ANNUAL REPORT
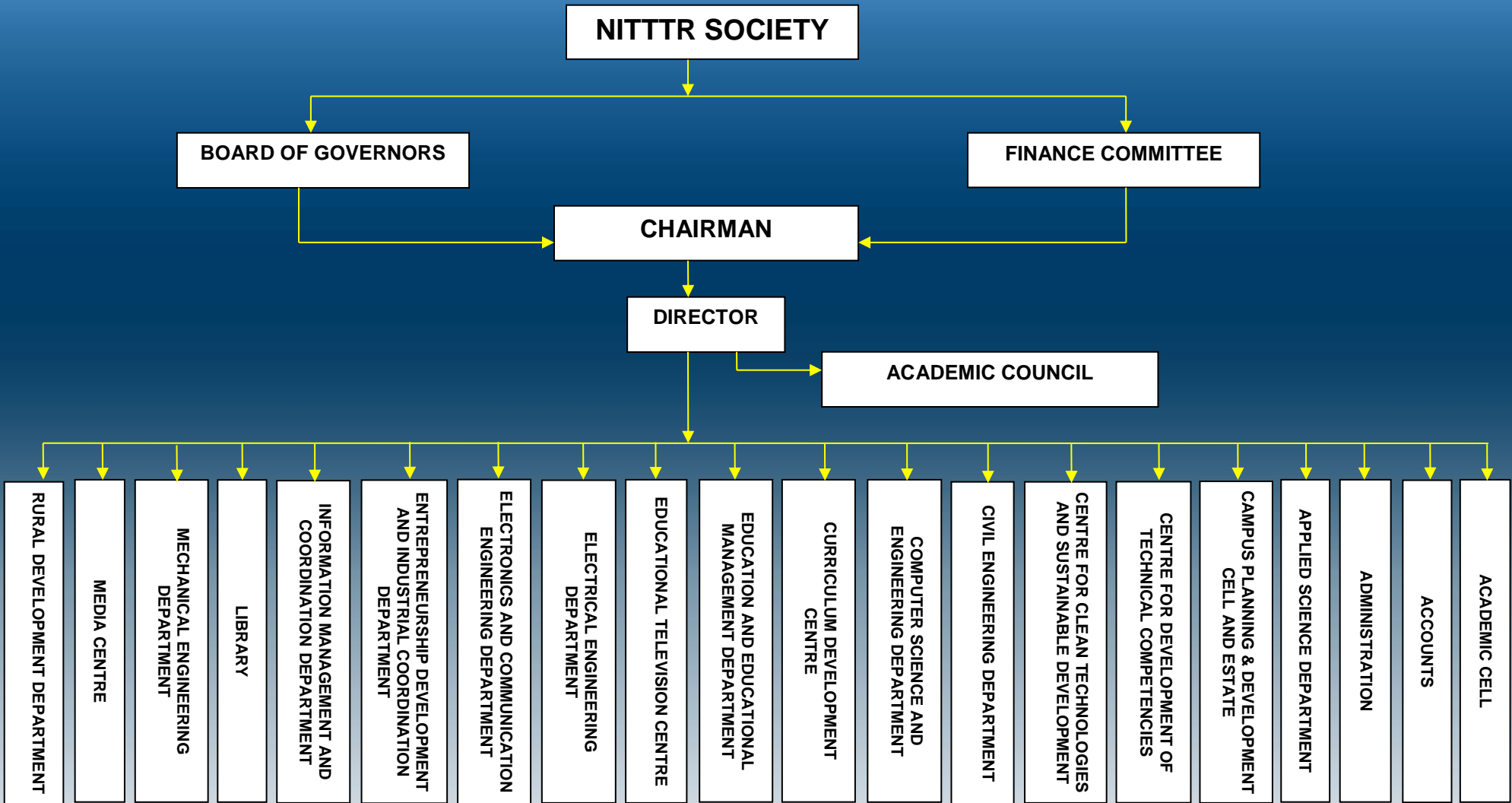# 2018-19

NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH CHANDIGARH

NITTTR, Chandigarh

In the service of the Nation Since 1967

ORGANISATIONAL STRUCTURE OF NITTTR CHANDIGARH

NITTTR SOCIETY

BOARD OF GOVERNORS

FINANCE COMMITTEE

CHAIRMAN

DIRECTOR

ACADEMIC COUNCIL

- RURAL DEVELOPMENT DEPARTMENT
- MEDIA CENTRE
- MECHANICAL ENGINEERING DEPARTMENT
- LIBRARY
- INFORMATION MANAGEMENT AND COORDINATION DEPARTMENT
- ENTREPRENEURSHIP DEVELOPMENT AND INDUSTRIAL COORDINATION DEPARTMENT
- ELECTRONICS AND COMMUNICATION ENGINEERING DEPARTMENT
- ELECTRICAL ENGINEERING DEPARTMENT
- EDUCATIONAL TELEVISION CENTRE
- EDUCATION AND EDUCATIONAL MANAGEMENT DEPARTMENT
- CURRICULUM DEVELOPMENT CENTRE
- COMPUTER SCIENCE AND ENGINEERING DEPARTMENT
- CIVIL ENGINEERING DEPARTMENT
- CENTRE FOR CLEAN TECHNOLOGIES AND SUSTAINABLE DEVELOPMENT
- CENTRE FOR DEVELOPMENT OF TECHNICAL COMPETENCIES
- CAMPUS PLANNING & DEVELOPMENT CELL AND ESTATE
- APPLIED SCIENCE DEPARTMENT
- ADMINISTRATION
- ACCOUNTS
- ACADEMIC CELL

C O N T E N T S

LIST OF MEMBERS OF THE NITTTR CHANDIGARH SOCIETY AS ON 31.03.2019

Sr. No.	Name and Designation with full address	Status
1.	**Dr. K.K. Talwar** Chairman Board of Governors, National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Chairman**
2.	**Mrs. Darshana M. Dabral,** Joint Secretary and Financial Adviser (IFD) Department of Higher Education, Ministry of Human Resource Development, Govt. of India, Shastri Bhawan, NEW DELHI – 110 115	**Member**
3.	**Shri Madhu Ranjan Kumar,** Joint Secretary (DL,BP & A) Department of Higher Education, Ministry of Human Resource Development, Govt. of India, Shastri Bhawan, NEW DELHI – 110 115	**Member**
4.	**Prof. Dileep N. Malkhede,** Adviser – I, (RIFD) All India Council for Technical Education Nelson Mandela Marg Vasant Kunj NEW DELHI – 110 070	**Member**
5.	**Prof. (Dr.) S.S. Pattnaik,** Director National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member-Secretary**

LIST OF MEMBERS OF THE BOARD OF GOVERNORS OF NITTTR, CHANDIGARH AS ON 31.03.2019

Sr. No.	Name and Designation with full Address	Status
1.	**Dr. K.K. Talwar.** Chairman Board of Governors, National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Chairman**
2.	**Mrs. Darshana M. Dabral,** Joint Secretary and Financial Adviser (IFD) Department of Higher Education, Ministry of Human Resource Development, Govt. of India, Shastri Bhawan, NEW DELHI – 110 115	**Member**
3.	**Shri Madhu Ranjan Kumar,** Joint Secretary (DL,BP & A) Department of Higher Education, Ministry of Human Resource Development, Govt. of India, Shastri Bhawan, NEW DELHI – 110 115	**Member**
4.	**Dr. Ajay Sharma** Hon'ble Vice Chancellor Punjab Technical University IK Gujral Punjab Technical University KAPURTHALA (Punjab) 144 070	**Member**
5.	**Prof. Dileep N. Malkhede,** Advisor (RIFD) All India Council for Technical Education, Nelson Mandela Marg, Vasant Kunj, NEW DELHI 110 070	**Member**
6.	**Shri Subhash Chander Ralhan,** Managing Director, Sri Tools Industries, E- 183,184, &185, Phase IV, Focal Point Ludhiana – 141 010	**Member**
7.	**Professor. Sachin Maheshwari,** Division of Manufacturing Processes and Automation Engineering, Netaji Subhas Institute of Technology (NSIT), Azad Hind Fauj Marg, Sector – 3 Dwarka Delhi – 110 078.	**Member**
8.	**Dr. Sanjay Sharma** Professor & Head, Civil Engineering Department, National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**

Sr. No.	Name and Designation with full Address	Status
9.	**Prof. (Dr.) S.S. Pattnaik** Director National Institute of Technical Teachers Training and Research, Sector – 26 CHANDIGARH – 160 019.	**Member Secretary**
10.	**DTEs - To be nominated by Ministry**	**Member**

LIST OF MEMBERS OF THE FINANCE COMMITTEE OF NITTTR, CHANDIGARH AS ON 31.03.2019

Sr. No.	Name and Designation with full Address	Status
1.	**Dr. K.K.Talwar**. Chairman Board of Governors, National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Chairman**
2.	**Mrs. Darshana M. Dabral,** Joint Secretary and Financial Adviser (IFD) Department of Higher Education, Ministry of Human Resource Development, Govt. of India, Shastri Bhawan, NEW DELHI – 110 115	**Member**
3.	**Shri Madhu Ranjan Kumar,** Joint Secretary (DL,BP & A) Department of Higher Education, Ministry of Human Resource Development, Govt. of India, Shastri Bhawan, NEW DELHI – 110 115	**Member**
4.	**Dr. Ajay Sharma** Hon'ble Vice Chancellor Punjab Technical University IK Gujral Punjab Technical University KAPURTHALA (Punjab) 144 070	**Member**
5.	**Prof. (Dr.) S.S. Pattnaik,** Director National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member-Secretary**

LIST OF MEMBERS OF THE ACADEMIC COUNCIL AS ON 31.03.2019

Sr. No.	Name and Designation with full address	Status
1.	**Prof. S.S. Pattnaik**, Director Academic Council, National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Chairman**
2.	**Dr. N Sathyamurthy,** Former Director Indian Institute of Science Education & Research, Mohali (Punjab)	**Member**
3.	**Dr. IK Bhat,** Professor, Department of Applied Mechanics, Motilal Nehru National Institute of Technology, Allahabad (Uttar Pradesh)	**Member**
4.	**Dr. P.K. Tulsi,** Professor, EMGT Department National Institute of Technical Teachers Training & Research, Chandigarh – 160019	**Member**
5.	**Dr. BS Pabla,** Dean, Extension Service & Consultancy and Professor, Mechanical Engineering Deptt National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**
6.	**Dr. SS Banwait**, Dean, Research & Development and Professor, Mechanical Engineering Department National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**
7.	**Dr. AB Gupta,** Professor & Head, CDC National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**
8.	**Dr. Sanjay Kumar Sharma,** Professor and Head, Civil Engineering Department National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**
9.	**Dr. Hemant Sood,** Professor, Civil Engineering Department National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**

Sr. No.	Name and Designation with full address	Status
10.	**Dr. Sunil Dutt,** Professor & Head, EMGT Department National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**
11.	**Dr. BC Choudhary,** Professor & Head, Applied Science Department National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**
12.	**Dr. Rakesh Wats,** Professor & Head, Media Centre National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**
13.	**Dr. (Mrs.) Maitreyee Dutta,** Professor and Head, Computer Science & Engineering & ETV Department National Institute of Technical Teachers Training & Research, Chandigarh – 160019	**Member**
14.	**Dr. SS Dhami,** Professor & Head, Mechanical Engineering Department National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**
15.	**Dr. C Rama Krishna,** Professor, Computer Science & Engineering Department National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**
16.	**Dr. UN Roy,** Professor and Head, Rural Development Department National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**
17.	**Dr. (Mrs.) Lini Mathew,** Professor and Head, Electrical Engineering Department National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**
18.	**Dr. Rajesh Mehra,** Professor and Head, Electronics & Communication Engineering Deptt National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**
19.	**Dr. Amod Kumar,** Professor, Electronics & Communication Engineering Deptt National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**

Sr. No.	Name and Designation with full address	Status
20.	**Er. Ajay K Duggal,** Associate Professor & Faculty Incharge, IMCO National Institute of Technical Teachers Training & Research, Chandigarh - 160019	
21.	**Er. Vinod Kumar,** Associate Professor, Civil Engineering Department National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**
22.	**Sh. Manmohan Singh,** Sr. Librarian, (Officiating Chief Librarian) National Institute of Technical Teachers Training & Research, Chandigarh – 160019	**Member**
23.	**Er. Amit Goyal,** Assistant Professor, Rural Development Department National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**
24.	**Dr. Ritula Thakur,** Assistant Professor, Electrical Engineering Department National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member**
25.	**Dr. SK Dhameja,** Professor and Head, EDIC, Dean Academics and Int'l Affairs National Institute of Technical Teachers Training & Research, Chandigarh - 160019	**Member Secretary**

1

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 more 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 (Engineering Colleges & Polytechnics), 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. It is 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 with land areas of 2731.26 sqm and 13005.68 sqm respectively. 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. It is 21 km from Chandigarh Airport. The clean campus with innovative digital approach makes the institute unique not only in city but also in the country. The lush green campus is secured with CCTV cameras and has integrated digital developments to its routine activities.

The Institute

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.

BROAD

BJECTIVES 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.

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

To arrange for practical training of technical teachers in industries

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

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

OPERATIONAL OBJECTIVES

3

OPERATIONAL OBJECTIVES

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

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

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

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

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

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

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

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

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

Programs & *Activities*

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

Education & Training Programs	*Instructional Material Development (mainly focusing on digital resources or MOOCs for Swayam and NCTEL)*	*Curriculum Development*
Research and Development	*Extension Services*	*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 stated areas.
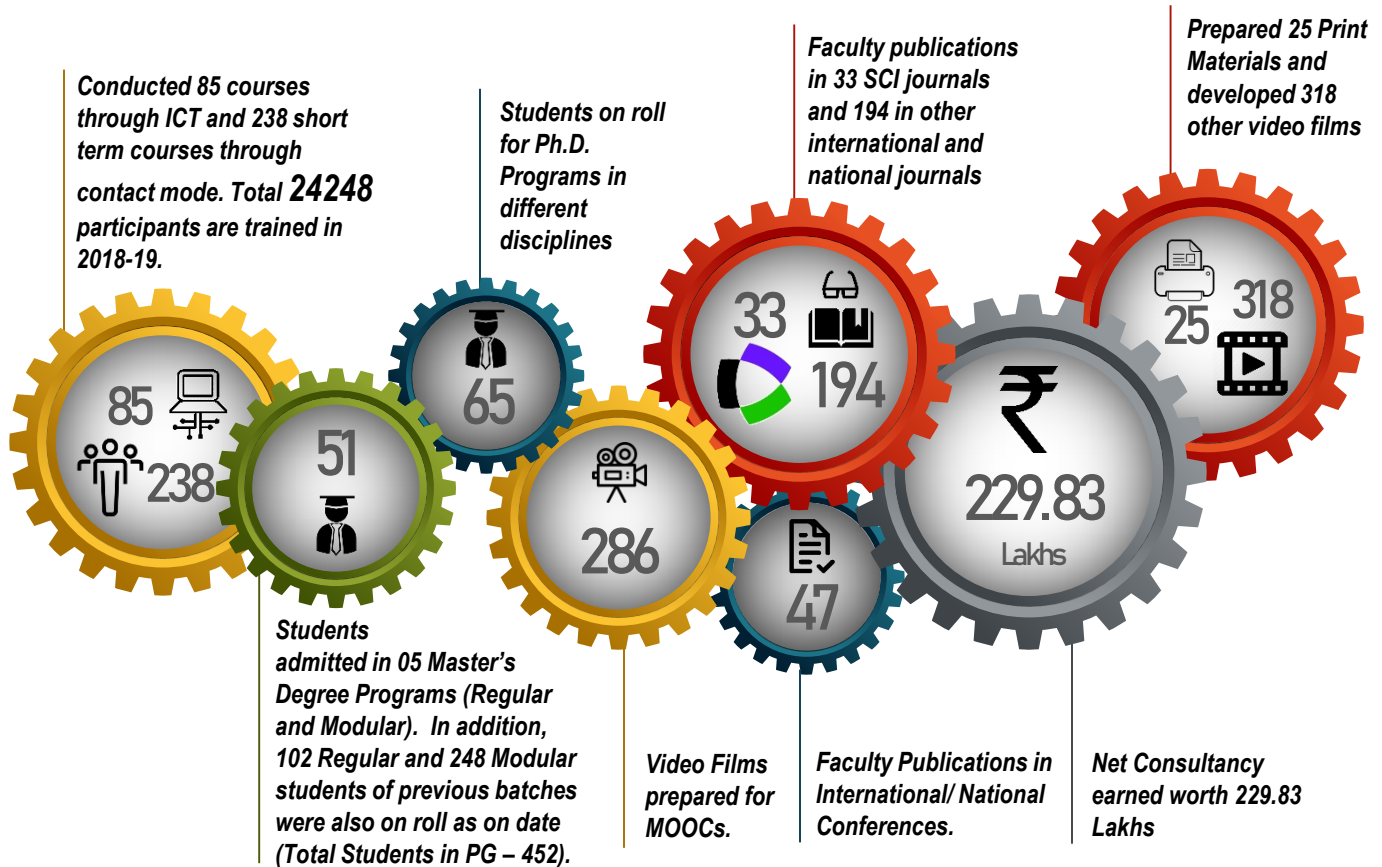
Management

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 Principal Academic and Executive Officer 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:

- *Finance Committee*
- *Academic Council*

Director of the Institute is the Chairman of the Academic Council

2.0 ACHIEVEMENT HIGHLIGHTS

Achievements of the institute are reported under 05 major areas viz; Staff Development, through Training & Education; Curriculum Development & revision; Instructional Material Development & implementation; Research and Development; Extension Services and Consultancy. Distinctive programs and activities undertaken during the year are as under:

Conducted 85 courses through ICT and 238 short term courses through contact mode. Total 24248 participants are trained in 2018-19.

Students on roll for Ph.D. Programs in different disciplines

Faculty publications in 33 SCI journals and 194 in other international and national journals

Prepared 25 Print Materials and developed 318 other video films

85 238

51

65

286

33 194

47

₹ 229.83 Lakhs

25 318

Students admitted in 05 Master's Degree Programs (Regular and Modular). In addition, 102 Regular and 248 Modular students of previous batches were also on roll as on date (Total Students in PG – 452).

Video Films prepared for MOOCs.

Faculty Publications in International/ National Conferences.

Net Consultancy earned worth 229.83 Lakhs

Recognized as NRC by MHRD in Electrical and Electronics Engineering (EEE). Floated SWAYAM NRC Course on Real Time Power System Analysis and Smart Grid. The rating of the course was 4.7 out of 5 with a total participation of 1578.

Floated 4 Teacher Training Courses on SWAYAM with an average rating of 4.6 out of 5 with a participation of 5417. These courses are: (i)Curriculum Implementation and Evaluation, (ii)Self-Learning Material Development, (iii)Research in Technical Education and (iv)Graphics and Animation.

Developed AICTE Model Curriculum at UG Level in emerging areas: IoT, Blockchain Technology, 3D Printing, Robotics, Cyber Security, AI, Quantum Computing, Virtual Reality, Data Science.

3 MOUs signed with Technical Institutions and Industries i.e., Quality Council of India (QCI) New Delhi, Sarthak Educational Trust, New Delhi, Regain Our Glory Foundation.

An International seminar on Skilling for Self-Employment conducted by Entrepreneurship Development & Industrial Coordination (EDIC) Department on 21st – 22nd February, 2019 and a total number of 162 participants attended the seminar.

