

DEPARTMENT NAME: Applied Science Department**Report for 1st January 2022 to 31st March, 2022****I. Details of M.E. Programmes:**

ME Subjects	Batches	Name of the Faculty
PHDP-03-Nano Materials and Characterization (PhD Subject)	Oct.12 2022- Feb 08, 2022	Dr. Ashok Kumar
SEE (MER 603) : Sensors & End-Effectors	2021, 2 nd Semester	Dr Pankaj Sharma; Dr. Ashok Kumar

II.**A. STUDENT TRAINING Organized:**

Sr. No.	Name of the Course alongwith dates & place	No. of weeks	Participation		Total No. of Participants
			Poly	Engg.	
1.					

B. SHORT TERM COURSE:

Sr. No.	Name of the Course alongwith dates & place	No. of weeks	Participation		Total No. of Participants
			Poly	Engg.	
1.	Essential Materials Physics for Engineers from 3-7.01.2022 at NITTTR, Chandigarh	01			15
2.	Trends in Fiber Optics Technology from 17-21.01.2022 at NITTTR, Chandigarh	01			12
3.	Advanced OR with LINGO from 7-11.02.2022 at NITTTR, Chandigarh	01			03
4.	Characterization Tools and Techniques from 7-11.02.2022 at NITTTR, Chandigarh	01			19
5.	Photonics and Optoelectronic Devices from 21-25.02.2022 at NITTTR, Chandigarh	01			12
6.	Analytical Techniques for Material Characterization from 7-11.03.2022 at NITTTR, Chandigarh	01			27
7.	Operation Research with Engineering Applications from 07-11.03.2022 at NITTTR, Chandigarh	01			18
8.	Fiber Optic Testing and Measurements from 21-25.03.2022 at NITTTR, Chandigarh	01			28
9.	Computer Technology Assisted Teaching Tools for Effective Implementation of NEP 2020 from 21-25.03.2022 at NITTTR, Chandigarh	01			221
10.	Nanomaterials and their Green Applications from 28.03.2022 to 01.04.2022 at NITTTR, Chandigarh	01			464

C. INTERNATIONAL CONFERENCES Organized

Sr. No.	Name of the Seminar/Conference	Total No. of Participants
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D. NATIONAL CONFERENCES ORGANIZED:

Sr. No.	Name of the Seminar/Conference	Total No. of Participants

III WORKSHOPS CONDUCTED (OTHER THAN CURRICULUM DEVELOPMENT WORKSHOPS):

Sr. No.	Name of the Workshop along with dates and venue	Total No. of Participants
1.	Renewable Energy Materials and Devices 03-04 Feb, 2022 under (W-13) (Dr. B.C. Choudhary)	86
2.	Conducted as Co-Coordinator National workshop on "Nanoscale Characterization and Analysis" from 10-11 March, 2022 at NITTTR, Chandigarh (Dr. Pankaj Sharma, Dr. B.C. Choudhary, Dr. Ashok Kumar, Dr. K.C.Lachhwani)	239
3		

IV. INSTRUCTIONAL MATERIAL DEVELOPMENT

Sr. No.	Type of Instructional Material Developed	Author(s) /Team	Project Completed In progress	Specific Achievements during the year	Target date of completion
PRINT MATERIAL					
NON-PRINT MATERIAL					
1.	e-content (PPTs & assignments etc.) for STCs	All Faculty			
2.	STC-PPTs, Lab videos recordings (5+1)	Dr. B.C. Choudhary			
3	Workshop- PPTs and Video recordings (6+1)	Dr. B.C. Choudhary			

INSTRUCTIONAL MATERIAL DEVELOPMENT

Type of Instructional Material	No. Completed during 2021-22	Remarks (if any)
PRINT :		
Text Books		
Lab. Manuals		

Teachers' Manual	2	Laboratory worksheets
Modules		
Readers		
Any other (Please specify)		
NON-PRINT :		
Video Films		
CAI Packages		
Experimental Kits		
Charts		
Any other (Please specify)		

Information above to be given only in case of completed Learning Resources. Title of the material(s) (topics/subjects as the case may be) should also be given.

