non-SCI Journals and **02** papers in National Journals along with one paper as a chapter in a book published by Springer publications, Singapore. EDIC department also conducted **01** National Conference in which around **165** participants registered and attended the same. The faculty of the department attended **05** training programs and webinar in contact / online mode during the said year. The faculty of EDIC also submitted **01** research proposal to a NATIONAL agency namely DST, Government of India in the year 2022-23.

Sr. No.	Short Term Programmes Conducted
1.	Design Thinking for Transformation in Education (for Directors/Principals/Deans/ HoDs/Senior Faculty)
2.	Entrepreneurship Promotion - Road Ahead
3.	Entrepreneurial Motivation, Guidance and Counselling
4.	Government's Initiative for Entrepreneurship Promotion
5.	Entrepreneurial Career Opportunities
6.	Creativity and Innovation for Entrepreneurship Promotion
7.	Aatam Nirbhar Bharat through Entrepreneurial Startup
8.	Product design, Launch and Start-ups in Electronics
9.	Project Management Skills for Managing Business Ventures
10.	Strengthening Industry Academia Integration
11.	Motivation, Team Building and Creativity in Entrepreneurship
12.	Skill development for employability
13.	Enhancing Research Capabilities for Academic Career Progression
14.	MSME Promotion and Management
15.	Business and Soft skill Management
16.	Project Management
17.	Funding Opportunities in Engineering

Sr. No.	Short Term Programmes Conducted (contd..)
18.	Creativity, Initiative, and Innovation Promotion & Management
19.	Employability Skills for Industry 4.0
20.	Leadership and Management Development
21.	Blue Ocean Strategy for Entrepreneurship Promotion
22.	Social Entrepreneurship - Incubation, Promotion and Management
23.	Business Startups and Innovation Management
24.	Intellectual Property Rights & Patenting in India

RESEARCH AND DEVELOPMENT

Papers published by the Entrepreneurship Development & Industrial Coordination Department Faculty in SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	Comparative study of Y_2O_3 , SnO_2 and ZrO_2 as inhibitor to control high temperature corrosion of Ni-based superalloy, in Journal "Materials at High Temperatures" 40 (11):1-11; January 2023.	Gitanjaly Goyal; Niraj Bala, Harpreet Singh, Satya Prakash
2.	Comparative Assessment on the Behavior of HVOF Sprayed Ni Based Alloy Coatings on SA213-T22 Boiler Tube Steel in Actual Biomass Fired Boiler Environment, in "Journal of Thermal Spray Technology" March 2023	Rajan Verma, Gagandeep Kaushal, Niraj Bala

Papers published by the Entrepreneurship Development & Industrial Coordination Department Faculty in International Journal other than SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	Role of Entrepreneurship in Building Atamnirbhar Bharat: An NEP-2020 Perspective in Journal of Engineering & Technology Education, Special Issue of the Journal on NEP 2020, Vol. 16, No. 1 & 2, (January-June, 2022 & July-December, 2022), ISSN 2229 – 631X; pp: 47-50	Dr S.K. Dhameja Dr Niraj Bala. Dr HV Samalia, Dr HK Vinayak, and Er. Amardev Singh
2.	Historic Lens View of NEP-2020 from Employability Perspective, in Journal of Engineering & Technology Education, Special Issue of the Journal on NEP 2020, Vol. 16, No. 1 & 2, (January-June, 2022 & July-December, 2022), ISSN 2229 – 631X; pp: 1-6	Hergovind Singh, K Pallavi, Harsh Vardhan Samalia and Y V R Murthy

Research and Development

No. of M.E. Thesis Guided	03
No. of Ph.D Thesis Awarded	01

Training Programmes attended by the Entrepreneurship Development & Industrial Coordination Department Faculty/Staff

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	Training Program on Neuro Linguistic Programming by Planet Psychology.	6-10 Feb 2023	NITTTR Chandigarh	Prof SK Dhameja
2.	One week Skill Development Workshop on "Drone – Hands on Training" held from sponsored by IIT Hyderabad held at Chitkara University Rajpura.	12-16 Sep 2022	Chitkara University Rajpura	Prof. Niraj Bala
3.	Entrepreneurship in software solutions concepts development and strategies" at VEPRM Pty Ltd., Norwest NSW, Australia at its Sydney office.	21 st Nov – 10 th Dec, 2022	VEPRM Pty Ltd., Norwest NSW, Australia	Er. Amardev Singh
4.	Two day workshop on Prevention, Prohibition and Redressal of Sexual Harassment of Women at Work Place at Institute of Secretariat Training & Management, New Delhi	13 th to 14 th February 2023	Institute of Secretariat Training & Management, New Delhi	Prof. Niraj Bala
5.	One day National Seminar on Information Systems & Services for Research & Innovation (NSISS) organized by the Indian Institute of Technology Roorkee	22 nd September, 2022	Indian Institute of Technology Roorkee	Prof. Niraj Bala

Student Training/Internship/ Apprenticeship organized

Sr. No.	Name of the Course along with dates & place	No. of weeks	Participation		Total No. of Participants
			Poly	Engg.	
1.	"Two day workshop Planning, Execution and Evaluation of Project Work through Project Management " 17.11.2022 to 18.11.2022 (HVS)	2 days	-	37	37

Student Training/Internship/ Apprenticeship organized (contd..)

Sr. No.	Name of the Course along with dates & place	No. of weeks	Participation		Total No. of Participants
			Poly	Engg.	
2.	Workshop on “Business Opportunity Identification” for M.E and PhD students 06th October, 2022 at NITTTR Chandigarh	One Day	-	-	05
3.	Workshop on “Startups and Innovation Management” under the aegis of 'Institution's Innovation Council (IIC) on 22nd March, 2023 for M.E and PhD students at NITTTR Chandigarh	One Day	-	-	09

Research Project Submitted

Sr. No.	Name of Project	Funding Agencies	Team
1	Submitted Project proposal as Co-PI Titled “Creating Wealth using Thermal Spraying and Additive Manufacturing to Exploit Waste” for India Sweden Joint Call project sponsored by DST, New Delhi with Dr. Harpreet Singh, Professor at IIT Ropar as PI.	DST, New Delhi	Dr Niraj Bala as Co-PI

Other Activities

1. Prof. SK Dhameja conducted an online in-country training Program on “Entrepreneurship for TVET Professionals” for officials of Bangladesh from 11-15 September 2022. Prepared complete instructional material also. A total of 40 Principals/HoDs/Faculty members from various TVET Institutions and officials of DTE Bangladesh participated in the program. The program was sponsored by CPSC Philippines and Directorate of Technical Education (DTE), Under Technical and Madrasah Education Division (TMED) of Ministry

INFORMATION MANAGEMENT AND EMERGING ENGINEERING DEPARTMENT



Prof. (Dr.) Maitreyee Dutta

Professor

Research Areas - Digital Signal & Image Processing, Data Warehousing & Data Mining

Prof. (Dr.) Sandeep Singh Gill

Professor

Research Areas - VLSI CAD, Soft Computing Techniques, Engineering Management



Prof. (Dr.) Srinivasa KG

Professor (on lien to IIIT Raipur, Chhattisgarh)

Research Areas - High Performance Computing, Cloud Computing, Data Science, IoT, Digital Pedagogy

INFORMATION MANAGEMENT AND EMERGING ENGINEERING DEPARTMENT

During the year **2022-23**, the department has conducted online **33** short term training programs in ICT and Contact Mode, which were attended by **2132** teachers from polytechnics and engineering colleges. The department also conducted **01** Sponsored Programme in which **62** participant trained. The department faculty also conducted **13** Consultancy Programmes which were attended by **347** participants. The department faculty published **10** papers in SCI Journals and **14** papers in International Journals. The department also published **13** papers in proceedings of International Conferences. The faculty of the department attended online training programs and online webinars during the year. The faculty also submitted research proposals in various agencies.

Sr. No.	Short Term Programmes Conducted
1.	VLSI Physical Design
2.	OBE and NBA Accreditation
3.	Challenges and Opportunities in VLSI Design
4.	VLSI Devices and Circuits for AI Applications
5.	Academic Leadership for enhanced outcomes
6.	Branding of HEI's for Excellence
7.	Applications of AI in Electronics Design
8.	Capacity Building on Programme for Principals of Haryana Higher Education Institutes
9.	Academic and administrative competency update programme for Principals, HoDs, TPOs in H.P. State
10.	Academic and administrative competency update programme for Principals, HoDs, TPOs in H.P. State
11.	Academic and administrative competency update programme for Principals, HoDs, TPOs in H.P. State
12.	Professional Competency Update Programme for Principals, HoDs, TPOs of Engineering Colleges/ Polytechnics of Haryana
13.	Administration, Planning, Monitoring & training under UKWDP
14.	Professional Competency update Programme for Principals, HoDs, TPOs of Engineering Colleges/ Polytechnic of Haryana
15.	Competence Based Trade Specific Training under UKWDP
16.	Administration, Planning, Monitoring & training under UKWDP
17.	Pedagogy (Advanced) under UKWDP
18.	Competence Based Trade Specific Training under UKWDP
19.	Competence Based Trade Specific Training under UKWDP
20.	Pedagogy (Advanced) under UKWDP
21.	Capacity Enhancement Programme on "Technology Enabled Learning for Instructors of GITIs of Punjab

Sr. No.	Short Term Programmes Conducted (contd..)
22.	MATLAB for Engineering Applications
23.	Php and MYSQL
24.	Cyber Security
25.	Development of Responsive Website
26.	Cyber Threats and Security Measures
27.	SciLab Programming
28.	Development of Responsive Website
29.	Scilab Programme for Engineering Application
30.	OBE Based Curriculum and Accreditation
31.	Cyber Crime and Forensic Tools
32.	Open Source Cyber Security Tools
33.	IoT Basics

RESEARCH AND DEVELOPMENT

Papers published by the Information Management and Emerging Engineering Department Faculty in SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	Design and Performance Analysis of Pentacene Organic Field Effect Transistor with High-K dielectric Materials, Journal of Optoelectronics And Advanced Materials – Rapid Communications, Accepted –Feb 2023	Yogesh Thakur, Balwinder Raj, Sandeep Singh Gill,
2.	Spintronics Based Non-Volatile MRAM for Intelligent Systems: Memory for Intelligent Systems Design, International Journal on Semantic Web and Information Systems (IJSWIS) IGI USA, Volume 18, Issue 1, PP 1-16, June 2022	Parul Sharma, Sandeep Singh Gill and Balwinder Raj
3.	Non-Slicing Very Large Scale Integration Floorplan Optimization Technique Using an Improved Modified Memetic Algorithm with O-Tree Representation, Journal of Nanoelectronics and Optoelectronics, Volume 17, Number 7, July 2022, pp. 1019-1030(12), American Scientific Publishers, DOI: https://doi.org/10.1166/jno.2022.3285	Gupta, Rohin; Gill, Sandeep Singh
4.	A. Low area and high-performance 6-bit MUX based flash ADC for wide band applications. Opt Quant Electron 54, 230 (2022).	Krishna, B., Gill, S.S. & Kumar

Papers published by the Information Management and Emerging Engineering Department Faculty in SCI Journals (contd..)

Sr. No.	Name of the Paper Published	Author (s) Name
5.	A Novel application of Fuzzy Inference System optimized with Particle Swarm optimization and genetic algorithm for PM10 Prediction, Soft Computing, SCIE, IF: 3.643	Jagriti Saini, Maitreyee Dutta, Goncalo Marques
6.	L-ECQV: Lightweight ECQV Implicit Certificates for Authentication in the Internet of Things, in IEEE Access, doi: 10.1109/ACCESS.2023.3261666	M. Malik, Kamaldeep, M. Dutta and J. Granjal
7.	Image-Fused: improved Alzheimer's disease diagnosis using efficient deep neural network, Soft Computing, SCI Indexed,	Siddheshwari Dutt Mishra, Maitreyee Dutta
8.	Feature Engineering and Machine Learning Framework for DDoS Attack Detection in the Standardized Internet of Things, in IEEE Internet of Things Journal, doi: 10.1109/JIOT.2023.3245153.	Kamaldeep, M. Malik and D. M. Dutta
9.	Modality feature fusion based Alzheimer's disease prognosis", Optik, Volume 272, 2023, 170347, https://doi.org/10.1016/j.ijleo.2022.170347 , SCI indexed	Siddheshwari Dutt Mishra, Maitreyee Dutta
10.	ADFIST: Adaptive Dynamic Fuzzy Inference System Tree driven by Optimized Knowledge Base for Indoor Air Quality Assessment, Sensors, 2022, 22(3), 1008; https://doi.org/10.3390/s22031008 , SCIE, IF: 3.576	Jagriti Saini, Maitreyee Dutta, Goncalo Marques

Papers published by the the Information Management and Emerging Engineering Department Faculty in International Journal other than SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	Design and Performance Analysis of Zinc Oxide Thin Film Transistor (ZnO ₂ TFT) with High-k dielectric Materials, WSPC Nano, VOL. 17, NO. 11, Sep 2022. (Scopus)	Parminder Kaur, Sandeep Singh Gill and Balwinder Raj
2.	Design of Magnetic Tunnel Junction for Spintronic based STT-MRAM, SPIN - World Scientific, Vol. 12, No. 03, PP. 2250022-30, Oct 2022 (Scopus)	Parul Sharma, Sandeep Singh Gill and Balwinder Raj
3.	An Efficient Novel 6T SRAM Cell with Optimized Layout and Design Metrics in 45nm Technology, ICTACT Journal of Microelectronics, Vol.8, issue 2, pp.1350-1357, 2022. DOI: 10.21917/ijme.2022.0233. (UGC Care Group)	Gupta, R. and Gill, S.S.
4.	A Memetic Algorithm Based Novel Area Optimization Technique Using O-Tree Representation for 3D ICs, Neuro Quantology September 2022, Volume 20, Issue 9, Page 6086-6094, doi: 10.14704/nq.2022.20.9.NQ44710 (Scopus)	Rohin Gupta, Sandeep Singh Gill

Papers published by the the Information Management and Emerging Engineering Department Faculty in International Journal other than SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
5.	Low Area and High Bit Resolution Flash Analog to Digital Converter for Wide Band Applications: A Review, <i>Micro and Nanosystems</i> 2022; 14(3). (Scopus)	Krishna Banoth, Gill Singh Sandeep and Kumar Amod
6.	Design of Low-Power High-Speed 8 Bit CMOS Current Steering DAC for AI Applications. <i>International Journal of Software Science and Computational Intelligence (IJSSCI)</i> , 14(1), 1-18.	Krishna, B., Gill, S. S., & Kumar, A.
7.	Optimal High Pass FIR Filter Based on AdaptiveSystematic Cuckoo Search Algorithm, <i>Cybernetics and Information Technologies</i> , November 2022, 22 (4),pp 167-177, https://doi.org/10.2478/cait-2022-0046 , (indexed in Web of Science ESCI, and Scopus, OnlineISSN: 1314-4081).	Puneet Bansal, and Sandeep Singh Gill
8.	Lightning Attachment Procedure Optimization Algorithmfor Optimal Design of Digital FIR Band Stop Filter, <i>Measurement: Sensors (Elsevier)</i> , December 2022, 24,pp 1-9, https://doi.org/10.1016/j.measen.2022.100590 , (indexed in Scopus, Online ISSN: 2665-9174).	Puneet Bansal, and Sandeep Singh Gill
9.	Lightning Attachment Procedure Optimization basedOptimal FIR fractional-order digital differentiator, <i>International Journal of Computer Networks &Communications</i> , https://airccse.org/journal/ijcnc.html , (indexed in Scopus, Online ISSN: 0974-9322).	Puneet Bansal, and Sandeep Singh Gill
10.	A Comprehensive Investigation on Optimal Design of FiniteImpulse Response Fractional-order Digital Differentiator using Different Optimization Techniques, <i>NeuroQuantology</i> , August 2022, 20 (10), pp 9030-9037, https://www.neuroquantology.com/article.php?id=7525 , (indexed in Scopus, Online ISSN: 1303-5150).	Puneet Bansal, and Sandeep Singh Gill
11.	Optimal Finite Impulse Response Fractional-order DigitalDifferentiator using Jaya Algorithm, <i>NeuroQuantology</i> , October 2022, 20 (12), pp 2654-2660, https://www.neuroquantology.com/article.php?id=8807 , (indexed in Scopus, Online ISSN: 1303-5150).	Puneet Bansal, and Sandeep Singh Gill
12.	Low-pressure NEMS sensor design with slotted squared diaphragm structure, <i>Materials Today: Proceedings</i> , Volume 74, Part 2, 2023, Pages 186-189, ISSN 2214-7853, https://doi.org/10.1016/j.matpr.2022.08.043 . (Scopus)	Rekha Devi, Sandeep Singh Gill, Balwinder Singh
13.	Quantitative analysis of MEMS piezoresistive squared diaphragm pressure sensor for biomedical applications, <i>Measurement: Sensors</i> , Volume 24,2022,100522,ISSN 2665-9174, https://doi.org/10.1016/j.measen.2022.100522 . (Scopus)	Rekha Devi, Sandeep Singh Gill, Balwinder Singh
14.	Comparative Study of Materials for Low Voltage Organic and InorganicDielectric for OFET, <i>International Research Journal of Engineering and Technology (IRJET)</i> e-ISSN: 2395-0056 Volume: 09 Issue: 12, Dec 2022	Akanksha Mishra, Balwinder Raj, Sandeep Singh Gill

Papers published / presented by the Information Management and Emerging Engineering Department Faculty in International Conferences/Seminars

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author (s) Name
1.	Deep Learning Framework using CNN for Brain Tumor Classification, 5th International Conference on Multimedia, Signal Processing and Communication Technologies (IMPACT), 26-27 November 2022 Aligarh, India, 2022, pp. 1-5 DOI: 10.1109/IMPACT55510.2022.10029043	N. Bhardwaj, M. Sood and S. Gill
2.	Design and Parametric Analysis of Pentacene Organic Field Effect Transistor with Varying Dielectric Thickness, ICAET-2022 10th International Conference on Advancements in Engineering and Technology, 11th and 12th November, 2022	Yogesh Thakur, Balwinder Raj and Sandeep Singh Gill
3.	Comparative Analysis of Fourth Generation Solar Cell with Combination of Organic and Inorganic Materials, International Conference on Augmented Intelligence And Sustainable Systems (ICAISS 2022), 24-26 Nov. 2022.	Shahraan Hussain, Balwinder Raj, Sandeep Singh Gill
4.	Comparative Analysis of Multipliers Design for High Performance Applications, 9th IEEE UP Section Conference on Electrical, Computer and Electronics, IIT Allahabad, 2-4 Dec 2022	Pankaj K Tailor, Balwinder Raj and S. S. Gill
5.	Comparative Study of Materials for Low Voltage Organic and Inorganic Dielectric for OFET, 8th International Conference on Nanoelectronics, Circuits, & Communication Systems (NCCS-2022) at ARTTC, BSNL Ranchi, 19-20th Nov 2022.	Akanksha Mishra, Balwinder Raj, S.S. Gill
6.	Process Parameters Variation Effect on Ofet Based Low Power Hydrogen Sensor, International Conference on Innovation in Engineering and Management (ICITM-2022)	Yogesh Thakur, Balwinder Raj and Sandeep Singh Gill
7.	Optimal Design of Digital FIR Band Pass Filter using Lightning Attachment Procedure Optimization Algorithm, 13th IEEE International Conference on Computing, Communication and Networking Technologies (ICCCNT), (Scopus Indexed).	Puneet Bansal, and Sandeep Singh Gill
8.	Design of Enhanced Magnitude and Phase Response FIR Fractional-order digital differentiator using Lightning Attachment Procedure Optimization Algorithm, International Conference on Advances in Materials and Manufacturing Technology (AMMT-2022), (Scopus Indexed).	Puneet Bansal, and Sandeep Singh Gill
9.	Design and Performance Analysis of InSb/InGaAs/InAlAs High Electron Mobility Transistor for High Frequency Applications, International Conference on Innovation in Engineering and Management (ICITM-22), December 2022.	Prajwal Rohela, Sandeep Singh Gill and Balwinder Raj
10.	Comparative Analysis of Machine Learning Techniques for currency Recognition for Visually Impaired, International Conference on Contemporary research on mathematics and Computer Science held on 29-30th April, 2022 at Shri Ram Murty Smarak College of Engineering and Technology, Bareilly, UP, India	Nikita Katnoria, Dr. Maitreyee Dutta, Mr. Amit Doegar

Papers published / presented by the Information Management and Emerging Engineering Department Faculty in International Conferences/Seminars (contd..)

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author (s) Name
11.	Comparative Analysis of Image Super Resolution Using Deep Convolution Network, published in proceedings of World IEEE Conference on applied Intelligence and Computing held on June 17-19, 2022	Renuka Sindge, Maitreyee Dutta, Jagriti Saini
12.	Comparative Analysis of End-to-end trainable motion compensation based video Super resolution Techniques, published in Elsevier Scopus indexed International conference on ML and data Engineering held on September 7-8, 2022	Renuka Sindge, Maitreyee Dutta, Jagriti Saini
13.	Comparative Performance Analysis of Machine Learning Algorithms for Covid-19 Cases in India, International Conference on Artificial Intelligence of Things held on 29-3 March, 2023.	Apoorva Sharma, Dr. Maitreyee Dutta, Ravi Prakash

Patents/Copyright

Sr. No.	Name of Patents/Copyright	Author (s) Name
1.	Patent (No. 405613) granted on 2/09/22 on Methods and Systems for Resource Allocation in Cognitive Radio Networks for 20 years (12/08/2016 to 11/08/2036)	Prof. S.S. Gill

Other Activities

MOOCs SWAYAM COURSES

Sr. No.	Programme Title	Duration	Coordinator	No. of Participants
1.	Educational Video Production	July- September, 2022	Prof. M. Dutta	1335
2.	Educational Video Production	January- March, 2023	Prof. M. Dutta	1275

MECHANICAL ENGINEERING DEPARTMENT



Prof. (Dr.) Rupinder Singh

Professor

Research Areas : DOE ANN RSM TAGUCHI, Non-Conventional Machining, Additive Manufacturing, Metal casting

Prof. (Dr.) B S Pabla

Professor

Research Areas - Manufacturing Technology, CAD/CAM & CNC Machines, Optimization Techniques



Prof. (Dr.) S S Banwait

Professor

Research Areas – Engineering Design, Production Management, Manufacturing Tech.

Prof. (Dr.) Sukhdeep Singh Dhami

Professor

Research Areas – Mechatronics, Automation & Control System, Modeling & Simulation



MECHANICAL ENGINEERING DEPARTMENT



Er. Sunil D Jassal

Associate Professor

Research Areas - Thermal Engineering



Dr. P Sudhakar Rao

Assistant Professor

Research Areas - CAD/CAM, Manufacturing Technology



Prof. (Dr.) A B Gupta

Joint Professor

**Research Areas - Curriculum Development,
Curriculum Implementation**



Prof. (Dr.) Niraj Bala

Joint Professor

**Research Areas - Entrepreneurship Development, Patenting,
Business Startup, Skill Promotion and Rural Development,
Industrial Coordination, Manufacturing processes**

MECHANICAL ENGINEERING DEPARTMENT

During the year **2022-23**, the department has conducted **28** short term training programs in ICT and Contact Mode, which were attended by **773** teachers from polytechnics and engineering colleges. The department also conducted **01** Student Training Programme of **06** Months Duration and total of **02** student's participation. The department faculty published **72** papers in SCI Journals. The department also published **09** paper in proceedings of International Conferences. The faculty of the department attended online training programs and online webinars during the year. The faculty also submitted research proposals in various agencies.