National Seminar for ME Students on Data Analysis for Engineers and Scientists held on 01.11.2018.

Conducted TechSpardha 2018, a prototype competition for Post Graduate Students from 5th – 7th September, 2018.

National Seminar on Blockchain Technology held on 14.12.2018 by Computer Science and Engineering Department.

National Education – Employment Summit 2018, conducted on 06.09.2018

National Seminar for ME Students on Design Challenges in Low Power VLSI Design conducted on 03.05.2018

Received funding from AICTE, DST, MeitY for conducting research projects and training programmes

National Conference on Education 4.0: Remaining & Transforming Learning Environments in collaboration with India Didactic Association held on 12.12.2018

National Seminar on Digital India: Services and Solutions conducted in collaboration with TRAI Jaipur organized on 13.09.2018. 204 participants attended the seminar

Strengthening Expertise *(filling the Vacant Positions)*

Dr. Amod Kumar

Dr. K G Srinivasa

Dr. Lini Mathew

Dr. Maitreyee Dutta

Dr. Rajesh Kumar

Dr. S. S. Gill

The following professors who have been recruited through direct recruitment process have joined this year.

GLIMPSES OF SOME EVENTS

INTERNATIONAL CONFERENCE ON "SKILLING FOR SELF-EMPLOYMENT"

NITTTR Chandigarh conducted the International Conference on "Skilling for Self Employment" in collaboration with CPSC Manila, Philippines from 21 – 22 February, 2019 at NITTTR, Chandigarh. Total 162 participants attended.

NATIONAL SEMINAR ON BLOCKCHAIN TECHNOLOGY

The department of Computer Science and Engineering organised a National Seminar on Blockchain Technology on December 14, 2018. A total of 34 delegates from all over the country attended the seminar. Mr. Tariq Deep Singh, Principal Solution Architect, TechMahindra delivered the inaugural and keynote address. Mr. Kunal Nandwani from uTrade Solutions, Chandigarh and Dr. Mani Madhukar from IBM, Gurgaon were invited to engage the sessions in the seminar. The seminar aimed at demystifying Blockchain technology and provided hands-on experience of developing smart contracts and digital identity. Some of the initiatives taken by IBM in this domain were also discussed. The seminar was coordinated by Dr. C. Rama Krishna and Dr. Mala Kalra.

DIGITAL INDIA: SERVICES AND SOLUTIONS IN COLLABORATION WITH TRAI JAIPUR

A seminar was organized by Telecom Regulatory Authority of India Regional Office Jaipur in collaboration with Electronics and Communication Engineering Department, National Institute of Technical Training and Research Chandigarh on 13th September 2018 on the theme "Digital India: Services and Solutions". The seminar was inaugurated by Sh. Ajay Sharma, the Vice Chancellor, IK Gujral Punjab Technical University in the august presence of Dr. SS Pattnaik, Director NITTTR, Mr SK Gupta CGMT BSNL, Garima Saini Assistant Prof NITTTR and Bhavana Sharma Advisor TRAI Jaipur. 204 participants both in contact & ICT mode attended the seminar. 5 speakers had presented the initiatives taken in different sectors such as UMANG app developed by GOI, digital initiatives of Government of India in the education sector, the new initiative of digital sampurna villages, Digital Initiatives in Railways- E-ticketing, digital banking and the consumer aspects related to the same to achieve the vision of Digital India. Garima Saini, Assistant Prof., ECE Deptt. Co-ordinated the seminar.

GLIMPSES OF SOME EVENTS

EDUCATION – EMPLOYMENT SUMMIT 2018

NITTTR and FICCI jointly organized "Education Employment Summit 2018" on 6th September, 2018 at NITTTR, Chandigarh with the objective to bring industry and academia at a common platform and ponder over the strategies for generating employment for Industry 4.0. The summit witnessed a gathering of 250 academicians and leaders from industry, where progressive dialogue took place on issues like education for employability, future of jobs, industry – academia collaboration beyond CSR, convergence of teaching methodologies and emerging technologies, job creation in an era of disruptive technologies. Prominent among the speakers from industry and academia included Mr. Aditya Malkani, South Asia Representative, The Association of Commonwealth Universities, Ms. Anjali Raina, Executive Director, Harvard Business School India Research Centre, Mumbai, Mr. Vikas Gupta, Managing Director, Wiley India, Mr. Pradipto Chakrabarty, Regional Director, CompTIA, Bangalore, Mr. Chetan Verma, CEO India, Bravo Consulting Group, Australia, Mr. Shailendra Jain, Director, Sant Longowal Institute of Engineering and Technology, Dr B S Satyanarayana, Vice Chancellor, BML Munjal University, Mr. Supreeth Nagaraju, Head Education (West South India & SriLanka), Adobe, Mr. Vikas Vats, President, HR Association India, Mr. DP Singh, Senior Executive VP, Chandigarh University, Mr. Rishi Pratap Singh, Director, Application Development Services, Prof. (Dr.) MPS Ishar, Vice Chancellor, Maharaja Ranjit Singh PTU, Bhatinda, Punjab, Prof. (Dr.) BS Ghuman, Vice Chancellor, Punjabi University, Patiala, who addressed the gathering in various sessions.

EDUCATION 4.0: REMAINING & TRANSFORMING LEARNING ENVIRONMENTS IN COLLABORATION WITH INDIA DIDACTIC ASSOCIATION

Institute conducted a seminar on Education 4.0: Remaining & Transforming Learning Environments in Collaboration with India Didactic Association on 17.01.2019

GLIMPSES OF SOME EVENTS

His Excellency V.P. Singh Badanore, Governor, Punjab, addressing the gathering during 'Developed Villages Developed Nation' (Sansad Adarsh Gram Yojna) on 26.06.2018. As an outcome of discussions, during the visit of Hon'ble Governor, Punjab, Sh. JM Balamurugan, IAS, Principal Secretary to Governor, Punjab asked the institute to take a lead role in connecting academic institutions for village upgradation. As a result, Sambandh Punjab, conceived by Professor (Dr.) SS Pattnaik, Director of the institute, was launched.

Sambandh Punjab is an initiative started with the overarching goal to connect the Universities and Colleges with the Society around them for mutually beneficial engagement and to establish a culture of University Social Responsibility. The participating Universities and Colleges will not only adopt villages around their vicinity to support their long-term development but also implement several innovative schemes in their campus in alignment with the National Flagship development schemes to improve the standards of governance in their institutions. "Sambandh Punjab" website is a one-stop platform created by the "National Institute of Technical Teachers Training and Research, Chandigarh" for information sharing among all participants in this programme. The participating institutions can upload their information, showcase the best practices and initiatives.
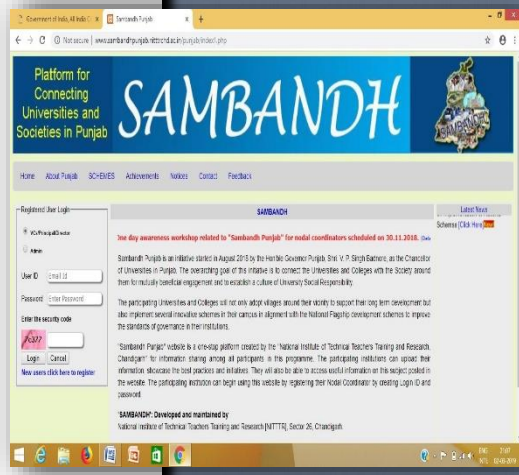
TechSpardha2K18

A National level 30 hours prototype development competition TechSpardha 2K18 for PG engineering students on "Low Cost Sustainable Technology for Smart Villages" was organized at the institute on 5th September, 2018 for encouraging learning, collaboration, growth, innovation, and fun among student network of technical talent. Thirteen teams from Punjab, Haryana, Tamil Nadu and Chandigarh actually participated in the final round of the event. Sh. Ajit Balaji Joshi, IAS, Deputy Commissioner, Chandigarh in his inaugural address focused on the technology for the future and offered a number of collaborative projects like Block Chain, Mobile Apps etc. to NITTTR Chandigarh for the benefit of people of Chandigarh. NITTTR Chandigarh presented 1st, 2nd and 3rd prizes as Rs. 50,000/-, Rs. 30,000/- and Rs. 20,000/- respectively to the winners of the event. The prizes were sponsored by various agencies like CL Educate Ltd., Delhi, Kernel Sphere, Hyderabad, Alakh Computers, Chandigarh, and Targus Chandigarh.

GLIMPSES OF SOME EVENTS

Meeting with DTEs of various states regarding Future Strategies for Technical Education, June, 2018.

International Yoga Day Celebrations on 21.06.2018.

NITTTR, Chandigarh is certified with ISO 9001: 2015 (QMS) certification. Recertification and Upgradation Audit was carried out by External Audit Team during 12 – 13 September, 2018.

The Institute signed an AGREEMENT with Sarthak Educational Trust, New Delhi on 2nd August, 2018 to achieve its goal of empowering the persons with disabilities through education, training and placement by developing partnership with different stakeholders.

The institute celebrated 150th Birth Anniversary of Mahatma Gandhi. An expert talk on "Relevance of Gandhian Principles in Today's Scenario in India" by Professor ML Sharma, Former Professor, Deptt. of Gandhian Studies, Panjab University, Chandigarh.

GLIMPSES OF SOME EVENTS

Professor MP Poonia, Hon'ble Vice Chairman, AICTE addressing the delegates during the Regional Workshop on Planning of UBA Activities in Village Clusters held on 1st August, 2019

Professor SS Pattnaik, Director of the institute addressing the faculty of polytechnics in Haryana during the Workshop for organizing Induction Programme for fresh students held on 11th July, 2018. (Director Technical Education, Haryana, Er. KK Kataria is also present).

51st Annual Day Celebrations

The institute celebrated its 51st annual day on 7th September, 2018.

Recipients of Outstanding Technical Institution Awards

On this occasion, Outstanding Technical Institution Awards were given to the following institutions: Government Polytechnic, Jammu, J&K; Thapar Polytechnic College, Patiala, Punjab; and DAV Institute of Engineering & Technology, Jalandhar, Punjab.

Meritorious students of Master's Degree Programmes were also awarded on the occasion as per detail given below:

Name of student	Branch of ME Programme	CGPA
Sh. Vipin Kumar S/o Sh. Jagpal Singh	ME Mechanical Engineering (Manufacturing Technology) Modular Programme, Batch 2013	7.92
Sh. Mir Aijaz Ahmad S/o Sh. Mir Gazanfar Ali	ME Civil Engineering (Construction Technology & Management) Modular Programme, Batch 2013	8.41
Ms. Nidhi Chaudhary D/o Sh. Mahaveer Singh	ME Computer Science & Engineering (Modular) Programme, Batch 2013	8.63 with Hons
Sh. Satish Kumar Rai S/o Sh. Bachcha Rai	ME Electrical Engineering (Instrumentation & Control) Modular Programme, Batch 2013	8.64 with Hons
Sh. Shashi Kant Sharma S/o Sh. Satya Narayan Sharma	ME Electronics & Communication Engineering (Modular) Programme, Batch 2013	9.09 with Hons
Ms. Shivani Gupta D/o Sh. Pradeep Kumar Gupta	ME Mechanical Engineering (Manufacturing Technology) Regular Programme, Batch 2014	8.31
Sh. Robin Babit S/o Sh. Romel Singh	ME Civil Engineering (Construction Technology & Management) Regular Programme, Batch 2014	8.40
Ms. Rashmi Kakra D/o Sh. Rajpal Kakra	ME Computer Science & Engineering (Regular) Programme, Batch 2014	8.93 with Hons
Ms. Jyoti D/o Sh. Kamal Singh	ME Electrical Engineering (Instrumentation & Control) Regular Programme, Batch 2014	8.90 with Hons
Ms. Shilpi Yadav D/o Sh. Ram Asray Yadav		
Ms. Vaishali Kamboj D/o Sh. Ram Krishan Kamboj	ME Electronics & Communication Engineering (Modular) Programme, Batch 2014	8.67 with Hons

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 multi-media in teaching-learning process. During 2018-19, 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 2019, 65 students are pursuing Ph.D. programs in different disciplines. The institute is also the coordinator of Ph.D. 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. Modular programs are also duly approved by AICTE and affiliated to Panjab University and mainly for the working personnel who undergoe the course work during Summer and Winter break but are evaluated along with the regular students on the same question paper as they appear in the 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 with ensured quality. This programme was launched in the year 2005. Since then majority of the polytechnic faculty members could enhance their qualification from all parts of the country. The institute got approval from AICTE to start ME in IoT, Robotics and AI but due to rigid affiliation process of PU, Chandigarh these courses could not be launched.

Staff Development

Admissions made in these programs during 2018-19 are given below:

MASTER'S DEGREE (REGULAR MODE)

Sr. No.	Name of the Program	No. of Participants				Total	State-wise Break-up
		Polys	Engg. Colleges	Industry	General		
1.	Civil Engineering (Construction Technology and Management)	-	05	05	13	23	PB-2, UP-3, HP-10, J&K-5, UK-1, HR-1, Delhi-1
2.	Computer Science and Engineering	-	-	02	03	05	CHD-3, PB-1, HP-1
3.	Electrical Engineering (Instrumentation and Control)	01	03	-	02	06	J&K-2, HP-2, Odisha-1, CHD-1
4.	Electronics and Communication Engineering	-	-	-	02	02	HP - 2
5.	Mechanical Engineering (Manufacturing Technology)	02	-	-	12	15	PB-4, CHD-4, HP-3, AP-1, UP-1, J&K-2
	Total:	03	08	07	32	51	

MASTER'S DEGREE (MODULAR MODE)

Sr. No.	Name of the Program	No. of Participants				Total	State-wise Break-up
		Polys	Engg. Colleges	Industry	General		
1.	Civil Engineering (Construction Technology and Management)	09	04	05	-	18	PB-5, UP-5, HP-2, J&K-1, HR-1, RAJ-4
2.	Computer Science and Engineering	05	03			08	HP-2, UP-4, AP-1, J&K-1
3.	Electrical Engineering (Instrumentation and Control)	08	04	01	-	13	UK-3, Bihar-5, HR-1, Jharkhand-1, A.P.-1, UP-1, Telengana-1
4.	Electronics and Communication Engineering	06	01	03	-	10	PB-2, HP-1, HR-1, UP-3, RAJ-2, KER-1
5.	Mechanical Engineering (Manufacturing Technology)	01	-	01	-	02	Raj-01, PB-01
	Total	29	12	10	-	51	

102 (regular) and 248 (modular) students of previous batches are also on roll.

PB–Punjab, **UP-**Uttar Pradesh, **HP-**Himachal Pradesh, **J&K-**Jammu and Kashmir, **UK-**Uttrakhand, **HR-**Haryana, **CH-**Chandigarh, **MH-**Maharashtra, **BH-**Bihar, **NL-**Nagaland, **DL-**Delhi, **JH-**Jharkhand, **RJ-**Rajasthan, **TS-**Telangana

ME Students on roll
> **Regular: 153**
> **Modular: 299**
> **Total: 452**

Staff Development

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 2018-19, 323 short-term programs were conducted through contact and ICT mode for faculty/staff of engineering colleges and polytechnics which were attended by 18114 teachers from various states of the country.

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

i. Training Programs/Workshops

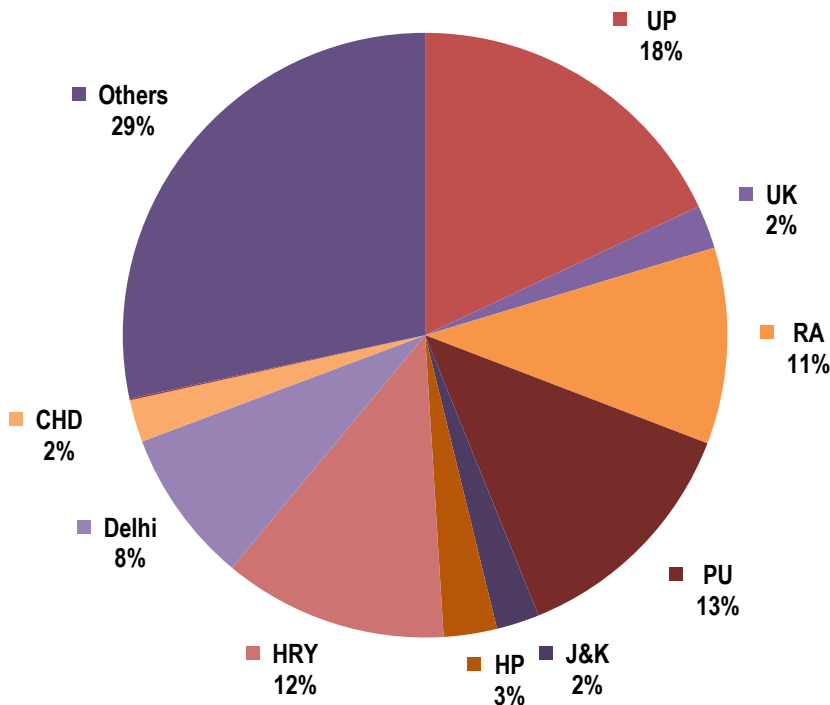|	Type of Training Programs	No. of Courses/Programs	No. of Teachers Trained
A)	**Short Term Courses**		
	Contact Mode	238	4456
	ICT Mode	85	13658
	Total:	**323**	**18114**
B)	**Conferences/Seminars:**		
	(i) International	01	162
	(ii) National	06	764
(C)	**Workshops:**		
	(i) Training Workshops (other than Curriculum Development Workshop	23	1366
	(ii) Review and Operational Plan Preparation Workshops	07	339
	Total (A+B+C):	**360**	**20745**
D)	**Students Training Programs**	29	3157
E)	**Curriculum Development Workshops**	33	346

Total Programmes: 422   **Total Manpower: 24248**

STATEWISE PERCENTAGE OF PARTICIPATION IN SHORT TERM COURSES FOR THE YEAR 2018-19

No. of Courses = 323
No. of Particpants = 18114

Pie chart:
- UP 18%
- UK 2%
- RA 11%
- PU 13%
- J&K 2%
- HP 3%
- HRY 12%
- Delhi 8%
- CHD 2%
- Others 29%

PB–Punjab, **UP-**Uttar Pradesh, **HP-**Himachal Pradesh, **J&K-**Jammu and Kashmir, **UK-**Uttrakhand, **HR-**Haryana, **CH-**Chandigarh, **MH-**Maharashtra, **BH-**Bihar, **NL-**Nagaland, **DL-**Delhi, **JH-**Jharkhand, **RJ-**Rajasthan, **TS-**Telangana

CONFERENCES AND SEMINARS:

Sr. No.	Title(s)	Dates	Dept.	No. of Participants
1.	International Conference on Skilling for Self-Employment	21 -22 .02.2019	Entrepreneurship Development & Coordination	162
2.	National Seminar on Blockchain Technology	14.12.2018	Computer Science & Engineering	34
3.	National Seminar for Me Students on Data Analysis for Engineers and Scientists	01.11.2018	Electronics & Communication Engineering	10
4.	National Seminar on Digital India: Services and Solutions in Collaboration with Trai Jaipur	13.09.2018	Electronics & Communication Engineering	204
5.	National Conference on Education –Employment Summit 2018	06.09.2018	Media Centre	250
6.	National Conference on Education 4.0: Remaining & Transforming Learning Environments in Collaboration with India Didactic Association	12.08.2018	Media Centre	250
7.	National Seminar for Me Students on Design Challenges in Low Power VLSI Design	03.05.2018	Electronics & Communication Engineering	16
	Total:			**764**

