

Progress Report of Applied Science Department During July-September, 2020

A. Education and Training Programmes

I. Long Term Courses

Type of Programmes	Delivery Method	Faculty
--	--	--

Academic Proposals submitted:

Diploma / Degree	Eligibility for Admission	Passing Criterion
--	--	--

II. Short Term Courses

O.Plan No.	Name of the Programme	Start Date:	End Date:	Venue	Coordinator	No. of Participants
ICTO-103	Energy Storage Devices	06/07/2020	10/07/2020	NITTTR,CHD	Dr. AK & Dr. PS	88
ICTO-104	Energy Harvesting Devices	13/07/2020 to	17/07/2020	NITTTR,CHD	Dr. PS & Dr. AK	83
ICTO-105	Materials Characterization Techniques	20/07/2020	24/07/2020	NITTTR,CHD	Dr. AK & Dr. PS	116
ICTO-106	Materials and Devices for Advanced Applications	27/07/2020	31/07/2020	NITTTR,CHD	Dr. PS & Dr. AK	83
ICTO-CP-02	Training Programme on Energy Harvesting and Materials Characterization Techniques	06/07/2020	17/07/2020	NITTTR,CHD	Dr. AK & Dr. PS	11
ICTO-CP-03	Training Programme on Energy Harvesting and Materials Characterization Techniques	13/07/2020	24/07/2020	NITTTR,CHD	Dr. PS & Dr. AK	09
ICTO-CP-04	Training Programme on Materials Characterization Techniques, Devices and Applications	20/07/2020	31/07/2020	NITTTR,CHD	Dr. PS & Dr. AK	24
ICTO-CP-05	Training Programme on Materials Characterization Techniques, Devices and Applications	06/07/2020	24/07/2020	NITTTR,CHD	Dr. AK & Dr. PS	34
ICTO-CP-06	Industrial Training Programme on Energy Harvesting Materials Characterization Techniques, and Applications	13/07/2020	31/07/2020	NITTTR,CHD	Dr. PS & Dr. AK	318

ICTO-CP-07	Industrial Training Programme on Energy Storage, Harvesting Materials Characterization Techniques, Devices and Applications	06/07/2020	31/07/2020	NITTTR,CHD	Dr. AK & Dr. PS	44
ICTO-108	Nuclear Radiations and Their Applications	20/07/2020	24/07/2020	NITTTR,CHD	Dr. B.C.Choudhary	22
ICTO-109	Advances in Laser Technology	03/08/2020	07/08/2020	NITTTR,CHD	Dr. B.C.Choudhary	76
ICTO—SP-19	Sensors Technology (ATAL)	21/09/2020	25/09/2020	NITTTR,CHD	Dr. AK & Dr. PS	135
ICTO-CP-10	Mathematical Programming and Engineering Optimization Techniques (National level)	03/08/2020	21/08/2020	NITTTR,CHD	Dr.K C Lachhwani	34
ICTO-146	Smart Materials and Nanotechnology	31/08/2020	04/09/2020	NITTTR,CHD	Dr.B.C.Choudhary	40
ICTO-162	Optical Fibres Potential & Applications	21/09/2020	25/09/2020	NITTTR,CHD	Dr.B.C.Choudhary	39
ICTO—182	Energy Storage Materials	24/08/2020	28/08/2020	NITTTR,CHD	Dr. AK & Dr. PS	40
ICTO—183	Materials Characterization Techniques	31/08/2020	04/09/2020	NITTTR,CHD	Dr. AK & Dr. PS	11
ICTO—184	Energy Storage Materials and Characterization	24/08/2020	04/09/2020	NITTTR,CHD	Dr. AK & Dr. PS	25

AK – Ashok Kumar, PS – Pankaj Sharma

(Includes 01 ATAL Programme, 07 Consultancy Programmes)

Total no. of participants trained: 1232 (for 19 courses)

MOOCS SWAYAM COURSES

-Nil-

B. Instructional Material Development

Name of the Team Member	Name of Course Content any developed	Video Scripts developed with Assignments and Quiz	Lab Manuals developed
Dr. Pankaj Sharma	STC PPTs for online FDPs and online Assignments/Quizzes for STC's	--	--
Dr. B C Choudhary	STC PPTs/Videos – 04 (ICTO-108, ICTO-109, ICTO-146 & ICTO-162)	--	--
Dr. Ashok Kumar	STC PPTs for online FDPs and online Assignments/Quizzes for STC's	--	--
Dr. KC Lachwani	STC Course material on "Mathematical Programming and Engineering Optimization Techniques"	--	--