Sr. No.	Short Term Programmes Conducted
1.	Advanced Auto CAD
2.	CAD/CAM
3.	Mechanical Measurements & Control
4.	3D and 4D Printing Applications
5.	Advance Material Processing and Characterization
6.	Industry 4.0
7.	Ergonomics and Product Design
8.	CNC Machines: Operation and Programming
9.	Recent Trends in Automobile Technology
10.	Advances in Manufacturing
11.	MATLAB Applications in Engineering
12.	Repair and Maintenance of Machine Tools
13.	CAD using Solid Works
14.	Automation and Robotics
15.	CAD using SolidWorks
16.	FEA using ANSYS
17.	Advanced Auto CAD
18.	CAD/CAM
19.	Ergonomics and Product Design
20.	Engineering Optimization using MATLAB
21.	Manufacturing 4.0
22.	Modeling and Simulation using MATLAB
23.	Additive Manufacturing for Biomedical Applications
24.	Additive Manufacturing
25.	Mechatronics

Sr. No.	Short Term Programmes Conducted (contd..)
26.	Hybrid Machining
27.	AutoCAD
28.	Refresher Course in Mechanical Engineering

RESEARCH AND DEVELOPMENT

Papers published by the Mechanical Engineering Department Faculty in SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	On synergistic effect of BaTiO ₃ and graphene reinforcement in PVDF matrix for 4D applications Journal of Mechanical Engineering Science, IMech Part C, Vol. 236, No. 1, 2022 DOI: 10.1177/09544062211015763	Ravinder Sharma, Rupinder Singh, Ajay Batish, Nishant Ranjan
2.	On programming of polyvinylidene fluoride–limestone composite for four-dimensional printing applications in heritage structures Journal of Materials: Design and Applications IMech Part L, Vol. 236, No. 2, 2022 DOI: 10.1177/14644207211044298 (Sage publication)	Vinay Kumar, Rupinder Singh, I.P.S. Ahuja
3.	On 3D printing of 17-4PH stainless steel with direct metal laser sintering in aircraft structural applications Journal of Materials: Design and Applications IMech Part L, Vol. 236, No.2, 2022 DOI: 10.1177/14644207211044804 (Sage publication)	Rupinder Singh, Rishab, J. S. Sidhu
4.	On comparison of recycled LDPE and LDPE–bakelite composite based 3D printed patch antenna Journal of Materials: Design and Applications IMech Part L, Vol. 236, No. 4, 2022 DOI: 10.1177/14644207211060465 (Sage publication)	Rupinder Singh, S. Kumar, Amrinder Pal Singh, Yang Wei
5.	On investigations of thermal conductivity, circumferential compressive strength and surface characterization of 3D printed hybrid blended magneto strictive PLA composite Journal of Thermoplastic Composite Materials, Vol. 35, No. 5, 2022 DOI: 10.1177/0892705720907651 (Sage Publications)	Sudhir Kumar, Rupinder Singh, T.P.Singh, Ajay Batish
6.	Comparison of mechanical and morphological properties of 3D printed functional prototypes: multi and hybrid blended thermoplastic matrix Journal of Thermoplastic Composite Materials, Vol. 35, No. 5, 2022 DOI: 10.1177/0892705720925136 (Sage Publications)	S. Kumar, Rupinder Singh, TP Singh, Ajay Batish
7.	On 3D printing of electro-active PVDF-Graphene and Mn-doped ZnO nanoparticle-based composite as a self-healing repair solution for heritage structures Proc IMechE Part B: J Engineering Manufacture, Vol. 236, No.8, 2022 DOI: 10.1177/09544054211060912 (Sage publication)	V. Kumar, Rupinder Singh, I.P.S. Ahuja

Papers published by the Mechanical Engineering Department Faculty in SCI Journals (contd..)

Sr. No.	Name of the Paper Published	Author (s) Name
8.	Secondary recycled ABS and graphene composite for 3D/4D applications: rheological, thermal, magnetometric and mechanical analysis Journal of Thermoplastic Composite Materials, Vol. 35, No. 6, 2022 DOI: 10.1177/0892705720925114 (Sage Publications)	V. Kumar, Rupinder Singh, I.P.S. Ahuja
9.	ZnO nano particle grafted PLA thermoplastic composites for 3D printing applications: Tuning of thermal, mechanical, morphological and shape memory effect Journal of Thermoplastic Composite Materials, Vol. 35, No. 6, 2022 DOI: 10.1177/0892705720925119 (Sage Publications)	Rupinder Singh, R. Kumar, M. Singh, P. Kumar
10.	3D printing of dual thermoplastic materials with different layer combinations: Tensile, flexural and fractured surface investigations Journal of Thermoplastic Composite Materials, Vol. 35, No. 6, 2022 DOI: 10.1177/0892705720925123 (Sage Publications)	S.Kumar, Rupinder Singh, T.P. Singh, Ajay Batish, A. Kumar
11.	On recyclability of thermoplastic ABS polymer as fused filament for FDM technique of additive manufacturing World Journal of Engineering, Vol. 19, No.3, 2022 DOI 10.1108/WJE-11-2020-0580]	K. Chawla, Jaspreet Singh, Rupinder Singh
12.	On recyclability of thermosetting polymer and wood dust as reinforcement in secondary recycled ABS for nonstructural engineering applications Journal of Thermoplastic Composite Materials, Vol. 35, No. 7, 2022 (Sage Publications) DOI: 10.1177/0892705720925135	Kapil Chawla, Jaspreet Singh, Rupinder Singh
13.	On use of thermoplastic composite slit as guide for ECM Sadhana, Vol. 47, 2022 DOI: 10.1007/s12046-022-01902-6 (Springer publications)	Rupinder Singh, Kartik Kanwar, S. S. Banwait
14.	3D printed innovative customized solution for regulating weathering effect on heritage structures Materials letters, Vol. 324, 2022 DOI: 10.1016/j.matlet.2022.132717	Vinay Kumar, Rupinder Singh, I.P.S. Ahuja
15.	Intramedullary pin fixation in 3D printed canine femur bone model for preoperative surgical planning Jol. of Brazilian Society of Mechanical Sciences and Engg., Vol. 44, 2022 DOI: 10.1007/s40430-022-03617-5 (Springer publications)	Rupinder Singh, Abhishek Kumar, Kamaljit Singh Boparai
16.	Comparison of DMLS and DMLS-waste assisted investment casting Materials letters, Vol. 324, 2022 DOI: 10.1016/j.matlet.2022.132782	S. R. Pradhan, Rupinder Singh, S. S. Banwait

Papers published by the Mechanical Engineering Department Faculty in SCI Journals (contd..)

Sr. No.	Name of the Paper Published	Author (s) Name
17.	On 3D Printing of Dental Crowns with Direct Metal Laser Sintering for Canine Jol. of Mechanical Science and Technology, Vol. 36, No.8, 2022 DOI:10.1007/s12206-022-04 –y (Springer publication)	S. R. Pradhan, Rupinder Singh, S. S. Banwait
18.	On cryogenic milling of primary recycled ABS: rheological, morphological and surface properties Journal of Thermoplastic Composite Materials, Vol. 35, No. 9, 2022 DOI: 10.1177/0892705720932621 (Sage Publications)	V. Kumar, Rupinder Singh, I.P.S. Ahuja
19.	On 3D printed meta-structure-based functional prototype as an innovative solution for repair and online health monitoring of heritage structures Materials Letters, 326, 2022 DOI: 10.1016/j.matlet.2022.132950	Vinay Kumar, Rupinder Singh, I.P.S. Ahuja
20.	On pre and post processing parameters of FDM for development of crowns for strategic teeth of canines Sadhana, Vol. 47, 2022 DOI:10.1007/s12046-022-01941-z (Springer publications)	S.R. Pradhan, Rupinder Singh, S.S. Banwait, Arun Anand
21.	On mechanically recycled PLA-HAP-CS based filaments for 3D printing of smart biomedical scaffolds Jol. of Brazilian Society of Mechanical Sciences and Engg., Vol. 44, 2022 DOI: 10.1007/s40430-022-03727-0	Rupinder Singh, Abhishek Barwar, Ranvijay Kumar, Vinay Kumar
22.	On 3D printed biomedical sensors for non-enzymatic glucose sensing applications Journal of Engineering in Medicine (iMech Part H), Vol. 236, No.8, 2022 DOI: 10.1177/09544119221100116 (Sage publication)	Vinay Kumar, Ranvijay Kumar, Rupinder Singh, P.Kumar
23.	Online health monitoring of repaired non-structural cracks with innovative 3D printed strips in heritage buildings Materials Letters, 327, 2022 DOI: 10.1016/j.matlet.2022.133033	Vinay Kumar, Rupinder Singh, I.P.S. Ahuja
24.	On the development of meta-structure-based conformal sensors for biomedical applications Jol. of Manufacturing processes, Vol. 83, 2022 (Elsevier publications)	Rupinder Singh, Abhishek Barwar
25.	On 3D printed ZnO reinforced PLA matrix composite: tensile, thermal, morphological and shape memory characteristics Journal of Thermoplastic Composite Materials, Vol. 35, No. 10, 2022 DOI: 10.1177/0892705720935961 (Sage Publications)	Mohit Singh, Rupinder Singh, Ranvijay Kumar, Pawan Kumar, Pawanpreet

Papers published by the Mechanical Engineering Department Faculty in SCI Journals (contd..)

Sr. No.	Name of the Paper Published	Author (s) Name
26.	3D printed sensor for online condition monitoring of energy storage device Sadhana, Vol. 47, 2022 DoI: 10.1007/s12046-022-01992-2 (Springer publications)	Rupinder Singh, Adesh Grewal, Amrinder Pal Singh, Vinay Kumar, Mahdi Bodaghi, Ahmad Serjouei, Yang Wei
27.	Three-dimensional printing of innovative intramedullary pin profiles with direct metal laser sintering Journal of Materials Engg. and Performance, Vol. 31, 2022 DOI: 10.1007/s11665-021-06176-3	Rupinder Singh, J.S Sidhu, Rishab, B.S.Pabla, Ashwani Kumar
28.	Investigations for surface roughness and dimensional accuracy of biomedical implants developed by combining fused deposition modelling, vapor smoothing and investment casting Advances in materials and processing technologies, Vol.8, No.1, 2022 DOI: 10.1080/2374068X.2020.1835007 (Taylor and Francis publications)	D. Singh, Rupinder Singh, Kamaljit Singh Boparai
29.	Manufacturing techniques and applications of polymer matrix composites: A brief review Advances in Materials and Processing Technologies, Vol.8, No.1, 2022 DOI: 10.1080/2374068X.2020.1835012 (Taylor and Francis publications)	JS Chohan, Kamaljit S Boparai, Rupinder Singh, M.S.J Hashmi
30.	Polymer- Ceramic composites: A state of art review and future applications Advances in Materials and Processing Technologies, Vol.8, No.1, 2022 DOI: 10.1080/2374068X.2020.1835013 (Taylor and Francis publications)	R Kumar, Rupinder Singh, M.S.J. Hashmi
31.	Friction stir-spot welding of 3D printed ABS and PA6 composites: flexural, thermal, and morphological investigations Advances in Materials and Processing Technologies, Vol.8, No.1, 2022 DOI: 10.1080/2374068X.2020.1835014 (Taylor and Francis publications)	Ranvijay Kumar, Rupinder Singh, IPS Ahuja, and M.S.J Hashmi
32.	Rapid tooling through micro additive manufacturing with reinforcement of SiC/Al ₂ O ₃ in LDPE domestic waste Advances in Materials and Processing Technologies, Vol.8, No.1, 2022 DOI: 10.1080/2374068X.2020.1835015 (Taylor and Francis publications)	Piyush Bedi, Rupinder Singh, IPS Ahuja, M.S.J Hashmi
33.	Investigations and mathematical modeling using dimensionless analysis for hardness of SS-316L implants fabricated for batch production through rapid investment casting Advances in Materials and Processing Technologies, Vol.8, No.1, 2022 DOI: 10.1080/2374068X.2020.1835016 (Taylor and Francis publications)	Jaspreet Singh, Rupinder Singh, Harwinder Singh
34.	On Mechanical, Thermal, Morphological and Shape Memory Effect of Sol-Gel Prepared ZnO Nanoparticle Reinforced PLA Composites Materials Proc. Natl. Acad. Sci., India, Sect. A Phys. Sci., Vol. 92, No. 4, 2022DOI:10.1007/s40010-021-00750-z (Springer Publications)	Rupinder Singh, R. Kumar, Mohit Singh, Pawan Kumar, Pawan Preet

Papers published by the Mechanical Engineering Department Faculty in SCI Journals (contd..)

Sr. No.	Name of the Paper Published	Author (s) Name
35.	Multi-material 3D printed PLA/PA6-TiO ₂ composite matrix: rheological, thermal, tensile, morphological and 4D capabilities Advances in Materials and Processing Technologies, Vol. 8, No. 2, 2022 DOI: 10.1080/2374068X.2021.1912527	Rupinder Singh, S Kumar, M. Singh
36.	On shear resistance of almond skin reinforced PLA composite matrix-based scaffold using cancellous screw Advances in Materials and Processing Technologies, Vol. 8, No.2, 2022 DOI: 10.1080/2374068X.2021.1912528	M. Singh, S. Kumar, Rupinder Singh, R. Kumar, V. Kumar
37.	On 3D printing of low-cost sensors using recycled PET Sadhana, Vol. 47, 2022 DOI: 10.1007/s12046-022-02029-4 (Springer publications)	Rupinder Singh, BP Singh, AP Singh, V. Kumar, Ranvijay Kumar, Mahdi Bodaghi, Ahmad Serjouei, Yang Wei
38.	Multi-stage primary and secondary recycled PLA composite matrix for 3D printing applications Proc. Natl. Acad. Sci., India, Sect. A Phys. Sci., Vol. 92, No.4, 2022 DOI: 10.1007/s40010-022-00783-y (Springer Publications)	S. Kumar, Rupinder Singh, TP Singh, Ajay Batish, Mohit Singh
39.	On correlation of rheological, thermal, mechanical, and morphological properties of chemical assisted mechanically blended ABS-Graphene composite as tertiary recycling for 3D printing applications Advances in Materials and Processing Technologies, Vol.8, No. 3, 2022 DOI: 10.1080/2374068X.2021.1913324	V. Kumar, Rupinder Singh, I.P.S. Ahuja
40.	On decision making of reinforcement proportion in thermoplastic matrix based upon rheological properties: A comprehensive review" Advances in Materials and Processing Technologies, Vol. 8, No. 3, 2022 DOI:10.1080/2374068X.2021.1949538	KS. Boparai, Rupinder Singh
41.	On crown fabrication for prosthetic dentistry of veterinary patients: A review Advances in Materials and Processing Technologies, Vol. 8, No. 3, 2022 DOI: 10.1080/2374068X.2021.1970991	S. R. Pradhan, Rupinder Singh, S. S. Banwait
42.	On flexural, wear and morphological properties of 3D printed almond skin powder reinforced PLA matrix Advances in Materials and Processing Technologies, Vol. 8, No.3, 2022 DOI:10.1080/2374068X.2021.1970992	Rupinder Singh, Ranvijay Kumar, Mohit Singh, Pawanpreet
43.	On shear fracture and morphological features of fused filament fabrication based almond skin powder reinforced PLA structures Advances in Materials and Processing Technologies, Vol. 8, No. 3, 2022 DOI:10.1080/2374068X.2021.1970994	Rupinder Singh, Ranvijay Kumar, Mohit Singh, Pawanpreet

Papers published by the Mechanical Engineering Department Faculty in SCI Journals (contd..)

Sr. No.	Name of the Paper Published	Author (s) Name
44.	Predictive modeling of surface and dimensional features of vapour smoothed FDM parts using self-adaptive cuckoo search algorithm Progress in additive manufacturing, Vol. 7, 2022 DOI:10.1007/s40964-022-00277-8 (Springer Publication)	Jasgurpreet Singh Chohan, Nitin Mittal, Rupinder Singh, Urvinder Singh, Rohit Salgotra, Raman Kumar, Sandeep Singh
45.	Investigations on primary and secondary recycling of PLA and its composite for biomedical and sensing applications Jol. of Institution of Engineers (India) Part C, Vol. 103, 2022 DOI: 10.1007/s40032-022-00840-w (Springer publication)	Rupinder Singh, Abhishek Barwar, Abhishek Kumar
46.	Fused filament fabrication: A review Journal of Thermoplastic Composite Materials, Vol. 36, No. 2, 2023 DOI: 10.1177/0892705720970629 (Sage Publications)	S. Kumar, Rupinder Singh, TP Singh, A. Batish
47.	On 3D printing of customized multi-root dental implants for the strategic tooth of canine by direct metal laser sintering Rapid prototyping Journal, Vol. 29, No. 3, 2023 DOI: 10.1108/RPJ-04-2022-0112 (Emerald publications)	Rupinder Singh, Anish Das, Arun Anand
48.	On polyvinyl chloride-polypropylene composite matrix for 4D applications: Flowability, mechanical, thermal and morphological characterizations Journal of Thermoplastic Composite Materials, Vol. 36, No.4, 2023 DOI: 10.1177/08927057211059754 (Sage publication)	N. Ranjan, Ranvijay Kumar, Rupinder Singh, Vinay Kumar
49.	On PVDF composite as partially absorbable smart implant Journal of Engineering in Medicine (IMech Part H), Vol. 237, No. 4, 2023 DOI: 10.1177/09544119231159816 (Sage publication)	Minhaz Husain, Rupinder Singh, BS Pabla
50.	On chemical assisted blending of secondary recycled ABS with bakelite and wood dust for fused filament fabrication Advances in Materials and Processing Technologies, Vol. 9, No.1, 2023 DOI:10.1080/2374068X.2022.2085955	K Chawla, Jaspreet Singh, Rupinder Singh
51.	On electro spun PLA nanofibers for bio-sensing applications Manufacturing Letters, Vol. 37, 2023 DOI: 10.1016/j.mfglet.2023.05.001 (Elsevier publication)	R. Kumar, Rupinder Singh
52.	ABS-PLA-Al composite for digital twinning of heritage buildings Materials Letters, Vol. 346, 2023 DOI: 10.1016/j.matlet.2023.134536 (Elsevier publication)	Vinay Kumar, Rupinder Singh, Ranvijay Kumar, Nishant Ranjan, Minhaz Husain

Papers published by the Mechanical Engineering Department Faculty in SCI Journals (contd..)

Sr. No.	Name of the Paper Published	Author (s) Name
53.	3D printed flame retardant, ABS-C ₄ H ₈ N ₆ O composite as energy storage device Arabian Journal for Science and Engineering, 2022 DOI: 10.1007/s13369-022-07106-8 (Springer publication)	Rupinder Singh, Suraj Prakash, Vinay Kumar, B. S. Pabla
54.	On pre- and post-processing of 3D printed ABS thermoplastic sacrificial pattern for strategic dog teeth Progress in additive manufacturing, 2022 DOI: 10.1007/s40964-022-00326-2 (Springer Publication)	S. R. Pradhan, Rupinder Singh, S. S. Banwait, S.Singh, A. Anand
55.	3D printing assisted investment casting of dental crowns for recycling of DMLS waste Arabian Journal for Science and Engineering, 2022 DOI: 10.1007/s13369-022-07155-z (Springer publication)	S. R. Pradhan, Rupinder Singh, S. S. Banwait
56.	Partially Absorbable 3D Printed Innovative Orthopedic Implants National Academy Science Letters, 2022 DOI: 10.1007/s40009-022-01151-5 (Springer publications)	Rupinder Singh, A. Barwar, A. Kumar
57.	Multi-material printing of PVDF composites: A customized solution for maintenance of heritage structures Part L: Journal of Materials: Design and Applications, 2022 DOI: 10.1177/14644207221118748	Vinay Kumar, Rupinder Singh, I.P.S. Ahuja
58.	Investigations on 3D printed primary recycled ABS for one-way programming Advances in Materials and Processing Technologies, 2022 DOI: 10.1080/2374068X.2022.2109641	Chahat Jain, Balwinder Singh Dhaliwal, Rupinder Singh, V. Kumar
59.	Comparison of recycled ABS composite filaments prepared by different blending routes National Academy Science Letters, 2022 DOI: 10.1007/s40009-022-01155-1 (Springer publications)	Kapil Chawla, Jaspreet Singh, Rupinder Singh
60.	On secondary recycled PVDF-limestone composite in 4D printing applications for heritage structures: rheological, thermal, mechanical, spectroscopic, and morphological analysis Journal of Process Mechanical Engineering, IMech Part E, 2022 DOI: 10.1177/09544089221104771 (Sage publication)	Vinay Kumar, Rupinder Singh, I.P.S. Ahuja
61.	On rheological, thermal, mechanical, morphological, piezoelectric properties and one-way programming features of PVDF-CaCO ₃ composites Journal of Materials Engineering and Performance DOI: 10.1007/s11665-021-06532-3 (Springer publications)	V. Kumar, Rupinder Singh, I.P.S. Ahuja
62.	Post processing of ABS replicas with vapour smoothing for investment casting applications Proc. Natl. Acad. Sci., India, Sect. A Phys. Sci., 2020 (Springer Publications) DOI: 10.1007/s40010-020-00669-x	J.S.Chohan, Rupinder Singh, KS.Boparai

Papers published by the Mechanical Engineering Department Faculty in SCI Journals (contd..)