Staff Development

WORKSHOPS (OTHER THAN CURRICULUM DEVELOPMENT WORKSHOPS)

Sr. No.	Name of the Programme alongwith dates and venue	Dates	Department	No. of Participants
1.	Workshop on Structural Design using SPACE GASS Software	12.04.2018 to 13.04.2018	Civil Engineering	11
2.	National Workshop on "Latest Techniques in Water Proofing Applications" in association with Fixit Institute of Structural Protection & Rehabilitation, Mumbai	29.11.2019 to 30. 11.2019	Civil Engineering	27
3.	Workshop on "Latest Structural Engineering using STAAD PRO"	12.07.2018	Civil Engineering	25
4.	National Workshop on "Cluster based Computing"	20.08.2018	Computer Science & Engineering	14
5.	One-Day Workshop on Digital Resources and Open Source	19.03.2019	Computer Science & Engineering	87
6.	One day orientation workshop on Curriculum Implementation at GP Sonepat	16.10.18	Computer Science & Engineering	80
7.	Orientation workshop on NSQF at Pt. Ramdhar J. Tiwari College of Poly., Chandauli, UP	25.10.18	Computer Science & Engineering	69
8.	One day orientation workshop on curriculum implementation	14.11.18	Computer Science & Engineering	109
9.	Academic Advisory Council (AAC) meeting of the National Resource Centre for Electrical and Electronics Engineering – 2 workshops	27.06.2018 and 10.08.2018	Curriculum Development Centre	26
10.	4 days workshop on "Hands on Practices for Power Quality Measuring Instruments" in collaboration with Yokogawa India Ltd., New Delhi for M.E. Electrical (I&C) Regular students of Batch 2017 and 2018.		Curriculum Development Centre	11
11.	Three days' workshop on Annual Review-cum Operational preparation and Training of project coordinators in PFMS from NITTTR, Chandigarh	02.05.2018 To 04.05.2018	Entrepreneurship Development & Coordination	21
12.	Stakeholders Workshop for Employers of PWDs	27.04.2018	Entrepreneurship Development & Coordination	206
13.	Training faculty of Polytechnics in Haryana for organizing Induction Training Programme for fresh students	11.07.2018	Education & Educational Management	151
14.	Workshop on Setting up of question papers for HSBTE at Govt. Poly., Ambala City	1.2.2019	Education & Educational Management	77
15.	Video film Production	03.05.2018 To 04.05.2018	Education & Educational Management	08
16.	Graphic and Animation	31.05.2018 To 01.06.2018	Education & Educational Management	01
17.	Workshop on COMSOL Multiphysics	14.06.2018	Mechanical Engineering	40
18.	One Day Workshop for Establishing "Disaster Management Cell" in collaboration with Safety Professional Association of India (SPAI)	25.04.2018	Rural Dev. Department	10

Staff Development

WORKSHOPS (OTHER THAN CURRICULUM DEVELOPMENT WORKSHOPS)

Sr. No.	Name of the Programme alongwith dates and venue	Dates	Department	No. of Participants
19.	One Day National Workshop on "Developed Villages: Developed Nation- Role of Technical Institutions in Sansad Adarsh Gram Yojana" in collaboration with AICTE, New Delhi	26.06.2018	Rural Dev. Department	214
20.	Half Day Workshop on "Organic Farming"	17.07.2018	Rural Dev. Department	37
21.	One Day National Workshop on "Planning of Unnat Bharat Abhiyan Activities Village Cluster" in collaboration with IIT New Delhi	01.08.2018	Rural Dev. Department	74
22.	One Day Regional Workshop for "Orientation of Participating Institutes to Initiate Work in Adopted Village Clusters under Unnat Bharat Abhiyan" in Collaboration with IIT, Delhi	04.12.2018	Rural Dev. Department	29
23.	One Day Regional Workshop for Activities Planning under Unnat Bharat Abhiyan by Participating Institutes (PIs) in collaboration with IIT, Delhi	27.03.2019	Rural Dev. Department	39
24.	Workshop on "Swachh Bharat Abhiyan and Review of CDTP Activities" during April-Sept, 2018 for the States of J&K and Punjab, held on at NITTTR, Chandigarh	11.09.2018	Rural Dev. Department	19
25.	Workshop on "Swachh Bharat Abhiyan and Review of CDTP Activities" during April-Sept, 2018 for the States of Chandigarh, Delhi, Haryana and Himachal Pradesh, at NITTT, Chandigarh	12.09.2018	Rural Development Department	34
26.	Workshop on "Swachh Bharat Abhiyan and Review of CDTP Activities" for Rajasthan State at TTC & LRDC, Jodhpur	April – Sept. 2018	Rural Development Department	38
27.	Workshop on "Swachh Bharat Abhiyan and Review of CDTP Activities" during April-Sept., 2018 for Uttar Pradesh State at DTE, Kanpur.	April – Sept. 2018	Rural Development Department	126
28.	Workshop on "Swachh Bharat Abhiyan and Review of CDTP Activities" during April-Sept., 2018 for Uttarakhand State at IRDT-Dehradun (Oplan No.W-18)	April – Sept. 2018	Rural Development Department	43
29.	Workshop on "Unnat Bharat Abhiyan and Review of CDTP Activities" during the year 2018-19 for Haryana and Himachal Pradesh).	12.03.2019	Rural Development Department	31
30.	Workshop on "Unnat Bharat Abhiyan and Review of CDTP Activities" during the year 2018-19 for the States of Punjab, J&K	14.03.2019	Rural Development Department	48
	Total:			**1705**

During the year 2018-19, 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

Text Books	02
Laboratory Manuals	05
Modules	12
Readers	01
Course Material for Training Programs	05

Print Material

Sr. No.	Print Material Developed
	Text Books
1.	Text Book on Solar Powered Cascaded Multilevel Inverter, Using MATLAB and FPGA Based Spartan 3A DP Board, Lambert. Academic Publication, ISBN: 978-613-9-99450-0, 2018
2.	English and Communication Skills for Haryana State
	Laboratory Manuals
1.	Work flow SIM
2.	Data Wire Housing and Mining
3.	Python Programming
4.	Introduction to Optimetric
5.	PIC Microcontroller using Flow Code

Print Material (contd…)

Sr. No.	Print Material Developed
	Modules
1.	Swachh Bharat Abhiyan
2.	Skilling India
3.	Orientation to CDTP Scheme
4.	Unnat Bharat Abhiyan
5.	Earthquake Resistant Low Cost Housing
6.	Climate Change and Disaster Management
7.	Housing for Himalayan States
8.	Skill India
9.	Innovative Approach Towards Green and Sustainable Buildings
10.	Pre-Job Training of MBA Students of Institute of Integrated Himalayan Studies [IIHS], Himachal Pradesh University, Shimla
11.	Preparation of Utilization Certificates and Statements of Accounts under CDTP Scheme
12.	Training/Orientation Programme for MIS of CDTP Scheme
	Readers
1.	Reader on Sustainable Structural Design Practices
	Course Material
1.	Booklet on Smart Class room
2.	NBA Accreditation
3.	E-Governance in Technical Institutions
4.	Lecture Notes on Manufacturing Process
5.	Booklet on Cutting Technologies.

The information regarding the instructional material developed has been disseminated to the technical institutions of the region and outside to enable them to use the same.

Non Print Material (Digital Resources)

Educational Video Films	120
Lecture based Video Films/(NCTEL)	122
Video Lectures uploaded on You Tube	76
Video Films – MOOCs	286

MOOCs Films 286 – Completed

Sr. No.	Name of the Films	Completed	Remarks
1	Self learning material versus Text Books	Completed	In house/Studio Recording done and Post-Production work Completed
2	Introduction, Merits & Demerits of using Board	Completed	In house/Studio Recording done and Post-Production work Completed
3	Dos' and Don'ts need to be followed while using Board	Completed	In house/Studio Recording done and Post-Production work Completed
4	Types of SLM	Completed	In house/Studio Recording done and Post-Production work Completed
5	Classroom Communication Part- 1	Completed	In house/Studio Recording done and Post-Production work Completed
6	Classroom Communication Part- 2	Completed	In house/Studio Recording done and Post-Production work Completed
7	Classroom Communication Part -3	Completed	In house/Studio Recording done and Post-Production work Completed
8	Concept of Feedback	Completed	In house/Studio Recording done and Post-Production work Completed
9	Types of Feedback	Completed	In house/Studio Recording done and Post-Production work Completed
10	Role of Feedback in Assessment	Completed	In house/Studio Recording done and Post-Production work Completed
11	How to provide feedback	Completed	In house/Studio Recording done and Post-Production work Completed

MOOCs Films 286 – Completed (contd..)

Sr. No.	Name of the Films	Completed	Remarks
12	Descriptive Research Part -1	Completed	In house/Studio Recording done and Post-Production work Completed
13	Descriptive Research Part -2	Completed	In house/Studio Recording done and Post-Production work Completed
14	Descriptive Research Part -3	Completed	In house/Studio Recording done and Post-Production work Completed
15	Need for Research	Completed	In house/Studio Recording done and Post-Production work Completed
16	Selecting a Research Problem	Completed	In house/Studio Recording done and Post-Production work Completed
17	Defining a Research Problem and Writing Research Questions	Completed	In house/Studio Recording done and Post-Production work Completed
18	General Principles of developing SLM	Completed	In house/Studio Recording done and Post-Production work Completed
19	Format of SLM	Completed	In house/Studio Recording done and Post-Production work Completed
20	Concept and Types of Educational Research	Completed	In house/Studio Recording done and Post-Production work Completed
21	SLM Need and Challenges	Completed	In house/Studio Recording done and Post-Production work Completed
22	Process of developing SLM	Completed	In house/Studio Recording done and Post-Production work Completed
23	Steps in conducting Research	Completed	In house/Studio Recording done and Post-Production work Completed
24	Organizing student centered activities Part - 1	Completed	In house/Studio Recording done and Post-Production work Completed
25	Organizing student centered activities Part- 2	Completed	In house/Studio Recording done and Post-Production work Completed
26	Organizing student centered activities Part -3	Completed	In house/Studio Recording done and Post-Production work Completed
27	Instructional Strategies Part -1	Completed	In house/Studio Recording done and Post-Production work Completed
28	Instructional Strategies Part-2	Completed	In house/Studio Recording done and Post-Production work Completed
29	Instructional Strategies Part -3	Completed	In house/Studio Recording done and Post-Production work Completed
30	Instructional Strategies Part- 4	Completed	In house/Studio Recording done and Post-Production work Completed
31	Models of Curriculum Evaluation	Completed	In house/Studio Recording done and Post-Production work Completed
32	Stufflebeam CIPP Model	Completed	In house/Studio Recording done and Post-Production work Completed
33	Steps in Curriculum Evaluation	Completed	In house/Studio Recording done and Post-Production work Completed
34	Review of related literature Part- 1	Completed	In house/Studio Recording done and Post-Production work Completed

Instructional Material Development

MOOCs Films 286 – Completed (contd..)

Sr. No.	Name of the Films	Completed	Remarks
35	Review of related literature Part -2	Completed	In house/Studio Recording done and Post-Production work Completed
36	Learning Outcomes Part -1	Completed	In house/Studio Recording done and Post-Production work Completed
37	Learning Outcomes Part- 2	Completed	In house/Studio Recording done and Post-Production work Completed
38	Los and evaluation techniques	Completed	In house/Studio Recording done and Post-Production work Completed
39	Norms and standards for technical Institute	Completed	In house/Studio Recording done and Post-Production work Completed
40	Active Learning- Introduction and Concept	Completed	In house/Studio Recording done and Post-Production work Completed
41	Active Learning Cycle	Completed	In house/Studio Recording done and Post-Production work Completed
42	Active Learning Techniques	Completed	In house/Studio Recording done and Post-Production work Completed
43	Tools for e content development -1	Completed	In house/Studio Recording done and Post-Production work Completed
44	Tools for e content development -2	Completed	In house/Studio Recording done and Post-Production work Completed
45	Demonstration of Tool Book	Completed	In house/Studio Recording done and Post-Production work Completed
46	Review of related literature Part- 3	Completed	In house/Studio Recording done and Post-Production work Completed
47	Collecting Data – Some Guidelines Part- 1	Completed	In house/Studio Recording done and Post-Production work Completed
48	Collecting Data – Some Guidelines Part -2	Completed	In house/Studio Recording done and Post-Production work Completed
49	Collecting Data – Some Guidelines Part -3	Completed	In house/Studio Recording done and Post-Production work Completed
50	Collecting Data – Some Guidelines Part -4	Completed	In house/Studio Recording done and Post-Production work Completed
51	Evaluating a Research Report	Completed	In house/Studio Recording done and Post-Production work Completed
52	Research Report- Guidelines	Completed	In house/Studio Recording done and Post-Production work Completed
53	Writing a Research Report	Completed	In house/Studio Recording done and Post-Production work Completed
54	Factors affecting classroom communication Part -1	Completed	In house/Studio Recording done and Post-Production work Completed
55	Factors affecting classroom communication Part -2	Completed	In house/Studio Recording done and Post-Production work Completed
56	Reading Skills – Strategies for effective reading	Completed	In house/Studio Recording done and Post-Production work Completed
57	Active learning and LOs	Completed	In house/Studio Recording done and Post-Production work Completed

Instructional Material Development

MOOCs Films 286 – Completed (contd..)

Sr. No.	Name of the Films	Completed	Remarks
58	Media- Introduction and Types	Completed	In house/Studio Recording done and Post-Production work Completed
59	Classroom Communication Part- 1	Completed	In house/Studio Recording done and Post-Production work Completed
60	Classroom Communication Part- 2	Completed	In house/Studio Recording done and Post-Production work Completed
61	Instruction and Learning Part- 1	Completed	In house/Studio Recording done and Post-Production work Completed
62	Instruction and Learning Part- 2	Completed	In house/Studio Recording done and Post-Production work Completed
63	Instruction and Learning Part- 3	Completed	In house/Studio Recording done and Post-Production work Completed
64	Learning Outcomes Part- 3	Completed	In house/Studio Recording done and Post-Production work Completed
65	Learning Outcomes Part -4	Completed	In house/Studio Recording done and Post-Production work Completed
66	Introductory video on Research in Technical Education	Completed	In house/Studio Recording done and Post-Production work Completed
67	CIE Active Learning Part -1	Completed	In house/Studio Recording done and Post-Production work Completed
68	CIE Active Learning Part- 2	Completed	In house/Studio Recording done and Post-Production work Completed
69	CIE Active Learning Part-3	Completed	In house/Studio Recording done and Post-Production work Completed
70	CIE Active Learning Part -4	Completed	In house/Studio Recording done and Post-Production work Completed
71	CIE Cooperative Technical Education Model	Completed	In house/Studio Recording done and Post-Production work Completed
72	CIE Factors Affecting Curriculum Implementation	Completed	In house/Studio Recording done and Post-Production work Completed
73	CIE Industry Institute Interaction	Completed	In house/Studio Recording done and Post-Production work Completed
74	CIE Norms & Standards for Technical Institutes –Part -2	Completed	In house/Studio Recording done and Post-Production work Completed
75	CIE Planning & Implementation of Cooperative Education	Completed	In house/Studio Recording done and Post-Production work Completed
76	CIE Project Work - Planning Execution & Evaluation Part - 2	Completed	In house/Studio Recording done and Post-Production work Completed
77	CIE Promo Video	Completed	In house/Studio Recording done and Post-Production work Completed
78	CIE Systematic Approach for Curriculum Implementation	Completed	In house/Studio Recording done and Post-Production work Completed
79	CS-Listening Skills-Concept & Purpose	Completed	In house/Studio Recording done and Post-Production work Completed
80	CS-Listening Types	Completed	In house/Studio Recording done and Post-Production work Completed

MOOCs Films 286 – Completed (contd..)

Sr. No.	Name of the Films	Completed	Remarks
81	CS-Principles of Effective Listening	Completed	In house/Studio Recording done and Post-Production work Completed
82	CS-Principles of Effective Speaking	Completed	In house/Studio Recording done and Post-Production work Completed
83	CS-Speaking-Concept & Purpose	Completed	In house/Studio Recording done and Post-Production work Completed
84	CSTL Listening-Concepts and Purpose	Completed	In house/Studio Recording done and Post-Production work Completed
85	CSTL Listening-Types	Completed	In house/Studio Recording done and Post-Production work Completed
86	CSTL Principals of Effective Listening	Completed	In house/Studio Recording done and Post-Production work Completed
87	CSTL Principals of Effective Speaking	Completed	In house/Studio Recording done and Post-Production work Completed
88	CSTL Speaking Concepts & Purpose	Completed	In house/Studio Recording done and Post-Production work Completed
89	ED Facilities Incentives National Level Agencies	Completed	In house/Studio Recording done and Post-Production work Completed
90	GAD-Google Sketchup Part -1	Completed	In house/Studio Recording done and Post-Production work Completed
91	GAD-Google Sketchup Part -2	Completed	In house/Studio Recording done and Post-Production work Completed
92	GAD-Google Sketchup Part- 3	Completed	In house/Studio Recording done and Post-Production work Completed
93	GAD-Google Sketchup Part -4	Completed	In house/Studio Recording done and Post-Production work Completed
94	GAD-Google Sketchup Part-5	Completed	In house/Studio Recording done and Post-Production work Completed
95	IP Classroom Management	Completed	In house/Studio Recording done and Post-Production work Completed
96	IP Classroom Management	Completed	In house/Studio Recording done and Post-Production work Completed
97	IP Lesson Planning	Completed	In house/Studio Recording done and Post-Production work Completed
98	IP Lesson Planning	Completed	In house/Studio Recording done and Post-Production work Completed
99	RTE- Ex Post Facto Research- Process	Completed	In house/Studio Recording done and Post-Production work Completed
100	RTE- Research Proposal- Format	Completed	In house/Studio Recording done and Post-Production work Completed
101	RTE- Research Proposal Concept, Significance, Types	Completed	In house/Studio Recording done and Post-Production work Completed
102	RTE-Data Analysis Part-1	Completed	In house/Studio Recording done and Post-Production work Completed
103	RTE-Data Analysis Part-2	Completed	In house/Studio Recording done and Post-Production work Completed

Instructional Material Development

Sr. No.	Name of the Films	Completed	Remarks
104	RTE-Data Analysis Part-3	Completed	In house/Studio Recording done and Post-Production work Completed
105	RTE-Data Analysis Part-4	Completed	In house/Studio Recording done and Post-Production work Completed
106	RTE-Ex Post Facto Research-Concept	Completed	In house/Studio Recording done and Post-Production work Completed
107	RTE-Experimental Research Designs	Completed	In house/Studio Recording done and Post-Production work Completed
108	RTE-Experimental Research-Concept & Characteristics	Completed	In house/Studio Recording done and Post-Production work Completed
109	RTE-Internal & External Validity	Completed	In house/Studio Recording done and Post-Production work Completed
110	RTE-Internal & External Validity	Completed	In house/Studio Recording done and Post-Production work Completed
111	Self Learning Material - Content management	Completed	In house/Studio Recording done and Post-Production work Completed
112	Self Learning Material - Content Presentation	Completed	In house/Studio Recording done and Post-Production work Completed
113	Self Learning Material - Effective Writing Skills	Completed	In house/Studio Recording done and Post-Production work Completed
114	Self Learning Material - Evaluation Concept & types	Completed	In house/Studio Recording done and Post-Production work Completed
115	Self Learning Material - IPR in context of SLM	Completed	In house/Studio Recording done and Post-Production work Completed
116	Self Learning Material - Quality Assurance Instruments	Completed	In house/Studio Recording done and Post-Production work Completed
117	Self Learning Material - Quality Assurance	Completed	In house/Studio Recording done and Post-Production work Completed
118	Self Learning Material - SLM vs Conventional Teaching	Completed	In house/Studio Recording done and Post-Production work Completed
119	Self Learning Material - Types of Task Analysis	Completed	In house/Studio Recording done and Post-Production work Completed
120	Sustain and Enhance Technical Knowledge in Solar Energy	Completed	In house/Studio Recording done and Post-Production work Completed
121	CIE Characteristics of a Good Test-Part-1	Completed	In house/Studio Recording done and Post-Production work Completed
122	CIE Characteristics of a Good Test-Part-2	Completed	In house/Studio Recording done and Post-Production work Completed
123	Overview of Graphic Design and Its Applications part 1	Completed	In house/Studio Recording done and Post-Production work Completed
124	Overview of Graphic Design and Its Applications part 2	Completed	In house/Studio Recording done and Post-Production work Completed
125	Overview of Graphic Design and Its Applications part 3	Completed	In house/Studio Recording done and Post-Production work Completed
126	Overview of Graphic Design and Its Applications part 4	Completed	In house/Studio Recording done and Post-Production work Completed

Instructional Material Development

MOOCs Films 286 – Completed (contd..)