TARGET FOR ACTIVITY VII (Instructional Material Development)

Sr. no.	Name of Programme/Project	Long term/Short Term	Type of Instructional Material	Coordinator(s)	Time Period	Expectation during four quarters of six months each (4 Nos) for a total period of next 2 years
1	NIL					

C. Curriculum Development

-Nil-

D. Research and Development

PhD Guidance (in progress)

Dr. Pankaj Sharma ----- 01

Dr. BC Choudhary ---- 02

Dr. Ashok Kumar ---- 02 + 01 (submitted)

PhD Awarded

Supervisor	Thesis Title	Student Name
Dr. Ashok kumar	Chemical synthesis of rare earth based double perovskite nanocrystallites for structural, morphological and electrochemical investigation.	Mr. Jashandeep Singh

ME Thesis Viva Conducted

NAME AND BATCH	THESIS TITLE
-Nil-	

Research Publications

SCI Journals	Scopus index Journals	UGC/AICTE Approved Journals	Any Other Journals	Total
03	02	-	01	06

Details of Publications

SCI journals publications: 03

1. Amit Kumar, Ashok Kumar and Ashavani Kumar, Energy storage properties of double perovskites Gd_2NiMnO_6 for electrochemical supercapacitor application, Solid State Sciences (SCI I.F. 2.434) 10.1016/j.solidstatesciences.2020.106252 (2020)
2. Jashandeep Singh and Ashok Kumar, Investigation of structural, morphological, and electrochemical properties of mesoporous La_2CuCoO_6 rods fabricated by facile hydrothermal route, International Journal of Minerals, Metallurgy and Materials (SCI I.F. 1.713) doi: 10.1007/s12613-020-2011-6 (2020)
3. Manju Devi, Ashok Kumar, Ashavani Kumar, Phase transformation in wet-chemically synthesized Y_2NiFeO_6 , and its magnetic and energy storage properties (SCI I.F. 1.810), doi:10.1007/s00339-020-03802-0 (2020)

NON-SCI journals publications: 03

1. Ashok Kumar, Sarath Chandra Veerla, Kabali Vijai Anand and Astakala Anil Kumar, 'Alkaline earth stannates nanomaterials as an electron transport layer in dye sensitized solar cells' in Handbook

of Polymer and Ceramic Nanotechnology, (eds Chaudhery Mustansar Hussain and Sabu Thomas) Springer, (Submitted August 06, 2020)

2. Ashok Kumar and Balwinder Singh Dhaliwal, Forecasting and fostering demands, Proc. of Webinar Series on AtmanirbharBharat: Transmutation from Privation to Exuberance, July 27-31, 2020 (submitted)
3. Ashok Kumar and Pankaj Sharma, Science and Covid-19, 53rd Annual Day e-Souvenir, NITTTT Chandigarh.

BOOK Published

-NIL

BOOK Chapter Published

-NIL-

Research Projects Submitted

Novel cobalt-free nanostructured double perovskites for energy storage application, Submitted July 23, 2020, 13.99 lacs (UGC-DAE CSR) – Dr. Ashok Kumar (PI) and Dr. Pankaj Sharma (Co-PI)

Grant received for Research Project/sponsored project

FDP on Sensors Technology (ATAL AICTE (ICTO-SP-19), 93000/- (Coordinators: Dr. Ashok Kumar and Dr. Pankaj Sharma)

Research Project/Sponsored Project In progress

-NIL-

E. EXTENSION SERVICES AND CONSULTANCY

Extension Services	Date(s) / Period	Remarks
<p>1. External Expert in M.Sc./Ph.D Thesis evaluation:</p> <ul style="list-style-type: none"> i. Carrier point University, Hamirpur ii. Panjabi University, Patiala iii. Eternal University, Baru Sahib 		Completed
<p>2. Invited Talks:</p> <ul style="list-style-type: none"> a) Chalcogenide Thin Films & Applications, July 08,2020, Department of Physics, MS Institute of technology and management, Bengaluru b) Glassy Semiconductors & their applications, September 22, 2020, Rajasthan technical university 		Completed
<p>3. The minerals metals & materials society (TMS) (Dr. Pankaj Sharma)</p>	23.07.2020 to 31.12.2021	Membership