Sr. No.	Name of the Paper Published	Author (s) Name
63.	On failure analysis of 3D printed functionally graded material prepared by DMLS Journal of Materials: Design and Applications IMechE Part L, 2022 DOI: 10.1177/14644207221121985 (Sage publications)	Rupinder Singh, Md Mujahid Khan, Smruti Ranjan Pradhan, Vinay Kumar
64.	On twin screw extrusion parametric optimization using hybrid approach of ANOVA and TOPSIS for 3D printing applications Advances in Materials and Processing Technologies, 2022 DOI:10.1080/2374068X.2022.2087844	Sudhir Kumar, Rupinder Singh, T.P Singh, A. Batish
65.	Additive manufacturing assisted preoperative surgical planning for canine femur bone fracture National Academy Science Letters, 2022 DOI: 10.1007/s40009-022-01166-y (Springer publications)	Rupinder Singh, Abhishek Kumar, Kamaljit Singh Boparai
66.	Effect of infill density on the performance of recycled PET-based 3D printed microstrip antenna National Academy of Science Letters, 2022 DOI: 10.1007/s40009-022-01174-y (Springer publications)	Rupinder Singh, Bhanu Pratap Singh, Amrinder Pal Singh, Sanjeev Kumar, Yang Wei
67.	On effect of chemical assisted mechanical blending of barium titanate and graphene in PVDF for 3D printing applications Journal of Thermoplastic Composite Materials, 2020 DOI: 10.1177/0892705720945377 (Sage Publications)	Ravinder Sharma, Rupinder Singh, A. Batish
68.	On 3D-printed acrylonitrile butadiene styrene-based sensors: rheological, mechanical, morphological, radio frequency, and 4D capabilities Journal of Materials Engg. and Performance, 2022 DOI: 10.1007/s11665-022-06884-4 (Springer publications)	Chahat Jain, Balwinder Singh Dhaliwal, Rupinder Singh
69.	On meta-structure inspired 3D printing of dual alloys using DMLS National Academy of Science Letters, 2022 DOI: 10.1007/s40009-022-01181-z (Springer publications)	Rupinder Singh, Md Mujahid Khan, S R Pradhan, Vinay Kumar
70.	On almond skin powder reinforced PA6 composite for 3D printing applications Proc. Natl. Acad. Sci., India, Sect. A Phys. Sci., 2022 DOI:10.1007/s40010-022-00775-y (Springer Publications)	K. Mankotia, J.S.Chohan, Rupinder Singh
71.	3D printed PETG-based smart containers for online health monitoring of food articles National Academy of Science Letters, 2022 DOI: 10.1007/s40009-022-01196-6 (Springer publications)	Kanwerajit Singh, Rupinder Singh, Amrinder Pal Singh
72.	Three-dimensional printed thermoplastic polyurethane on fabric as wearable smart sensors Journal of Materials: Design and Applications IMech Part L, 2023 DOI: 10.1177/14644207221149693 (Sage publication)	S. Kumar, Rupinder Singh, Amrinder Pal Singh, Yang Wei

Papers published / presented by the Mechanical Engineering Department Faculty in International Conferences/Seminars

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author (s) Name
1.	Investigations on mechanical properties of secondary recycled ABS reinforced with Fe powder for 3D printing applications Materials Today: Proceedings, Vol. 50, Part 5, 2022 DOI.org/10.1016/j.matpr.2021.10.291 Proceedings of 2nd International Conference on functional materials, manufacturing, and performances ICFMMP-2021, 17-18 Sep., 2021	Kapil Chawla, Rupinder Singh, Jaspeet Singh, Himani Mehta
2.	On Techno-economic Aspect of Dental Crown Fabrication by DMLS and Investment Casting for Veterinary Application Select Proceedings of ICFMMP 2021 In: Prakash, C., Singh, S., Krolczyk, G. (eds) Advances in Functional and Smart Materials. Lecture Notes in Mechanical Engineering. Springer, Singapore, 2022 Dol:10.1007/978-981-19-4147-4_20	Smruti Ranjan Pradhan, Rupinder Singh, S. S. Banwait.
3.	Mechanical strength analysis of almond skin reinforced PA6 metamaterial structures Materials Today: Proceedings, Vol. 68, part 4, 2022 DOI: 10.1016/j.matpr.2022.09.570	K. Mankotia, Jasgurpreet S Chohan, Rupinder Singh
4.	On surface features of canine strategic teeth by metal additive manufacturing and investment casting: A Comparative study Proceedings of 8 th International and 29 AIMTDR Conference, Department of Mechanical Engineering, PSG College of Technology, Coimbatore, Dec. 9-11, 2021 In: Ramesh Babu, N., Kumar, S., Thyla, P.R., Sripriyan, K. (eds) Advances in Additive Manufacturing and Metal Joining. Lecture Notes in Mechanical Engineering. Springer, Singapore, 2023. Dol:10.1007/978-981-19-7612-4_20	Smruti Ranjan Pradhan, Rupinder Singh, S. S. Banwait. Satinder Singh, Mehak Mahant, Arun Anand
5.	Electrochemical machining process using different electrolytes for improved process efficiency Proceedings of 4 th International Conference on Design and Manufacturing Aspects for Sustainable Energy (ICMED-ICMPC 2023)E3S Web of Conferences 391, (2023) DOI:10.1051/e3sconf/202339101168	Gurwinder Singh, P. Sudhakar Rao, Rupinder Singh, Mohd. Y. Khan
6.	On assembly features and process capability analysis of direct metal laser sintering based functional prototypes Proceedings of ICFMMP-2022 (3rd International Conference on Functional Materials, Manufacturing and Performances), LPU, Phagwara, July 29-30, 2022	Rupinder Singh, Anish Das, Arun Anand
7.	A statistical approach for surgical planning of canine femur bone fracture fixation using 3D printing Proceedings of ICFMMP-2022 (3rd International Conference on Functional Materials, Manufacturing and Performances), LPU, Phagwara, July 29-30, 2022	Rupinder Singh, Abhishek Kumar, Kamaljit Singh Boparai
8.	On 3D Printed PVDF Composite Matrix for Smart Battery Applications Proceedings of ICFMMP-2022 (3rd International Conference on Functional Materials, Manufacturing and Performances), LPU, Phagwara, July 29-30, 2022	Ankush Mehta, Rupinder Singh, B.S. Pabla
9.	On Design and Fabrication of Meta Structure-based dual alloys by Direct Metal Laser Sintering Proceedings of ICFMMP-2022 (3rd International Conference on Functional Materials, Manufacturing and Performances), LPU, Phagwara, July 29-30, 2022	Rupinder Singh, Mohammad Mujahid Khan, S.R. Pradhan, C. Prakash

Patents/Copyright

Sr. No.	Name of Patents/Copyright	Author (s) Name
1.	Multi-rooted Dental Implant for Veterinary Patients Brief: Application No: 202211010074, Journal Number- 39/2022, Journal Date: 30/09/2022 [Published]	Rupinder Singh, Arun Anand, B.S. Pabla, Anish Das

Research and Development

No. of M.E. Thesis Guided	15
No. of Ph.D. Thesis Awarded	03

Training Programmes attended by the Mechanical Engineering Department Faculty/Staff

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	One-week Technical and Vocational Education and Training (TVET) Industry Revolution 4.0: leadership training programme at IET, Singapore (Joint programme of Ministry of external affairs Singapore and Colombo Plan Staff College) from 26-30 September 2022	One-week	Singapore	Rupinder Singh
2.	UKIERI-DST Partnership Development Workshop on Medical Additive Manufacturing at LPU Phagwara, on 28 March 2022	01 day	On-line	B.S.Pabla, Rupinder Singh
3.	Online UKIERI-DST Partnership Development Workshop on Medical Additive Manufacturing on 26 January 2022	01 day	Online	B.S.Pabla, Rupinder Singh

Student Training/Internship/ Apprenticeship organized

Sr. No.	Name of the Course along with dates & place	No. of weeks	Participation		Total No. of Participants
			Poly	Engg.	
1.	6 months of Internship Training	06 months	-	02	02

Research Project Submitted

Sr. No.	Name of Project	Funding Agencies	Team
1.	Development of flexible, programable 3D printed smart strips as IoT solution for health monitoring of heritage structures	DST	BS Pabla, Rupinder Singh

Research Project Received

Sr. No.	Name of Project	Funding Agencies	Team
1.	Research Grant of Rs 18.30 Lac only for the year 2021-24, for the project, Teachers Associateship for Research Excellence (TARE). (Mechanical & Manufacturing Engineering & Robotics) to Dr. Jasgurpreet Singh Chohan, Chandigarh University, Gharuan, Mohali, Chandigarh, Punjab-140413- under the mentorship of Dr. Rupinder Singh, at National Institute of Technical Teachers Training and Research, Chandigarh by SERB.	SERB	Rupinder Singh
2.	Research Grant of Rs 18.30 Lac only for the year 2021-24, for the project, Teachers Associateship for Research Excellence (TARE). (Mechanical & Manufacturing Engineering & Robotics) to Dr. Ranvijay Kumar, Chandigarh University, Gharuan, Mohali, Chandigarh, Punjab-140413- under the mentorship of Dr. Rupinder Singh, at National Institute of Technical Teachers Training and Research, Chandigarh by SERB.	SERB	Rupinder Singh
3.	Research Grant of Rs 18.30 Lac only for the year 2022-25, for the project, Teachers Associateship for Research Excellence (TARE). (Mechanical & Manufacturing Engineering & Robotics) to Dr. P. Jindal, Panjab University, Chandigarh, - under the mentorship of Dr. S.S.Dhami, at National Institute of Technical Teachers Training and Research, Chandigarh by SERB.	SERB	S.S. Dhami
4.	Grant of Rs 79 Lac only as PI for the 05 years 2021-26, for the project, "FIST Level 0 category" by Department of Science and Technology.	DST	BS Pabla, SS Dhami, Rupinder Singh



MEDIA ENGINEERING DEPARTMENT



Prof. (Dr.) SS Pattnaik

Professor

***Research Areas - Soft Computing, Multimedia,
Antenna & Microwave, RF & Bio-medical***

Prof. (Dr.) Rakesh Wats

Professor

***Research Areas - Quality Mgt. & General Management,
Civil Engineering (Irrigation & Hydraulics)***



MEDIA ENGINEERING DEPARTMENT

During the year **2022-23**, the department has conducted **10** short term training programs inclusive of ICT and Contact Mode, which were attended by **696** teachers from polytechnics and engineering colleges. The department faculty and staff published **02** papers in SCI Journals. The faculty of the department attended **03** online training programs and online webinars during the year. The faculty of the department coordinated the NITTT MOOC programme on Institutional Management and Administrative Procedures 2 times in the year in which about **2500** faculty members from Engineering Institutions in the country participated.

Sr. No.	Short Term Programmes Conducted
1.	Developing Camera Skills: Still and Video
2.	Selection of Camera shots and editing for quality video production
3.	Protecting yourself over the Web : Tools and Strategies
4.	Accreditation for Quality assurance (NBA & NAAC guidelines)
5.	Creative Image and Video Editing Techniques
6.	Enhancing video production skills for MOOCs development
7.	Leadership for Academicians Programme (LEAP)
8.	Graphics and Animation for Quality Instructional Material Development
9.	Sustainable Creativity & Innovation Management in Institutions
10.	Digital Tools for Teaching and Learning

RESEARCH AND DEVELOPMENT

Papers published by the Media Engineering Department Faculty/Staff in SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	Feature Engineering and Machine Learning Framework for DDoS Attack Detection in the Standardized Internet of Things, IEEE Internet of Things Journal, Vol. 10, Issue No. 10, February 2023, pp. 8658-8669 [SCIE, Impact Factor: 10.238]	Kamaldeep, Manisha Malik, and Maitreyee Dutta
2.	L-ECQV: Lightweight ECQV Implicit Certificates for Authentication in the Internet of Things, IEEE Access Journal, March 2023, pp. 35517 - 35540 [SCIE, Impact Factor: 3.476]	Manisha Malik, Kamaldeep, Maitreyee Dutta, and Jorge Granjal

Research and Development

No. of Ph.D. Thesis Awarded	01
------------------------------------	----

Consultancy Programmes

Sr. No.	Consultancy Project	Remarks
1.	Development of Video Films for ITBP Force (worth Rs. 1,59,300)	Recording, designing infographics for presentations, and editing of 12 videos
2.	Recruitment Project for various positions in Subordinate Services Selection Board, Punjab CP-141 (worth Rs. 3,50,98,665)	Dr. Rakesh K Wats, Dr. SS. Banwait, Dr. Sunil Dutt
3.	Recruitment Project for various positions in Subordinate Services Selection Board, Punjab CP-142 (worth Rs. 4,25,00,318)	Dr. Rakesh K Wats, Dr. SS. Banwait, Dr. Sunil Dutt
4.	Recruitment Project for various positions in the Punjab State Cooperative Milk Producer's Federation Ltd., Chandigarh (MILKFED) CP- 21-149 (worth Rs. 36,21,972)	Dr. Rakesh K Wats, Dr. SS. Banwait, Dr. Sunil Dutt

Training Programmes attended by the Media Engineering Department Faculty/Staff

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	Induction Training Programme - Karmayogi Prarambh Module (8 courses)		Online	Savita Bhanot, Anurag Soni, Dr. Suniti Dutt, Manisha Malik, Mandeep Saini, Prerak Mittal
2.	Making a Short Film: Start to Finish	09-13 March 2023	Online	Kamaldeep and Manisha Malik

In-House Training Programmes attended by the Media Engineering Department Faculty/Staff

Sr. No.	Title of Training Programme	Period of Training	Attended by
1.	Neuro-Linguistic Programming (NLP)	06-10 Feb 2023	Savita Bhanot and Anurag Soni

Worksheets

Sr. No.	Title
1.	Brochures/Reports Designed (10):
	1. Annual Report 2022 (English & Hindi)
	2. Student Placement Brochure 2022-23
	3. Roadmap: NBA visit
	4. NITTTR organograms
	5. Flowchart for Agniveer 2022
	6. Har Ghar Tiranga Poster for Institute Website
	7. Front Page of Agniveer to Agraniyantrik: A conceptualization
	8. Graphics and Animation for Instructional Material Development
	9. Brochure for ICAIoT 2023
10. EBSB brochure for registration	

Instructional Manual

Sr. No.	Title
1.	Total Video Films Recorded: 64 Total Video Films Edited: 54
2.	Total ICT based video films Edited and uploaded on NCTEL: 169

Any Other Activities

1. Technical Coordination of /ICT based Courses /Online Workshops/ Institute Meetings and conferences of various departments of the Institute = 123 events
2. Graphic Designing:
 - Designing of MOOCs presentations for higher module
 - Designing of ECE ppt for NBA
 - Designing of slides for Director's NBA PPT
 - Integration of Indian Flag in Institute Website
 - Prepared the introductory video for AR VR: celebration on Independence Day 2022
 - Designing of NITTTR Annual Day Invitation Card 2022
 - Designed minute to minute program schedule for Annual Day 2022
 - Prepared a Video show report for Annual Day 2022
 - Designing of Annual Day Presentation 2022
 - Designing of Brochure for ICAIoT 2023
 - Designing of ITBP Presentations
 - Designed the invitation card for the Capacity Building Program

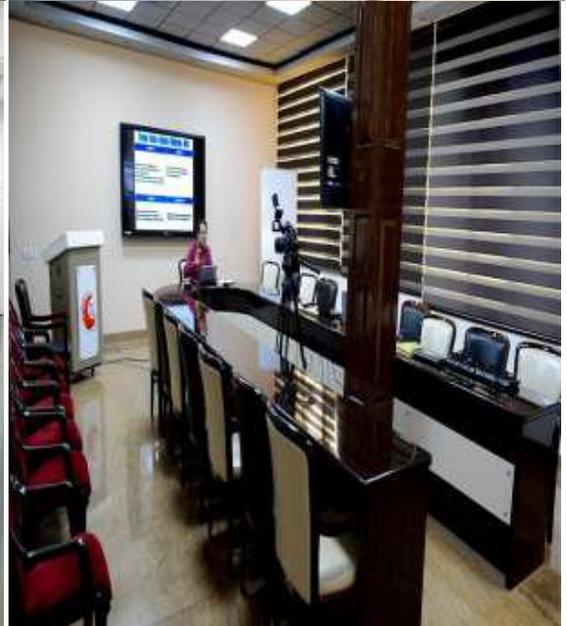
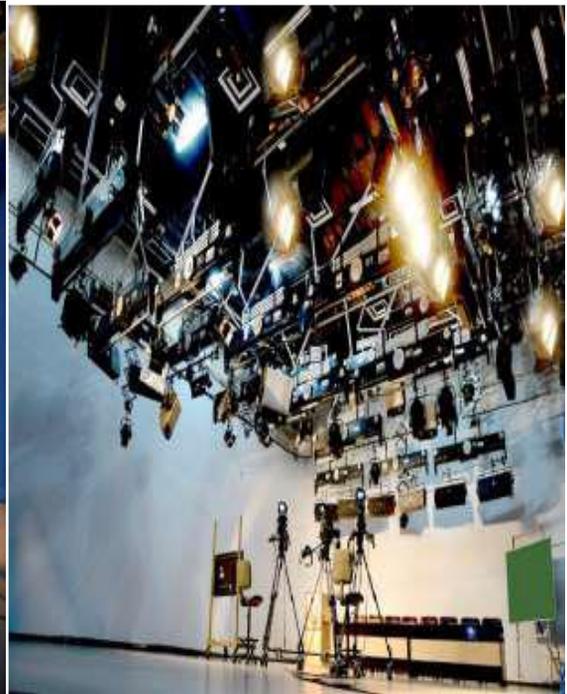
Any Other Activities (contd..)

- Designed the New Year Greetings Card 2023
- Designing of EBSB Presentation for Chandigarh Tour
- Designing of IIT-Ropar and NITTTR Chandigarh MoU First Page
- Designing of EBSB Flag-off bus banner and flag-off invitation
- Designed graphics for NITTTR video for welcoming AICTE chairman
- Designed the ICAIoT conference badge
- Designed the welcome slide of Alumni Meet
- Designed the EBSB Participation Certificate
- Provided Audio, Video and PA system supports in Conference Halls, Boardroom, Auditorium, Institute ground for various institutional activities and programmes.
- Provided support in mass printing/ photocopying.
- Coordinated Guests/VIPs visits to studio and the media department.

3. AR VR Projects (05):

- Tutorial for Demonstration of AND gate, OR gate, counters and stack in AR
- 3D Model with scaling and rotation
- NITTTR logo with scaling and rotation
- 3D Maze
- AR Alien Game

4. Printing/ Photocopying work: 3 Lakh Pages Approx



RURAL DEVELOPMENT DEPARTMENT



Prof. (Dr.) Poonam Syal

Professor

Research Areas - Sustainable Rural Development, Energy Management, Instrumentation for Env't. Engg., Assistive Technologies, Research Methodology

Prof. (Dr.) Upendra Nath Roy

Professor

Research Areas – Watershed Management, Rural Sanitation, Climate Change & Disaster Management, Organic Farming



Dr. Hemant Kumar Vinayak

Joint Associate Professor (on lien to NIT Hamirpur)

Research Areas - Entrepreneurship Development including Technical, Rural, Women Entrepreneurship, Micro, Small and Medium Enterprises (MSME) Start up



Dr. Amit Goyal

Joint Assistant Professor

Research Areas - Structure Dynamics, Masonry Structure, Low Cost Housing



RURAL DEVELOPMENT DEPARTMENT

During the year **2022-23**, the department has conducted **16** short term training programs in ICT and Contact Mode, which were attended by **846** teachers from polytechnics and engineering colleges. The department has conducted **9** workshops with **865** participations. The department faculty published **03** papers in Non-SCI Journals. The department also published **09** papers in proceedings of International Conferences. The faculty of the department attended online training programs and online webinars during the year. The faculty also submitted research proposals in various agencies.

Sr. No.	Short Term Programmes Conducted
1.	Development of Innovative Rural Entrepreneurship Models
2.	Sustainable Rural Development through Unnat Bharat Abhiyan
3.	Micro and Small Rural Incubation in Technical Institutions
4.	Technical Institution Capacity Enhancement through Rural Product Development
5.	Energy Management and Sustainable Development
6.	Pollution Mitigation and Natural Resources Conservation for Sustainable Development
7.	Rural Development Employability Schemes
8.	Technology Innovations and Employment Generation for Sustainable Rural Development
9.	Rural infrastructure development programs and opportunities
10.	Technology Pathways for Decarbonization
11.	Role of Technical Institutions in Rural Infrastructure Development
12.	Emerging Research and Innovation Areas for Sustainable Development
13.	Self Help Group Development through Technical Interventions
14.	Atma Nirbhar Bharat - Challenges and Opportunities
15.	Farmer Producer Organization Business Development Model
16.	Strengthening Rural Water Supply Management

RESEARCH AND DEVELOPMENT

Papers published by the Rural Development Department Faculty in International Journals other than SCI Journals

Sr. No.	Name of the Paper Published	Author (s) Name
1.	A review of control methods for glare intensity and shades in Automated blind control system, International Journal of Recent Scientific Research DOI: 10.24327/IJR , Vol. 13, Issue, 05 , May 2022, pp-1031-1035	Rubi Gupta, Poonam Syal

Papers published by the Rural Development Department Faculty in International Journals other than SCI Journals (contd..)

Sr. No.	Name of the Paper Published	Author (s) Name
2.	Municipal Solid Waste Management by Waste to Energy: A Review, August 2022, International Journal of Innovative Research in Technology, Volume 9 Issue 3 , pp 568-572, ISSN: 2349-6002	Vivek Kumar Srivastava and PoonamSyal
3.	Net Zero Energy Buildings Initiatives – A Review , International Science Journal on Advanced Science Hub, Vol 4 Issue 11, Nov. 22, pp 267-271	Ragunath A and Poonam Syal

Papers published / presented by the Rural Development Department Faculty in International Conferences/Seminars

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author (s) Name
1.	Book Chapter – Hard Copy & e-book Cost Benefit Analysis of Retrofitting for Existing Building as Net Zero Energy Building: A Case Study in Composite Climate Zone by Aditya Punia, Sanjay K. Sharma PoonamSyal, In: Kanwar, V.S., Sharma, S.K., Prakasam, C. (eds) Proceedings of International Conference on Innovative Technologies for Clean and Sustainable Development (ICITCSD – 2021). Springer, Cham. pp 615-625. Print ISBN - 978-3-030-93935-9 Online ISBN - 978-3-030-93936-6 Published online: 29 April 2022	Aditya Punia, Sanjay K. Sharma & Poonam Syal
2.	Book Chapter Implementation of RAM Feeder Cycles and their Steps Logic in Waste to Energy Plant by Vivek Kumar Srivastava, PoonamSyal; In: Mishra, B., Singh, R.K., Wairya, S., & Tiwari, M. (Eds.). (2023). Intelligent Systems and Smart Infrastructure: Proceedings of ICISSI 2022 (1st ed.). Taylor & Francis Group, CRC Press. eBook ISBN 9781003357346 eBook Published on 16 February 2023	Vivek Kumar Srivastava and Poonam Syal
3.	Turbidity Sensor for Online Monitoring of Water Quality : A Review, International Conference on Innovations in Engineering and Technology, September 15-17, 2022, organized by Jawaharlal Nehru Technological University, Hyderabad	Rashmi Patange, Poonam Syal, Baban Kumar Syal
4.	Advanced Technologies of Indoor Navigation for Visually Challenged Persons – A Review, Second International Conference on Multidisciplinary in Research and Innovation organized by Kishori Raman PG College, Mathura, Uttar Pradesh and RSP Conference Hub, Coimbatore, India on 26th & 27th November 2022.	Kashish Sharma and Poonam Syal
5.	Net Zero Energy Buildings Initiatives – A Review, Second International Conference on Multidisciplinary in Research and Innovation organized by Kishori Raman PG College, Mathura, Uttar Pradesh and RSP Conference Hub, Coimbatore, India on 26th & 27th November 2022.	Ragunath A and Poonam Syal

Papers published / presented by the Rural Development Department Faculty in International Conferences/Seminars (contd..)

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author (s) Name
6.	Design of Permanent Magnet Synchronous Motor for Efficient Solar Pumping System International Conference on Emerging Electronics and Automation 2022, National Institute of Technology, Silchar, 16 to 18 December, 2022	Harjyot Kalan and Poonam Syal
7.	Preliminary Response of Transient Electromagnetic Survey System for Buried Metal Detection from Aerial Platform, International Conference on Emerging Electronics and Automation 2022, National Institute of Technology, Silchar, 16 to 18 December, 2022	MayankAlaria, Siddhartha Sarkar, Vishal Shrivastava, PoonamSyal, Ashish Gaurav, Ripul Ghosh and Satish Kumar
8.	Real Time Object Detection for assisting visually impaired people IEEE sponsored International Technology Conference on Emerging Technologies for Sustainable Development, 8 to 10 February,2023 at OP Jindal University, Raigarh, Chhattisgarh	Kashish Sharma and Poonam Syal
9.	System Cost Analysis of the designed permanent magnet synchronous motor for the solar pumping system International Conference on Production and Industrial Engineering, , National Institute of Technology, Jalandhar, 10 to 12 March , 2023	Harjyot Kalan and Poonam Syal

Patents/Copyright

Sr. No.	Name of Patents/Copyright	Author (s) Name
1.	Spatial tactile apparatus and method for creation and navigation of virtual graphics for visually challenged – Granted Patent No. 411091 on 9.11.2022	Dr. Poonam Syal

Research and Development

No. of M.E. Thesis Guided	02
---------------------------	----

Consultancy Programmes

Sr. No.	Consultancy Project	Remarks
1.	Preparation of DPR for Landslide Mitigation (Total funds - Rs 14,16,000/- Received First Installment - Rs 5,66,400/-)	HKV/AKD/VS

Consultancy Programmes (contd..)