Sr. No.	Name of the Films	Completed	Remarks
127	Overview of Graphic Design and Its Applications part 5	Completed	In house/Studio Recording done and Post-Production work Completed
128	Task Analysis – Concept	Completed	In house/Studio Recording done and Post-Production work Completed
129	Task Analysis - rules	Completed	In house/Studio Recording done and Post-Production work Completed
130	GIMP Introduction	Completed	In house/Studio Recording done and Post-Production work Completed
131	GIMP Tools 1	Completed	In house/Studio Recording done and Post-Production work Completed
132	Gimp tools 2	Completed	In house/Studio Recording done and Post-Production work Completed
133	GIMP Tools 3	Completed	In house/Studio Recording done and Post-Production work Completed
134	Entrepreneurship Development Module 3 (Part A1)	Completed	In house/Studio Recording done and Post-Production work Completed
135	GIMP Tools 4	Completed	In house/Studio Recording done and Post-Production work Completed
136	GIMP Tools 5	Completed	In house/Studio Recording done and Post-Production work Completed
137	Academic Audit Scope & Features	Completed	In house/Studio Recording done and Post-Production work Completed
138	GIMP Tools 9	Completed	In house/Studio Recording done and Post-Production work Completed
139	GIMP Tools 10	Completed	In house/Studio Recording done and Post-Production work Completed
140	GIMP Tools 7	Completed	In house/Studio Recording done and Post-Production work Completed
141	GIMP Tools by 6 i	Completed	In house/Studio Recording done and Post-Production work Completed
142	Entrepreneurship and Development Module 3 Part A4	Completed	In house/Studio Recording done and Post-Production work Completed
143	Entrepreneurship and Development part A5	Completed	In house/Studio Recording done and Post-Production work Completed
144	Entrepreneurship and Development part A1	Completed	In house/Studio Recording done and Post-Production work Completed
145	Fundamentals of Layers	Completed	In house/Studio Recording done and Post-Production work Completed
146	Layers Masks and Working with paths	Completed	In house/Studio Recording done and Post-Production work Completed
147	Evaluation – Concept, Types and Purpose	Completed	In house/Studio Recording done and Post-Production work Completed
148	Learning Outcomes and Evaluation Techniques	Completed	In house/Studio Recording done and Post-Production work Completed
149	Introduction to Correlational research	Completed	In house/Studio Recording done and Post-Production work Completed

Instructional Material Development

MOOCs Films 286 – Completed (contd..)

Sr. No.	Name of the Films	Completed	Remarks
150	Different Types of Correlational research	Completed	In house/Studio Recording done and Post-Production work Completed
151	An Introduction to Intellectual Property rights	Completed	In house/Studio Recording done and Post-Production work Completed
152	Types of Test Items	Completed	In house/Studio Recording done and Post-Production work Completed
153	Intellectual Property rights in context of self learning Material	Completed	In house/Studio Recording done and Post-Production work Completed
154	Blender Intro	Completed	In house/Studio Recording done and Post-Production work Completed
155	Blender Interface	Completed	In house/Studio Recording done and Post-Production work Completed
156	Blender Animation	Completed	In house/Studio Recording done and Post-Production work Completed
157	Blender Interface	Completed	In house/Studio Recording done and Post-Production work Completed
158	Modelling in Blender 1	Completed	In house/Studio Recording done and Post-Production work Completed
159	Modelling In Blender 2	Completed	In house/Studio Recording done and Post-Production work Completed
160	Materials In Blender 1	Completed	In house/Studio Recording done and Post-Production work Completed
161	Materials in Blender 2	Completed	In house/Studio Recording done and Post-Production work Completed
162	Modifiers In Blender	Completed	In house/Studio Recording done and Post-Production work Completed
163	Lighting In Blender	Completed	In house/Studio Recording done and Post-Production work Completed
164	Character modelling	Completed	In house/Studio Recording done and Post-Production work Completed
165	Character Rigging	Completed	In house/Studio Recording done and Post-Production work Completed
166	Animation in Blender	Completed	In house/Studio Recording done and Post-Production work Completed
167	Camera And Rendering in Blender	Completed	In house/Studio Recording done and Post-Production work Completed
168	Reading Skills – concept Purpose and types	Completed	In house/Studio Recording done and Post-Production work Completed
169	Writing Skills Principles for Effective Writing	Completed	In house/Studio Recording done and Post-Production work Completed
170	Writing Skills Concept and purpose	Completed	In house/Studio Recording done and Post-Production work Completed
171	Team concept	Completed	In house/Studio Recording done and Post-Production work Completed
172	Attitude Concept	Completed	In house/Studio Recording done and Post-Production work Completed

Instructional Material Development

MOOCs Films 286 – Completed (contd..)

Sr. No.	Name of the Films	Completed	Remarks
173	Introduction To Communication Skills	Completed	In house/Studio Recording done and Post-Production work Completed
174	Strategy for Curriculum Implementation	Completed	In house/Studio Recording done and Post-Production work Completed
175	Student Evaluation	Completed	In house/Studio Recording done and Post-Production work Completed
176	Sampling Technique Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
177	Sampling Technique Part 2	Completed	In house/Studio Recording done and Post-Production work Completed
178	Why to use Media in Classroom	Completed	In house/Studio Recording done and Post-Production work Completed
179	Motivating Students Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
180	Motivating Students Part 2	Completed	In house/Studio Recording done and Post-Production work Completed
181	Motivating Students Part 3	Completed	In house/Studio Recording done and Post-Production work Completed
182	CCS Rules 1965	Completed	In house/Studio Recording done and Post-Production work Completed
183	CSS Conduct rules 1964	Completed	In house/Studio Recording done and Post-Production work Completed
184	Academic Audit Process of continuous quality improvement	Completed	In house/Studio Recording done and Post-Production work Completed
185	Strategic Planning Process	Completed	In house/Studio Recording done and Post-Production work Completed
186	Strategic Planning Need and Importance	Completed	In house/Studio Recording done and Post-Production work Completed
187	Competencies of an Entrepreneur Module 1,Part 1 (A)	Completed	In house/Studio Recording done and Post-Production work Completed
188	Competencies of an Entrepreneur Module 1, Part 1 (b)	Completed	In house/Studio Recording done and Post-Production work Completed
189	Creativity and Innovation in Entrepreneurship Module 1, Part 2 (a)	Completed	In house/Studio Recording done and Post-Production work Completed
190	Facilities and incentives from district Level Module 2, Part 2 (d)	Completed	In house/Studio Recording done and Post-Production work Completed
191	Facilities and incentives from national level Module 2 part 1(A)	Completed	In house/Studio Recording done and Post-Production work Completed
192	Facilities and incentives from national level Module 2 part 1(B)	Completed	In house/Studio Recording done and Post-Production work Completed
193	Facilities and incentives from State level Agencies Module 2 part 2 (a)	Completed	In house/Studio Recording done and Post-Production work Completed
194	Facilities and incentives from State level Agencies Module 2 part 2(B)	Completed	In house/Studio Recording done and Post-Production work Completed
195	Facilities and incentives from State level Agencies Module 2 part 2(D)	Completed	In house/Studio Recording done and Post-Production work Completed

Instructional Material Development

MOOCs Films 286 – Completed (contd..)

Sr. No.	Name of the Films	Completed	Remarks
196	Consideration for product selection Module 3 part D	Completed	In house/Studio Recording done and Post-Production work Completed
197	Achievement Motivation Training Module 4 part 1	Completed	In house/Studio Recording done and Post-Production work Completed
198	Thematic Apperception Test Module 4 Part 2	Completed	In house/Studio Recording done and Post-Production work Completed
199	Achievement Motivation Training Module 4 part 3	Completed	In house/Studio Recording done and Post-Production work Completed
200	Achievement Motivation Training Module 4 part 4	Completed	In house/Studio Recording done and Post-Production work Completed
201	Achievement Motivation Training Module 4 part 5	Completed	In house/Studio Recording done and Post-Production work Completed
202	Project work Planning and execution Part	Completed	In house/Studio Recording done and Post-Production work Completed
203	Project work Planning and execution Part 4	Completed	In house/Studio Recording done and Post-Production work Completed
204	Knowledge Management Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
205	Knowledge Management Part 2	Completed	In house/Studio Recording done and Post-Production work Completed
206	Knowledge Management Part 3	Completed	In house/Studio Recording done and Post-Production work Completed
207	Knowledge Management Part 4	Completed	In house/Studio Recording done and Post-Production work Completed
208	Demonstration of Fundamental of Layers	Completed	In house/Studio Recording done and Post-Production work Completed
209	Fundamental of Layers	Completed	In house/Studio Recording done and Post-Production work Completed
210	GIMP Tools Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
211	GIMP Tools Part 2	Completed	In house/Studio Recording done and Post-Production work Completed
212	Introduction to Graphics and Animation	Completed	In house/Studio Recording done and Post-Production work Completed
213	Overview of Graphic Designing Part 4	Completed	In house/Studio Recording done and Post-Production work Completed
214	GIMP Tools Part 8	Completed	In house/Studio Recording done and Post-Production work Completed
215	Characteristics of Self Learning Material	Completed	In house/Studio Recording done and Post-Production work Completed
216	Computer Assisted Self Learning Material	Completed	In house/Studio Recording done and Post-Production work Completed
217	Managing Attitudes by Dr Sunil Dutt	Completed	In house/Studio Recording done and Post-Production work Completed
218	Self Learning Material Development	Completed	In house/Studio Recording done and Post-Production work Completed

Instructional Material Development

MOOCs Films 286 – Completed (contd..)

Sr. No.	Name of the Films	Completed	Remarks
219	Systematic Approach to Instructional Design	Completed	In house/Studio Recording done and Post-Production work Completed
220	Curriculum Evaluation	Completed	In house/Studio Recording done and Post-Production work Completed
221	Methodology of Curriculum Evaluation	Completed	In house/Studio Recording done and Post-Production work Completed
222	Time Framework and Target	Completed	In house/Studio Recording done and Post-Production work Completed
223	Team Building	Completed	In house/Studio Recording done and Post-Production work Completed
224	Introduction to Self Learning Material development Video	Completed	In house/Studio Recording done and Post-Production work Completed
225	Introduction to Smart Grid	Completed	In house/Studio Recording done and Post-Production work Completed
226	Challenges and Solutions in Modern Power System Module 1	Completed	In house/Studio Recording done and Post-Production work Completed
227	Use of Satellite Communication Module 1	Completed	In house/Studio Recording done and Post-Production work Completed
228	VSAT Technology Module 1	Completed	In house/Studio Recording done and Post-Production work Completed
229	Transmission line Parameter calculation Module 2 Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
230	Creating Matlab Simulink Module 2 Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
231	Load Flow Analysis Module 2 Part 3	Completed	In house/Studio Recording done and Post-Production work Completed
232	Load Flow and Fault Analysis Module 2 Part 4	Completed	In house/Studio Recording done and Post-Production work Completed
233	Need for Real time Simulation Module 3 Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
234	Architecture of Real Time Simulator Module 3 Part 2	Completed	In house/Studio Recording done and Post-Production work Completed
235	Introduction to RT Lab Module 3 Part 3	Completed	In house/Studio Recording done and Post-Production work Completed
236	Configuring Simulink Model for Real Time Analysis Module 3 Part 4	Completed	In house/Studio Recording done and Post-Production work Completed
237	Real Time Simulation of Multimachine 9 bus systems Module 4 Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
238	Real Time Analysis of Multimachine 9 bus system using OP-4510 Module 4 part 2	Completed	In house/Studio Recording done and Post-Production work Completed
239	Demonstration of HIL on OP-4510 Module 4 Part 3	Completed	In house/Studio Recording done and Post-Production work Completed
240	Basic Principle of FACTS Devices Module 5 part 1	Completed	In house/Studio Recording done and Post-Production work Completed
241	Variable Impedance type FACTS Controllers Module 5 Part 2	Completed	In house/Studio Recording done and Post-Production work Completed

Instructional Material Development

MOOCs Films 286 – Completed (contd..)

Sr. No.	Name of the Films	Completed	Remarks
242	Voltage based FACT controllers Module 5 Part 3	Completed	In house/Studio Recording done and Post-Production work Completed
243	Control Scheme for STATCOM Module 6 Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
244	Real Time Simulation of STATCOM using OPAL RT Module 6 Part 2	Completed	In house/Studio Recording done and Post-Production work Completed
245	Real time Simulation of TCSC by OPAL RT Module 6 Part 3	Completed	In house/Studio Recording done and Post-Production work Completed
246	Real time Simulation of UPFC by OPAL RT Module 6 Part 4	Completed	In house/Studio Recording done and Post-Production work Completed
247	Real time Simulation of TCSC by OPAL RT Module 6 Part 5	Completed	In house/Studio Recording done and Post-Production work Completed
248	Introduction to Microgrid Module 7 Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
249	Real Time Studies of effect of Renewable energy sources on Microgrid Module 7 part 2	Completed	In house/Studio Recording done and Post-Production work Completed
250	Power Hardware in Loop Module 8 part 1	Completed	In house/Studio Recording done and Post-Production work Completed
251	Practical Demonstration of PHII using real time Load and Sensor Module 8 part 2	Completed	In house/Studio Recording done and Post-Production work Completed
252	Econtent of Grid Simulator Moduke 8	Completed	In house/Studio Recording done and Post-Production work Completed
253	Basics of smart Grid Module 9 part 1	Completed	In house/Studio Recording done and Post-Production work Completed
254	Integration of Renewable Energy Sources in grid Module 9 Part 2	Completed	In house/Studio Recording done and Post-Production work Completed
255	Power Quality Issues Module 9 Part 3	Completed	In house/Studio Recording done and Post-Production work Completed
256	Econtent on Fuel Cell Module 9	Completed	In house/Studio Recording done and Post-Production work Completed
257	Basics of electric Vehicle Technology Module 10 Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
258	Electric Vehicle Charging station Module 10 Part 2	Completed	In house/Studio Recording done and Post-Production work Completed
259	Electric Vehicle Advantage Types and Drivers Module 10 part 3	Completed	In house/Studio Recording done and Post-Production work Completed
260	Real time Modelling and Simulation of electric Vehicle Module 10 Part 4	Completed	In house/Studio Recording done and Post-Production work Completed
261	E content on electric Vehicle Module 10	Completed	In house/Studio Recording done and Post-Production work Completed
262	Introduction to AMI Module 11 Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
263	AMI Module 11 Part 2	Completed	In house/Studio Recording done and Post-Production work Completed
264	IoT and AMi communication protocol Module 11 Part 3	Completed	In house/Studio Recording done and Post-Production work Completed

Sr. No.	Name of the Films	Completed	Remarks
265	MDMS and Security Threats Module 11 part 4	Completed	In house/Studio Recording done and Post-Production work Completed
266	Benefits of AMI and Standards Module 11 Part 5	Completed	In house/Studio Recording done and Post-Production work Completed
267	Data Science pertaining to Smart Grid Module 12 part1	Completed	In house/Studio Recording done and Post-Production work Completed
268	Smart Grid use cases Module 12 Part 2	Completed	In house/Studio Recording done and Post-Production work Completed
269	Analytics in Smart Grid Module 12 Part 3	Completed	In house/Studio Recording done and Post-Production work Completed
270	Intro to Machine Learning and SK Learn Module 14 Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
271	Data Preprocessing in Python Module 14 Part 2	Completed	In house/Studio Recording done and Post-Production work Completed
272	Superwised and Unsupervised Machine Learning Module 14 Part 3	Completed	In house/Studio Recording done and Post-Production work Completed
273	Cyber Security in Smart Grid Module 15 Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
274	Cyber Security Threats Classification Module 15 part 2	Completed	In house/Studio Recording done and Post-Production work Completed
275	Cyber Security Objective Module 15 Part 3	Completed	In house/Studio Recording done and Post-Production work Completed
276	Cyber Security Architecture Model Module 15 Part 4	Completed	In house/Studio Recording done and Post-Production work Completed
277	What is Blockchain Module 16 Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
278	Blockchain Implementation Stories Part 2 Module 16	Completed	In house/Studio Recording done and Post-Production work Completed
279	Blockchain in Smart Grid Module 16 Part 3	Completed	In house/Studio Recording done and Post-Production work Completed
280	Hyperledger Fabric in Blockchain Module 16 Part 4	Completed	In house/Studio Recording done and Post-Production work Completed
281	Hyperledger Composer in Blockchain Module 16 part 5	Completed	In house/Studio Recording done and Post-Production work Completed
282	Econtent for Blockchain	Completed	In house/Studio Recording done and Post-Production work Completed
283	Tools and Technologies Module 13 Part 1	Completed	In house/Studio Recording done and Post-Production work Completed
284	R Programming Example Module 13 Part 2	Completed	In house/Studio Recording done and Post-Production work Completed
285	Introduction to Python Module 13 Part 3	Completed	In house/Studio Recording done and Post-Production work Completed
286	Data Exploration using Python Module 13 Part 4	Completed	In house/Studio Recording done and Post-Production work Completed

Instructional Material 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. During the year 2018-19, 11 curricula have been designed including AICTE Model Curriculum of courses at UG level in Emerging Areas. The department conducted 37 Curriculum Development Workshops of 1-2 days' duration which were attended by 349 participants.