<p>1. External Expert in Assessment Committees – 02</p> <ol style="list-style-type: none"> a. Physics Dept. PU Chd – 14 July & 27th July, External Member- Assessment Committee b. PEC, Chandigarh – 16 July 2020, External Member- Assessment Committee <p>2. Delivered on line Expert lecture “Smart Materials and Nanotechnology” on 26.08.2020 in 3- days National Level online FDP “Perspectives on the Past, Present and Future of Advanced Materials; 26-28 August 2020 organized by Department of Basic Sciences and R&D Centre of Tantadarya College of Engineering, Gadag, Karnataka.</p> <p style="text-align: right;">(Dr. BC Choudhary)</p>		Completed
<p>1. Invited talks</p> <ol style="list-style-type: none"> 1. Role of Applied Science in Industry 4.0, July 02, 2020, Entrepreneurship Development and Industrial Coordination Department, NITTTR Chandigarh 2. Photovoltaics and other energy devices July 02, 2020, Department of Physics, BMS Institute of Technology and Management, Bengaluru 3. “Smart materials and nanotechnology” on 26.08.2020 in 3 days national level online FDP perspectives on the past, [present and future of Advanced Materials; 26-28 August 2020 organized by Department of Basic Sciences and R&D Centre of Tantadarya College of Engineering, Gadag,Karnataka. 4. Energy Harvesting through Renewable Sources, Rural Development Department, NITTTR Chandigarh 5. Energy Storage for Electric Vehicles, August 18, 2020, Department of Electrical Engineering, NITTTR Chandigarh 6. Emerging Trends in Material Physics, August 27, 2020, Ajay Kumar Garg Engineering College, Dr. A. P. J. Abdul Kalam Technical University 7. Physics of Nanomaterials: Synthesis & Characterization with Practical Examples, September 23, 2020, Rajasthan Technical University <p style="text-align: right;">(DR.Ashok Kumar)</p>		Completed
<p>1. Deliverd expert talks during TEQIP sponsored online workshop on learning system for “Engineering Research” from 5-10 September 2020 organized by Govt Engg. College Bharatpur.</p> <p>Worked as subject expert in drafting and designing proposal of NSQF aligned curriculum of Applied Mathematics I&II for diploma courses of BTE,Delhi for consultancy project undertaken by CDC Department of institute.</p> <p style="text-align: right;">(Dr.KC Lachhwani)</p>		Completed

Purchase Status

S.NO	GEM/TENDER/QUOTATIONS	PO Date(DD/MM/YY)	ITEM	QTY	PRICE	STATUS
1	2020_NITTT_56474_1	--	Potentiostat/Galvanostat with Accessories	01	9,52,000/-	IN PROCESS
2	2020_NITTT_56471_1	--	Furnace	01	1,90,000/-	IN PROCESS

Training attended

Name of Faculty	Training attended	Dates
1. Dr. Pankaj Sharma	Online Course Attended: 04 <ol style="list-style-type: none"> CPSC online program on Strengthening TVET Instructional Management System. Online Nobel laureate lecture series- lecture-1 'Cryo-Electron Microscopy of biological molecules by prof Joachim Frank, 2017 Nobel prize in chemistry, organized by Mar Athanasius College (Autonomous), Kothamangalam, Kerala. Online Nobel laureate lecture on 'A new measure: the revolutionary reform of the metric system' by Prof. William D. Phillips, 1997 Nobel Prize Winner in physics organized by Mar Athanasius College (Autonomous), Kothamangalam, Kerala. Capacity building NITTT, module 8 on Institutional Management and Administrative Procedure, organized by NITTTR Chandigarh Webinar: 04 <ol style="list-style-type: none"> Literacy in new education policy 2020 organized jointly by NIT Kurukshetra & NITTTR Chandigarh Role of national institutes of technologies in the implementation of national education policy 2020: challenges and solutions "organized by NIT Kurukshetra and Shiksha Sanskriti Utthan Nyas New Delhi. 'Patent intelligence as an effective decision support tool for universities' organized by Clarivate analytics. Panel discussion on Making Mentoring Relevant: NEP 2020 perspective conducted by NITTTR Bhopal, Chandigarh, Chennai, Kolkata. 	13-17, July 2020
		August 11, 2020
		August 24, 2020
		24-28 August 2020
		September 08, 2020
		September 17, 2020
		September 24, 2020
		September 21, 2020