Sr. No.	Consultancy Project	Remarks
2.	Training program on Rural Development and Watershed Management, 8 to 10 February, 2023 funded (Rs. 53,100/-) by Department of Soil and Water Conservation, Punjab, Mohali, 16 officials from Department of Soil & Water Conservation, Punjab, attended this training	Prof. Poonam Syal/ Dr. H K Vinayak

Training Programmes attended by the Rural Development Department Faculty/Staff

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	KudratUtsavevamSmavaas organized by KhetiVirasat Mission, Faridkot, Punjab	02 - 03 April 2022	Punjab Municipal Bhawan, Chandigarh	Prof. Poonam Syal; Dr. Hemant Kumar Vinayak
2.	Brainstorming and Orientation workshop on UBA	09 - 10 June 2022	Surat	Dr. H K Vinayak
3.	Technology Demonstration and Business Networking Meet under UBA	29 - 30 June 2022	IHBT Palampur	D Dr. H K Vinayak

Research and Development

Sr. No.	Name of Project	Team	Beneficiary State	Status of Project completed/ In progress	Specific work done during the year	Target date of completion
A. RESEARCH STUDIES						
1	Structural Stability Audit of Hospital and Schools Buildings (Total funds – Rs 2,35,75,000/- Received First Installment – Rs 47,15,000)	HKV/ SS /AG	Himachal Pradesh State Disaster Management Authority	In progress	Project Assistant Deputed at Project Site/ office Most of Items procurement is done	June 2025
2	Structural Safety Auditing Of Selected Schools Within Shimla City	HKV	Municipal Corporation Shimla	In progress	Project Report Preparation is In progress	December 2022

Extension Services and Consultancy

Sr.No.	Name of Project	Team	Beneficiary Organization	Status of Project Completed/i n Progress	Specific work done during the year
A. EXTENSION SERVICES PROJECTS:					
1.	Guiding and Monitoring of CDTP Scheme in 150 Polytechnic	PS/HKV/AG (RD Faculty)	Polytechnics implementing CDTP Scheme in Northern Region, MSDE, Gol	Ongoing CDTP Scheme	Vetting of O Plans for year 2022-23 and UCs/SOAs for the year 2021-22 of CDTP Scheme for Polytechnics in Northern Region
2.	Unnat Bharat Abhiyan Project – Participating Institute (PI)	HKV/PS/AG (RD Faculty)	5 Villages of Ropar District, NITTTTR, Chandigarh	In progress	-Interaction with Sarpanches and Key Persons of 5 adopted villages of Ropar Distt. on 4.11.22 for future scope of work - Technology awareness and demonstration program held at Village Bari, Ropar Dist. on 10.11.2022, 46 nos. Participants - Interaction with Jt. Commissioner Development Pb. &ADC ,Ropar and officials of Ropar Distt. KhetiVirasat Mission Key Persons, Sarpanches and villagers for collaboration for village development at village Bari on 24.11.2022,
3.	Unnat Bharat Abhiyan Project –Regional Coordinating Institute	HKV/PS/AG (RD Faculty)	Punjab and Chandigarh	In progress	Organised Quiz Competition on Millets on 18th November, 2022

Any Other Activities

1. Brij Mohan Lal Memorial Prize awarded to Balkar Singh, Sanjay Kumar Sharma and PoonamSyal by The Institution of Engineers (India) on 16 December, 2022 for the paper titled “Net Zero Energy Building” published in Journal of the institution of Engineers (India); series A, Issue 1, Volume 102, 2021.

HINDI CELL

Activities of Hindi Cell of the Institute

संस्थान के कामकाज में राजभाषा हिन्दी के उत्तरोत्तर प्रचार-प्रसार एवं विकास के लिए एवं हिन्दी को जन-मानस की भाषा बनाने के उद्देश्य से संस्थान में एक हिन्दी एकक बनाया गया। जिसमें अपने अपने विषय में सुशिक्षित एवं कुशल स्टाफ कार्यरत है। हिंदी एकक में एक पद वरिष्ठ अनुवादक अधिकारी एवं एक पद कनिष्ठ अधिकारी तथा एक हिन्दी टाइपिस्ट का पद है। इस समय हिंदी एकक में एक हिन्दी टाइपिस्ट कार्यरत है जिनके कार्य का सर्वेक्षण फैकल्टी प्रभारी प्रशासन द्वारा किया जाता है।

1. संस्थान की वार्षिक रिपोर्ट, तुलन-पत्र, लेखा-परीक्षा एवं अन्य दस्तावेज इत्यादि का अनुवाद कार्य एवं टाईप कार्य।
2. संस्थान के विभागों से प्राप्त दस्तावेज को हिन्दी में टाईप करने का कार्य।
3. शिक्षा मंत्रालय एवं नगर राजभाषा कार्यान्वयन समिति-कार्यालय 2, चण्डीगढ़ के साथ पत्राचार।
4. प्रत्येक वर्ष सितम्बर माह में हिन्दी दिवस, हिन्दी सप्ताह एवं हिन्दी माह का आयोजन एवं इस समारोह से संबद्ध प्रतियोगिताओं इत्यादि का आयोजन।
5. हिन्दी कार्यशालाओं का आयोजन।
6. संस्थान की राजभाषा कार्यान्वयन समिति की तिमाही बैठकों का आयोजन करना।
7. संस्थान में हिन्दी के प्रगामी प्रयोग से संबंधित तिमाही/छमाही एवं वार्षिक रिपोर्ट शिक्षा मंत्रालय को डाक द्वारा एवं ऑनलाइन प्रेषित की जाती है।
8. सेवारत स्टाफ के हिन्दी प्रशिक्षण के संदर्भ में हिन्दी रोस्टर का रख-रखाव एवं उन्हें उनके हिन्दी ज्ञान के स्तर के आधार पर प्रशिक्षण दिलवाना।
9. नगर राजभाषा कार्यान्वयन समिति (कार्यालय-2), चण्डीगढ़ की बैठकों में भाग लेना तथा समिति द्वारा आयोजित नगर स्तरीय प्रतियोगिताओं में इच्छुक स्टाफ को नामित करना।
10. संस्थान के दैनिक कामकाज में प्रयुक्त होने वाले दस्तावेज/रबड़ की मोहरें इत्यादि द्विभाषी रूप में जारी करना।
11. संस्थान की मुख्य इमारत एलईडी डिसप्ले बोर्ड पर 'आज का शब्द' द्विभाषी रूप में लिखा जाता है। यह शब्द प्रति कार्य-दिवस पर लिखा जाता है।

3.0

INSTITUTIONAL INFRASTRUCTURE

3.1 Land and Constructed Space

The Institute's main campus is located in the educational complex in Sector 26 on a plot of about **16.94 acres (6.85 hectares)** of land. The main campus includes:

- **Homi Bhabha Academic Block** housing the departments of Applied Science, Civil Engineering, Electrical Engineering, Electronics Service Centre, Electronics and Communication Engineering, Mechanical Engineering and Rural Development.
- **Ramanujan Centre for Computer Science and Educational Television** housing the departments of Computer Science and Engineering, Educational Television Centre, Media Centre and Information Management and Coordination Department.
- **Sir J C Bose Academic and Administrative Block** housing the Director's Office, Administrative and Accounts Section, Institute's Library and the departments of Curriculum Development, Education and Educational Management and Entrepreneurship Development and Industrial Coordination.
- **Visvesvaraya Lecture Hall Complex** includes **08** numbers of Hi-tech Lecture Halls.
- **Chandrasekhar Hall, Mother Teresa Hall, Amartya Hall and Tagore Hall** (hostel for men and women), and **Student Centre**.
- **Har Gobind Khorana Guest House** with 11 A/C and fully furnished rooms, a Dining Hall, Conference Hall and Exercise Room.
- **Raman Hall** – Guest House No. 2 with 51 A.C. and fully furnished room with dining room.
- **Faculty and Staff Residences.**
 - Besides the main campus in Sector 26, there are additional residential campuses in Sectors 29 and 42 with eighty houses for residential accommodation for staff and faculty. The total built up area is **39325 sqm**. The institute also has a children park in Sector-29 campus and a gym-cum-meditation centre in Sector – 42 Campus.

During 2022-23, the following renovation work was completed:

- Renovation of Consultancy Room

3.2 Equipment

Equipment worth **₹154.16 lakh** was purchased during the year **2022-23**. The total value of equipment increased to **₹5833.72 lakh** as on **31.03.2023**. After providing necessary depreciation on the assets, the net value of the equipment remained at **₹1472.51 lakh** as on **31.03.2023**.

3.3 Furniture

Furniture worth **₹1.83 lakh** was purchased during the year **2022-23**. The total value of furniture increased to **₹405.90 lakh** as on **31.03.2023**. After providing necessary depreciation under rules, the net value of furniture remained at **₹124.60 lakh** as on **31.3.2023**.

3.4 Expenditure

An expenditure amounting to **₹4155.18 lakh** has been incurred during the financial year **2022-23** under various schemes as indicated below:

Sr. No.	Name of the Scheme	(Rupees in Lakh)
		Expenditure incurred
1.	OH-35 (Capital)	302.57
2.	OH-31 (General)	1188.55
3.	OH-36 (Salary)	2664.06
	Total Expenditure	4155.18

3.5 Library Resources

Library Resources:

S.No.	Resources	Numbers
1.	Print Books	49789
2.	E-books	578
3.	Theses	735
4.	Indian standards	10043
5.	CD-ROM/DVDs	355
6.	Bound Journals	4051

Periodical Resources:

S.No.	Resources	Numbers
1.	Print Journals	19
2.	E-Resources	11
3.	Magazines /Newspapers /Other resources	18

E Resources available in our Institute Library:

- IEEE Xplore Resources:
 - *IEEE All-Society Periodicals Package - 190 Titles*
 - *IEEE Proceedings Order Plans - 5,30,000+ articles*
- ASCE Journals Online
- ASME Journals Online
- Economic & Political Weekly
- Institute for Studies in Industrial Development (ISID) Database
- JGate Plus (JCCC)
- JSTOR
- Springer Link
- Web of Science Lease Access
- South Asia Archive (SAA)

3.5 Library Resources (contd..)

E Resources available in our Institute Library (contd.):

- Open Access Journals
- Registered for National Digital Library of India: NDL Club Registration ID is: INCHNC4VRUNZUQC
- DELNET-Institutional Membership DELNET 2021(Developing Library Network)

Open Access Resources

- NITTTR, Chandigarh Technology Enabled Learning(NCTEL)
- MIT Open CourseWare
- Open Access Journals
- Open Access Books
- Open Access Theses and Dissertations
- MOOCs: Coursera/ SWAYAM/ edX
- NPTEL Resources
- AICTE Online Courses
- INFLIBNET Resources

Recruitments

Appointment of Technical Staff

- Technician - 01
- Hindi Translator - 01
- Electronics Engineer - 02
- Producer - 01
- Senior Visualizer - 01
- Research Assistant - 01
- Visualizer - 01
- Accountant - 01

Recruitments (contd..)

Ongoing Recruitment Update

- 13 posts of Junior Secretariat Assistant (Group C)
- 05 posts of Stenographer Grade –II (Group C)
- 01 post of Senior Producer (Group A)
- 01 post of Estate Officer (Group A)

4.0**AUDITED ACCOUNTS**

Audited Accounts

The accounts of the Institute for the year 2022-23 submitted for audit to be duly certified by Accountant General's office are enclosed.

NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
SECTOR 26, CHANDIGARH
BALANCE SHEET AS AT 31st March, 2023

(Rs. In Lakhs)

SOURCES OF FUNDS	Schedules	Current Year 2022-2023	Previous Year 2021-2022
CAPITAL/CORPUS FUND (UNRESTRICTED FUNDS)			
Corpus Fund	1	9525.10	8926.43
General Fund		-3225.13	-2811.01
DESIGNATED EARMARKED / ENDOWMENT FUNDS	2	2831.70	2819.08
CURRENT LIABILITIES & PROVISIONS	3	7942.56	5555.99
TOTAL		17074.23	14490.49
APPLICATION OF FUNDS	Schedules	Current Year 2022-2023	Previous Year 2021-2022
FIXED ASSETS			
Tangible Assets	4	4556.00	4589.35
Intangible Assets		0.00	0.00
Capital Work in progress		0.00	0.00
INVESTMENTS FROM EARMARKED/ ENDOWMENT FUNDS	5	2760.62	2562.81
Long term		37.40	135.40
Short term			
INVESTMENTS-OTHERS	6	0.00	0.00
CURRENT ASSETS	7	9010.64	6245.51
LOANS, ADVANCES & DEPOSITS	8	709.57	957.42
TOTAL		17074.23	14490.49

SIGNIFICANT ACCOUNTING POLICIES 23
CONTINGENT LIABILITIES AND NOTES TO ACCOUNTS 24


Accounts Officer
NITTTR, Chandigarh


Director
NITTTR, Chandigarh

Dated:
Place: Chandigarh
Compile from Books of Accounts produced before us



NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
SECTOR 26, CHANDIGARH
INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2023

(Rs. In Lakhs)

Particulars	Schedule	Current Year 2022-2023	Previous Year 2021-2022
INCOME			
Academic Receipts	9	147.00	146.96
Grants / Subsidies	10	3825.75	3384.43
Income from Investments	11	0.00	0.00
Interest Earned	12	304.83	259.53
Other Incomes	13	330.67	207.66
Prior Period Income	14	0.00	0.00
TOTAL (A)		4608.24	3998.58
EXPENDITURE			
Staff Payments & Benefits(Establishment Expenses)	15	4187.43	3118.53
Academic Expenses	16	117.16	41.86
Administrative & General Expenses	17	97.16	84.83
Transportation Expenses	18	5.00	1.75
Repairs & maintenance	19	60.63	45.66
Finance Costs	20	0.00	0.00
Depreciation	4	554.98	550.49
Other Expenses	21	0.00	0.00
Prior Period Expenses	22	0.00	0.00
TOTAL (B)		5022.36	3843.10
Balance being excess of income over expenditure (A-B)		-414.12	155.48
Transfer To / From Designated Fund			
Building Fund			
Others (specify)			
Balance Being Surplus / (Deficit)Carried to Capital Fund			

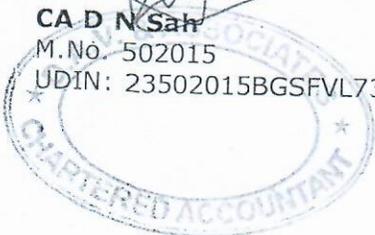
SIGNIFICANT ACCOUNTING POLICIES 23
CONTINGENT LIABILITIES AND NOTES TO ACCOUNTS 24


Accounts Officer
NITTTR, Chandigarh


Director
NITTTR, Chandigarh

Dated:
Place: Chandigarh
Compile from Books of Accounts produced before us

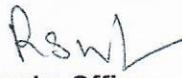
CA D N Sah
M.No. 502015
UDIN: 23502015BGSFVL7309

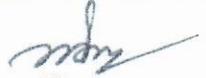


**NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
SECTOR 26, CHANDIGARH
FUNDS DETAIL AS AT 31ST MARCH, 2023**

(Rs. In Lakhs)

SCHEDULE 1 - CORPUS FUND/CAPITAL FUND			
	Particulars	Current Year 2022-2023	Previous Year 2021-2022
1	Balance at the beginning of the year	8926.43	8750.84
2	Add : Contributions towards Corpus	598.67	175.59
3	Add : Fixed Assets under Sponsored Projects/Grants From UGC GOI/State Govt. to the extent utilization for Capital Exp.	0.00	0.00
4	Add: Assets Purchased out of Earmarked Funds	0.00	0.00
5	Add: Assets Purchased out of Sponsored Projects,Where Ownership vests in the Institution	0.00	0.00
6	Add:- Assets Donated /Gifts Received	0.00	0.00
7	Add : Prior Fixed Assets under Sponsored Projects	0.00	0.00
8	Add: Prior period adjustments	0.00	0.00
9	Add: Other Addition	0.00	0.00
10	Less : Assets W/off	0.00	0.00
11	Less: Contribution to Aplympics	0.00	0.00
	Balance the the year end	9525.10	8926.43
	<u>GENERAL FUND</u>		
1	Balance at the beginning of the year	-2811.01	-2966.48
2	Add: Overutilised OH 31 transfer to General Fund	0.00	0.00
3	Deduct : Balance of Net Expenditure account	-414.12	155.48
	Balance the the year end	-3225.13	-2811.01


Accounts Officer
NITTTR, Chandigarh


Director
NITTTR, Chandigarh



SCHEDULE 2 : DESIGNATED / EARMARKED / ENDOWMENT FUNDS

(Rs. In Lakhs)

S.No.	Particulars	Fund wise Breakup			
		New Pension Fund - AAA	GPF/CPF Fund - BBB	Current Year 2022-2023	Previous Year 2021-2022
A.					
a)	Opening Balance of the Funds	3.53	2815.55	2819.08	2612.36
b)	Additions to the Funds :-				
	Donations/grants/ Subscription	197.65	336.36	534.01	513.81
	Income from Investments made				
	on account of Funds	0.00	123.25	123.25	128.37
	Accrued Interest on Investments				
	of the Funds	0.00	0.00	0.00	0.00
	Other Additions (Specify nature)	0.00	0.00	0.00	0.00
	Total (A)	201.18	3275.16	3476.34	3254.54
B.					
c)	Utilization/Expenditure Towards				
	Objectives of Funds				
	i) Capital Expenditure	0.00	0.00	0.00	0.00
	ii) Revenue Expenditure	197.65	446.99	644.64	435.46
	Total (B)	197.65	446.99	644.64	435.46
	Closing Balance at the Year				
	End (A-B)	3.53	2828.17	2831.70	2819.08
Represented By					
a)	Cash and Bank Balance	3.39	37.40	40.79	138.79
b)	Investment	0.00	2760.62	2760.62	2562.81
c)	Interest Accrued but not due	0.00	30.15	30.15	117.34
d)	Amount Receivable	0.14	0.00	0.14	0.14
	Total	3.53	2828.17	2831.70	2819.08

RSW
Accounts Officer
NITTTR, Chandigarh

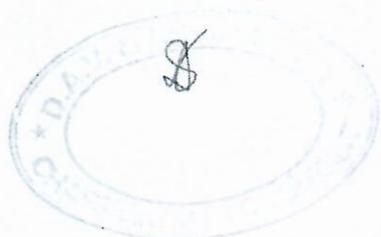
sdm
Director
NITTTR, Chandigarh



NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
SECTOR 26, CHANDIGARH
SCHEDULE 3 - CURRENT LIABILITIES & PROVISIONS

(Rs. In Lakhs)

S.No.	Particulars	Annexure	Current Year 2022-2023	Previous Year 2021-2022
A	CURRENT LIABILITIES			
1	Deposits from Staff :-			
	- Staff Welfare fund		4.79	4.04
	- Ground Rent from Employees		0.00	0.00
2	Deposits from Students :-			
	- Alumni Association		12.10	10.18
	- Examination Fee		0.02	0.02
3	Sundry Creditors			
a	For goods & services		7.04	7.04
b	For Fixed Assets		0.34	0.34
c	Others	Annexure-1	142.66	149.67
4	Deposit-Others (including EMD, Security Deposit)		0.12	0.12
5	Statutory Liabilities (GPF,TDS.WC TAX,CPF, GIS, NPS)			
a	Overdue		0.00	0.00
b	Others	Annexure-2	71.94	22.29
6	Others current liabilities			
a	Salaries		0.00	0.00
b	Receipts against sponsored projects	Sch 3(a)	357.11	283.62
c	Receipts against sponsored fellowship & scholarships			
d	Unutilised Grants (including OH 31,OH 36 & OH 35)			
	Unutilised GRANTS OH 36		708.58	873.54
	Unutilised GRANTS OH 31		1150.81	741.23
	Unutilised GRANTS OH 35		1552.60	340.79
e	Add:- Advance to CPWD,,BSNL and Roads		130.21	563.64
f	Grants in advance			
g	Others funds	Annexure-3	1373.67	565.62
h	Sponsored Project	Annexure-15	59.83	0.00
i	Others liabilities		0.00	0.00
	TOTAL (A)		5571.79	3562.13
B	PROVISIONS			
1	For taxation			
2	Gratuity		943.45	760.52
3	Superannuation/pension		66.15	61.80
4	Accumulated leave encashment		1149.68	965.39
5	Trade Warranties/claims		0.00	0.00
6	Others (specify)			
	- GOI- Restricted Fund - Salary		0.11	0.11
	- Expenses payable	Annexure-4	211.37	206.04
	TOTAL (B)		2370.76	1993.86
	TOTAL (A+B)		7942.56	5555.99



Rsm
Accounts Officer
NITTTR, Chandigarh

sdg
Director
NITTTR, Chandigarh

**NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
SECTOR 26, CHANDIGARH**

SCHEDULE - 3 (a) SPONSORED PROJECTS FY 2022-23

Name of the Project	Opening		Expenditure during the year	Receipts / Recoveries during the year	Closing	
	Credit	Debit			Credit	Debit
AICTE QIP POLY	10.62		21.43	17.81	7.00	
GOI FUND	24.19			0.00	24.24	
GST SP-39	0.25				0.25	
GST Tds SP-42	0.10				0.10	
GST TDS Sp-70				0.05	0.05	
IC22-2			0.27	2.55	2.28	
ICTO PDA-2	0.32				0.32	
ICTO SP-10	0.74				0.74	
ICTO SP-11	0.84				0.84	
ICTO SP-20				1.92	1.92	
ICTO SP-25		0.05		1.88	1.83	
ICTO SP-49		0.74		0.74		
Inspire Fellowship by SC and Tech	3.85		3.85			
It Bionery Rd Project	1.27				1.27	
MOOCS4			1.20	1.20		
Operational Plan	19.66				19.66	
OTHER MISC PROJECT	4.57				4.57	
PDA-08	77.82		67.63		10.20	
PDA-1	0.08		0.09			0.01
PDA-13 CSE	0.07				0.07	
PDA-21(Solar PV System)	7.42				7.42	
PDA-22		1.39				1.39
PDA-2(Electrical)AICTE	2.17				2.17	
PSCB 13 MECH	4.61				4.61	
RPS - AICTE	1.67				1.67	
SP-04	0.00				0.00	
SP-05	2.94				2.94	
SP-06(ETV)	21.57		5.20	3.30	19.67	
SP-09		3.63				3.63
SP-10		0.12				0.12
SP-11(EDIC)		0.06				0.06
SP-12		0.14				0.14
SP-13	1.63				1.63	
SP-14 MECHANICAL	0.29				0.29	
SP-15	1.94				1.94	
SP-17 Civil		5.74				5.74
SP-18(CDC)	1.63		1.63			
SP-19Unat Bharat Abhyian	1.09				1.09	
SP-20(Computer)	0.54		0.05		0.49	
SP-23(ETV)		2.65	0.07			2.72
SP-25(Computer)	24.82		2.95		21.87	
SP-27	3.73				3.73	
SP-33	0.98				0.98	
SP-34	0.10		0.06		0.04	



SP-35	47.15		15.81	117.96	149.30	
SP-39	0.38				0.38	
SP-40	0.61		0.61		0.00	
SP-41	0.74		1.41	0.67		
SP-43	0.06				0.06	
SP-49		0.39		0.93	0.54	
SP-49(A)			0.79	0.93	0.14	
SP-51		0.79	0.13	0.93	0.01	
SP-53	0.52				0.52	
Sp 54 Mangolian Teachers			0.69	0.93	0.24	
SP-55			0.93	0.93	0.00	
SP-56			0.93	0.93	0.00	
SP-57			0.52	0.93	0.41	
SP-58	0.01		0.06	0.05		
SP-59			0.67	0.93	0.26	
SP-6		1.90		1.90		
SP-60	0.69				0.69	
SP-62	1.95		2.30	0.36		
SP-63	5.37		3.45	0.01	1.93	
SP-64	0.77		0.80	0.93	0.90	
SP-68			0.76	0.93	0.17	
SP-70			1.98	1.98		
SP-71			1.19	2.45	1.26	
SP-72			9.99	9.99		
SP-75				0.36	0.36	
SP-76				50.40	50.40	
SP-7(EDIC)	2.00				2.00	
SP-8 (EDIC)	0.11		0.11			
SP-CO8(Academic Cell)			1.50	1.72	0.22	
SP-ICT-50(EDIC) DST		0.80				0.80
SP-RS 51	1.00		0.47		0.53	
TDS SP 18		0.24				0.24
TDS SP-39	0.25				0.25	
TDS SP-45	0.22				0.22	
TDS SP-50	0.23				0.23	
TDS SP-70				0.23	0.23	
Total	283.58	18.64	149.52	226.81	357.11	14.85