Curriculum Designed: 11 Nos

	Computer Science & Engineering Department	
1.	Curriculum Workshop for developing the curriculum structure and contents for UP state	
2.	AICTE Model Curriculum of courses at UG level in Emerging Areas	
3.	Curriculum Designed for Diploma Programme in CSE for HP State.	
4.	Curriculum for ME(CSE) with specialization in IoT for NITTTR, Chandigarh	
	Electronics & Communication Engineering Department	
5.	Designed syllabus for M.E. Electronics and Communication Engg. (Artificial Intelligence)	
	Curriculum Development Centre	
6.	Computer Science Engineering	**NSQF Aligned Curriculum of Diploma Program for UP State.**
7.	Electronics and Communication Engineering	
8.	Mechanical Engineering	
9.	Civil Engineering	
10.	Farm Equipment Technician	NSQF Complaint Diploma Level Program for MRSPTU, Bathinda.
11.	Mechatronics	Diploma for CTR, Ludhiana

Curriculum Development

Research and development activities in technology and technical education form an important aspect of the institute's programme. During the year 2018-19, the following Research Studies and Development Projects were completed:

1. 47 Research Studies have been completed by the faculty of the institute.
2. Entrepreneurship Awareness Camps/FDPs Sponsored by DST/NIMAT.
3. Curriculum Development of Courses that Enhance Employability Skills Sponsored by AICTE.
4. Solid Waste Management Technologies and Regulatory Compliance Sponsored by DST.
5. Development of Swayam MOOCs for Teacher Training Programmes, Sponsored by MHRD
6. Sustain and Enhance Technical Knowledge in Solar Energy Systems under Green Skill Development Programme of ENVIS Scheme by DoE, Chandigarh Administration.
7. The following Ph.D thesis under the supervision of NITTTR faculty were completed and defended during 2018-19:
    a. Two-level Security Architecture for Virtual Machine Migration in Cloud Computing.
    b. Security Issues in Cloud Computing, Challenges and Solutions.

In addition to above, 136 ME thesis were also completed under the guidance of faculty of this institute. The faculty of the institute have contributed research papers to the various journals, conventions, seminars and conferences. 33 papers of the institute faculty were published in SCI Indexed Journals, 191 papers in International Journals and 03 papers of the institute faculty were published in National Journals. 51 papers were presented by the faculty in various International Conferences & Seminars and 04 were presented by the faculty in various National Conferences & Seminars.

Research Publications / Papers

Bar chart titled "Research Publications / Papers" with Y-axis "Number of Publications" ranging 0 to 250.

- Paper Published in Journals: International = 191, National = 3
- Paper Presented/Accepted in Conferences: International = 51, National = 4

Legend: ■ International ■ National

Research and Development

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.

Signing of Memorandum of Understanding

Sr. No.	Organisations	Date of Signing	Date of Maturity	Signing Authority
1.	Quality Council of India, 2nd Floor, Institute of Engineers Building, 2, Bahadur Shah Zafar Marg, New Delhi – 110002	27.04.2018	26.04.2021	Dr. R.P. Singh Secretary General
2.	Sarthak Educational Trust (SET) Regd.Office: DG-II/248A, Vikas Puri, New Delhi 110 018	02.08.2018	01.08.2021	Dr. Jatender Aggarwal
3.	Regain Our Glory Foundation, Amritsar (Punjab)	24.05.2018	23.05.2019	Shri Shankar Dutt Tiwari Director

The major objectives of signing these MoUs are to:

a. **Develop training jointly to enhance the learning of faculty through diversified facilities and support of experts.**
b. **Support each other's' endeavour in delivery of academic programs and research activities.**
c. **Exchange of scientific and technical information.**
d. **Undertaking collaborative research activities through participation in Nationally and Internationally funded projects.**
e. **Jointly organize events such as seminars, workshops, conferences and training programs.**
f. **Training of students of PG level.**
g. **Collaboratively working for various National Mission.**

Extension Services and Consultancy

Consultancy Projects

During the year 2018-19, the following consultancy projects were undertaken:

Sr.No.	Name of Consultancy Project	Status of Project
1.	Evaluation of Learning Materials (English, Physics, Chemistry and Mathematics)	Completed
2.	• Testing of Materials, Design, Quality Control • Training Need Analysis (TNA) for teachers of State Council of Odisha • Developing of Curriculum for Polytechnics and Engineering College for the State of HP	Completed
3.	Energy Efficient Solar PV Shade for e-benches in Parks	Completed
4.	Documentary Film on Haryana Directorate	Completed
5.	Conduct of recruitment tests for Punjab government on 08-04-2018	Completed
6.	Punjab Government Recruitment Test on 14-10-2018	Completed
7.	Recruitment Test for PUDA, Mohali	Completed
8.	Recruitment test for MILKFED, punjab	Completed
9.	Recruitment test of JBT Teachers for Chandigarh Administration on 27-01-2019	Completed
10.	Entrance examination for Sri Mata Vaishno Devi University Jammu	Completed
11.	Recruitment test for JBT under Samagra Shiksha Abhiyan, Chd. Adm	Completed
12.	Third Party Audit Inspection and Stability of Buildings	Completed

Training Programs for Students

The institute organised 29 training programs in which 3157 students of technical institutions participated.

The institute could complete consultancy projects worth Rs. 115.90 Lakhs (Institute IRG Consultancy) with net IRG of Rs. 229.83 Lakhs.

Other Projects

- **Training Programs were conducted by EMGT Department namely Induction Training Program, Research Methodology and Training for Newly Recruited Junior Engineers.**

- **Analysed the Existing Model Curricula for Diploma Programs (NSQF aligned).**

Institute Staff Development

Staff Development is extremely important for bringing about any qualitative change in the system. It, therefore, needs to be planned in a manner so as to provide for the growth of the individual in accordance with one's innate capabilities and interests, bearing in mind one's job requirements as it is at present and likely to be in the foreseeable future. In this direction, the institute continued to promote the development of its faculty and staff so as to provide opportunities to upgrade their professional capabilities in terms of knowledge and skills. The activities under this aspect ranged from deputing faculty and staff for short term programs organised by institutes of higher learning of the country and abroad and participation in various conferences and seminars. The institute also organised in-house training programs for its own faculty/staff.

Extension Services and Consultancy

Academic Achievements of the Departments

Applied Science Department

Civil Engineering Department

Centre for Clean Technologies and Sustainable Development

Computer Science and Engineering Department

Curriculum Development Centre

Electrical Engineering Department

Electronics and Communication Engineering Department

Entrepreneurship Development and Industrial Coordination Department

Education and Educational Management Department

Educational Television Centre

Library

Mechanical Engineering Department

Media Centre

Rural Development Department

Information Management and Coordination Department

APPLIED SCIENCE DEPARTMENT

Faculty

Dr. B. C. Choudhary
Professor
Research Areas - Fiber Optics, Radiation Physics

Dr. Kailash Chandra Lachhwani
Assistant Professor
Research Areas - Operation Research, Mathematical Programming

During the year 2018-19, the department has conducted **18** short term courses for polytechnic, engineering college teachers and industry, which were attended by **225** participants. The department has conducted **03** training programs through ICT in which **553** teachers participated.

The department faculty got **01** copyright, published **01** paper in SCI Journal and **01** paper in Non-SCI Journals. The department faculty published/presented **02** papers in International Conferences. The department has completed **01** Extension Service Projects and **01** Consultancy Services Project.

Short Term Programs (Contact Mode)

1. Nuclear Techniques & Instrumentation
2. Differential and Integral Equations
3. Nanotechnology: Developments & Challenges
4. Fiber Optics Technology: Potential & Applications
5. Applied Mathematical Techniques with Applications
6. Lasers and Their Applications
7. Laboratory Organization and Practices in Applied Physics
8. OFC Systems: Design & Performance Evaluation
9. Nanomaterials: Characterization & Applications
10. Advanced Optimization Techniques
11. Optimization Techniques
12. Advances in Laser Technology
13. Optimization Techniques with Software
14. Newer Experiments in Applied Physics
15. Mathematical Programming Problems
16. Integral Transforms with Engineering Uses
17. OFC Network & Trouble Shooting
18. Numerical Methods with their Engineering Applications

Short Term Programs (ICT Mode)

1. Advances in OFC Technology
2. Optimization Techniques with Engineering Applications
3. Nuclear Power Technologies

Patents/Copyright

Sr.No.	Name of Patents/Copyright	Author(s) Name
1.	Copyright registered title "MATLAB program for solving multi-level Linear Fractional Programming problems" (Regd. No. SW-11904/2018)	K.C. Lachhwani and Deepam Goyal

Papers Published in SCI Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1.	"Application of Neural Network Models for Mathematical Programming Problems: A State of Art Review" Published in Archives of Computational methods in Engineering. Online Published shttps://doi.org/10.1007/s 11831-018-09309-5	K.C. Lachhwani

Papers Published in Non-SCI Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1.	"Dynamic Strain response of TT-phase-shifted FBG sensor with phase-sensitive detection", OSA Continuum Vol-1, No.4 dated 15 Dec, 2018, OSA Continuum 1172-1184	Bhargab Das, Deepa Srivastava, Umesh Kumar Tiwari and B.C. Choudhary

Papers Published/Presented at Important Conferences/Seminars

International

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author(s) Name
1.	"A Study of 2D Nanostructures for Sensing of Toxic Gases", 7th International Conference on Advancements in Engineering and Technology", ICAET – 2019 from 15-16 March, 2019 at BGIET, Sangrur, Punjab (India) ISBN No. 978-81-924893-4-6	Tarun, Paramjot Singh, Deep Kamal Kaur Randhawa Gurleen Kaur Walia and B.C. Choudhary
2.	"A Study of Advancements in FSO-WDM System", 7th International Conference on Advancements in Engineering and Technology", ICAET – 2019 from 15-16 March, 2019 at BGIET, Sangrur, Punjab (India) ISBN No. 978-81-924893-4.6	Shivam Sharma and B.C. Choudhary

CIVIL ENGINEERING DEPARTMENT

Faculty

Dr. Sanjay Kumar Sharma
Professor
Research Areas - Hydraulics & Irrigation,
Environmental Engg., Building Maintenance

Dr. Hemant Sood
Professor
Research Areas - Concrete Technology,
Pavement Design, Transportation Engineering

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

Dr. Amit Goyal
Assistant Professor
Research Areas - Structure Dynamics, Masonry
Structure, Low Cost Housing

Er. Himmi Gupta
Assistant Professor
Research Areas - Structural Engineering,
Bridge Engineering, Project Management

During the year 2018-19, the department conducted **25** short term training programs on contact modes and **09** programs on ICT Mode which were attended by **314 and 792** teachers respectively from polytechnics and engineering colleges. The Department has conducted **03** workshops with **63** participations. The department also conducted **01** Student Training Programme of 4 Weeks Duration and total of **09** student's participation. The department faculty published **36** papers in International Journals and **01** in a National Journal. The department also published **16** papers in proceedings of International Conferences. The department developed various instructional resources including **01** Print Material. The department completed **46** Research Studies where experimental work and analysis of data have been conducted. The department also provided design and testing services to industry as consultancy projects of Gross Value more than **Rs. 82 Lakhs**.

Short Term Programs (Contact Mode)

1. Lab Practices in Highway Engineering
2. Accreditation for Testing & Calibration Laboratories
3. Lab Practices in Civil Engineering
4. Laboratory Practices in Environmental Engineering
5. Recent Trends in Design of Structures
6. Construction and Maintenance of Black Top Pavements
7. Structural Design with STAAD PRO
8. Climate Change & Sustainable Infrastructure Development
9. Engineering Material Testing
10. Advanced Construction Techniques for Roads, Buildings Bridges & Other Civil Engineering Structure
11. Structural Health Monitoring
12. Application of Auto CAD in Engineering
13. Laboratories Practices in Civil Engineering
14. Low Cost Housing Techniques and Practices
15. Yoga and Meditation
16. Concrete Mix Design – New Direction
17. Mapping by Total Station
18. Alternate Technologies in road construction
19. Construction Management
20. Software Application in Project Management
21. Green Building and Techniques
22. Bearing Capacity Estimation for Foundations
23. Lab Practices in Soil Engineering
24. Seismic Analysis Design and Retrofitting of Bridges
25. Laboratory Practices in Civil Engineering

Short Term Programs (ICT Mode)

1. Water Resource Management
2. Remote Sensing, GPS and GIS in Civil Engineering
3. Low Cost Housing Techniques and Practices
4. Application of AutoCAD in Engineering
5. Sustainable Environmental Management
6. Green Building and Techniques
7. Building Maintenance
8. Retrofitting and Rehabilitation of Structures
9. Application of AutoCAD in Engineering
10. Solar Wind & Non-conventional Sources of Energy
11. Project Management

Civil Engineering Department

Sr.No.	Name of the Paper Published	Author (s) Name
1.	"A Review of Assessment of Embodied Energy of Buildings and Application of Artificial Neural Network, ", International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES), Volume 05, Issue 02, Feb 2019, e-ISSN: (2455-2585), Paper ID: 150212135616	Abhilash Mukherjee, Himmi Gupta
2.	"Embodied Energy Assessment of Construction Material in India Using Artificial Neural Network, ", International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES), Volume 05, Issue 02, Feb 2019, e-ISSN: (2455-2585), Paper ID: 150212142443	Abhilash Mukherjee, Himmi Gupta
3.	"High Performance Fiber Reinforced Concrete and its application in the Anchorage Zone of Post Tensioned Concrete Girders - A Review	Himmi Gupta, Sanjay Sharma, H K Sharma
4.	"A Review on Correlation of Traffic Volume with Accidents", International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES) e-ISSN:2455-2585,Volume 4, Issue 7, July-2018	Hemant Sood/ Rahul Singh
5.	"A Review on Comparison of the Efficiency Scheduling Techniques for the Construction Project", International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES) e-ISSN:2455-2585, Volume 4, Issue 7, July 2018	Hemant Sood / Shashank Yadav
6.	"Effect of Elevated temperature on Compressive strength of self Compacting Concrete using Fly Ash, Silica Fume, Matakaolin and Alccofine", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), e-ISSN:2455-2585, Volume4, Issue 07, July 2018.	Hemant Sood/ Jaspereet
7.	"Black Spots Identification on Pinjore to Baddi Road", International Journal of Pure and Applied Mathematics (IJPAM) Scopus Indexed.	Hemant Sood/ Chetna
8.	"Utilization of Reclaimed Asphalt Pavement in Dry Lean Concrete Subbase Layer of Rigid Pavement", International Journal of Technical Innovation in Modern Engineering & Science, IJTIMES, Volume 04, Issue 07, July 2018	Hemant Sood/ Shubham
9.	"Analyzing RCC Frame Structure with and without Struts and Shear Walls", International Journal of Technical Innovation in Modern Engineering & Science, IJTIMES, Volume 04, Issue 06, June 2018.	Hemant Sood/ Sunil
10.	"Analyzing G+15 Building with and without Struts and Shear Walls", International Journal of Technical Innovation in Modern Engineering & Science, IJTIMES, Volume 04, Issue 06, June 2018.	Hemant Sood/ Sunil
11.	"Effect of Partial Replacement of cement with Metakaolin on Properties of Concrete using Treated Waste Water", accepted for Publication in the Proceedings of UKIERI Concrete Congress: Concrete-The Global Builder (05-08th March 2019)	Hemant Sood/ Sanjeev Salot
12.	"Effect of Treated Waste water on strength characteristics of concrete of grade M40 by using PPC", International Journal	Hemant Sood/ Bharti Devi

	of Research and Analytical Reviews (IJRAR) e-ISSN 2348-1269, Volume 5, Issue 3, August 2018	
13.	"Development and Corroboration of Crash Prediction Model", International Journal of Pure and Applied Mathematics (Scopus Indexed) (Journal 23425, ISSN No. 13118080) 2018	Hemant Sood/ Navdeep
14.	"Evaluation of properties of concrete using Rice Husk Ash and Polypropylene Fibre", International Journal of Technical Innovation in Modern Engineering and Science; ISSN 2455-2585, UGC Approved, Volume 04, Issue 10, October 2018.	Hemant Sood /SuryaKant Jaryal
15.	"Review on Effect of Elevated Temperature and Sudden cooling on Strength properties of Hybrid Fibre Reinforced Concrete", International Journal of Technical Innovation in Modern Engineering & Science; e-ISSN: 2455-2585, Volume 4, Issue 09, September-2018.	Hemant Sood/ Rahul Kumar
16.	"Review on Mechanical Properties of Geopolymer Mortar Reinforced with Natural Fibre", International Journal of Technical Innovation in Modern Engineering & science Volume 4, Issue 12, December 2018.	Hemant Sood /Abishek
17.	"Development of Geopolymer Mortar with Alkaline Solution", International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES), Volume 4, Issue 12, December-2018.	Hemant Sood /Shalini
18.	" Partial Replacement of Sand with stone dust in concrete of Variable Grades", International Journal of Engineering Science and Computing (IJESC), Volume 8, Issue 12, December 2018.	Hemant Sood /Dinesh Chand
19.	" Analyzing the effect of Different Cross-Sections of Column in High-Rise Building", International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES) Volume 04 Issue 12, December 2018, e-ISSN: (2455-2585), Paper ID: 151225151031.	Hemant Sood/ Himmi Gupta/ Gurpyar Singh
20.	"Review of Effect of Cross-sectional Change of Column on its Structural Behaviour", International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES), Volume 04, Issue 12, December 2018, e-ISSN: (2455-2585), Paper ID: 151202130012.	Hemant Sood/ Himmi Gupta/ Gurpyar Singh
21.	"Effect of waste Glass Powder in concrete by Partial Replacement of Cement", SSRG International Journal of Civil Engineering, Volume 4 Issue 12 December 2017.	Hemant Sood / Vipan Kumar
22.	" Analysing effect of waste Glass Powder in concrete by Partial Replacement of Cement", International Journal of Engineering Science and Computing, Volume 8 Issue 8 August 2018.	Hemant Sood/ Vipan Kumar
23.	"Effect of use of Recycled Coarse Aggregate in concrete", International Journal of Engineering Science and Computing, Volume 8 Issue 12 December 2018.	Hemant Sood/ Jagdish Kanungo
24.	"Effect of Induced Carbonation on Hardened Properties of M30 and M35 Grade Concrete using Ordinary Portland Cement", International Journal of technical Innovation in Modern Engineering & Science, Volume 4, Issue 12, December-2018.	Hemant Sood/ Poonam Kumari

25.	"Effect of Admixture on the Strength Properties of Concrete Using Treated Waste water with variable Size of Aggregates", International Journal of Technical Innovation in Modern Engineering & Science, Volume 05, Issue 01, January 2019.	Hemant Sood/ Manish Thakur
28.	"A Comparatives Study Of Seismic Analysis of Low-Rise And Medium-Rise Building As Per IS: 1893-2002 And IS:1893-2016", in International Journal of Technical Innovation In Modern Engineering & Science, ISSN:2455-2585 Vol. 04,Issue 09, September-2018.	Sanjay Kumar Sharma
29.	"Analysis of Non Engineered Construction of Houses in rural Himachal", in International Journal of Engineering Research & Technology ISSN:2278-0181 Vol. 06, Issue 11	Sanjay Kumar Sharma
30.	"Impact of Modern Construction Practices as Compare to traditional Construction for Sustainable rural houses in the Northern Eastern Part of Rajasthan", in International Journal of Engineering Research & Technology ISSN:2278-0181 Vol. 06, Issue 11, 2018.	Sanjay Kumar Sharma
31.	"Analysis of Traditional and Existing Construction Practices for Sustainable Rural Houses in the Southern Western Part of Rajasthan", in International Journal of Engineering Research & Technology ISSN:2278-0181 Vol. 06, Issue 11, 2018.	Sanjay Kumar Sharma
32.	"Sustainable Development: A Key to achieve Slum free Cities in India", in International Journal of Research and Analytical Reviews e ISSN 2348 –1269, Print ISSN 2349-5138 Vol. 5, ISSUE 4, 2018.	Sanjay Kumar Sharma
33.	"Defining design criteria of net zero energy building for composite climatic zone", in International Journal of Research and analytical reviews ISSN:2348-1269 Vol. 06, Issue 1 January, 2019.	Sanjay Kumar Sharma
34.	"NZEB: A Case Study of Indira Paryavaran Bhawan", in International Journal for Research in Engineering Application & Management (IJREAM) ISSN : 2454-9150 Vol-04, Issue-10, January, 2019.	Sanjay Kumar Sharma
35.	"High Performance Fiber Reinforced Concrete and its application in the Anchorage Zone of Post Tensioned Concrete Girders - A Review", in International Journal of Research and Analytical Reviews e-ISSN: (2348-1269) Print ISSN 2349-5138 UGC approved Journal No. 43602 Paper ID: IJRAR900276, Vol. 6, Issue 1, Jan – Mar 2019	Sanjay Kumar Sharma
36.	"Enhancing Mechanical and Durability Properties of Geo polymer Concrete with Mineral Admixture", in journal(Scopus) of Computers and Concrete, Vol. 21, No. 3 (2018) Impact factor : 1.889 (2018)	Sanjay Kumar Sharma