V. CURRICULUM DEVELOPMENT

A. CURRICULA DESIGNED:

B. CURRICULA REVISED:

C. CURRICULUM DEVELOPMENT WORKSHOPS:

Sr. No.	Name of Curriculum	Number of Subjects/Course	Beneficiary States	Participation		
				Poly.	Ind.	Others

VI. 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.	PhD Thesis Work	Ekta Sharma, Dr Pankaj Sharma & Dr PB Barman		In progress	04 SCI Publication, 01 paper under Review	May, 2022
2.	PhD Thesis Work	Chandresh Kumari, Dr. Pankaj Sharma, Dr. S.C. Katyal,		In progress	01 SCI Publication, 02 paper under	March, 2023

		& Dr. Sandeep Kumar Chokkar			Review	
3.	Ph.D Thesis Work	Nikhil Thakur, Dr Pankaj Sharma & Dr Pawan Kumar		In progress	02 papers under Review in SCI journal	December 2023
4.	Ph.D Thesis work	Deji R, Dr BC Choudhary & Dr Ramesh K Sharma		In Progress	02 SCI Publications, 01 Conference	April, 2022
5.	Ph.D Thesis work	Jyoti R, Dr BC Choudhary & Dr Ramesh K Sharma		In Progress	01 SCI under Review, 01 Conference	October 2022
6.	Ph.D Thesis work	Nihal, Dr BC Choudhary & Dr J K Goswamy		In Progress	Working on Simulations using ATK/VNL for Toxic Gas Sensing	December 2024
7.	Ph.D Thesis work	Kanika Sharma, Dr BC Choudhary & Dr Gurleen Kaur Walia		In Progress	Work started on VOC Sensing Simulation using ATK/VNL	October, 2025
8.	Ph.D Thesis work	Ms. Manju Devi Dr. Ashok Kumar, Prof. Ashavani Kumar		In Progress	pre-PhD presentation completed in September 2021	Thesis submitted on 31-01.2022
9.	Ph.D Thesis work	Mr. Amit Kumar, Dr. Ashok Kumar, Prof. Ashavani Kumar		In Progress	pre-PhD presentation completed in November 2021	Thesis submitted on 10.01.2022
10	Ph.D Thesis work	Ms. Deeksha Nagpal, Dr. Ashok Kumar, Prof. Ajay Vasishth,		In Progress	---	July 2023
11	Ph.D Thesis work	Mr. Anup Singh Dr. Ashok Kumar, Prof. Ajay Vasishth		In Progress	---	July 2023
12	Ph.D Thesis work	Ms. Renu Dhahiya, Dr. Ashok Kumar		In Progress	-----	December 2024
B. DEVELOPMENT PROJECTS						
1.	FIST program -2020	DST- One of the PI in the team for use of agriculture waste for supercapacitor application-		Ongoing	-	2025

		Dr. Ashok Kumar				
2.	Engineered novel cobalt-free nanostructured double perovskites for asymmetric energy storage device application	Dr. Ashok Kumar, Dr. Pankaj Sharma (UGC-DAE)		Submitted on August 31, 2021	-	
3.	One JRF- CSIR	Dr Ashok Kumar	-	Supervising since 29.10.2020	--	2025
4.	Development of novel bioactive glass ceramics for synergistic therapy of bone tumor and regeneration of bone tissue (Post-doctoral Fellowship)	Dr. Narender Ranga (PI), Dr. Ashok Kumar (Mentor)	-	Submitted, June 01, 2021	Under review	
C. DISSERTATION FOR MASTER'S DEGREE PROGRAMMES COMPLETED						

VII. EXTENSION SERVICES AND CONSULTANCY

Sr.No.	Name of Project	Team	Beneficiary Organization	Status of Project Completed/in Progress	Specific work done during the year
A. EXTENSION SERVICES PROJECTS:					
1.					
2.					
B. CONSULTANCY PROJECTS:					