 Accounts Officer
 NITTR, Chandigarh


 Director
 NITTR, Chandigarh



SCHEDULE - 3 (b) SPONSORED FELLOWSHIP AND SCHOLARSHIPS

(Rs. In Rupees)

S.No.	Name of Project	Opening Balance		Receipts/ Recoveries during the year	Expenditure during the year	Closing Balance	
		Credit	Debit			Credit	Debit
1	University Grants Commission					0.00	0.00
2	Ministry					0.00	0.00
3	Others (Specify Individually)					0.00	0.00
						0.00	0.00


Accounts Officer
NITTTR, Chandigarh


Director
NITTTR, Chandigarh



**NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
SECTOR 26, CHANDIGARH**

SCHEDULE 3C UNUTILISED GRANTS FROM UGC, GOVERNMENT OF INDIA AND STATE GOVERNMENT

(Rs. In Lakhs)

S.No	Particulars	Current Year 2022-2023	Previous Year 2021-2022
A	Plan Grants Government of India Balance B/F GRANT OH 36 Add :- Grant Received During the Year Add :- Receipt during the year	873.54 2500.00	1619.51 1600.00
	Total (a)	3373.54	3219.51
	Less :- Refunds Less :- Utilised for Revenue Expenditure Less:-Exp. (Salary Staff) under OH 36 for March 2023 Paid in April 2023 Add:- Provision of 2021-22 adjusted in April 2022	3033.73 310.41 -58.36	2027.74 -58.36 259.88
	Total (b)	2664.96	2345.97
	Unutilised Carried Forwards (a-b)	708.58	873.54
B	Plan Grants Government of India Balance B/F GRANT OH 31 Add :-Grant Receipt During the Year Add:- Other Receipt During the year	741.23 1650.00 0.00	624.69 1100.00 58.00
	Total (c)	2391.23	1782.69
	Less :- Last Year wrong entry, now rectify Less :- Utilised for Revenue Expenditure (Total) Less :- Utilised for Capital Expenditure Less:- Expenditure under OH 31 for March 2023 Paid in April 2023 Add:- Provision of 2021-22 adjusted in April 2022	0.00 1247.46 0.00 88.03 81.00	3.01 1048.48 0.00 81.00 70.97
	Total (d)	1240.42	1041.46
	Unutilised Carried Forwards (c-d)	1150.81	741.23
C	GRANT FROM GOVT OF INDIA OH 35 Balance B/F* Add :- Last Year wrong entry, now rectify Add :- Receipt During the Year of Advance Add :- Receipt During the Year	555.17 0.00 74.26 1300.00	305.15 3.01 69.94 500.00
	Total (e)	1929.43	878.10
	Less :- Refund Less :- Utilised for Revenue Expenditure Less :- Utilised for Capital Expenditure	0.00 0.00 376.83	0.00 0.00 537.31
	Total (f)	376.83	537.31
	Unutilised Carried Forwards (e-f)	1552.60	340.79
	UNUTILISED GRANT OF (OH 36+OH 31+OH 35)	3411.98	1955.56

*Cheque of Rs. 214.38 lakhs issued but later on Cancelled



Rsw
Accounts Officer
NITTTR, Chandigarh

ndg
Director
NITTTR, Chandigarh

NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH, CHANDIGARH

FIXED ASSETS AS AT 31.3.2023

FIXED ASSETS- NET BLOCK - SCHEDULE -4

S. No	PARTICULARS	Rate %	GROSS BLOCK				DEPRECIATION				NET BLOCK			
			Cost/evaluation as at beginning of the year	Additions before 30.09.22	Additions after 30.09.22	Deductions during the year	cost/value at the year end	As at the beginning of the year	On Additions of the year	On Deduction of the year	Depreciation add back prior period	Total at the year end	As at the current year end	As at the previous year end
A	Fixed Assets													
1	Institute Account													
i	Land - Free hold	0	15.68					15.68	0.00	0.00	0.00	15.68	15.68	15.68
ii	Land - Lease hold	0	18.90					18.90	3.58	0.52	0.00	14.80	14.80	15.32
iii	Buildings- Residential	2%	1310.50	67.94	63.71			1442.16	478.94	28.85	507.79	934.36	831.56	831.56
iv	Buildings- Office Block	2%	1743.17		85.17			1828.34	635.17	36.56	671.73	1156.61	1108.00	1108.00
v	Buildings- Hostel	2%	1293.08	147.08	141.13			1440.16	578.57	28.80	607.37	832.79	714.51	714.51
vi	Equipments	8%	5137.26					5278.39	3445.11	395.94	3841.05	1437.34	1692.15	1692.15
vii	Computer	20%	588.66					0.00	588.66	0.00	588.66	0.00	0.00	0.00
viii	Books	10%	127.28	0.78	0.65			128.71	125.67	0.32	125.99	2.72	1.61	1.61
ix	Technical Journals	100%	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00
x	Furniture Fixture & Electrical Installation	5%	404.06		1.83			405.90	260.77	20.29	281.06	124.83	143.29	143.29
xi	Vehicle.	10%	31.96					31.96	29.70	2.26	31.96	0.00	2.26	2.26
xii	Intangible Assets	40%	277.79		13.03			290.82	238.48	31.82	270.30	20.52	39.31	39.31
xiii	Library E Journal	40%	40.21		0.30			40.51	35.40	4.50	39.90	0.61	4.81	4.81
2	Continuation Education													
i	Equipments	8%	4.40					4.40	4.40	0.00	4.40	0.00	0.00	0.00
3	Sponsored Projects													
i	Equipments	7.50%	12.63					12.63	12.63	0.00	12.63	0.00	0.00	0.00
ii	Vehicle	10.00%	6.76					6.76	5.88	0.68	6.56	0.20	0.88	0.88
4	Assets under OBC-OSC													
i	Equipments	7.50%	3.96					3.96	3.75	0.21	3.96	0.00	0.21	0.21
ii	Furniture	7.50%	1.45					1.45	1.14	0.11	1.25	0.20	0.31	0.31
iii	Books	10.00%	1.27					1.27	1.27	0.00	1.27	0.00	0.00	0.00
5	RPS AICTE													
i	Equipments	7.50%	12.94					12.94	9.05	0.97	10.02	2.92	3.89	3.89
6	Assets under 5.16 Comp. Sc.													
i	Equipments	7.50%	17.64					17.64	12.34	1.32	13.66	3.98	5.30	5.30

NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH, CHANDIGARH
FIXED ASSETS AS AT 31.3.2023
FIXED ASSETS- NET BLOCK - SCHEDULE -4

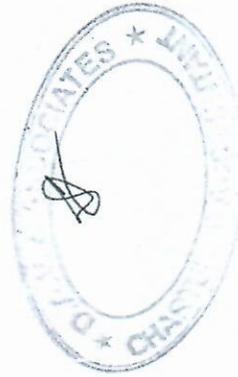
S. No	PARTICULARS	Rate %	GROSS BLOCK			DEPRECIATION				NET BLOCK			
			Cost/evaluation as at beginning of the year	Additions before 30.09.22	Additions after 30.09.22	Deductions during the year	cost/value at the year end	As at the beginning of the year	On Additions of the year	On Deduction of the year	Depreciation add back prior period	Total at the year end	As at the current year end
ii	Furniture	7.50%	0.00				0.00	0.00			0.00	0.00	0.00
iii	Computer	20.00%	2.99				2.99	0.19			2.99	0.00	0.19
7	Customised AICTE												
i	Equipments	7.50%	1.86				1.86	0.14			0.42	1.44	1.58
8	Pb State Co-op bank-13 -Mech												
i	Equipments	7.50%	5.85				5.85	0.44			1.32	4.53	4.97
ii	Computer	20.00%	3.72				3.72	0.26			3.72	0.00	0.26
9	IFD-14												
i	Equipments	7.50%	2.02				2.02	0.15			0.45	1.57	1.72
ii	Computer	20.00%	2.99				2.99	0.60			2.10	0.89	1.49
Total - A			11069.02	215.80	305.82	0.00	11001.99	554.94			7034.66	4555.99	4589.30

ASW

Accounts Officer
NITTTR, Chandigarh

Director

Director
NITTTR, Chandigarh



NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH, CHANDIGARH
FIXED ASSETS UNDER GOI PROJECTS AS AT 31.03.2022

FIXED ASSETS- NET BLOCK AS PER SCHEDULE -4-A

(RUPEES IN LAKHS)

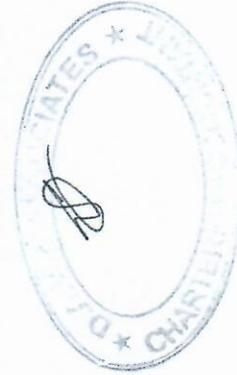
PARTICULARS	Rate %	GROSS BLOCK			DEPRECIATION			NET BLOCK			
		Cost/evaluation as at beginning of the year	Additions before 30.09.2021	Additions after 30.09.2021	Deductions during the year	cost/value at the year end	As at the beginning of the year	On Additions of the year	Total at the year end	As at the current year end	As at the previous year end
Fixed Assets											
i Equipments	7.5	164.49	-	-	-	164.49	164.49	-	164.49	-	-
ii Furniture	7.5	0.99	-	-	-	0.99	0.95	0.04	0.99	-	0.04
iii Books	10	0.21	-	-	-	0.21	0.21	-	0.21	-	-
Gifted equipment	7.5	0.07	-	-	-	0.07	0.07	-	0.07	-	-
Grand Total		165.76	-	-	-	165.76	165.71	0.04	165.75	-	0.04

Rswl

Accounts Officer
NITTTR, Chandigarh

sdm

Director
NITTTR, Chandigarh



NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH, CHANDIGARH
FIXED ASSETS AS AT 31.3.2023

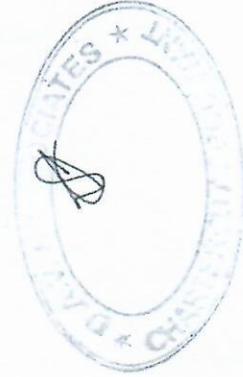
S.No.	PARTICULARS	Rate %	GROSS BLOCK				DEPRECIATION			NET BLOCK			
			Cost/evaluation as at beginning of the year	Additions before 30.9.2022	Additions after 30.9.2022	Deductions during the year	cost/value at the year end	As at the beginning of the year	On Additions of the year	On Deduction of the year	Depreciation add back prior period	Total at the year end	As at the current year end
A	Fixed Assets												
i	Land - Free hold	0	15.68					15.68	-	-	-	15.68	15.68
ii	Land - Lease hold	0	18.90					18.90	3.58	0.52	4.10	14.80	15.32
iii	Buildings- Residential	2	1,310.50	67.94	63.71			1,442.16	478.94	28.85	507.79	934.36	831.56
iv	Buildings- Office Block	2	1,743.17	-	85.17			1,828.34	635.17	36.56	671.73	1,156.61	1,108.00
v	Buildings- Hostel	2	1,293.08	147.08	-			1,440.16	578.57	28.80	607.37	832.79	714.51
vi	Equipments	7.5	5,363.05	-	141.13			5,504.18	3,653.22	399.17	4,052.40	1,451.79	1,709.83
vii	Computer	20	598.36	-	-			598.36	596.42	1.05	597.47	0.89	1.94
viii	Books	10	128.76	0.78	0.65			130.19	127.15	0.32	127.47	2.72	1.61
ix	Furniture Fixture & Electrical Installation	5	404.06	-	1.83			405.90	260.77	20.29	281.06	124.83	143.29
x	Furniture Fixture	7.5	2.44	-	-			2.44	2.09	0.15	2.24	0.20	0.35
xi	Vehicle	10	38.72	-	-			38.72	35.58	2.94	38.52	0.20	3.14
xii	Intangible Assets	40	277.79	-	13.03			290.82	238.48	31.82	270.30	20.52	39.31
xiii	Library E- Journal	40	40.28	-	0.30			40.58	35.47	4.50	39.97	0.61	4.81
	Total - A		11,234.78	215.80	305.82	-	-	11,756.41	6,645.43	554.98	7,200.41	4,556.00	4,589.35

R. S. W.

Accounts Officer
NITTTR, Chandigarh

[Signature]

Director
NITTTR, Chandigarh



**NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
SECTOR 26, CHANDIGARH**

SCHEDULE 5 - INVESTMENTS FROM EARMARKED / ENDOWMENT FUNDS

(Rs. In Lakhs)

S.No.	Particulars	Current Year 2022-2023	Previous Year 2021-2022
	Long Term		
1	In Central Government Securities	0.00	0.00
2	In state Government Securities	0.00	0.00
3	Other approved Securities- GILT Fund	761.60	361.62
4	Shares		
5	Debentures and Bonds		
6	Term Deposits with Banks		
	-FDR's GPF/CPF- with Scheduled Bank - Restricted Fund	1999.02	2201.19
7	Others (to be specified)	0.00	0.00
	Short Term		
	Others (to be specified)	0.00	0.00
	-GPF/CPF- with Scheduled Bank S/A - Earmarked fund	37.40	135.40
	Total	2798.02	2698.21

SCHEDULE 6 INVESTMENTS-OTHERS

(Rs. In Lakhs)

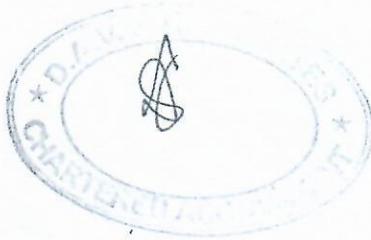
S.No.	Particulars	Current Year 2022-2023	Previous Year 2021-2022
1	In Central Government Securities	0.00	0.00
2	In state Government Securities	0.00	0.00
3	Other approved Securities	0.00	0.00
4	Shares	0.00	0.00
5	Debentures and Bonds	0.00	0.00
6	Others (to be specified)	0.00	0.00
	Total	0.00	0.00

RSW

**Accounts Officer
NITTTR, Chandigarh**

MDM

**Director
NITTTR, Chandigarh**



SCHEDULE 7 - CURRENT ASSETS

(Rs. In Lakhs)

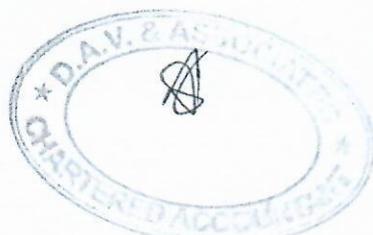
S.No.	Particulars	Current Year 2022-2023	Previous Year 2021-2022
1	(a) Stores & Spares	7.44	6.25
	(b) Loose tools	0.00	0.00
	(c) Publications	5.16	5.16
	(d) Laboratory Chemicals, consumables and glass ware	0.00	0.00
	(e) Building Material	0.00	0.00
	(f) Electrical Material	0.00	0.00
	(g) Stationary	0.00	0.00
	(h) Water supply material	0.00	0.00
2	Sundry debtors		
a	Debts o/s for a period exceeding six months	0.00	0.00
b	Others	0.00	0.00
	-CPF/GPF - Earmarked Fund	0.00	0.00
3	Cash and Bank balances		
	Cash balances in hand (including cheques/ drafts and earmarked fund or otherwise)	2.48	3.56
	Cash & Bank Balances - GOI - Restricted Fund	0.00	0.60
	Cash & Bank Balances - TEQIP - Restricted Fund	0.00	0.00
	Bank Balance of Sponsored Project Annexure-15	59.83	0.00
a	With Scheduled Banks		
	* in current accounts		
	* in term deposit accounts	7102.48	4860.05
	* in savings accounts	1833.25	1369.89
b	With non- Scheduled bank		
	* in current accounts	0.00	0.00
	* in term deposit accounts	0.00	0.00
	* in savings accounts	0.00	0.00
4	Post Office savings Accounts	0.00	0.00
	Total	9010.64	6245.51

Asw

Accounts Officer
NITTTR, Chandigarh

ms

Director
NITTTR, Chandigarh



SCHEDULE 8 - LOANS ,ADVANCES & DEPOSITS**(Rs. In Lakhs)**

S.No.	Particulars	Current Year 2022-2023	Previous Year 2021-2022
1	Advances to employees (non-interest bearing)		
a	Salary	0.00	0.00
b	Festival	0.01	0.01
c	Medical advance	0.00	0.00
d	Others - Advance Loading Money in Cards (Permanent & Temporary Imprest)	0.00	0.60
e	Interest Receivable	0.00	0.00
2	Long term advances to employees (interest bearing)		
a	Vehicle loan	1.58	1.99
b	Home loan	0.00	0.02
c	Others	0.14	0.21
3	Advances & other amounts recoverable in cash or in kind or for value to be received.	-1.73	1.23
a	On capital account	0.00	0.00
b	suppliers	0.00	0.00
c	Others Annexure - 5	405.53	603.68
4	Prepaid expenses		
a	Insurance	0.00	0.00
b	Other expenses	0.00	0.00
5	Deposits		
a	Telephone	0.15	0.15
b	Lease rent		0.00
c	Electricity	0.03	0.03
d	AICTE, if applicable		0.00
e	Others (to be specified)	0.53	0.53
6	Income Accrued		
a	On investments from earmarked/endowment funds GPF/CPF	30.15	117.34
b	On investments FDR's	258.34	213.00
c	On Loans and Advances		
d	Others (includes income due unrealized) GOI - Restricted Fund		
7	Other - Current aassets receivable from UGC/sponsored Project		
a	Debit balances in Sponsered projects Schedule (3a)	14.85	18.64
b	Debit balances in Sponsored Fellowship & scholarship	0.00	0.00
c	Grants Receivable	0.00	0.00
d	Others receivables from UGC	0.00	0.00
8	Claim receivable	0.00	0.00
Total		709.57	957.42



Accounts Officer
NITTTR, Chandigarh



Director
NITTTR, Chandigarh



**NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
SECTOR 26, CHANDIGARH**

Schedule 9 - Academic Receipts

(Rs. In Lakhs)

S.No.	Particulars	Current Year 2022-2023	Previous Year 2021-2022
A	FEE FROM STUDENTS		
	Academic		
1	Tuition Fee	0.00	0.00
2	Admission Fee - ME & Phd (C01 ME)	147.00	146.96
3	Enrolment Fee	0.00	0.00
4	Library Admission fee	0.00	0.00
5	Library Fee	0.00	0.00
6	Art & Craft fee	0.00	0.00
7	Registration fee - under various courses	0.00	0.00
8	Syllabus fee	0.00	0.00
9	STC Course Fee	0.00	0.00
	Total (A)	147.00	146.96
B	Examinations		
1	Admission test fee	0.00	0.00
2	Annual Examination fee	0.00	0.00
3	Mark sheet, certificate fees	0.00	0.00
4	Entrance examination fee	0.00	0.00
	Total (B)	0.00	0.00
C	Other fees		
1	Identity card fee	0.00	0.00
2	Fine/ Miscellaneous fee	0.00	0.00
3	Medical Fee	0.00	0.00
4	Transportation fee	0.00	0.00
5	Hostel fee	0.00	0.00
	Total (C)	0.00	0.00
D	Sale of publications		
1	Sale of Admission forms	0.00	0.00
2	Sale of syllabus and question paper, etc	0.00	0.00
3	Sale of prospectus including admission forms	0.00	0.00
	Total(D)	0.00	0.00
E	Other Academic Receipts		
1	Registration fee for workshops, programmes	0.00	0.00
2	Registration fees(Academic Staff College)	0.00	0.00
	Total(E)	0.00	0.00
	Grand Total (A+B+C+D+E)	147.00	146.96

Rsw

**Accounts Officer
NITTTR, Chandigarh**

mby

**Director
NITTTR, Chandigarh**



**NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
SECTOR 26, CHANDIGARH**

SCHEDULE - 10 GRANTS & DONATIONS

(Rs. In Lakhs)

S.No.	Particulars		Current Year 2022-2023		Previous Year 2021-2022
1	Central Government				
a	Grant in Aid Capital (OH 35)		0.00		0.00
b	Grant in Aid General(OH31)		1160.79		1038.45
	Opening Balance	741.23		624.69	
	Add:-Grant During the Year	1650.00		1100.00	
	Add:-Receipt under OH 31	0.00		58.00	
	Less:-Last Year Adjustment	0.00		3.01	
	Less:-Unutilised Grant at the end of Year	1230.44		741.23	
c	Grant Salary OH-36		2664.96		2345.97
	Opening Balance	873.54		1619.51	
	Add:-Grant During the Year	2500.00		1600.00	
	Less:-Unutilised Grant at the end of Year	708.58		873.54	
2	State Government(s)	0.00		0.00	
3	Government Agencies	0.00		0.00	
4	Institutions/Welfare Bodies	0.00		0.00	
5	International Organisations	0.00		0.00	
6	Others (Specify)	0.00		0.00	
	Total		3825.75		3384.43

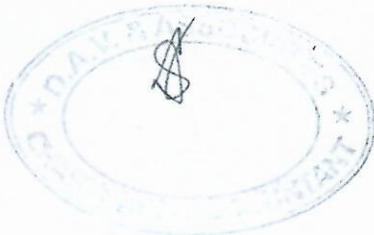
SCHEDULE 11- INCOME FROM INVESTMENTS

(Rs. In Lakhs)

S.No.			Current Year 2022-2023		Previous Year 2021-2022
1	Interest		0.00		0.00
a	On Government Securities	0.00		0.00	0.00
b	Other Bonds/Debentures	0.00		0.00	0.00
2	Interest on Term Deposits		210.44		61.85
	Income accrued but not due on Term Deposits /				
3	Interest bearing advances to employees		0.00		0.00
4	Interest on Savings Bank Accounts		0.00		0.00
5	Others (Specify)		0.00		0.00
	Total		210.44		61.85
	Transferred To Earmarked / Endowment Funds		210.44		61.85
	Balance				


Accounts Officer
NITTTR, Chandigarh


Director
NITTTR, Chandigarh



**NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
SECTOR 26, CHANDIGARH**

SCHEDULE 12: INTEREST EARNED

(Rs. In Lakhs)

S.No.	Particulars	Current Year 2022-2023	Previous Year 2021-2022
A	On Savings Accounts with scheduled banks		
1	a) On Saving Account	50.75	17.57
2	b) On Grant PFMS	0.00	0.00
B	On Loans		
1	Employees/ Staff	1.43	0.28
2	Others	0.00	0.00
C	On Fixed Deposits	251.88	239.06
D	On Income Tax Refund	0.76	2.62
E	On Debtors and Other Receivables	0.00	0.00
	Total	304.83	259.53

SCHEDULE 13 - OTHER INCOME

(Rs. In Lakhs)

S.No.	Particulars	Current Year 2022-2023	Previous Year 2021-2022
A	Income from land & building		
	Hostel room rent/Ground Rent/Dining Hall Rent/Guest		
1	House Rent/Canteen Rent	54.16	32.60
2	Licence fee - Residential Houses & AICTE	0.00	0.00
	Hire Charges of Auditorium/ Board Room/Conference		
3	Hall/Examination Hall Sydicate Room/IT Hall	14.80	0.17
4	Electricity charges recovered	0.00	0.00
5	Water charges recovered	0.00	0.00
B	Sale of Institute`s publications	0.00	0.32
C	Income from holding events		
1	Gross Receipts from annual function/sports carnival less: Direct expenditure incurred on the annual function/ sports carnival	0.00	0.00
		0.00	0.00
2	Gross Receipts from fetes less: Direct expenditure incurred on the fetes	0.00	0.00
		0.00	0.00
3	Gross Receipts for educational tours less: direct expenditure incuured on the tours	0.00	0.00
		0.00	0.00
4	Others (to be specified and separately disclosed)	0.00	0.00
D	Others		
1	Income from Consultancy (Receipt of Institute Share)	129.55	98.57
2	RTI fees	0.00	0.00
3	Income from Royalty	0.00	0.00
4	Sale of application form (recruitment)	0.00	0.00
	Misc. Receipts (Sale of tender form, waste paper etc.)		
5	Annexure-7	130.97	75.58
6	Profit on sale/ disposal of Assets		
	a) Owned Assets	0.00	0.00
	b) Assets received free of cost	0.00	0.00
	Grants/ Donations from institution, Welfare Bodies and		
7	International Organisations	0.00	0.00
8	Others	0.00	0.00
9	Net Increase In Store	1.19	0.42
	GRAND TOTAL (A+B+C+D)	330.67	207.66