Papers Published in National Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1.	"Modern Thickness Design Aspects Of Cement Concrete Pavement" Interdisciplinary National Conference on Frontiers in Materials Research & Applications (FMRA-2017) held on 21 December, 2017 at Shaheed Bhagat Singh State Technical Campus, Firozpur, Prooceedings shall be published by Excel India Publishers, New Delhi	Hemant Sood

Papers Published/Presented at Important Conferences/Seminars

1.	"Development of a model for Accident Predictions", International Conference on Urban Sustainability : Emerging Trends, Themes, Concepts and Practices" 16-18th March, 2018 (Social Science Research Network Database: Elsevier)	Hemant Sood//Navdeep
2.	"Geotechnical and Geo-environmental Properties of Discrete Polyester Fibre-Reinforced and RBI-Grade 81 – Stabilized Clay and Sand", presented at International Conference on Environmental, Industrial and Energy Engineering (EI2E 2018) at Bangkok, Thailand from October 19 to 21, 2018.	Hemant Sood/ Gaurav Gupta/ Pradeep Gupta
3.	"A review on Strengthening of Beam-Column Joints by Using FRP materials", in International Conference On Clean Technologies And sustainable Development, pp 337-341, February 23-24,2019	Sanjay Kumar Sharma
4.	"Strengthening Beams With Carbon Fibre Reinforced Polymer Laminate", in International Conference On Clean Technologies and Sustainable Development. February 23-24,2019	Sanjay Kumar Sharma, Aman Kumar
5.	"Utilisation of Iron Slag As Partial Replacement Of Fine Aggregates In High Strength Self Compacting Concrete in International Conference On Clean Technologies And Sustainable Development February 23-24,2019	Sanjay Kumar Sharma, Jaskaran
6.	"Behaviour of HPDSP concrete on Beam Column Joints", in International Conference On Clean Technologies And Sustainable Development, pp 112 – 121, February 23-24,2019.	Dr. Sanjay Kumar Sharma, Mr. Sushil Kumar Swar, , Dr. Hari Kishan Sharma
7.	"Issues Related to Various Construction Techniques Practiced in Rural Himachal", in International Conference On Clean Technologies And Sustainable Development, pp 122 - 125, February 23-24, 2019.	Sanjay K sharma Robin Mahajan,
8.	"Structural Strength Assessment of Timber members from a sustainable Heritage Building", in International Conference On Clean Technologies And Sustainable Development, pp 157-163, February 23-24, 2019.	Sanjay Kumar Sharma
9.	"Sustainable Water Supply Infrastructure Rainwater Harvesting- A Review", in International Conference On Clean Technologies And Sustainable Development, pp 389-393, February 23-24, 2019.	Sanjay Kumar Sharma

Civil Engineering Department

10.	"Sustainable Rural Houses Conforming to Traditional and Modern Construction Practices in Southern-Western Part of Rajasthan", in International Conference On Clean Technologies And Sustainable Development, pp 126 - 133, February 23-24, 2019.	Sanjay K. Sharma, Mansingh Rathore, Vimal Preet
11.	"Sustainable Rural Houses Conforming to Traditional and Modern Construction Practices in Northern-Eastern Part of Rajasthan", in International Conference On Clean Technologies And Sustainable Development, pp 134 - 141, February 23-24,2019.	Sanjay K. Sharma Prateek Sharma, , Vimal Preet
12.	"Pathology of the Amber Fort: Reconnaissance Survey, Monitoring & Find Root Cause of Cracks", in International Conference On Clean Technologies And Sustainable Development,pp 150 - 156, February 23-24,2019.	Sanjay Kumar Sharma Kaushal Choudhary,
13.	"Development of Wastewater Reutilization Framework through Study of Wastewater Reutilization Potential in PEC, NITTTR & CCET", in International Conference On Clean Technologies And Sustainable Development, Chandigarh,pp 190-198,February 23-24,2019.	Sanjay Kumar Sharma Charul Sharma,
14.	"Analysis and design of developing net zero energy buildings", in International Conference On Clean Technologies And Sustainable Development, pp 323-331,February 23-24,2019.	Sanjay Kumar Sharma Shah Iffat Hussain, Ayoona Yaqoob, Jai Prakash
15.	"Condition assessment using non destructive tests and repair of RCC building", in International Conference On Clean Technologies And Sustainable Development,pp 342-350,February 23-24,2019.	Sanjay Kumar Sharma Ashish Kapoor, Aman Kumar,
16.	"Evaluation of Green House gases Emissions from Industrial Waste Water Treatment plants in Una (H.P)", in International Conference On Clean Technologies And Sustainable Development, pp 503-509,February 23-24,2019.	Sanjay Kumar Sharma Anil Kumar, Dr.Sarawan Kumar

In-Country Training Programs

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	Capacity Building Training Program on Punjab Energy Conservation Building Code (Punjab ECBC)	11 -13.07.2018	NITTTR, Chandigarh	Himmi Gupta
2.	National Workshop on Latest Techniques in Waterproofing Applications	29 - 30.11.2018	NITTTR, Chandigarh	Himmi Gupta
3.	GIAN Course on Advanced Structural Dynamics	24 - 28.12.2018	College of Engg. Pune	Himmi Gupta
4.	DST Sponsored Programme on Solid Waste Management Technology & Regulatory Compliance	14 –25.01.2019	NITTTR, Chandigarh	Himmi Gupta
5.	Workshop on "Design Thinking "by IBM	18.03.2019	NITTTR, Chandigarh	Himmi Gupta

Theses Guided by Faculty

Name of Faculty	No. of M.E. Theses Guided
Dr. Sanjay Kumar Sharma	17
Dr. Hemant Sood	18
Er. Ajay Kumar Duggal	5
Er. Vinod Kumar Sonthwal	5
Er. Himmi Gupta	3

During the year 2018-19, the Centre completed 09 Extension Services Projects and one consultancy project on Third Party Audit Inspection and Stability of Buildings worth 2.20 Lacs.

Extension Services by the Centre:

1. Laboratory Management System & Internal Auditing as per IS/ISO/IEC 17025:2005 on 25-28.05.2018

2. Laboratory Management System & Internal Auditing as per IS/ISO/IEC 17025:2005 on 18 – 21.09.2018

3. Laboratory Management System & Internal Auditing as per IS/ISO/IEC 17025:2005 on 19 – 22.11.2018.

4. Laboratory Management System & Internal Auditing as per IS/ISO/IEC 17025:2005 on 14 – 17.02.2019.

5. Laboratory Management System & Internal Auditing as per IS/ISO/IEC 17025:2005 on 25 – 29.03.2019.

6. DST Sponsored National Programme for training of Scientists/Technologists working in Govt. Sector on Solid Waste Management and Regulatory Compliance.

7. DST Sponsored National Programme on Solid Waste Management and Regulatory Compliance.

8. DST Sponsored National Programme on Sustainability and Smart City Concept

9. Sustain and Enhance Technical Knowledge in Solar Energy System Under Green Skill Development Program of ENVIS Scheme

COMPUTER SCIENCE AND ENGINEERING DEPARTMENT

Faculty

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

Er. 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

Dr. Rakesh Kumar
Assistant Professor
Research Areas - Wireless Sensor Networks, Adhoc Networks, Cloud Computing

54

"Computer science is no more about computers than astronomy is about telescopes."

– Edsger Dijkstra

COMPUTER SCIENCE AND ENGINEERING DEPARTMENT

Faculty

Dr. Maitreyee Dutta
Joint Professor
Research Areas - Digital Signal & Image Processing, Data Warehousing & Data Mining

Dr. Srinivasa KG
Joint Professor
Research Areas - High Performance Computing, Cloud Computing, Data Science, IoT, Digital Pedagogy

During the year 2018-19, the department conducted **32** training programs through contact mode and **08** training programs through ICT mode, which were attended by **650** and **2240** participants respectively. The department conducted **03** Workshops and **09** student training programs in which **107** and **733** participants attended respectively. The department also conducted **01** Seminar which was attended by **34** delegates. The department faculty published **12** Papers in SCI Journals and **15** papers published in Non-SCI Journals. The department faculty also published/presented **14** papers in International Conferences. The department completed 01 Research Study on DST Sponsored Emergency Vehicle Preemption in collaboration with faculty of Electrical Engineering Departments. **The department Launched and Completed One MOOC Course on Graphics and Animation, Coordinated by Mrs. Shano Solanki.**

Short Term Programs (Contact Mode)

1. Cyber Security
2. Cloud Computing and Cloudsim Simulator
3. Linux Administration Using Centos
4. Software Testing Using Open Source Tools
5. Machine Learning Using Python
6. Big Data Analytics
7. Application Development Using .Net
8. Cloud Computing & Cloudsim Simulator
9. Next Generation Wireless Networks
10. Designing of Responsive Websites
11. Internet of Things
12. Python Programming,
13. Image Processing and Signal Processing Using Scilab
14. Matlab for Engineering Application
15. Cyber Crime and Forensic Tools,
16. Application Development Using Android
17. Online Safety Awareness
18. Digital Marketing and E-Commerce
19. Data Science Using R
20. Virtual Reality
21. Open Source Technologies
22. Web Application Security Audit
23. Data Analytics Tools for Research
24. Artifical Neural Network and Fuzzy Logic
25. Cisco CCNA Exploration,
26. NS2/3 SIMULATOR
27. Web Designing Using PHP & Mysql
28. Repair and Maintenance of Computer Peripheral and Network Devices
29. Report Writing Using Latex
30. Outcome Based Education
31. Application Development Using Angular Java
32. Mobile Computing and Application Development

Short Term Programs (ICT Mode)

1. Linux Administration using CentOS
2. Next Generation Wireless Networking
3. Internet of Things
4. Digital Marketing & E-commerce
5. Data Science Using R
6. Open Source Technologies
7. Web Application and Security Audit
8. Application Development using angular Java

MOOCs on "Graphics and Animation Development"

2374 participants

Rating: 4.2 / 5

Student Training Program

1. Linux and Shell Programming
2. PHP and Mysql
3. Java Programming
4. Cloud Computing and CloudSim Simulator
5. Python Programming
6. Data Science Using R
7. Digital Marketing
8. Application Development using Angular Java

International / National Seminar/Conference:

1. National Seminar on Blockchain Technology held on 14.12.2018.

Papers Published in SCI Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1.	"Smartphone Based Context-Aware iver Behavior Classification using Dynamic Bayesian Network", Journal of Intelligent and Fuzzy Systems, IOS Press, (Preprint), 1-14.	Rishu Chhabra, C. Rama Krishna and Seema Verma
2.	"Keyword Binning-Based Efficient Search on Encrypted Cloud Data," Arabian Journal for Science & Engineering, Springer, DOI: 10.1007/s13369-018-3580-9, 2018.	Rohit Handa, C. Rama Krishna and Naveen Aggarwal
3.	"Searchable Encryption: A Survey on Privacy-Preserving Search Schemes on Encrypted Outsourced Data," Concurrency Computation Practice and Experience, Wiley, DOI: 10.1002/cpe.5201, 2019.	Rohit Handa, C. Rama Krishna and Naveen Aggarwal
4.	"An Efficient Approach for Secure Information Retrieval on Cloud," Journal of Intelligent and Fuzzy Systems, IOS Press, vol. 34, no. 3, pp. 1345-1353, 2018	Rohit Handa, C. Rama Krishna and Naveen Aggarwal
5.	"A Container-based Technique to Improve Virtual Machine Migration in Cloud Computing", IETE Journal of Research, pp. 1-17, 2019.	A. Bhardwaj and C. Rama Krishna
6.	"Document clustering for efficient and secure information retrieval from cloud," Concurrency Computation Practice and Experience, Wiley, DOI: 10.1002/cpe.5127, 2018.	Rohit Handa, C. Rama Krishna and Naveen Aggarwal
7.	"Efficient Privacy-Preserving Scheme Supporting Disjunctive Multi-Keyword Search with Ranking," Concurrency Computation Practice and Experience, Wiley, DOI: 10.1002/cpe.5127, 2018.	Rohit Handa, C. Rama Krishna and Naveen Aggarwal,
8.	"Multi-criteria workflow scheduling on clouds under deadline and budget constraints", Concurrency and Computation: Practice and Experience, Wiley, e5193, February 2019, https://doi.org/10.1002/ cpe.5193	Mala Kalra, Sarbjeet Singh

Sr.No.	Name of the Paper Published	Author (s) Name
9.	"Load balancing Techniques in Cloud Computing Environment: Issues and Challenges," ACM Computing Surveys, ISSN:0360-0300 EISSN:1557-7341, Volume-51, Issue-6, Article No. 120,Feb. 2019, SCI, Scopus Indexed, IF=5.5	Pawan Kumar and Rakesh Kumar
10.	"Ubiquitous Health Monitoring Using WBANs: A Comprehensive Review," Wireless Networks, Springer, Print ISSN: 1022-0038, Online ISSN: 1572-8196, Volume-25, Issue-3, pp. 1125-1157,Apr 2019, SCI, Scopus Indexed, IF=1.9	Roopali and Rakesh Kumar
11.	Epilepsy classification using optimized artificial neural network, Neurological Research, DOI: 10.1080/01616412.2018.1508544 Impact Factor 1.449	Jagriti Saini, Maitreyee Dutta
12.	A Survey of Key Bootstrapping Protocols Based on Public Key Cryptography in the Internet of Things, IEEE Access, DOI: 10.1109/ACCESS.2019.2900957, Volume 7, February, 2019	Manisha Malik, Maitreyee Dutta, And Jorge Granjal

Papers Published in Non-SCI Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1.	"Performance Evaluation of Bandwidth for Virtual Machine Migration in Cloud Computing," Inderscience, International Journal of Communication Networks and Distributed Systems, vol.5, no. 3, pp. 139-152, 2018.	A. Bhardwaj and C. Rama Krishna
2.	"Time-Lay and RSA Technique for Efficient Data Transmission in Internet of Things", International Journal of Management Technology and Engineering, vol. 8, no. 12, pp. 1366-1374, 2018.	Ramneek Kaur and C. Rama Krishna
3.	"Performance Analysis of IPv6 and NDN Internet Architecture in IoT Environment", In Emerging Research in Electronics, Computer Science and Technology, Springer Lecture Notes in Electrical Engineering, vol. 545, 2018.	Sharma A., C Rama Krishna
4.	"CNN Based Image Forgery Detection Using Pre-trained AlexNet Model (March 19, 2019). International Journal of Computational Intelligence & IoT, Vol. 2, No. 1, 2019. Available at SSRN: https://ssrn.com/abstract=3355402	Doegar, Amit and Dutta, Maitreyee and Gaurav, Kumar
5.	"Energy Optimized Cluster Based Heterogeneous Routing protocol for Wireless Sensor Network," Journal of Telecommunication, Electronic and Computer Engineering (JTEC), ISSN: 2180-1843, EISSN: 2289-8131, Vol. 10, Issue 4, pp. 43-49, 2018, Scopus Indexed	Garima and Rakesh Kumar
6.	"Simulation of Language Competition by Bilingual Agents," International Journal of Knowledge and Learning (IJKL), Inderscience, Online ISSN: 1741-1017, Print ISSN: 1741-1009, Volume-12, Issue-4, pp. 362-378, 2018, Scopus Indexed.	Rakesh Kumar and Shiv Kishan Dubey
7.	"Adaptive Clustering Strategy for Heterogeneous and	Priya Dogra and

	Dynamic Data for IoT Scenario", International Journal of Pure and Applied Mathematics (IJPAM), ISSN 1311-8080, EISSN: 1314-3395, Vol.-119,Issue-14, pp. 67-74, 2018, Scopus Indexed.	Rakesh Kumar
8.	"An Approach to Mitigate Malware Attacks using Netfilter's Hybrid Frame in Firewall Security," International Journal of Open Source Software and Processes (IJOSSP), IGI-Global, ISSN: 1942-3926, EISSN: 1942-3934, Volume-9, Issue-1, pp. 32-61, 2018, Scopus Indexed	Nivedita Nahar, Prerna Dewan and Rakesh Kumar
9.	"A Hybrid Approach for Facial Expression Recognition Using Extended Local Binary Patterns and Principal Component Analysis", International Journal of Electronics, Communications, and Measurement Engineering (IJECME), ISSN: 2578-7551(Print), ISSN: 2578-7543(Online), Vol. 8, Issue-2, 2019.	Gopal Krishan Prajapat and Rakesh Kumar
10.	"Defending DDoS in the Insecure Internet of Things: A Survey", © Springer Nature Singapore Pte Ltd. 2018, Artificial Intelligence and Evolutionary Computations in Engineering Systems, Advances in Intelligent Systems and Computing 668, https://doi.org/10.1007/978-981-10-7868-2_22,pp 223-233, Scopus indexed.	Manisha Malik, Kamaldeep Maitreyee Dutta
11.	"PSO based Blind Deconvolution Technique of Image Restoration using Cepstrum Domain of Motion Blur", ©Springer International Publishing AG 2018, Book on Computational Vision and Bio Inspired Computing, Chapter 84, Lecture Notes in Computational Vision and Biomechanics 28, Chapter 84, Lecture Notes in Computational Vision and Biomechanics https://doi.org/10.1007/978-3-319-71767-8_81, pp 947-958, ISBN: 978-3-319-71766-1, Scopus indexed.	G. Ramteke Mamta, Maitreyee Dutta
12.	"Face recognition from a group photograph using skin color models with PCA", Journal of Emerging Technologies and Innovative Research, July, 2018, Vol. 5, Iss 7, pp 54-63, Scopus indexed.	Manish Chauhan, Maitreyee Dutta
13.	"Precise Positioning at Indian Region with Multi Constellation GNSS Receiver SP80", International Journal of Advanced Studies of Scientific Research, ISSN 2460-4010, Pg 11-17, ELSEVIER SSRN Library, Scopus indexed.	Prashant Joshi, Maitreyee Dutta, Vivek Bansal
14.	"CNN based Image Forgery Detection using pre-trained AlexNet Model", ELSEVIER-SSRN Library (ISSN: 1556-5068), International Journal of Computational Intelligence and IoT Vol. 2, No. 1, 2018, Scopus indexed.	Amit Doegar, Maitreyee Dutta, Gaurav Kumar
15.	"A Review of Passive Image Cloning Detection Approaches", Springer Lecture Notes in Networks and Systems 46, 469-478, Scopus indexed.	Amit Doegar, Maitreyee Dutta, Gaurav Kumar