VIII. TRAINING PROGRAMMES ATTENDED BY THE INSTITUTE FACULTY/STAFF

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by

IX. IN-HOUSE TRAINING PROGRAMMES

Sr. No.	Title of Training Programme	Period of Training	Attended by

X. OTHER CONTRIBUTIONS INCLUDING INDIVIDUAL CONTRIBUTION

A. PATENTS/COPYRIGHT

Sr.No.	Name of Patents/Copyright	Author (s) Name

B. PAPERS PUBLISHED BY THE INSTITUTE FACULTY:

SCI JOURNAL

Sr.No.	Name of the Paper Published	Author (s) Name
1.	On the structural and optical aspects of GeTeSeGa thermally evaporated chalcogenides thin films for infrared applications. Eur. Phys. J. Plus 137, 358 (2022)	E, Sharma, P.B. Barman, & Pankaj Sharma
2.	Structural, electrical, and magnetic studies of Cu ²⁺ substituted MnFe ₂ O ₄ nanoferrites synthesized via solution combustion technique. J Mater Sci: Mater Electron 33, 7528–7542 (2022).	H.R. Sharma, K. M. Batoo, Pankaj Sharma , S. Bhardwaj, P. Kuchhal, R. Jasrotia, I. Sharma & G. Kumar
3.	New insights into NO adsorption on alkali metal and transition metal doped graphene nanoribbon surface: A DFT approach, journal of Molecular Graphics and Modelling, 111(2022)108109	Deji R Akarsh Verma, B.C. Choudhary and Ramesh K. Sharma
4.	A simple, low-cost modified drop-casting method to develop high-quality CH ₃ NH ₃ PbI ₃ perovskite thin films, Physica B: Physics of Condensed Matter, January 11, 2022	Ashwani Kumar, Mohd. Shkir, K.L. Singh, B. C. Choudhary , S.K. Tripathie
5.	A Theoretical study of HCN adsorption and width effect on co-doped armchair Graphene Nanoribbon, Computational and Theoretical Chemistry, Volume-1209, (2022) 113592	Deji R, Jyoti R, Akarsh Verma, B. C. Choudhary and Ramesh K. Sharma
6.	Adsorption chemistry of co-doped Graphene Nanoribbon and its derivatives towards carbon based gases for gas sensing applications: Quantum DFT investigation; Materials Science in Semiconductor Processing 146 (2022) 106670	Deji, B. C. Choudhary , Ramesh K Sharma
7.	DFT Study of a Manganese doped Armchair Graphene Nanoribbon for effective Carbon dioxide gas Sensing; Engineered Science (2022), Accepted for Publication	Jyoti Rani, Moomdeep Chauchan, B. C. Choudhary and Ramesh K Sharma
8.	"Anion intercalation pseudo-capacitance performance of oxygen-deficient double perovskite prepared via facile wet chemical route." Materials Science in Semiconductor Processing 138 (2022): 106300.	Vats, Amit Kumar, Nitika Sangwan, Jashandeep Singh, Ashok Kumar, and Ashavani Kumar
9.	"Engineered perovskite LaCoO ₃ /rGO nanocomposites for asymmetrical electrochemical supercapacitor application." Journal of Materials Science: Materials in Electronics (2022): 1-17.	Vats, Amit Kumar, Ashok Kumar , Parasmani Rajput, and Ashavani Kumar.