Rs...
Accounts Officer
NITTTR, Chandigarh

...
Director
NITTTR, Chandigarh

**NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
SECTOR 26, CHANDIGARH**

SCHEDULE 14 - PRIOR PERIOD INCOME

(Rs. In Lakhs)

S No	Particulars	Current Year 2022-2023	Previous Year 2021-2022
1	Academic Receipts	0.00	0.00
2	Income from Investments	0.00	0.00
3	Interest Earned	0.00	0.00
4	Other Income	0.00	0.00
Total		0.00	0.00

SCHEDULE 15 - STAFF PAYMENTS AND BENEFITS (ESTABLISHMENT EXPENSES)

(Rs. In Lakhs)

S No	Particulars	Current Year 2022-2023	Previous Year 2021-2022
a	Salaries & wages Annexure - 8	3177.57	3050.03
b	Contribution to Other fund Annexure - 9	835.92	-82.40
c	Contribution to CPF	2.54	2.54
d	Retirement and Terminal Benefits to Retirees	2.98	0.83
e	LTC facility	11.68	8.39
f	Medical facility	31.57	35.31
g	Children Education Allowance	11.59	14.20
h	Honorarium	2.15	5.33
i	Training Non Faculty	2.41	0.00
j	Others (Cont. to Reserve Fund Out of IRG)	77.04	67.68
k	TA/DA expenses Annexure - 10	31.98	16.61
Total		4187.43	3118.53

SCHEDULE 16 - ACADEMIC EXPENSES

(Rs. In Lakhs)

S No	Particulars	Current Year 2022-2023	Previous Year 2021-2022
a	Laboratory expenses	0.00	0.00
b	Field work/ participation in conferences		
c	Expenses on Seminar/Workshop Annexure - 11	14.02	6.21
d	Expenditure on STC Annexure - 12	103.14	35.65
e	Stipend/means- cum-merit scholarship	0.00	0.00
e	Others (specify)	0.00	0.00
Total		117.16	41.86

Rswl
Accounts Officer
NITTTR, Chandigarh

nm
Director
NITTTR, Chandigarh



SCHEDULE 17 - ADMINISTRATIVE AND GENERAL EXPENSES

(Rs. In Lakhs)

S No	Particulars	Current Year 2022-2023	Previous Year 2021-2022
	A. Infrastructure		
a	Electricity and power	52.61	35.24
b	Property Taxes	5.36	4.24
	B. Communication		
a	Postage & stationary	0.50	0.37
b	Telephone, Fax and internet charges	2.84	2.55
	C. Others		
a	Printing & stationary (consumption)	5.24	6.55
b	Hospitality (Medicine)	0.15	0.10
c	Audit & Legal Fees	0.21	7.24
d	Professional charges	2.28	0.00
e	Advertisement and publicity	1.80	5.28
f	Newspaper and Periodicals	0.44	0.01
g	Others (specify) Annexure - 13	25.72	23.25
	Total	97.16	84.83

SCHEDULE 18 - TRANSPORTATION EXPENSES

(Rs. In Lakhs)

S No	Particulars	Current Year 2022-2023	Previous Year 2021-2022
1	Vehicles (owned by educational institution)		
a)	Running expenses	0.00	0.00
b)	Repairs & maintenance	5.00	1.75
c)	Insurance expenses	0.00	0.00
2	Vehicles taken on rent/lease	0.00	0.00
3	Vehicle (Taxi) hiring expenses	0.00	0.00
	Total	5.00	1.75

SCHEDULE 19 - REPAIRS & MAINTENANCE

(Rs. In Lakhs)

S No	Particulars	Current Year 2022-2023	Previous Year 2021-2022
a	Building	20.37	15.84
b	Furniture & fixture	0.77	0.87
c	Plant & Machinery	2.72	3.26
d	Office Equipments	8.02	7.65
e	Others (specify) Annexure - 14	28.76	18.03
	Total	60.63	45.66



Accounts Officer
NITTTR, Chandigarh



Director
NITTTR, Chandigarh



SCHEDULE 20 - FINANCE COSTS

(Rs. In Lakhs)

S No	Particulars	Current Year 2022-2023	Previous Year 2021-2022
a	Bank charges	0.00	0.00
b	Others (specify) Income tax penalty, Late payment TDS etc.	0.00	0.00
Total		0.00	0.00

SCHEDULE 21 - OTHER EXPENSES

(Rs. In Lakhs)

S No	Particulars	Current Year 2022-2023	Previous Year 2021-2022
a	Provision for Bad & doubtful debts/ advances	0.00	0.00
b	Irrecoverable balances written- off	0.00	0.00
c	Grants/ subsidies to other institutions/ organizations	0.00	0.00
d	Others (consumption of stores and spares)	0.00	0.00
Total		0.00	0.00

SCHEDULE 22 - PRIOR PERIOD EXPENSES

(Rs. In Lakhs)

S No	Particulars	Current Year 2022-2023	Previous Year 2021-2022
1	Establishment expenses	0.00	0.00
2	Academic expenses	0.00	0.00
3	Administrative expenses	0.00	0.00
4	Fixed Assets W/off & Obsolute	0.00	0.00
5	Transportation expenses	0.00	0.00
6	Repairs & Maintenance	0.00	0.00
7	Other expenses	0.00	0.00
Total		0.00	0.00

RSW
Accounts Officer
NITTTR, Chandigarh

mbm
Director
NITTTR, Chandigarh



Annexure 1 (Schedule 3)
Sundry Creditors-Others

(Rs. In Lakhs)

Particulars	Current Year 2022-2023	Previous Year 2021-2022
SUNDRY CREDITORS - OTHERS		
DEPOIST OF QIP POLY	2.11	2.11
Sec-Adroitec Information Systems	0.58	0.58
SEC-Advance Tech	0.02	0.02
Sec-Allieron	0.17	0.53
Sec-Aimco Solutions	0.07	0.07
Sec-Aimil	0.06	0.06
Sec-Ajit Pal Singh	0.00	2.28
Sec-Akadmika Lab Solutions	0.10	0.10
Sec- Amigo Optima	0.31	0.31
Sec- ARK	0.42	0.42
Sec- Arup India	0.25	0.25
Sec-Benchmark Electronic	0.02	0.02
Sec-Bharat Electronics	1.57	0.00
Sec- Binder	0.06	0.06
Sec- Blue Star	0.20	0.20
Sec- Broadways Mkt	0.15	0.15
Sec- BSNL	0.03	0.02
Sec- Cadre Design System	0.57	0.57
Sec- Daksh & Detective	2.83	2.83
Sec- Design Tech	0.00	0.97
Sec- Engineer Group	0.12	0.12
Sec- Ensonic Computech	0.05	0.05
Sec-Fore Solutions	0.43	2.53
Sec- Golden Eagle	0.41	0.41
Sec- Innovative Systel	0.31	0.31
Sec-Invas Tech	0.09	0.09
Sec- Kalra Enterprises	1.17	1.17
Sec- Kamal Kumar Builders	0.42	0.42
Sec- Krishna Stationer	0.05	0.05
Sec- Krishna Washerman	0.04	0.04
Sec- Lakshya Enterprises	0.09	0.09
Sec- Mann Elect	0.10	0.10
Sec-Mapple Outright	0.07	0.07
Sec- ME Students	72.31	74.60
Sec- Metaqear Infra	0.03	0.03
Sec- Metatech Industries	0.00	1.48
Sec-Mickado Industries	0.09	0.00
Sec- MI Interiors	0.04	0.04
Sec- Mohindra Documentation Centre (Lib)	0.01	0.01
Sec- M.O India Ltd	0.02	0.02
Sec- Nand Kishore	0.07	0.07
Sec- National Small Industries	0.15	0.15
Sec- New Generation Technology	0.06	0.06
Sec-Phadke Instruments	0.06	0.06
Sec-Pixaarnext	0.04	0.04
Sec- Project Associates	0.15	0.15
Sec- Punj	0.25	0.25
Sec- Retention of Vijay Garq	0.96	0.96
Sec- Rohan Educational Solutions	0.47	0.47
Sec- Saini Enterprises	0.39	0.21
Sec- Sanchi	0.03	0.03
Sec- Sanjay Goyal	0.54	0.54
Sec- Satish Aqqarwal	0.14	0.14
Sec-Secure Guard	10.00	10.00
Sec- Sehajta A.C & Elect Enqg	0.23	0.23
Sec-Sharda Info Solutions	0.12	0.12
Sec-Sipcon Instrument	0.12	0.12
Sec-Sponsored Project	0.03	0.06
Sec- Tech Info Ltd	0.16	0.16
Sec-Techser Power	0.08	0.08
Sec- Vijay Garq	36.36	36.36
Sec-V Instruments	0.00	0.93
Sec- V.R Suppliers & Exporters	0.13	0.13
Sec-VVDN Tech	0.29	0.00
Sec-Zen Exim	0.00	0.85
SERVICE TAX EXAMINATION FEES	0.04	0.04
Sundry Creditors Other -BS	2.25	4.28
END-Design Tech System	1.96	0.00
Sundry Creditors	2.19	0.00
Total	142.66	149.67

Rsw
Accounts Officer
NITTR, Chandigarh

nmj
Director
NITTR, Chandigarh



Annexure 2 (Schedule 3)**Current Liabilities - Statutory Liabilities- others****(Rs. In Lakhs)**

Particulars	Current Year 2022-2023	Previous Year 2021-2022
Income tax firms (tds)	1.68	0.92
Income tax firms (tds) from experts	0.49	0.65
Reverse GST	0.00	0.50
Income tax Staff	-0.01	3.16
CGST	7.20	4.83
IGST	76.23	6.82
UTGST	7.20	4.83
Interest IGST	0.00	0.00
TDS -CGST	-1.68	-0.29
TDS-IGST	-17.49	1.16
TDS-UTGST	-1.68	-0.29
Total	71.94	22.29

Annexure 3 (Schedule 3)**Current liabilities - Other current liabilities****- Other funds****(Rs. In Lakhs)**

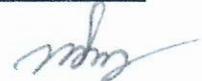
Particulars	Current Year 2022-2023	Previous Year 2021-2022
Distribution fund	19.48	13.37
CREST Chd- Solar Plant	38.42	38.14
Earnest Money	34.40	36.90
Royalty to Authors	0.49	0.46
Consultancy Projects	1223.00	470.46
Welfare fund ME students	6.20	6.20
Tequip Grant	0.10	0.10
Interest on Grant 31 Payable	51.58	-
Total	1373.67	565.62

Annexure 4 (Schedule 3)**Provisions :-****(Rs. In Lakhs)**

Particulars	Current Year 2022-2023	Previous Year 2021-2022
Maintenance Student Centre/Electrical/Building/Elect & Water Charges	4.15	2.58
Salaries	190.80	184.51
CPF- Employer Share	2.27	2.27
Children Education Allowance	11.59	13.66
Audit Fee & Legal & Professional Charges	2.56	3.02
Total	211.37	206.04



Accounts Officer
NITTTR, Chandigarh



Director
NITTTR, Chandigarh



Annexure 5 (Schedule 8)
Loans, Advances & Deposits

(Rs. In Lakhs)

Particulars	Current Year 2022-2023	Previous Year 2021-2022
A. On Capital Account		
Adv ETV Media Building	0.39	0.39
Staff Qtrs 1995-96	2.23	2.23
Staff Qtrs 1996-97	7.78	7.78
Advance to BSNL	35.74	325.02
Advance to CPWD	78.17	228.23
Advance OH-35 Capital	5.91	0.00
Sub Total (A)	130.21	563.64
B. Others		
TDS	239.47	36.65
Advance to Firms/Tax Appeal	0.00	0.00
Advance to Firms/Tax 2011-12	0.00	0.00
Recoverable from Bank - Earmarked fund NPS	3.39	3.39
Debit Balance of Consultancy Projects	32.47	0.00
Sub Total (B)	275.32	40.03
Total	405.53	603.68

ASW

Accounts Officer
NITTTTR, Chandigarh

[Signature]

Director
NITTTTR, Chandigarh



Annexure 7 (Schedule 13)
Other income - Misc. Receipts

(Rs. In Lakhs)

Particulars	Current Year 2022-2023	Previous Year 2021-2022
Misc. Receipt	7.80	-1.28
Overhead Charges	106.68	57.79
Recruitment Fee	-2.71	0.55
Sale of Old Material	2.37	6.75
STC Regd Fee	13.40	10.18
PNB Rent	3.20	1.60
TDS-Rent PNB	0.23	0.00
Total	130.97	75.58

Annexure 8 (Schedule 15)
Staff Payments & benefits - Salaries & Wages

(Rs. In Lakhs)

Particulars	Current Year 2022-2023	Previous Year 2021-2022
Commutations	102.20	63.74
Pension	799.88	744.04
PDA	3.90	3.52
Faculty	629.53	634.89
Faculty (NPS)	728.75	710.04
Non Faculty	512.67	548.43
Non Faculty (NPS)	136.96	77.19
Misc Deduction From Salary	-1.13	-3.88
Outsource Salary	264.81	272.05
Total	3177.57	3050.03

Annexure 9 (Schedule 15)
Contribution to Other fund - NPS, Gratuity, Leave Enc.

(Rs. In Lakhs)

Particulars	Current Year 2022-2023	Previous Year 2021-2022
GRATUITY	445.17	-283.83
LEAVE ENCASHMENT	24.61	7.23
LEAVE ENCASHMENT TO RETIREES	250.69	94.55
NPS INSTITUTE SHARE	115.46	99.65
Total	835.92	-82.40


Accounts Officer
NITTR, Chandigarh


Director
NITTR, Chandigarh



Annexure 10 (Schedule 15)
Staff Payments & benefits - TA/DA

(Rs. In Lakhs)

Particulars	Current Year 2022-2023	Previous Year 2021-2022
DA	24.49	13.74
TA	7.49	2.88
Total	31.98	16.61

Annexure 11 (Schedule 16)
Academic Expenses - Seminar/Workshop

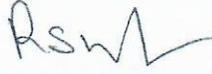
(Rs. In Lakhs)

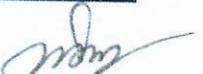
Particulars	Current Year 2022-2023	Previous Year 2021-2022
Annual day/ cultural prog.	3.04	2.08
Annual sports	5.42	1.55
Independence Day	1.16	0.62
PDA	2.72	1.02
Republic Day	0.67	0.05
Hindi day	1.02	0.88
Total	14.02	6.21

Annexure- 12 (Schedule 16)
Expenditure on STC/ICT

(Rs. In Lakhs)

Particulars	Current Year 2022-2023	Previous Year 2021-2022
TA- Training	28.25	3.95
Honourium -Academic	73.23	31.65
Academic Contengencies	1.67	0.04
Total	103.14	35.65


Accounts Officer
NITTTR, Chandigarh


Director
NITTTR, Chandigarh



Annexure 13 (Schedule 17)
ADMINISTRATIVE & GENERAL EXPENSES
OTHERS (SPECIFY)

(Rs. In Lakhs)

Particulars	Current Year 2022-2023	Previous Year 2021-2022
BOG MEETING	3.19	3.33
COVID - 19	-0.49	0.99
IFDI A.Cell	-0.05	0.00
Liveries	0.00	1.08
Office Contg.	21.72	16.52
Golden Jubilee(RD)	0.55	0.00
Ground Rent	0.73	0.00
Service Charges NPS	0.07	0.12
Income Tax Appeal	0.00	1.00
Loss Due Write of Capital Assests	0.00	0.09
Loss of Books Library	0.00	0.12
Total	25.72	23.25

Annexure 14 (Schedule 19)
REPAIRS & MAINTANENCE - OTHERS (SPECIFY)

(Rs. In Lakhs)

Particulars	Current Year 2022-2023	Previous Year 2021-2022
Mtc Academic Cell	0.27	0.52
Mtc. Applied Science	2.38	0.55
Mtc. CDC	0.46	0.54
Mtc. Civil	5.03	4.42
Mtc. Computer	1.48	1.22
Mtc ECE	2.18	0.97
Mtc. EDIC	0.38	0.20
Mtc. Electrical	4.89	1.95
Mtc EMGT	0.18	0.32
Mtc. IMCO	1.12	0.49
Mtc ISO	0.00	0.78
Mtc Library	1.74	1.16
Mtc. Media	8.56	4.72
Mtc. R/D	0.10	0.18
Total	28.76	18.03

ASWL
Accounts Officer
NITTTR, Chandigarh

[Signature]
Director
NITTTR, Chandigarh



Annexure 15
Sponsored Project Balance Details as on 31.03.2023

S.No.	Plan No.	Bank Name	Accounts No.	Opening Balance 01.04.2022	Expenditure for the year 2022-23	Bank Balance as on 31.03.2023	Name of Coordinator and Remarks
1	(SP-38)	PNB-26	3249000103070131	Rs.6,73,415 (Inst) Rs.12862	Rs.6,82,877	3,400	Dr. Balwinder Raj
2	(SP-65)	PNB-26	3249000103071334	Rs. 3,35,000 (Inst) Rs. 6973	Rs.1,04,409	2,48,953	Dr. Rupinder Singh
3	(SP-66)	PNB-26	3249000103071307	Rs. 3,35,000 (Inst) Rs. 6889	Rs. 1,01,311	2,40,580	Dr. Rupinder Singh
4	SP-72	PNB -26	3249000103071343	Rs. 9,98,957 (Inst) Rs. 14021	Rs. 8,55,472	1,57,506	Dr. Balwinder Raj
5	SP-73	PNB-26	3249000103071467	Rs. 3,35,000 (Inst) Rs. 991	Nil	3,35,992	Dr. SS Dharmi
6	(SP-44)	Axis Bank-26	916010009475431	Rs.66,46,195 (Inst) Rs. 1,51,771	Rs.21,82,095	46,08,061	Dr. B S Pabla
7	(IC-02)	Axis Bank-26	921010019909870	Rs.3,72,789 (Inst) Rs. 15,308	Nil	3,88,097	Dr. Sanjay Sharma
8		ICICI-09 (PFMS)	1301057510				Dr. Rupinder Singh
Total						59,82,589	
				Bank Balance in Lakhs		59.83	

RSW

Accounts Officer
NITTTR, Chandigarh

RSW

Director
NITTTR, Chandigarh



NATIONAL INSTITUTE OF TECHNICAL TEACHERS' TRAINING AND RESEARCH
Sector - 26, Chandigarh
Receipts and Payment Account for the Period Ended 31.03.2023

A. RECEIPTS

(Rs In Lakhs)

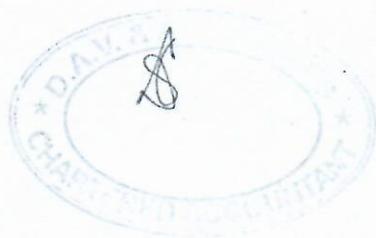
S.No.	Particulars	Annexure	FY 2022-2023	FY 2021-2022
I	Opening Balance			
	A) Cash Balance		3.56	3.67
	B) Bank Balance			
	- In Current Account			
	- In Deposit Account		4860.05	6472.63
	- In Saving Account		1369.89	840.70
II	Grant Received			
	A) From Government of India	1	5450.00	3258.00
	B) From State Government			
	C) From Other Sources			
III	Academic Receipts	2	200.36	202.88
IV	Receipts against Earmarked Endowment Funds	3	77.04	67.68
V	Receipts against Sponsored Projects / Schemes	4	226.80	132.33
VI	Receipts against Sponsored Fellowships & Scholarships	-		
VII	Income on Investments from A) Earmarked / Endowment Fund B) Other Investments	-		
VIII	Interest Received on A) Bank Deposit B) Loan & Advances C) Savings Bank Accounts	5	259.48	217.01
IX	Investment Encashed	-		
X	Term Deposit with Scheduled Bank Encashed	-		
XI	Other Income (Including Prior Period Income)	6	329.48	207.24
XII	Deposits & Advances	7	1506.39	703.09
XIII	Miscellaneous Receipts including Statutory Receipts	8	1115.04	941.83
XIV	Any Other Receipts	9	104.24	81.76
	TOTAL		15502.33	13128.82

Dated:-

Place:- Chandigarh

RSW
Accounts Officer
NITTTR, Chandigarh

nmj
Director
NITTTR, Chandigarh



B. PAYMENTS

(Rs In Lakhs)

S.No.	Particulars	Annexure	FY 2022-2023	FY 2021-2022
I	EXPENSES			
	- Establishment Expenses	10	3905.38	3384.43
	- Academic Expenses	11	53.36	55.91
	- Administrative Expenses	12	148.05	132.83
	- Transportation Expenses			
	- Repair & Maintenance	13	116.67	83.73
	- Prior Period Expenses			
II	Payment against Earmarked / Endowment Funds	14	0.00	0.00
III	Payments against Sponsored Project / Scheme	15	149.52	167.43
IV	Payments against Sponsored Fellowships / Scholarships	-		
V	Investments and Deposit Made	-		
	A) Out of Earmarked / Endowment Fund			
	B) Out of Own Funds (Investment Other)			
VI	Term Deposits with Scheduled Bank	-		
VII	Expenditure on Fixed Assets and Capital Work In Progress	-		
	A) Fixed Assets	16	88.19	467.37
	B) Capital Work In Progress			
VIII	Other Payments Includings Statutory Payments	17	1278.37	1140.79
IX	Refunds of Grants			
X	Deposits and Advances	18	770.75	1403.89
XI	Other Payments	19	53.82	58.92
XII	Closing Balances			
	A) Cash In Hand		2.48	3.56
	B) Bank Balances			
	- In Current Accounts			
	- In Saving Accounts		1833.25	1369.89
	- In Deposits Accounts		7102.48	4860.05
	TOTAL		15502.34	13128.82

Dated:-

Place:- Chandigarh

ASW
Accounts Officer
NITTTR, Chandigarh

nm
Director
NITTTR, Chandigarh



NATIONAL INSTITUTE OF TECHNICAL TEACHERS' TRAINING AND RESEARCH
Sector - 26, Chandigarh

1. Grants Received (Rs In Lakhs)

Particulars	FY 2022-2023	FY 2021-2022
Grant in Aid Capital OH 35	1300.00	500.00
Grant in Aid General (OH31)	1650.00	1100.00
Interest Income on Grant (OH31)	0.00	58.00
Grant Salary OH-36	2500.00	1600.00
	5450.00	3258.00

2. Academic Receipts (Rs In Lakhs)

Particulars	FY 2022-2023	FY 2021-2022
C01 ME	200.36	202.88
	200.36	202.88

3. Receipts against Earmarked Endowment Funds (Rs In Lakhs)

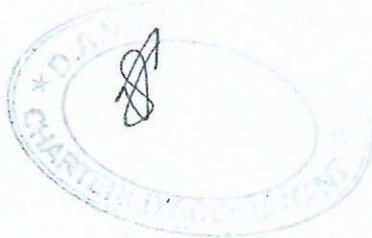
Particulars	FY 2022-2023	FY 2021-2022
Corpus Fund	19.26	16.92
Equipment Replacement Fund	19.26	16.92
Faculty Development Fund	19.26	16.92
Maintenance Fund	19.26	16.92
	77.04	67.68

4. Receipts against Sponsored Projects / Schemes (Rs In Lakhs)

Particulars	FY 2022-2023	FY 2021-2022
As Per Annexure - a	226.80	132.33
	226.80	132.33