International

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author(s) Name
1.	"A New Approach for Book Recommendation Using Opinion Leader Mining" published in International Conference on Emerging Research in Electronics, Computer Science and Technology (ICERECT-2018) from 23-24 Aug, 2018 at P.E.S College of Engineering, Mandya.	Honey Pasricha, Shano Solanki
2.	"Web service ranking and selection based on QoS" published in International Conference on Emerging Research in Electronics, Computer Science and Technology (ICERECT-2018) from 23-24 Aug, 2018 at P.E.S College of Engineering, Mandya.	Vaishali, Rakesh Kumar, Shano Solanki
3.	"A Movie Recommender System using Modified Cuckoo Search" published in International Conference on Emerging Research in Electronics, Computer Science and Technology (ICERECT-2018) from 23-24 Aug, 2018 at P.E.S College of Engg., Mandya.	Suraj Pal Singh, Shano Solanki
4.	"A Hybrid Approach for Intrusion Detection Based on Machine Learning" published in International Conference on Intelligent Sustainable Systems (ICISS 2019) from 21-22 Feb, 2019, at SCAD Instt. of Technology, Palladam, Tamil Nadu, India.	Rohit Singh, Mala Kalra, Shano Solanki
5.	"A Review of Passive Image Cloning Detection Approaches" in: Proceedings of 2nd International Conference on Communication, Computing and Networking. Lecture Notes in Networks and Systems, vol 46. Springer, Singapore, DOI https://doi.org/10.1007/978-981-13-1217-5_46	Doegar A., Dutta M., Kumar G.
6.	"A Hybrid of Fireworks and Harmony Search Algorithm for Multilevel Image Thresholding" in Advanced Computing and Communication Technologies. Advances in Intelligent Systems and Computing, vol 562. Springer, Singapore	Shivali, Maurya L., Sharma E., Mahapatra P., Doegar A.
7.	"Fault Identification in Electrical Equipment using Thermal Image Processing at 2018 International Conference on Computing, Power and Communication Technologies (GUCON), Galgotias University, Greater Noida, UP, India. Sep 28-29, 2018, DOI: 10.1109/GUCON.2018.8675108	Mohammad Haider, Amit Doegar, Ram Kumar Verma
8.	"Acoustic Scene Classification for Personal Commuting Mode: Detecting Polluting vs. Non Polluting Vehicles," 2018 8th International Conference on Cloud Computing, Data Science & Engineering, (Confluence), Noida, 2018, pp. 274-279. 23 August 2018, doi: 10.1109/ CONFLUENCE .2018.8442576	S. Soni, N. Aggarwal, D. Vij and A. Doegar
9.	"A Hybrid Approach for Intrusion Detection Based on Machine Learning", IEEE International conference on Intelligent Sustainable Systems (ICISS 2019), Scad Institute of Technology, Coimbatore, February 2019.	Rohit Singh, Mala Kalra, Shano Solanki
10.	"Outlier Detection in Wireless Sensor Network", 3rd International Conference on Inventive Computation Technologies (ICICT-2018), 15-16 Nov 2018, Tamil Nadu,	Rana Jafri and Rakesh Kumar

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author(s) Name
	India	
11.	"Artificial Intelligence Based Energy Efficient Grid PEGASIS Routing Protocol in WSN", IEEE 7th International Conference on reliability, Infocom Technologies and Optimization (ICRITO), 29-31 August 2018, UP, India	Shokat Ali and Rakesh Kumar
12.	"A hybrid Approach for Financial Sentiment Analysis using Artificial Intelligence and Cuckoo Search", International Conference on Advanced Computing & Communication Systems (ICACCS-2019), 15-16 Mar 2019, Tamil Nadu, India.	Vani Kansal and Rakesh Kumar
13.	"Efficient Approaches to Mitigate the Effect of Sybil Attack in MANET for High Network Lifetime – A Review", in 5th International Conference on Parallel, Distributed and Grid Computing", Scopus indexed.	Ritu Kumar and Maitreyee Dutta
14.	"Intrusion Detection of Wormhole Attack in IoT – A Review", in 2018 International Conference on Circuits and Systems in Digital Enterprise Technology, Scopus indexed.	Mrinalini Goyal and Maitreyee Dutta

Training Programs attended by Institute Faculty/Staff

International Training / Visits

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	Refresher Training Program for APACC Accreditation	4 - 5.12.2018	CPSC, Manilla, Philippine	C. Rama Krishna

In-Country Training Programs

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	4th World Summit on Accreditation (WOSA 2018) and Workshop on "Challenges and Opportunities in Outcome Based Accreditation	08 – 09.03.2018	Ashok Hotel New Delhi	C. Rama Krishna
2.	TEQIP-III Sponsored FDP on Machine Learning in Predictive Modelling	23 – 27.04.2018	DTU, Delhi	Shano Solanki
3.	One Week Hands-on Workshop cum Technical Training Program on "Machine Learning with Python"	28.05.2018 to 02.06.2018	UIET, Panjab University, Chandigarh	Amit Doegar

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
4.	One Week Short Term Course on "Machine Learning and its Applications"	9 – 13.07.2018	IIT Roorkee	Amit Doegar
5.	TEQIP-III sponsored workshop on "Machine Learning & Deep Learning: Applications in NLP, Computer Vision and IoT"	10 – 14.07.2018	UIET, Panjab University, Chandigarh	Mala Kalra
6.	One Week Short Term Course on "Digital Image Processing using Matlab"	18 – 22 .02.2019	IIT Roorkee	Amit Doegar
7.	CPSC Manila-NITTTR, Chandigarh collaborative regional programme on "Entrepreneurship in TVET" from International Conference on "Skilling for Self-Employment"	18 – 22 .02.2019	NITTTR, Chandigarh	Shano Solanki
8.	One week STC on "Emerging Trends in Wireless Communication and Signal Processing (ETWCSP)"	07 -12.01.2019	NIT Kurukshetra	Rakesh Kumar
9.	One week STC on "Security Issues for Sensor, IoT and Opportunistic Networks (SISION)" under ISEA Project Phase II	10 – 15.09.2018	NIT Kurukshetra	Rakesh Kumar
10.	One week TEQIP Sponsored FDP on "Machine Learning in Predictive Modeling"	23 – 27.04.2018	DTU Delhi	Rakesh Kumar

In-House Training Programs

Sr. No.	Title of Training Programme	Period of Training	Attended by
1.	Workshop on "Design Thinking"	18.03.2019	C. Rama Krishna
2.	Regional Workshop of Planning of UBA activities in Village Clusters adopted by participating institute (PIs)	01.08.2018	C. Rama Krishna
3.	Recertification and Up-gradation Audit for ISO 9001:2015 (QMS) Certification	08 – 10.09.2018	C. Rama Krishna
4.	Three Days Academic Leadership Programme	08 – 10.09.2018	Amit Doegar
5.	Workshop on "Design Thinking"	18.03.2019	Rakesh Kumar
6.	Seminar on "Blockchain Technology"	14.12.2018	Rakesh Kumar

Theses Guided by Faculty

Name of Faculty	No. of ME Theses Guided	No. of PhD Theses Guided
Dr. C Rama Krishna	4	1
Dr. Rakesh Kumar	16	-
Dr. Mala Kalra	1	-
Er. Shano Solanki	2	-
Er. Amit Deogar	2	-
Dr. Maitreyee Dutta	3	-

CURRICULUM DEVELOPMENT CENTRE

"Curriculum should help children make deeper and fuller understanding of their own experience"
– Lilian Katz

Faculty

Dr. Rajesh Mehra
Professor
Research Areas - VLSI Design, Advanced Digital Signal Processing, Embedded Design

Dr. A B Gupta
Professor
Research Areas - Curriculum Development, Curriculum Implementation

Er. Parmod Kumar Singla
Associate Professor
Research Areas – Curriculum Design, Curriculum Evaluation, Communication Skills

Er. Suresh Kumar Gupta
Associate Professor
Research Areas - Curriculum Development, Civil Engineering

Er. Rama Chhabra
Associate Professor
Research Areas - Chemical Engineering, Information Management

64

During the year 2018-19, Curriculum Development Centre conducted **26** Short Term Training Programs and **07** ICT Programs for the faculty of polytechnics and engineering colleges and trained **595 / 1281** teachers respectively. **The Centre has launched a Course on Swayam MOOC on Curriculum Implementation which has been attended by 1289 participants all over India.** The Centre organized **03** Workshops other than Curriculum Development in which **258** participants participated. The centre also conducted **30** Curriculum Development Workshops for the States of Delhi, Haryana, Punjab and Uttar Pradesh which was attended by **893** participants. The department faculty published **01** paper in International Journal other than SCI Journal. The Department has developed Curriculum of **09** Courses at UG Level for AICTE in emerging areas and completed one Consultancy Project of conversion of 33 Diploma Courses of 1st year from Semester system to annual system. The department has completed **01** Print material (Text Book on English and Communication Skills for Haryana State) and **07** non print material (video films). The department also completed **02** Extension Services Projects and **01** Consultancy Services Project.

Short Term Programs (Contact Mode)

1. Planning, Execution and Evaluation of Project Work
2. Communication Skills
3. Curriculum Implementation
4. Organizing Student Centered Activities
5. Life Skills Development
6. Curriculum Implementation
7. Communication Skills
8. Curriculum Implementation'
9. Communication Skills from
10. Life Skills Development
11. Choice Based Credit System
12. Neuro Lingustic Programme
13. Curriculum Implementation

14. Curriculum Implementation
15. Curriculum Development
16. Outcome Based Curriculum
17. Planning, Execution and Evaluation of Project work
18. Curriculum Development
19. Organizing Student Centered Activities
20. Outcome Based Curriculum
21. Planning, Execution and Evaluation of Project Work
22. NSQF Aligned Curriculum Implementation
23. Effective Presentation & Communication Skills
24. Life Skills Development from
25. Choice Based Credit System
26. Curriculum Implementation

Short Term Programs (ICT Mode)

1. Communication Skills
2. Curriculum Development
3. Outcome Based Curriculum
4. Life Skills Development
5. Curriculum Implementation
6. Project Work Planning and Execution
7. MOOCs on Curriculum

MOOCs on "Curriculum Implementation and Evaluation"

Introductory Video on "Curriculum Implementation and Evaluation"

Dr. A. B. Gupta Course Coordinator

1278 participants

Rating: 4.3 / 5

Curriculum Designed

1.	Computer Science Engineering	NSQF Aligned Curriculum of Diploma Program for UP State.
2.	Electronics and Communication Engineering	
3.	Mechanical Engineering	
4.	Civil Engineering	
5.	Farm Equipment Technician	NSQF Complaint Diploma Level Program for MRSPTU, Bathinda.
6.	Mechatronics	Diploma for CTR, Ludhiana

Papers Published in International Journal other than SCI Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1.	'Identification of Obstacles in Implementation of Total Quality Management (TQM) in Building Construction Industry in India- An Empirical Study published in International Journal of Recent Technology & Engg. in Vol.7, issue-6 March, 2019	SK Gupta

EDUCATION AND EDUCATIONAL MANAGEMENT DEPARTMENT

Faculty

Dr. Sunil Dutt
Professor
Research Areas - Educational Technology,Research Methodology & Educational Management

Dr. P K Tulsi
Professor
Research Areas - Educational Technology, Research Methodology, HRD & Training Methods

Er. Amandeep Kaur Sandhu
Assistant Professor
Research Areas - Educational Management, Educational Technology

During the year 2018-19, Department of Education & Educational Management organized **17 Short Term Training Programmes** (in contact mode) for the teachers working in technical institutions. Out of **422** teachers (616 Man weeks) who participated in these programmes, 71 were from Engineering Colleges, 350 from the Polytechnics and 1 from industry. Course material was provided to all the participants of these 23 programmes. The programmes organized included: Research Methodology, Induction Training Programme for Newly Recruited Teachers, Stress Management, Student Centered Instructional Strategies, Managerial Skills, Leadership Training Programme, and Student Evaluation etc. In addition, the department organized **7 Short Term training programmes through ICT**. A total number of **988** teachers (1094 Man weeks), out of which 915 from engineering colleges and 73 from polytechnics, were trained through these programmes.

The Department organized **02 one-day workshops** and trained **228** teachers from the State of Haryana. **Four training programmes** (**one-day** each) on 'Preparing Students for Job Interviews' were organized through ICT for the students of technical institutions. A total of **2061** students from various technical institutions benefitted by these programmes. The department completed **01** Extension Services Project and **01** Consultancy Services Project.

The department launched two Massive Open Online Courses (MOOC) on SWAYAM Portal, viz., 'Research in Technical Education' by Professor (Dr.) PK Tulsi and 'Development of Self Learning Material' by Professor (Dr.) Sunil Dutt wherein a total of 1752 (963 + 789) candidates registered and got benefitted through these courses. In addition, the Faculty of EMGT has developed e-content Modules and Video Films for four MOOCs, viz., a) Research in Technical Education, b) Development of Self-Learning Material, c) Instructional Planning, and d) Communication Skills.

The department faculty published **02** Papers in National Journals. Dr. PK Tulsi, presented a paper, 'Design of MOOC on Research in Technical Education' in IEEE International Conference: Learning with MOOCs held at Madrid, Spain from 26 – 28 September, 2018.

The department generated IRG of Rs. 8,67,300/- by undertaking a Sponsored Research project, 'Assessment of Faculty working in both Government and Private Polytechnics under the State Council for Technical Education & Vocational Training, Govt. of Odisha'. The department also generated IRG of **Rs. 1,00,200/-** as course fee from participants of TEQIP Institutions (Rs. 94,400/-) and industry (Rs. Rs. 5,900/-). In addition, Professor (Dr.) Sunil Dutt contributed in many of the Consultancy Recruitment/Written Tests undertaken by the institute for various organizations as one of the Coordinators.

Short Term Programs (Contact Mode)

1. Induction Training Programme for Newly Recruited Teachers
2. Research Methodology
3. Student Centered Instructional Strategies
4. Student Evaluation
5. Preparing Students for Job Interview
6. Enhancing Performance of Staff
7. Managerial Skills
8. Evaluation of Theory and Practical Work
9. Managing your Ego and Emotions at Workplace
10. Student Centered Instructional Strategies and Soft skills
11. Leadership Training Programme
12. Stress Management
13. Operation Digital Board
14. Leadership Training Programme
15. Stress Management
16. Induction Training Programme for Newly Recruited Teachers
17. Operation Digital Board

Short Term Programs (ICT Mode)

1. Research Methodology
2. Instructional Planning
3. Instructional Delivery
4. Student Evaluation
5. Classroom Communication
6. Student Centered Instructional Strategies
7. Managerial Skills

Student Training Programs

1. Preparing Students for Job Interviews through ICT

MOOCs on "Research in Technical Education"

981 participants

Rating: 4.4 / 5

MOOCs on "Self-Learning Material Development"
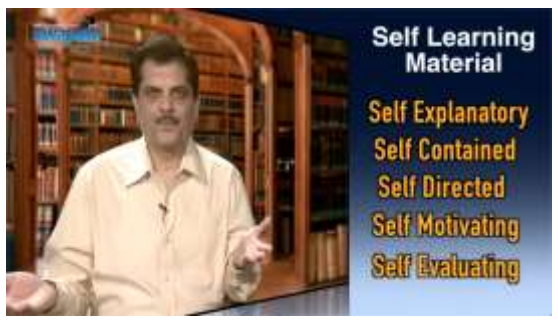
784 participants

Rating: 4.8 / 5

Papers Published in National Journal

Sr.No.	Name of the Paper Published	Author (s) Name
1.	Problem Based Learning Strategy for development of Skills – A Review for development of Skills – A Review (i-manager's Journal of Educational Technology, Vol. 15; No. 1, April – June, 2018)	Preeti Thakur, Sunil Dutt, A Chauhan
2.	Problem Based Learning for development of Skills – A Review (i-manager's Journal of Educational Technology, Vol. 15; No. 2, July – Sept, 2018)	Preeti Thakur, Sunil Dutt, A Chauhan

Papers Published/Presented at Important Conferences/Seminars

International Training / Visits

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author(s) Name
1.	Design of MOOC on Research in Technical Education, **IEEE International Conference: Learning with MOOCs 2018** at Maid, Spain 26 – 28 September, 2018 Presented / Published in Proceedings	PK Tulsi

In-Country Training Programs

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	"Research Methods and Data Analysis Using SPSS"	20 – 24.01.2019	NIT Jalandhar	Amandeep Kaur

In-House Training Programs

Sr. No.	Title of Training Programme	Period of Training	Attended by
1.	Neuro Linguistic Programming	06 – 10.10.2018.	PK Tulsi
2.	Neuro Linguistic Programming	06 – 10.10.2018.	Amandeep Kaur
3.	Neuro Linguistic Programming	06 – 10.10.2018.	AV Unni

EDUCATIONAL TELEVISION CENTRE

Faculty

Dr. SS Pattnaik
Director (in Lien)
Research Areas - Soft Computing, Multimedia, Antenna & Microwave, RF & Bio-medical

Dr. Maitreyee Dutta
Professor
Research Areas - Digital Signal & Image Processing, Data Warehousing & Data Mining, Advanced Computer Architecture

During the year 2018-19, the department conducted **12** short term courses in Contact Mode and **05** Short Term Courses in ICT Mode for polytechnic and engineering college teachers, which were attended by **94 and 457** participants respectively. The department conducted **02** National Workshops, which was attended by **09** participants and **01** Student Training Program on Camera Editing. The Centre also developed **286** MOOCs Film Videos and 122 NCTEL Videos. The department completed **01** Consultancy Services Project for Haryana.