<p>2. Dr. BC Choudhary</p>	<p>Online Course Attended: 01</p> <p>1. Capacity Building NITTT Modules (M1) : Orientation towards Technical Education and Curriculum Aspects, by NITTTTR Chennai.</p> <p>Webinars: 16</p> <ol style="list-style-type: none"> a. Laser Systems for Aerospace and Defense Applications; 17.07.2020 (8.30 PM), OSA b. Integrated Lithium Niobate Waveguides; 21.07.2020 (8.00PM IST), OSA c. Nanoscale Light –Matter Interactions; 23.07.2020, Physics Today- Zurich Instr d. New Pressure Sensors and Level Switches; 29.07.2020 (10.30AM IST), VEGA Tech. e. Enabling Technologies for Optical Transport and Access Networks in 5G Era; 04.08.2020, Future, f. WEI/Seven Habits of Highly effective Persons; 07.08.2020, OSA g. Optics and Photonics for a better life with Vision Impairment; 12.08.2020 (5.30PM IST) Travelling Lecture. h. First Principle Ab initio DFT Calculations with NanoDcal; 22.08.2020 (12.30PM IST) Impulse Technologies, New Delhi. i. Shedding light on Dark Matter at the LHC; 05.09.2020 (5.00PM IST) – IPA:New horizon in Physics. j. Plasma Photonic Crystals and Tunable parameters controls of the bandgap; 11.09.2020 (01.30AM IST) k. Extreme State of Tabletop (fs Lasers); 12.09.2020 (5.00PM IST) IPA Mumbai. l. SPI Lasers: Cutting and Engraving with fast (ns) lasers; 16.09.2020 (7.30PM IST) SPIE m. Semiconductor Device Fabrication from 12 to 3 nm: How to get there?; 17.09.2020 (8.30PM IST) n. Hybrid (M) Fibers for dispersion Management; 18.09.2020 (6.30PM IST) OSA Technical Group o. Visible Light Communication for 5G and Beyond; 28.09.2020 (10.30PM IST) p. Boosting your Emotional Intelligence; 30.09.2020 (8.30PM IST) OSA Travelling Lecture 	<p>17 – 21 August2020</p> <p>July 17,2020</p> <p>July 21,2020</p> <p>July 23,2020</p> <p>July 29,2020</p> <p>August 04,2020</p> <p>August 07,2020</p> <p>August 12,2020</p> <p>August 22,2020</p> <p>September 05,2020</p> <p>September 11,2020</p> <p>September 12,2020</p> <p>September 16,2020</p> <p>September 17,2020</p> <p>September 18,2020</p> <p>September 28,2020</p> <p>September 30,2020</p>
<p>3. Dr. Ashok Kumar</p>	<p>Indus Synchrotron Users Meeting, UGC -DAE Consortium for Scientific Research, Indore, July 28-29, 2020</p> <p>International virtual conference on Advances in Functional Materials, Kalinga Institute of Industrial Technology, Deemed University, Bhubaneshwar, August 26-28, 2020</p>	<p>July 28-29, 2020</p> <p>August 26-28, 2020</p>

	<p>Nobel Laureate Lecture Series - Lecture-1 'CRYO-ELECTRON MICROSCOPY OF BIOLOGICAL MOLECULES' by Prof. Joachim Frank, 2017 Nobel Prize in Chemistry organised by the Post Graduate and Research Department of Chemistry, Mar Athanasius College (Autonomous), Kothamangalam, Kerala on 11 August 2020.</p> <p>Lecture on "A New Measure: The Revolutionary Reform of the Metric System" by Prof. William D Phillips, 1997 Nobel Prize Winner in Physics as part of Nobel Laureate Lecture Series organized by the Postgraduate and Research Department of Physics, Mar Athanasius College (Autonomous), Kothamangalam, Kerala on 24 August 2020.</p> <p>Nobel Laureate Lecture Series - Lecture-3 'STEPS TOWARDS COMPLEX MATTER: CHEMISTRY!' by Dr. Jean-Marie LEHN, 1987 Nobel Prize in Chemistry organised by the Post Graduate and Research Department of Chemistry, Mar Athanasius College (Autonomous), Kothamangalam, Kerala on 7 September 2020</p>	August 11, 2020
		August 24, 2020.
		September 7, 2020
4. Dr.KC Lachhwani	<p>Online meeting for task force-war room for industrial consultancy chaired by Prof. C. Ramakrishna</p> <p>Capacity building programmes, module 8 on institutional management and ADMINISTRATIVE PROCEDURE_OF AICTE-NITTTR Modules for all NITTTRs faculty members held from 24-28 August 2020</p> <p>Online panel discussion on "Making Mentoring Relevant: NEP 2020 Perspective" on September, 21 2020 organized by NITTTR, Bhopal, Chandigarh, Chennai and Kolkata</p>	-
		24-28 August 2020
		September, 21 2020