Rswl
Accounts Officer
NITTTR, Chandigarh

nmj
Director
NITTTR, Chandigarh



5. Interest Received on

(Rs In Lakhs)

Particulars	FY 2022-2023	FY 2021-2022
A. Bank Deposits		
Interest From Bank	257.29	214.10
B. Loan & Advances		
Interest on Advances	1.43	0.28
C. Loan & Advances - Others		
Grant Interest PFMS	0.76	2.62
Interest on Refunds		
	259.48	217.01

6. Other Income (Including Prior Period Income)

(Rs In Lakhs)

Particulars	FY 2022-2023	FY 2021-2022
BOOKING OF AUDITORIUM	12.71	0.17
Booking of Board Room	0.00	0.00
Booking Committee Room	1.09	0.00
Booking of Conference Hall	0.99	0.00
Rent From Dinning Hall	2.78	0.06
BOOKING OF EXAMINATION HALL	0.00	0.00
Booking of Syndicate Room	0.00	0.00
HRR	26.97	32.97
Receipt of Institute Share	129.55	98.57
NC-4(RD)	0.00	0.00
Sale of Publication	0.00	0.32
Misc Receipt	7.80	-1.28
Overhead Charges	106.68	57.79
Projector Charges	0.00	0.00
Recruitment Fee	-2.71	0.55
Rent From Guest House	20.12	-4.56
Rent From Hostel Rooms	4.08	4.07
Rent From Mess/Canteen	0.20	0.06
RTI	0.00	0.00
Sale of Old Newspaper and Magazine	0.00	0.00
Sale of Old Material	2.37	6.75
STC Regd Fee	13.40	10.18
Students Training	0.00	0.00
PNB Rent	3.43	1.60
Suspension Account	0.00	0.00
	329.48	207.24

7. Deposits & Advances

(Rs In Lakhs)

Particulars	FY 2022-2023	FY 2021-2022
Consultancy Projects	1477.70	655.08
(As Per Annexure - b)		
Temporary Advance	16.08	13.49
Festival Advance	0.00	0.41
Loan for Car	0.41	0.26
Loan for Computer	0.07	0.07
Loan for HBA	0.02	0.00
Advance to Firms Tax 2011-12	0.00	1.00
Income Tax Receivable	10.91	32.79
Advance Loading Money in C.Cards	0.60	0.00
Cash & Bank Balance GOI Restricted Fund	0.60	
	1506.39	703.09

Rsm L
Accounts Officer
NITTR, Chandigarh

mbro
Director
NITTR, Chandigarh

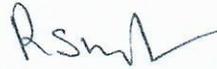


8. Miscellaneous Receipts including Statutory Receipts**(Rs In Lakhs)**

Particulars	FY 2022-2023	FY 2021-2022
Duties & Taxes		
CGST	25.30	21.44
IGST	208.60	75.35
Reverse GST	0.00	0.50
UTGST	25.30	21.44
GST Withheld of BSBL(Renovation)	0.00	0.00
Income Tax Experts	11.39	8.26
Income Tax Firms	6.17	13.82
Income Tax Retirees	40.39	33.55
Income Tax Staff	395.44	374.50
TDS -CGST	4.70	4.11
TDS -SGST	4.70	4.11
TDS-IGST	23.89	16.19
CPF EMPLOYER SHARE	0.00	
GIS	15.18	11.44
GPF	333.82	339.70
LIC	4.89	5.81
R&FW	0.06	0.06
Staff Welfare Fund	15.22	11.55
	1115.04	941.83

9. Any Other Receipts**(Rs In Lakhs)**

Particulars	FY 2022-2023	FY 2021-2022
Interest on Grant 31 Payable	51.58	0.00
Alumini Association	1.92	1.02
Distribution Fund	36.79	27.11
Earnest Money	4.16	6.05
Royalty to Authors	0.03	0.01
Security of Firms	9.31	15.08
Sundry Creditors	0.16	0.32
CREST CHD SOLAR PLANT	0.29	32.18
	104.24	81.76



Accounts Officer
NITTTR, Chandigarh



Director
NITTTR, Chandigarh



10. Establishment Expenses**(Rs In Lakhs)**

Particulars	FY 2022-2023	FY 2021-2022
REVENUE (NON SALARY)		
OH-31 (TRAINING & PENSION)		
Academic Cont	1.67	0.04
Honorarium (Training)	73.23	31.65
TA (Training)	28.25	0.69
Regular Pension	795.52	734.47
Outsource Salary	262.13	271.59
Interest Paid on Grants	79.63	
OH-36 (SALARY)		
Commutation	102.20	63.74
Gratuity	262.24	92.68
Leave Encashment to Retirees	66.39	59.91
TA to Retirees	2.98	0.83
SALARY PART-A		
Salary Faculty	1351.36	1325.22
Salary Non Faculty	651.81	617.89
DA	24.49	13.74
SALARY PART-B		
Children Education Allowance	13.66	14.13
Leave Encashment	24.61	7.23
LTC	11.68	8.39
Medical	31.57	35.31
NPS both Share	115.46	99.65
PDA	3.90	3.52
Liveries -MSA	0.00	1.08
NPS Service Charges	0.07	0.12
CPF Institute share	2.54	2.54
	3905.38	3384.43

11. Academic Expenses**(Rs In Lakhs)**

Particulars	FY 2022-2023	FY 2021-2022
C01 ME	53.36	55.91
	53.36	55.91

Rsm
Accounts Officer
 NITTTR, Chandigarh

ndm
Director
 NITTTR, Chandigarh



12. Administrative Expenses

(Rs In Lakhs)

Particulars	FY 2022-2023	FY 2021-2022
REVENUE (NON SALARY)		
Contribution to reserve Fund	77.04	67.68
NON SALARY		
Advertisement	1.80	5.28
Annual Day	3.04	2.08
Annual Sports	5.42	1.55
BOG MEETING	3.19	3.33
Covid-19	-0.49	0.99
Golden Jubilee(RD)	0.55	0.00
Ground Rent	0.73	0.00
Hindi Day	1.02	0.88
IFD 1 / PDA-1	-0.05	0.00
Independence Day	1.16	0.62
Library Journal	0.44	0.00
Livery	0.00	0.00
Medicine	0.15	0.10
Newspaper & Periodicals	0.00	0.01
Office Contingency	21.72	16.52
Postage	0.50	0.37
Property Tax	5.36	4.24
Printing & Stationary	5.24	6.55
TT Charges	2.84	2.55
Professional & Audit Fees	2.95	6.33
Republic Day	0.67	0.05
PDA	2.72	1.02
Honorarium	2.15	5.33
TA -Non Salary	7.49	2.88
Income Tax Appeal	0.00	1.00
Loss Due Write of Capital Assests	0.00	0.09
Loss of Books Library	0.00	0.12
Training Non Faculty	2.41	3.26
IFDI A CELL	0.00	0.00
	148.05	132.83

Rswl

**Accounts Officer
NITTTR, Chandigarh**

ndm

**Director
NITTTR, Chandigarh**



13. Repair & Maintenance**(Rs In Lakhs)**

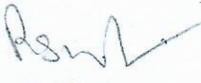
Particulars	FY 2022-2023	FY 2021-2022
Mtc Academic Cell	0.27	0.52
Mtc Applied Sc	2.38	0.55
Mtc Building	9.92	9.06
Mtc Campus	2.36	1.30
Mtc Cdc	0.46	0.54
Mtc Civil	5.03	4.42
Mtc Computer	1.48	1.22
Mtc ECE	2.18	0.97
Mtc EDIC	0.38	0.20
Mtc Electrical	4.89	1.95
Mtc Electrical Lab	0.64	0.87
Mtc EMGT	0.18	0.32
Mtc ETV	0.00	0.00
Mtc Furniture	0.77	0.87
Mtc Guest House	3.04	0.93
Mtc Hostel	5.05	4.56
Mtc IMCO	1.12	0.49
Mtc Internet Connectivity	0.00	0.00
Mtc ISO	0.00	0.78
Mtc Lib	1.74	1.16
Mtc Mechanical	2.08	2.39
Mtc Media	8.56	4.72
Mtc R/D	0.10	0.18
Mtc Refrigeration & A.C	6.64	6.33
Mtc Sports	0.00	0.00
Mtc Telephone	1.38	1.33
Mtc Vehicle	5.00	1.75
Mtc Water & Electricity Charges	51.04	36.32
	116.67	83.73

14. Payment against Earmarked / Endowment Funds**(Rs In Lakhs)**

Particulars	FY 2022-2023	FY 2021-2022
CORPUS FUND	0.00	0.00
Equipment Replacement Fund	0.00	0.00
FACULTY DEV FUND	0.00	0.00
MAINTENANCE FUND	0.00	0.00
	0.00	0.00

15. Payments against Sponsored Project / Scheme**(Rs In Lakhs)**

Particulars	FY 2022-2023	FY 2021-2022
SPONSORED PROJECTS		
As Per Annexure - a	149.52	167.43
	149.52	167.43


 Accounts Officer
 NITTTR, Chandigarh


 Director
 NITTTR, Chandigarh

16. Expenditure on Fixed Assets and Capital Work In Progress

(Rs In Lakhs)

Particulars	FY 2022-2023	FY 2021-2022
Equipments (OH-35 Capital)		
Equipment -Academic Cell	0.20	2.94
Equipment - Sports	0.00	0.00
Equipment-Applied Sc	1.98	0.00
Equipment-Building	3.08	0.08
Equipment-CDC	1.66	0.01
Equipment-Civil	1.75	17.64
Equipment-Computer	57.54	23.28
Equipment-ECE	5.00	1.71
Equipment-EDIC	0.55	0.12
Equipment-Elect Mtc	0.39	0.01
Equipment Electrical Deptt	47.01	6.96
Equipment ESC	0.00	20.62
Equipment Estate Office	0.02	2.15
Equipment-Guest House	0.04	0.00
Equipment-Lib	2.60	0.00
Equipment Hostel	2.21	0.95
Equipment-IMCO	8.23	13.38
Equipment-Mechanical	2.39	19.65
Equipment-Media	5.41	3.92
Equipment-Office	1.06	0.66
Equipment- Ref & Aircondining	0.00	0.00
Equipment Telephone	0.00	0.30
Advance Renovation (BSNL)	-74.26	-69.94
Advance to CPWD	-150.06	214.38
Renovation of 42 Campus Quarters	63.71	0.00
Renovation- Institute Building	85.17	125.39
Renovation Work in Progress	0.00	0.00
Furniture	1.83	15.90
Applied Sc-Intenqable Assets	0.00	2.49
Civil-Intenqable Assets	0.00	5.90
Comp-Intenqable Assets	2.99	39.75
Office-Intenqable Assets	0.15	0.00
IMEE-Intenqable Assests	0.00	6.49
Library-Intenqable	9.89	8.83
Library Books	1.43	1.91
Capital Equipment/Library Book	0.00	-0.28
Lib E Journal	0.30	2.17
ADVANCE -OH 35 CAPITAL	5.91	0.00
	88.19	467.37

Rsm

Accounts Officer
NITTTR, Chandigarh

mdm

Director
NITTTR, Chandigarh



17. Other Payments Including Statutory Payments**(Rs In Lakhs)**

Particulars	FY 2022-2023	FY 2021-2022
CGST	22.93	18.00
IGST	139.19	239.08
Reverse GST	0.50	0.00
UTGST	22.93	18.00
GST Withheld of BSBL(Renovation)	0.00	0.00
Income Tax Experts	11.55	8.00
Income Tax Firms	5.41	13.22
Income Tax Retirees	40.39	33.55
Income Tax Staff	398.61	373.34
TDS-CGST	6.09	4.63
TDS-SGST	6.09	4.63
TDS-IGST	42.55	15.56
Income Tax Receivable	211.07	26.68
TDS on FDR	2.66	12.32
GIS	15.18	11.46
GPF	333.82	339.70
LIC	4.89	5.81
R&FW	0.06	0.06
STAFF WELFARE FUND	14.47	16.76
	1278.37	1140.79

18. Deposits and Advances**(Rs In Lakhs)**

Particulars	FY 2022-2023	FY 2021-2022
Consultancy Project (As Per Annexure - b)	757.63	1388.85
Temporary Advance	13.12	15.04
	770.75	1403.89

19. Other Payments**(Rs In Lakhs)**

Particulars	FY 2022-2023	FY 2021-2022
DISTRIBUTION FUND	30.67	44.40
EARNEST MONEY	4.70	10.65
WELFARE FUND ME STUDENTS	0.00	0.00
Security of Firms	18.44	3.80
Sundry Creditors	0.00	0.06
	53.82	58.92

RSW
Accounts Officer
NITTTR, Chandigarh

mbm
Director
NITTTR, Chandigarh



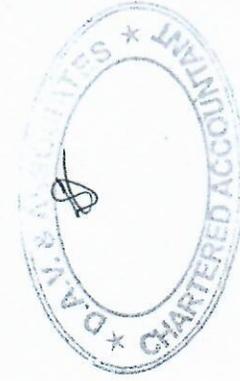
NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH, CHANDIGARH

BALANCE SHEET NEW PENSION SCHEME AS AT 31.03.2023

		(Rs. In Lakhs)			
LIABILITIES	Current Year 2022-2023	Previous Year 2021-2022	ASSETS	Current Year 2022-2023	Previous Year 2021-2022
NPS Tier-I			(Rupees in lakh)		
Opening Balance	(1.76)	(1.76)	Subscription and Contribution due for 31/03/2020		
Less: Sub. for 31/03/18	197.65	171.57	Investment		
Add: Sub + U Contribution	(197.65)	(171.57)	Interest accrued but not due		
Add: Interest Credited	(1.76)	(1.76)	Balance at SBOP		
Less: Transfer to NSDL			Recoverable from Main Account		
Add: Sub. + UC for 31/03/19				3.39	3.39
Balance with Main Accounts					
Opening Balance	2.34	2.34			
Add: During the year	0	0.00			
	2.34	2.34	Amount Recoverable from bank		
Excess of Income over Expenditure					
Opening Balance	2.81	2.81			
Add: During the year	0.00	0.00			
	2.81	2.81			
Total	3.39	3.39	Total	3.39	3.39

Rsw

Accounts Officer
NITTR, Chandigarh



ms

Director
NITTR, Chandigarh

NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH, CHANDIGARH

**Receipt And Payment Account
For the Financial year 2022-23**

(Rs. In Lakhs)

Receipts	Current Year 2022-2023	Previous Year 2021-2022	Payments	Current Year 2022-2023	Previous Year 2021-2022
Opening balance			Investments		
NPS Tier -I A/c	82.35	72.01	Withdrawals	197.65	171.57
Own Sbscription	115.29	99.56	Service Charges		
University Contribution			Paid to Tejwant		
Refund from NSDL (Tejwant)			Closing Balance		
Interest Received on Investment					
Interest on Savings bank Account					
Invstment encashed					
Paid From Main Accounts					
Total	197.65	171.57	Total	197.65	171.57

RSNL

**Accounts Officer
NITTTR, Chandigarh**

ndm

**Director
NITTTR, Chandigarh**



**NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
SECTOR-26, CHANDIGARH
BALANCE SHEET GPF/CPF AS AT 31.3.2023**

(Rs In Lakhs)

P.Y	LIABILITIES	C.Y.		P.Y	ASSETS	C.Y.
	<u>GPF</u>			2562.81	Investment	2760.62
	Opening Balance	2334.95		117.34	Int. accrued as on 31.03.23	30.15
	Add: Subscription in the year	330.82			Subscription due for march	
	Add: Sub for March	0.00			GPF	
	Add: Interest credited	189.03			CPF	
	Add: Reconciliation GPF	0.00			UC due to CPF	
	Less: Subscription for	0.00			NPS-II	
	Less: Advance/ Withdrawal	427.43			Tax recoverd from interest on	
2334.95	Closing Balance		2427.36		Investments pending refund	
					Income Tax Department	
	<u>CPF</u>				<u>Cash at Bank</u>	
	Opening Balance	195.75		135.40	Indian Bank	37.40
	Less: Opening Adjustment	0.00				
	Add: Subscription in the year	3.00				
	Add: Sub for March 2018	0.00				
	Add Interest credited	13.65				
	Less: Subscription for March	0.00				
	Less: Advance/ Withdrawal	13.66				
195.75	Closing Balance		198.75	0.00	Sundry Recoverable	0.00
	<u>Institute Contribution(CPF)</u>					
	Opening Balance	114.93				
	Add: Subscription in the year	2.54				
	Add: Sub for March 2018	0.00				
	Add: Interest credited	7.76				
	Add: Reconciliation CPF	0.00				
	Less: Adjustment for Advance	0.26				
	Less: Advance/ Withdrawal	5.86				
114.93	Closing Balance		119.11			
	<u>NPS Tier-II Account</u>					
	Opening Balance	0.00				
	Add: Subscription in the year	0.00				
	Add: Sub for March 2018	0.00				
	Add: Interest credited	0.00				
	Less: Subscription	0.00				
0.00	Less: Advance/ Withdrawal	0.00				
	Closing Balance		0.00			
	<u>Interest Reserve</u>					
	Opening Balance	169.91				
	Add: Reconciliation	0.26				
	Add: Excess of Income over					
	expenditure	-87.23				
169.91	Closing Balance		82.95			
	Dead Account		0.00			
2815.55	Total		2828.17	2815.56	Total	2828.17



*Accounts Officer
NITTTR, Chandigarh.

Director
NITTTR, Chandigarh

Receipts and Payments Account
For the Year ended 31.03.202

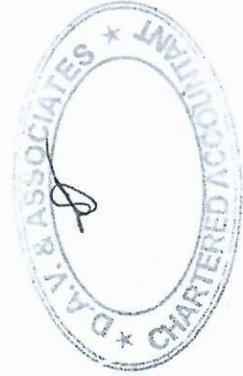
P.Y Receipts		C.Y	P.Y Payments	C.Y.
2556.64	Opening Balance	2698.20	GPF Adv./withdrawal	427.43
0.00	Opening Difference	0.00	CPF Adv./withdrawal	13.66
	SBI Branch-II		NPS Tier-II Account	
	Bank		University Contribution	
			Withdrawal	5.86
336.70	GPF Subscription	330.82	Investment	
3.00	CPF Subscription	3.00	Bank Charges	0.04
2.54	CPF University Contribution	2.54	Closing Balance:	
	NPS Tier-II Account		SBI branch-I	2798.01
	Investment Encashed		SBI branch-II	
61.85	Interest Received	210.44	Bank	
2960.74		3245.00		3245.00

RSW

Accounts Officer
NITTTR, Chandigarh.

ndn

Director
NITTTR, Chandigarh



**NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
SECTOR-26, CHANDIGARH**

CASH BOOK ACCOUNT GPF/CPF AS AT 31.3.2023

(Rs. In Lakhs)

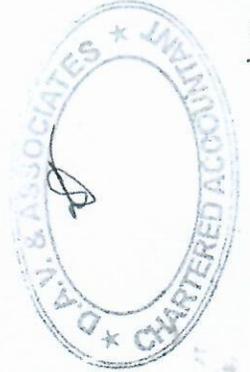
P.Y.	Particulars	C.Y.
2556.64	Opeining Balance as on 01.04.2022	2698.22
	Subscription during the year	
	GPF as per ledger	330.82
	CPF as per ledger	3.00
	CPF Instt. Contribution	2.54
342.24	Investment	0.00
	336.36	
61.85	Add: Intt. On S/A & FDR	210.44
	Less:	
	GPF Withdrawl	427.43
	CPF - Employer	5.86
	CPF - Employee	13.66
	Bank Charges	0.04
262.53	Institute share	0.00
	GPF Loan from Main	0.00
	446.99	
2698.20	Total	2798.02

[Signature]

**Accounts Officer
NITTTR, Chandigarh.**

[Signature]

**Director
NITTTR, Chandigarh**



**NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
Sector – 26, Chandigarh**

ACCOUNTING POLICIES

SCHEDULE 23

1. The Accounts have been maintained in the format as prescribed by the Government of India, Ministry of Human Resource Development; vide their letter No. 29-4/2012-FD dated 17th April 2015, issued by the Under Secretary to the Govt of India.
2. The Accounts have been prepared on accrual basis.
3. Depreciation on fixed Assets has been provided on Straight Line Method on the rates specified as per Formats of Financial Statements for Central Higher Educational Institutions of India. Assets, the individual value of each of which is Rs. 2000 or less (except Library Books) are treated as Small Value Assets, 100% depreciation is provided in respect of such assets at the time of their acquisition.
4. The Fixed Assets are stated at cost of acquisition including inward freight, duties and taxes and incidental and direct expenses related to acquisition, installation and commissioning. The fixed assets purchased out of sponsored projects and restricted projects are booked by credit to Capital fund and merged with Fixed Assets of the Institution.
5. Expenditure on purchase of stores is accounted as revenue expenditure, except that the value of closing stock held on 31st March is set up as inventories by reducing the corresponding Revenue Expenditure on the basis of information obtained from Departments. They are valued at cost
6. (i) The Institute receives grants-in-aid from Government of India under Capital & Revenue schemes to meet the expenditure on salaries of employees, pension to retirees, traveling expenses for training of technical teachers and purchase of store/equipments etc. against Institute's annual budget approved by the Board of Governors. The funds, if remained unutilized at the end of the financial year, are carried over to the following financial year with the approval of the Government of India.

(ii) For specific projects, unspent balance/funds, if any, are refunded to the concerned sponsoring agencies/departments after the completion of the respective Project.
7. Institute receives funds against Sponsored Projects and Consultancy Project which are shown as deposits in Schedule 3a. The Institute recognizes its income on completion of project/consultancy.

8. Institute makes provision of employee benefits such as Leave Encashment and Gratuity on Acturial basis.
9. The Board of Governors delegated powers jointly to the Director and the Accounts Officer of the Institute to approve and sign the Annual Accounts of the Institute before submission to Audit Officer vide Item No. B.4.4.8 in their meeting held on 27.01.2006.



Accounts Officer
NITTTR, Chandigarh



Director
NITTTR, Chandigarh



NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
Sector – 26, Chandigarh

NOTES ON ACCOUNTS

SCHEDULE 24

1. This is a non-commercial organization and Income Tax is not applicable as in the case of Universities or other Educational Institutions existing solely for education purpose and not for the purpose of profit and which are wholly or substantially financed by the Government under Section 10(23C)(iiiab).
2. The details of funds maintained by Institute:

1. Corpus Fund

(Amount in Lakhs)

Particulars	Current Year	Previous Year
Opening Balance	8926.43	8750.84
Add: Addition in Fund	598.67	175.59
Less: Utilization of Fund	-	-
Closing Balance	9525.10	8926.43

The addition to Corpus fund is on account of Grant received from Ministry for Capital expenditure.

2. General Fund

(Amount in Lakhs)

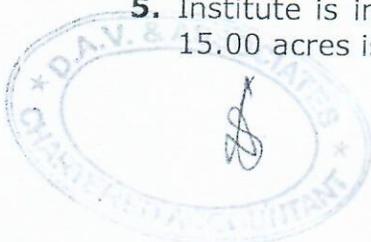
Particulars	Current Year	Previous Year
Opening Balance	(2811.01)	(2966.48)
Add: Overutilised OH31 transfer of previous year	0.00	0.00
Less: Utilization of Fund	(414.12)	155.48
Closing Balance	(3225.13)	(2811.01)

3. Designated/ Earmarked Fund

(Amount in Lakhs)

Particulars	Current Year	Previous Year
Opening Balance	2819.08	2612.35
Add: Addition in Fund	657.26	642.18
Less: Utilization of Fund	644.64	435.46
Closing Balance	2831.70	2819.08

4. This is to certify that there is an unspent balance of Rs. 3411.98 Lakhs (which includes OH36 – Rs. 708.58 Lakhs, OH31 - Rs. 1150.81 Lakhs and OH35 Rs. 1552.60 Lakhs).
5. Institute is in possession of land measuring 17.98 acres out of which 15.00 acres is held as free hold.