C. PAPERS PUBLISHED BY THE INSTITUTE IN INTERNATIONAL JOURNAL OTHER THAN SCI JOURNALS (Scopus)

Sr.No.	Name of the Paper Published	Author (s) Name
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1.	"Facile wet chemical synthesis and electrochemical performance of double perovskite-La ₂ NiMnO ₆ for energy storage application." Materials Today: Proceedings 48 (2022): 587-589.	Singh, Jashandeep, Amit Kumar, and Ashok Kumar.
2.	"Alternate Solution Approach for ML-MOLFPP Problems" in Journal of Interdisciplinary Mathematics (JLM), Vol.25, PP.183-194,2022	V.D. Joshi, Kailash Lachhwani , Jagdev Singh, K Sopyy Misar

D. PAPERS PUBLISHED BY THE INSTITUTE FACULTY IN NATIONAL JOURNAL

Sr.No.	Name of the Paper Published	Author (s) Name

E. PAPERS PUBLISHED / PRESENTED 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

PAPERS PUBLISHED / PRESENTED 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

Other Activities :

- Expert lecture on the occasion of National Science Day celebrations organized by Dept. of Physics, Sri Guru Gobind Singh College, Chandigarh (14-03-2022) **(Dr Pankaj Sharma)**.
- External expert member for the interview of teaching post/s in the subject of Physics, Sardar Patel University, Mandi **(Dr Pankaj Sharma)**.
- External expert member for the interview of teaching post/s in the subject of Physics, SVSD College Bhatoli, Himachal Pradesh University Shimla **(Dr Pankaj Sharma)**.
- Member of Screening Committee for the teaching post/s in the subject of Physics, CUHP Dharamshala **(Dr Pankaj Sharma)**.
- External Examiner for PhD Thesis evaluation, Eternal University Baru Sahib **(Dr. Pankaj Sharma)**
- Paper setter for MSc Physics in the subject of Physics, Sardar Patel University, Mandi **(Dr Pankaj Sharma)**.
- Coordinator of Balidan Diwas Event on 23.03.2022. **(Dr Pankaj Sharma)**
- Invited talk in AICTE FDP on 20.01.2022 (online) at GJU, Hisar **(Dr. B.C. Choudhary)**
- Judge for Debate on Relevance of Swami Vivekanand and Teaching in Present Scenario on 12.01.2022 **(Dr. B.C. Choudhary)**
- External member for Assessment from JRF to SRF on 01.02.2022 for 02 students of Physics Department, PU, Chandigarh and 01 Student of Applied Science Department, PEC, Chandigarh (Deemed to be University), Chandigarh **(Dr. B.C. Choudhary)**
- Rapporteur Balidan Diwas, Organized by NITTTTR Chandigarh and Bharatiya Shikshan Punjab Prant Mandal, March 23, 2022 **(Dr. Ashok Kumar)**

12. Expert talk on “Fabrication and characterization of Perovskite Nanomaterials based Electrochemical Supercapacitor” on 28-01-2022 in Nano-electronic : Materials, Devices and Circuits, organized by Electronics and Communication Engineering Department, NITTTR Chandigarh (24-28 January, 2022) **(Dr. Ashok Kumar)**
13. Expert talk on “X-ray Photoelectron Spectroscopy (XPS) for Material Characterization” on 09-03-2022 in the STC on Analytical Techniques for Material Characterization, Applied Science Department, NITTTR Chandigarh (7-11 March, 2022) **(Dr. Ashok Kumar)**
14. Member, committee for preparing draft DPR of Digital University **(Dr. Ashok Kumar)**
15. Expert/ member of Research Advisory Committee (RAC) for Physics, Department of Applied Sciences ,Shaheed Bhagat Singh State University, Ferozepur, Sahil Bansal , Ph.D student, Physics, Feb. 13, 2022 **(Dr. Ashok Kumar)**
16. Attended meeting as Member, 25th Academic Council of NITTTR, Chandigarh - Reg., January 28, 2022. **(Dr. Ashok Kumar)**
17. Attended grievance committee meetings on March 24, April 04, 2022. **(Dr. Ashok Kumar)**
18. Attended meeting of department/ institute and completed the other work as assigned. **(Dr. Ashok Kumar)**
19. Paper Setting for PU, Chandigarh (Dr. K. C. Lachhwani)
20. Paper Setting for BTU, Bikaner (Dr. K. C. Lachhwani)