6. The Security towards ME students of Rs. 6.20 Lakhs is outstanding as on 31st March 2023.
7. Schedule one to Twenty Four are annexed to and form an integral part of the Balance Sheet as on 31.3.2023.
8. **Detail of Capital Work in Progress including capital advance till 31.03.2023 is as follows:**

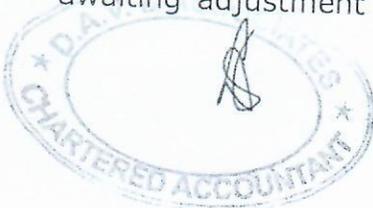
Purpose of Advance	Year	Amount (Rs in Lakhs)
Capital Work in Progress with Chd Admin (ETV Media Building)	2022-23	10.39
Advance for Renovation of Building (CPWD)	2022-23	78.17
Expenditure on Building Work In Progress (BSNL)	2022-23	35.74
Advance OH-35 Capital	2022-23	5.91
	Total	130.21

9. Amortization of lease premium on the basis of period of lease has been charged under rules.
10. Previous year's figures have been re-grouped and re arranged wherever considered necessary
11. The credit bifurcation of the Crest CHD solar plant ledger is currently awaited, specifically in relation to subsidy allocation and refund.
12. Capitalisation of Hostel expenses amounting Rs. 147.07 Lakhs And Staff Quarter expenses amounting Rs. 67.94 Lakhs is done as the possession handover but final bill is yet to be received.
13. Following are the Assets that are acquired under running sponsored projects:

Sr. No.	Particular of Asset	(Amount in Lakhs)	
		Cost of Asset	Remarks
1.	Differential Scanning Calorimetry with Accessories	21.86	SP-44
2.	SS Rector (Hydrothermal Bomb with Teflon Lining c-100ml)	0.15	SP-71
3.	Cadence Tools Bundle	8.55	SP-72
	Total	30.56	

Building Account

1. An advance of Rs. 10.69 Lakhs out of the advance amount deposited with Chandigarh Administration for construction of Staff Quarters is awaiting adjustment in Institute Accounts. The work has since been



completed and buildings handed over to the Institute. The certificate for having received the final payment from this Institute has been obtained from the Sub Divisional Engineer, W/s Sub Div. -3 Chandigarh. However, accounts in support of this expenditure are awaited from the concerned quarter.

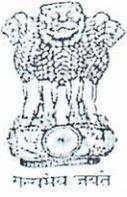


Accounts Officer
NITTR, Chandigarh



Director
NITTR, Chandigarh





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



सं/No: डी.जी.ए.(सी)/के. व्यय/SAR NIITTRC/2022-23/23-24

दि०/Dated: 08/09/23

सेवा में,

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

विषय: National Institute of Technical Teachers Training and Research, Chandigarh
के वर्ष 2022-23 के लेखाओं पर पृथक लेखापरीक्षा प्रतिवेदन

महोदय,

कृप्या National Institute of Technical Teachers Training and Research,
Chandigarh के वर्ष 2022-23 के लेखाओं पर पृथक लेखापरीक्षा प्रतिवेदन (Separate Audit
Report) संसद के दोनों सदनों के समक्ष प्रस्तुत करने हेतु सलंग्न पायें। संसद में प्रस्तुत होने तक
प्रतिवेदन को गोपनीय रखा जाए।

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

कृप्या इस पत्र की पावती भेजें।

भवदीय,

संलग्न: उपरोक्त अनुसार

— इरवि —

महानिदेशक

उपरोक्त की प्रतिलिपी वर्ष 2022-23 की पृथक लेखापरीक्षा प्रतिवेदन की प्रति सहित आवश्यक
कार्यवाही हेतु निदेशक, National Institute of Technical Teachers Training and Research,
Chandigarh, Sector 26, Chandigarh- 160019 को प्रेषित की जाती है।

भवदीय,

उप-निदेशक (केन्द्रीय व्यय)

IMPORTANT

(A) Dean - A & F
(II) ACO ✓

12.9.2023

**Separate Audit Report of the Comptroller & Auditor General of India on the
Accounts of the National Institute of Technical Teachers Training and Research,
Chandigarh for the year ended 31 March 2023**

We have audited the Balance Sheet of the National Institute of Technical Teachers Training and Research, Chandigarh as on 31 March 2023, Income & Expenditure Account and Receipts & Payments Account for the year ended on that date under Section 20(1) of the Comptroller & Auditor General's (Duties, Powers & Conditions of Service) Act, 1971. The audit has been re-entrusted for a period of five years from 2018-19 to 2022-23. These financial statements are the responsibility of the Institute's management. Our responsibility is to express an opinion on these financial statements based on our audit.

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

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

4. Based on our audit, we report that

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

ii) The Balance Sheet and Income and Expenditure Account/Receipts and Payments Account dealt with by this Report have been drawn up in the format prescribed by the Ministry of Human Resources Development, Government of India vide order No. 29-4/2012-FD dated 17 April 2015.

iii) In our opinion, proper books of accounts and other relevant record have been maintained by the National Institute of Technical Teachers Training and Research, Chandigarh, as required under Clause 19 (a) of the Memorandum of Association of the Institute, in so far as it appears from our examination of such books.

iv) We further report that:

A Balance Sheet

A.1 Capital/Corpus Fund

Corpus Fund (Schedule 1): Rs. 95.25 crore

Above included balances under following funds maintained by the Institute: -

Amount in Rs. lakh	
Name of Fund	Balance as on 31.03.2023
Equipment Replacement Fund	100.88
Faculty Development Fund	95.90
Maintenance Fund	96.53
Total	293.31

As these funds are being maintained for earmarked purposes, balances under these funds should have been shown under Earmarked/ Endowment Funds (Schedule 2) instead of Corpus Fund. This has resulted in overstatement of Capital/ Corpus Fund and understatement of Earmarked/ Endowment Funds by Rs. 293.31 lakh.

A.2 Fixed Assets (Schedule 4): Rs.45.56 crore

A.2.1 Buildings – Residential: Rs. 9.35 crore

- i. The building in respect of the work Renovation of Type – III (15 houses and Type –IV (08 houses) of NITTTR at Sector-42, Chandigarh was taken over by the Institute from BSNL, the constructing agency on 16.12.2022. It has been observed that the Institute capitalised an amount of Rs. 259.66 lakh (53.75+74.26+67.94+63.71) in the work against the amount released by it. However, actual expenditure incurred in the work was Rs. 272.89 lakh up to the 9th Running Bill and the final bill from the executing agency BSNL was not received by the Institute up to 31.03.2023. Thus, liability for balance amount payable of was Rs.13.23 lakh (272-89-259.66). The Institute has kept an amount

of Rs.35.74 lakh as pending advance with BSNL which is to be adjusted against the final bill of the agency.

However, the Institute has not provided the liability for balance amount payable to BSNL amounting to Rs.13.23 lakh as stated above. This has resulted in understatement of Fixed Assets by Rs. 12.97 lakh, understatement of depreciation by Rs. 0.26 lakh and understatement of Current Liabilities by Rs. 13.23 lakh.

- ii. It was pointed out in the previous year SAR that an expenditure in the above work amounting to Rs. 53.75 lakh was also capitalized in advance in the year 2019-20 though the work was not completed in 2019-20. As the building was taken over by the Institute on 16.11.2022, depreciation charged for three years (2019-20 to 2021-22) amounting to Rs. 3.23 lakh (Rs. 53.75 lakh x 2 percent x 3 years) should also have been reversed.

However, the Institute has not reversed the incorrect depreciation charged in the annual accounts for the year 2022-23. This has resulted in understatement of Fixed Assets as well as Capital/Corpus Fund by Rs. 3.23 lakh.

**A.2.2 Equipments: Rs.14.52 crore
Additions: Rs.1.41 crore**

- i. Above wrongly includes Computers and peripherals amounting to Rs.60.65 lakh. This has resulted in overstatement of Equipments by Rs.56.10 lakh (Rs.60.65 lakh less Rs.4.55 lakh depreciation @ 7.5 per cent), understatement of Computers by Rs.48.52 lakh (Rs.60.65 lakh less depreciation Rs.12.13 lakh @ 20 per cent), and undercharging of depreciation by Rs.7.58 lakh.
- ii. Above wrongly includes Software amounting to Rs.30.57 lakh. This has resulted in overstatement of Equipments by Rs.28.28 lakh (Rs.30.57 lakh less Rs.2.29 lakh depreciation @ 7.5 per cent), understatement of Computers by Rs.18.34 lakh (Rs.30.57 lakh less depreciation Rs.12.23 lakh @ 40 per cent), and undercharging of depreciation by Rs.9.94 lakh.
- iii. Above includes UPS/inverters amounting to Rs. 5.23 lakh which should have been booked under Furniture, Fixtures and Fittings as per the prescribed format of accounts.

A.3 Current Assets (Schedule 7)
Cash and Bank Balances
With Scheduled Banks
In saving accounts: Rs. 18.33 crore

Above included credit balances in following saving bank accounts as per the bank ledgers maintained:-

Amount in Rs. crore	
Indian Bank	2.65 credit balance
Indus Bank Difference	0.10 credit balance
SBI Difference	2.92 credit balance
Total	5.67

Credit balances in aforesaid bank ledgers represents liabilities to be paid by the Institute and these credit balances do not represent assets. As such these credit balances should have been shown on liability side of the Balance Sheet. This has resulted in understatement of Bank Balances (Assets) as well as Liabilities by Rs. 5.67 crore.

B. Income & Expenditure Account

B.1 Academic Receipts (Schedule 9): Rs. 147.00 lakh

As per the ledger of Academic Receipts, during the year 2022-23 total academic receipts were Rs. 200.36 lakh. Out of these academic receipts of Rs. 200.36 lakh, an expenditure of Rs. 53.36 lakh was incurred on various academic activities by the Institute. The expenditure by the Institute amounting to Rs. 53.36 lakh should have been shown as academic expenses on the expenditure side of Income & Expenditure Account. However, the Institute has netted the expenditure from the academic receipts and has shown Rs. 147.00 lakh (200.36-53.36) as income under Academic Receipts (schedule-9) in its annual accounts. This has resulted in understatement of Income as well as Expenditure by Rs.53.36 lakh.

B.2 Staff Payments & Benefits (Establishment Expenses) (Schedule 15): Rs. 41.87 crore
Others

Above included transfer of contribution to Reserve Fund out of IRG amounting Rs. 77.04 lakh. The Institute is maintaining four specific funds (i) Corpus fund, (ii) Faculty Development Fund, (iii) Equipment Replacement Fund and (iv) Maintenance Fund. An

amount of Rs. 19.26 lakh was transferred in the each of these funds by the Institute from its internal revenue generation (IRG). As this amount of Rs.77.04 lakh has only been transferred to specific funds; thus the same did not tantamount to/constitute expenditure, the same should not have been booked as expenditure in the Income & Expenditure Account; instead this amount of Rs. 77.04 lakh should have been transferred directly from Corpus Fund/ General Fund. This has resulted in overstatement of expenditure in the Income & Expenditure by Rs. 77.04 lakh, resultantly deficit was also overstated by Rs. 77.04 lakh.

C. Significant Accounting Policies and Notes to Accounts

C.1 Academic receipts

As per the MHRD prescribed format, tuition fee collected separately for each semester should be accounted for on accrual basis. A reference is invited to Accounting Policy at Sl.No. 2 (Schedule 23) which states that accounts have been prepared on accrual basis. However, it has been observed that the Institute is collecting Academic Receipts from its students of semester/ spells of various courses in two installments, for the periods of July to December and January to June, respectively.

To comply with accounting policy adopted of accrual basis, academic receipts for the period of April 2023 to June 2023 which were received by the Institute up to 31.03.2023 should have been calculated and segregated from the receipts on account of Academic Receipts during the financial year 2022-23 and should have been shown as Fee Received in Advance on the liability side of the Balance Sheet.

However, it has been observed that the Institute is booking all the academic receipts on receipt basis as income in the Income & Expenditure Account and there is no system to segregate the academic receipts which should not have been booked as income of that respective year. Thus, compliance of the instructions contained in the MHRD prescribed format as well as Accounting Policy adopted by the Institute was not made by the Institute.

C.2 Investments

As per the prescribed format of accounts, accounting policy in respect of valuation of Investments has to be disclosed. The Accounting Policy should disclose in relation to investments, their cost, depreciation and carrying value-both for long term & current

investments. Accounting Standard 13 issued by the ICAI also requires disclosure of the accounting policies for the determination of carrying amount of investments. However, no such policy has been disclosed by the Institute in the accounts.

Further, as per Accounting Standard 13, the cost of an investment includes acquisition charges such as brokerage, fees and duties. However, it was observed that the Institute did not include stamp duty in the value of investment shown in the accounts.

C.3 Assets acquired under the running Sponsored Projects

As per the prescribed format of accounts, assets created out of funds of Sponsored projects where the ownership of such assets vests in the Institution, are to be setup by credit to Capital Fund and merged with the Fixed Assets of the Institution. Depreciation is charged at the rates applicable to the respective assets. Assets created out of Sponsored Project funds, where the ownership is retained by the sponsors but held and used by the Institution are to be separately disclosed in the Notes on Accounts alongwith the details of notional depreciation thereon.

As per the Fixed Assets Register maintained by the Central Store of the Institute, assets valuing Rs.98.70 lakh were purchased out of the funds of Sponsored Projects during the year 2022-23. Of these, the Institute has disclosed assets amounting to Rs.30.56 lakh in the Notes to Accounts. The remaining assets of Rs.68.14 lakh have neither been included in the Fixed Assets Schedule nor have been disclosed in the Notes to Accounts in contravention to the prescribed format of accounts. Moreover, the details of notional depreciation, etc have not been disclosed even in respect of the assets amounting to Rs.30.56 lakh disclosed in the accounts.

The Institute needs to identify all the assets acquired out of funds of Sponsored projects on the Balance Sheet date and book/disclose the same in the Accounts as per the prescribed format of accounts depending on the terms and conditions set out by the respective sponsoring agencies

C.4 Contingent Liabilities

As per the information provided by the Legal Cell of the Institute, 28 cases were pending against the Institute before various courts as on 31.03.2023. This fact has not been

disclosed under Contingent Liabilities in contravention to the prescribed format of accounts.

D. General

D.1 Net Impact of Audit Comments

Net impact of Audit comments on the Annual Accounts of the Institute for the year ending 31 March 2023 is as under:

- i. Understatement of Assets by Rs. 5.66 crore.
- ii. Overstatement of Corpus/Capital Fund by Rs.3.08 crore.
- iii. Understatement of Liabilities for the year by Rs.8.74crore.
- iv. Overstatement of Surplus by Rs.0.18 crore.

D.2 Annexure to Schedule 7

As per the MHRD prescribed format of accounts, Annexure 7A for disclosing details of Bank Accounts (Saving and Current etc) and Term Deposits with Banks should be appended with the Current Assets Schedule-7. However, the Institute has not appended the Annexure 7A disclosing the bank accounts/ Term Deposits details contravening the MHRD prescribed format of accounts.

D.3 Furniture, Fixture & Electrical Installation: Rs.1.25 crore

As per the prescribed format of accounts, depreciation on Furniture, Fixtures and Fittings has to be charged at the rate of 7.5 per cent and depreciation on Electrical Installations has to be charged at the rate of 5 per cent. However, the Institute has included both the categories of assets under the above head and has charged depreciation at the rate of 5 per cent. The Institute needs to segregate the assets as per the categories mentioned in the prescribed format of accounts and charge depreciation accordingly as per the applicable rate.

D.4 Schedule 3C

As per the prescribed format, the Institute should have added capital advances in the unutilised capital grant in the Schedule 3C. However, the Institute has directly shown capital advances of Rs. 1.30 crore as unutilised grant portion in the Schedule 3 instead of added these capital advances in the grant balances in the Schedule 3C.

E. Grant in Aid

The position of Grant-in-Aid for the financial year 2022-23 is as follows:

Particulars	Amount in Rs. crore			
	OH-31	OH-35	OH-36	Total
Opening Balance (excluding advances)	7.41	9.04 ^[1]	8.74	25.19
Add: Grant received during the year	16.5	13	25	54.5
Total funds available	23.91	22.04	33.74	79.69
Less: Utilization during the year	12.4	5.22 ^[2]	26.65	44.27
Unutilized balance as on 31.03.2022	11.51	16.82^[3]	7.09	35.42

F. Management Letter

Deficiencies which have not been included in the Audit Report have been brought to the notice of the Management, through a management letter issued separately for remedial corrective action.

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

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

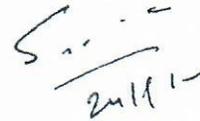
[1] As per Schedule 3C, the Institute has shown Opening balance as Rs. 5.55 crore which were certified in previous year to be Rs. 9.04 crore by adding capital advances of Rs. 5.64 crore as on 31.03.2022 and adjusting Rs. 2.15 crore which were not capitalized by the Institute. Rs. 9.04 crore = Rs. (5.55 + 5.64 – 2.15) crore.

[2] 5.22 crore = Rs. 3.77 crore (as per Schedule 3C) – Capital Advances included in Rs. 3.77 crore amounting to Rs. 0.70 crore + Rs. 2.15 crore (Schedule 4: Rs. 1.47 crore + 0.68 crore).

[3] As per Schedule 3C the balance was Rs. 15.53 crore which did not include capital advances of Rs. 1.30 crore (refer Annexure 5 to Balance Sheet)

- a. In so far as it relates to the Balance Sheet, of the state of affairs of the National Institute of Technical Teachers Training and Research, Chandigarh as at 31 March 2023; and
- b. In so far as it relates to Income & Expenditure Account, of the deficit for the year ended on that date.

For and on behalf of the C & AG of India



Director General of Audit (Central), Chandigarh

Place: Chandigarh

Date: 06/09/23

Annexure to the audit report

1. Adequacy of Internal Audit System

Department wise Internal Audit is being conducted by Internal Audit Section of the Institute.

2. Adequacy of Internal Control System

Internal Control Internal control system is found to be weak in view of following discrepancies noticed:-

- i. Narrations are not being recorded properly in Tally vouchers as details of receiver/ payer, reasons and bill number etc are not being recorded;
- ii. Misclassification of Fixed Assets noticed;
- iii. Non-disclosure of Assets of sponsored projects and student funds;
- iv. Non-maintenance of records of Academic Receipts on accrual basis of accounting;
- v. Accounting manual was not prepared.

3. System of Physical Verification of Fixed Assets

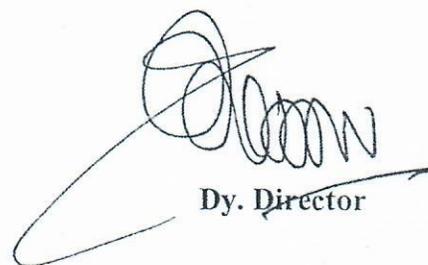
Physical verification of fixed assets (other than library books) for the year 2022-23 was completed in May 2023. Based on the count of Library books, the Institute has to conduct detailed verification once every three years. The last physical verification of the library books was conducted in 2021-22.

4. System of Physical Verification of Inventory/Consumables

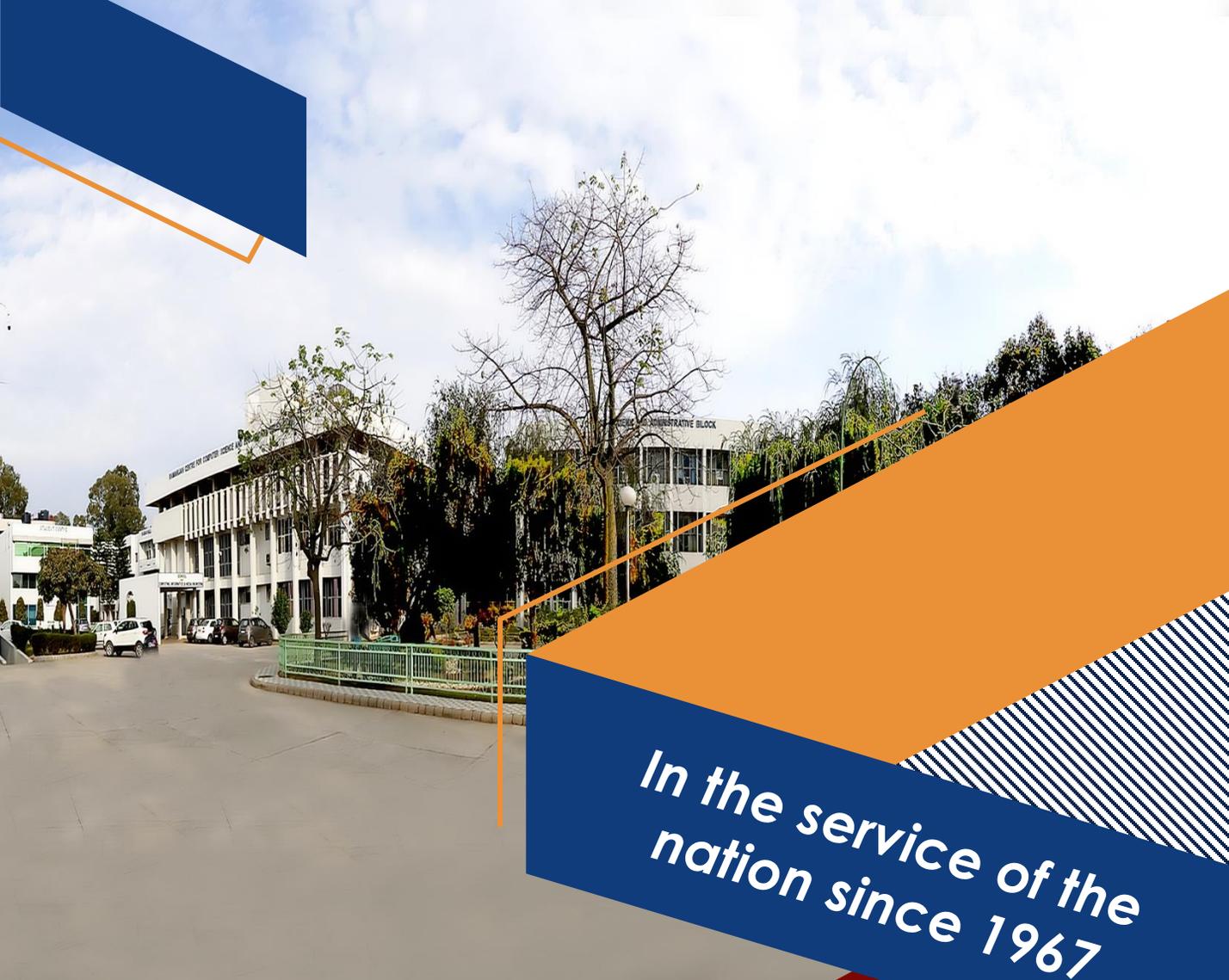
Physical Verification of inventory/ consumables was conducted.

5. Regularity in payment of Statutory Dues

The Institute was regular in depositing statutory dues.



Dy. Director



*In the service of the
nation since 1967*

 www.nitttrchd.ac.in

 <https://www.facebook.com/NITTTRCHANDIGARH>

 [nitttr_chandigarh](https://www.instagram.com/nitttr_chandigarh)

 [@NITTTR_CHD](https://twitter.com/NITTTR_CHD)

 www.linkedin.com/company/nitttrchandigarh

 [NCTEL](https://www.youtube.com/NCTEL)

NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
SECTOR – 26, CHANDIGARH –160 019 (INDIA)
(An ISO 9001 : 2015 Certified Institute)
Phone: 0172 - 2759500
E-mail : director@nitttrchd.ac.in; diroffice@nitttrchd.ac.in