Short Term Programs (Contact Mode)

1. Digital Image Editing & Animation
2. Creative Visual Using Adobe Photoshop Flash & After Effect
3. Creative Video Editing Using Adobe Premier
4. Deep Learning
5. Development of MOOCs Videos
6. Graphics & Animation Techniques for Instructional Material Development
7. Open Source Tools for Enhancing Presentation Quality
8. Use of Digital Technologies in Teaching Learning
9. Selection Camera Shots & Editing for Video
10. Use of Digital Video Camera for Digital Content Generation
11. Video Production Techniques for e-content Generation
12. Use of Digital Technologies in Teaching Learning

Short Term Programs (ICT Mode)

1. Scilab Programming
2. Artificial Neural Network and Fuzzy Logic
3. Image Processing and Signal Processing using Scilab
4. App Development
5. Learning Management System

Student Training Program

1. Training on Camera and Editing Techniques

Papers Published in SCI Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1.	Wide CPW Fed Multiband Wearable Monopole Antenna with Extended Grounds for GSM/WLAN/WiMAX Applications, International Journal of Antennas and Propagation, 2019, Article ID 4264513, pp.1-14.	D. Mandal and S.S. Pattnaik
2. *	Epilepsy classification using optimized artificial neural network, Neurological Research, DOI: 10.1080/01616412.2018.1508544 Impact Factor 1.449	Jagriti Saini, Maitreyee Dutta
3. *	A Survey of Key Bootstrapping Protocols Based on Public Key Cryptography in the Internet of Things, **IEEE Access,** DOI: 10.1109/ACCESS.2019.2900957, Volume 7, February, 2019	Manisha Malik, Maitreyee Dutta, And Jorge Granjal

Papers Published in Non-SCI Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1.	"Quad-Band Wearable Slot Antenna with Low SAR Values for 1.8 GHz DCS, 2.4 GHz WLAN and 3.6/5.5 GHz WiMAX Applications", Progress in Electromagnetics Research B, 2018, 81, pp. 163-182.	D. Mandal and S.S. Pattnaik
2.	"Fate Difference Time Domain Method Based SAR Calculation and Bending Analysis of a Multiband Wearable Antenna", International Journal of Research in Electronics and Computer Engineering, 6(4), (October-December 2018), pp.1320-1323.	D. Mandal and S.S. Pattnaik
3.	"Mathematical Loaded Fractal based Interdigital Capacitor Antenna for Communication Systems", Progress in Electromagnetics Research M, Vol. 70, Page 127-134, 2018.	Pushkar Mishra and S. S. Pattnaik *et al.*
4. *	"Defending DDoS in the Insecure Internet of Things: A Survey", **© Springer Nature Singapore Pte Ltd. 2018**, Artificial Intelligence and Evolutionary Computations in Engineering Systems, Advances in Intelligent Systems and Computing 668, https://doi.org/10.1007/978-981-10-7868-2_22, pp 223-233, Scopus indexed.	Manisha Malik, Kamaldeep Maitreyee Dutta
5. *	"PSO based Blind Deconvolution Technique of Image Restoration using Cepstrum Domain of Motion Blur", ©Springer International Publishing AG 2018, Book on Computational Vision and Bio Inspired Computing, Chapter 84, Lecture Notes in Computational Vision and Biomechanics 28, Chapter 84, Lecture Notes in Computational Vision and Biomechanics https://doi.org/10.1007/978-3-319-71767-8_81, pp 947-958, ISBN: 978-3-319-71766-1, Scopus indexed.	G. Ramteke Mamta, Maitreyee Dutta
6. *	"Face recognition from a group photograph using skin color models with PCA", Journal of Emerging Technologies and Innovative Research, July, 2018, Vol. 5, Iss 7, pp 54-63, Scopus indexed.	Manish Chauhan, Maitreyee Dutta
7. *	"Precise Positioning at Indian Region with Multi Constellation GNSS Receiver SP80", International Journal of Advanced Studies of Scientific Research, ISSN 2460-4010, Pg 11-17, **ELSEVIER SSRN** Library, Scopus indexed.	Prashant Joshi, Maitreyee Dutta, Vivek Bansal
8. *	"CNN based Image Forgery Detection using pre-trained AlexNet Model", **ELSEVIER-SSRN** Library (ISSN: 1556-5068), International Journal of Computational Intelligence and IoT Vol. 2, No. 1, 2018, Scopus indexed.	Amit Doegar, Maitreyee Dutta, Gaurav Kumar
9. *	"A Review of Passive Image Cloning Detection Approaches", **Springer Lecture Notes in Networks and Systems 46, 469-478**, Scopus indexed.	Amit Doegar, Maitreyee Dutta, Gaurav Kumar

Paper Published in International Conferences:

Sr.No.	Name of the Paper Published	Author (s) Name
1. *	"Efficient Approaches to Mitigate the Effect of Sybil Attack in MANET for High Network Lifetime – A Review", in 5th International Conference on Parallel, Distributed and Grid Computing", Scopus indexed.	Ritu Kumar and Maitreyee Dutta

| 2. * | "Intrusion Detection of Wormhole Attack in IoT – A Review", in 2018 International Conference on Circuits and Systems in Digital Enterprise Technology, Scopus indexed. | Mrinalini Goyal and Maitreyee Dutta |

*Also reported in CSE Department

ELECTRICAL ENGINEERING DEPARTMENT

Faculty

Dr. Lini Mathew
Professor
Research Areas - Digital Signal Processing, ANN and Fuzzy Logic, Virtual Instrumentation

Dr. Ritula Thakur
Assistant Professor
Research Areas - Power System, Microcontroller & Micro Processor, PLC and SCADA

Dr. Shimi S.L
Assistant Professor
Research Areas – Power Electronics & Drives, Digital Control, FACTS, Artificial Intelligence & Optimization,LABVIEW & its hardware interface

Dr. Poonam Syal
Associate Professor
Research Areas - Energy Management, Instrumentation for Envt. Engg., Assistive Technologies, Research Methodology

During the year 2018-19, the department conducted **26** short term courses for polytechnic and engineering college teachers, which were attended by **471** participants. The department conducted **09** training programs through ICT and **2306** participants attended. The department also conducted **06** Student Training Programmes with a total of **59** students' participation. The Department has conducted **02** workshops which were attended by **37** participants. **The department developed 01 Text Book and has developed One course on Real Time Power System Analysis and Smart Grid for Swayam MOOC (58 Video Films) under NRC.** The department has applied for **01** Patent, **11** papers published by the department faculty in SCI Journal and **45** papers published in International Journals other than SCI Journal. The department initiated the establishment of HIL Centre of Excellence in collaboration with Typhoon HIL, Switzerland. The department faculty published/presented **21** papers in International conferences/seminars. The department also completed **30** Extension Services Project and **01** Consultancy Service Project.

Short Term Programs (Contact Mode)

1. Instrumentation for Environmental Engineering
2. Modeling and Real Time Simulation of Electrical Systems
3. Modeling and Simulation of Renewable Energy Systems
4. Alternative Energy Sources and their Applications
5. Emerging Research Areas in Engineering & Technology
6. IOT Applications using LabVIEW
7. Energy Management – Climate Protection and Resource Conservation
8. Simulation of Power Systems
9. Hands on Practices on Power Electronics Circuits
10. Hands on Practices using LabVIEW and NI ELVIS
11. Projects on Electrical and Electronics Engineering
12. Power Quality issues and Monitoring
13. Bio-inspired Optimization Techniques
14. Tools for Scientific Research in Engineering and Science
15. Basics of MATLAB/ SIMULINK
16. PLC and Microcontrollers
17. Smart Grid and Distributed Generation Technologies
18. Artificial Intelligence and Optimization
19. Real Time Simulation of HVDC and FACTS Devices
20. MATLAB/SIMULINK and its Hardware Interface
21. Science and Technology for Sustainable Development
22. Microcontroller and its Programming
23. Laboratory Practices of Electrical Machines and Instrumentation
24. Hardware in Loop for power system and power electronics Applications (in collaboration with Typhoon HIL Switzerland)
25. Microcontrollers and Embedded Systems
26. Machine Health Monitoring and Evaluation using IOT

Short Term Programs (ICT Mode)

1. Emerging Research Areas in Engineering & Technology
2. Biomedical Signal Processing
3. Tools for Scientific Research in Engineering and Science
4. Smart Grid and Distributed Generation Technologies
5. Artificial Intelligence and Optimization
6. Real Time Simulation of HVDC and FACTS Devices
7. Science and Technology for Sustainable Development
8. Microcontrollers and Embedded Systems
9. Machine Health Monitoring and Evaluation using IOT

NRC Course on "Real Time Power System Analysis and Smart Grid"

1578 participants

Rating: 4.7 / 5

Student Training Program

1. 6 months summer training on Embedded Systems
2. PLC and Microcontrollers
3. Special Training for World Skill Competition

Patents/Copyright:

Sr.No.	Name of Patents/Copyright	Author(s) Name
1.	**Patent** vide letter no. T.I (59)/TIFA/2018 Dated 12th April, 2019 through Patent Information Centre, PSCST and Technology Information, Forecasting & Assessment Council (TIFAC), Department of Science and Technology, Govt. of India after patent search report (sent vide letter no. PSCST/1965 dated 27/8/18) is under progress. Title: Twenty- Five Level Inverter Topology with Reduced Number of Power Switch and DC Voltage Sources Inventors: Rohit Kumar, Shimi Sudha Letha Applicant: NITTTR Chandigarh, Sector 26 Chandigarh -160019	Rohit Kumar and Shimi Sudha Letha

Papers Published in SCI Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1.	"SEMG signal classification with novel feature extraction using different machine learning approaches", Journal of Intelligent & Fuzzy Systems Vol.35 pages 5099-5109, 2018 DOI 10.3233/JIFS-169794. (Thomson Renters SCI E indexed with impact factor 1.426).	Yogena Narayan, Lini Mathew S. Chatterji
2.	"Comparative Study of Maximum Power Point tracking techniques for hybrid renewable energy system", International Journal of Electronics, Taylor & Francis Online, published online 7 March 2019. DOI: 10.1080/00207217. 2019.1584917	Mohammad Junaid Khan, Lini Mathew
3.	"Estimation of Leaf Chlorophyll Concentration in Turmeric (Curcuma longa) Using High-Resolution Unmanned Aerial Vehicle Imagery Based on Kernel Ridge Regression", Journal of the Indian Society of Remote Sensing (Springer) Published online 25 March 2019, DOI 10.1007/s12524-019-00969-9.	Gaurav Singhal, Babankumar Bansor, Lini Mathew, Jonali Goswami, B.U.Choudhury, P.L.N.Raju
4.	"Fuzzy Logic Controller Based MPPT for Hybrid Photo-Voltaic/Wind/ Fuel Cell Power System", Neural Computing and Applications, Springer, Vol. 29, No. 10, pp.1-14, 2018. https://doi.org/10.1007/s00521-018-3456-7 [SCI, IF=4.213]	Mohammad Junaid Khan and Lini Mathew
5.	"Comparative analysis of maximum power point tracking controller for wind energy system", International Journal of	Mohammad Junaid Khan and Lini Mathew

Sr.No.	Name of the Paper Published	Author (s) Name
	Electronics, Vol. 105, No. 9, pp.1535-1550, 2018. DOI: 10.1080/00207217. 2018.1461251 [SCI, IF=0.939]	
6.	"Effectiveness of Robo-Assisted Lower Limb Rehabilitation for Spastic Patients: A systematic review", Biosensors and Bio-electronics, Vol.117, pp.403-415, 2018. Elsevier [SCI, IF = 8.173]	D. Shakti, Lini Mathew, N. Kumar and C. Kataria
7.	"Increasing trend of wearables and multimodal interface for human activity monitoring: A Review", Biosensors and Bioelectronics, Vol. 90, pp. 298-307, 2018. Elsevier [SCI, IF = 8.173]	Preeti Kumari, Lini Mathew, and Poonam Syal
8.	"Comparative study of Optimisation Techniques for Renewable Energy System", Archives of Computational Methods in Engineering. (Online December 2018), pp 1-10, (Springer) (SCI Indexed)	Mohammd Junaid Khan, Lini Mathew
9.	"Emerging Energy Sources for Electric Vehicle Charging Station", Environment, Development and Sustainability, (SCI Impact Factor : 1.37), pp.1-40 April 2018.	Arshdeep Singh, Shimi SL
10.	"Condition Monitoring and Fault Diagnosis of Induction Motors: A Review", Archives of Computational Methods in Engineering, pp 1–18, September, 2018	Anurag Choudhary, Deepam Goyal, Sudha Letha Shimi, Aparna Akula
11.	"Analysis of water quality parameters by hyperspectral imaging in Ganges River", Spatial Information Research, Volume 26, Issue 2, pp 203–211, April 2018. (Springer Journal)	Baban Kumar Bansod, Rangoli Singh, Ritula Thakur

Papers Published in Non-SCI Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1.	"Smart Grid Security with Cryptographic Chip Integration", Energy Web and Information Technologies, 24th November, 2018	PriyanshiVishnoi, Shimi S. L., Adesh Kumar
2.	"Group Search Optimization With Multi Objective Generation For Power Dispatch Problem", International Journal of Research and Analytical Reviews, E-ISSN 2348-1269, P-ISSN 2349-5138, Volume.5, Issue 4, Page No pp.505-514, November, 2018	Manish Kumar Jain Shimi S. L
3.	"Group Search Optimization for Multi Objective Power Dispatch - Review", International Journal of Research and Analytical Reviews, E-ISSN 2348-1269, P- ISSN 2349-5138, Volume.5, Issue 3, Page No pp.892-898, September 2018	Manish Kumar Jain, Shimi S.L, Prashant Joshi,
4.	"Maximum Power Point Tracking in PV System- An Overview", International Journal of Research and Analytical	Md. Naqui Akhtar, Shimi S. L,

	Reviews (IJRAR), E-ISSN 2348-1269, P- ISSN 2349-5138, Volume.5, Issue 4, Page No pp.220-225, December 2018	Manish Kumar Jain
5.	"A Comparative Study for NN Based Hybrid Model With P&O for Tracking Maximum Power Point In PV System", International Journal of Research and Analytical Reviews (IJRAR), E-ISSN 2348-1269, P- ISSN 2349-5138, Volume.5, Issue 4, Page No pp.250-260, December 2018	Md. Naqui Akhtar, Shimi S. L, Manish Kumar Jain,
6.	"DC Link Voltage Control of UPQC Using Hysteresis Controller", International Journal of Emerging Technologies and Innovative Research, ISSN:2349-5162, Vol.5, Issue 11, page no. pp264-271, November 2018	Alok Tripathi, Shimi S. L, Ashish Srivastava
7.	"Advantages of UPQC on Power Quality Problems: A Review-AlokTripathi", International Journal of Emerging Technologies and Innovative Research (www.jetir.org), ISSN:2349-5162, Vol.5, Issue 12, page no.684-686, Dec. 2018	Alok Tripathi, Shimi S. L, Deepak Pandey
8.	"Importance of An Embedded System Based Low Cost Universal Interfacing Kit: An Overview", International Journal of Emerging Technologies and Innovative Research (www.jetir.org), ISSN:2349-5162, Vol.5, Issue 12, page no.536-538, Dec. 2018	Sukhdev Kushwaha, Shimi S. L
9.	"Design and Implementation of An Embedded System Based Low Cost Universal Interfacing Kit", International Journal of Emerging Technologies and Innovative Research, ISSN:2349-5162, Vol.6, Issue 1, page no.291-297, January 2019	SukhdevKushwaha, Shimi S. L
10.	"A literature review on high boost dc-dc converter", International Journal of Research in Advent Technology, Vol 7, No. 1	Vinod Srivastava, Shimi S. L, Abhishek Kumar Gupta
11.	"Analysis of water quality parameters by hyperspectral imaging in Ganges River", Spatial Information Research, Volume 26, Issue 2, pp 203–211, April 2018. (SpringerJournal)	Baban Kumar Bansod, Rangoli Singh, Ritula Thakur
12.	"Enhanced Howland-based constant current source for soil ECa measurement", International Journal of Instrumentation Technology (IJIT), Vol. 2, No. 1, pp. 78–89, 2018	Ritula Thakur, Baban Kumar Bansod
13.	"A Study on Various Machine Learning Techniques for ECG Signal Analysis", International Organization of Scientific Research Journal of Engineering (IOSR-JEN), Vol.8, pp.48-53, April 2018	Sunita Kumari, Lini Mathew
14.	"Ä Review on Brain Computer Interface of Muscle Movement Classification for The Upper Limbs", International Journal of	Rudhra Kumar Mishra and

	Technical Innovation in Modern Engineering & Science (IJTIMES), vol. 4, no.12, pp. 415-420, December-2018.	Lini Mathew
15.	"A Review of Techniques for Tremor Suppresion in Robotics Surgery", International Journal of Research in Engineering, IT and Social Sciences (IJREISS), ISSN-2250-0588 (Online), UGC approved Journal No. 42301, Volume-8, Special Issue, June 2018, page 81-93.	Amrita Singh, Poonam Syal, Sanjeev Kumar
16.	"Haptic Feedback in Surgical Robotic Applications – A Review", International Journal of Research in Engineering, IT and Social Sciences (IJREISS), ISSN-2250-0588 (Online), UGC approved Journal No. 42301, Volume-8, Special Issue, June 2018, P 94-104.	Vikram Singh, Poonam Syal, Sanjeev Kumar
17.	"Smart Lighting and Interior Blinds Control through IoT", International Journal of Computer Sciences and Engineering, UGC approved Journal No. 63193, ISSN: 2347-2693 (E) Vol. 6, Issue 5, May, 2018, pp 1018-1023	Deepak Makkar, Poonam Syal
18.	"Implementation of Current Sensing Technique for Providing Force Feedback in Robotic Surgical Application", International Journal of Research in Electronics & Computer Engineering (IJRECE)UGC Approved journal, ISSN (Online): 2348-2281; ISSN (Print): 2393-9028 Vol. 6 Issue 3 (July - September 2018)	Vikram Singh, Poonam Syal, Sanjeev Kumar;
19.	"Optimal Placement of Solar based DG in Distribution System for minimizing losses and THD using PSO Technique", IOSR Journal of Engineering (IOSRJEN) , UGC approved Journal – Sr. No. 4814 ISSN (e): 2250-3021, ISSN (p): 2278-8719 Vol. 08, Issue 12 , December 2018 , pp - 25-32	Md. Firoz Ansari and Poonam Syal
20.	"NZEB: A Case Study of Indira Paryavaran Bhawan", International Journal for Research in Engineering Application & Management (IJREAM) ISSN : 2454-9150 Vol-04, Issue-10, Jan 2019	Balkar Singh, Sanjay Sharma, Poonam Syal
21.	"Defining Design Criteria of Net Zero Energy Building for Composite Climate Zone", International Journal of Research and Analytical Reviews (IJRAR) January 2019, Volume 6, Issue 1, www.ijrar.org	Balkar Singh, Sanjay Sharma, Poonam Syal
22.	"Brain Computer Interface based Control Techniques and their Applications : A Review", Journal of Engineering & Technology Educatiion, Vol.12, No.1, January – June, 2018, ISSN 2229 – 631X.	Prateek Virdi, Poonam Syal, Preeti Kumari
23.	"Implementation of Three Element Boiler um Level Control Strategy Without Cascade Control and Feed Forward Signal", International Journal of Research in Advent Technology, Vol.6, No.10, October 2018	Ashvani Kumar Shukla, Ritula Thakur,
24.	"Support Vector Machine based Classification Improvement for EMG Signals using Principal Component Analysis", Journal of Engineering and Applied Sciences, 13: 6341-6345. 2018	VivekAhlawat, Ritula Thakur and Yogena Narayan

25.	"An Intelligent Model for Indian Soil Classification using various Machine Learning Techniques International Journal of Computational Engineering Research", Vol.8, Issue 9, pp. 33-41, 2018. (UGC)	Chandan Taluja, Ritula Thakur
26.	"Recent Trends of Machine Learning in Soil Classification: A Review", International Journal of Computational Engineering Research, Vol.8, Issue 9, pp.25-32, 2018. (UGC)	Chandan Taluja, Ritula Thakur
27.	"Study of Greenhouse Environment Monitoring and Controlling System", International Journal of Research and Analytical Reviews (IJRAR) (EISSN 2348-1269, P- ISSN 2349-5138), Volume 6, Issue 1, January 2019. (UGC Journal)	Abhishek Kumar Mishra, Ritula Thakur
28.	"Comparative Analysis of Smart Waste Bin Models using Arduino and NodeMCU as IOT platform, Journal of Emerging Technologies and Innovative Research (JETIR) (ISSN2349-5162) January 2019, Volume 6, Issue 1.	MrinalMitra, Ritula Thakur
29.	"A Study on Electromyography based brain human peripheral interface", International Journal of Research and Analytical Reviews (IJRAR) (EISSN 2348-1269, P-ISSN 2349-5138), Volume 5, Issue 4, December 2018	Shubhra Singh, Ritula Thakur
30.	"Performance Analysis of Static and Dual Axis Auto Sun Tracking Photovoltaic Solar Panel", International Journal of Technical Innovation in Modern Engineering & Science, Volume 5, Issue 01, January-2019	Tarun Singh, Ritula Thakur
31.	"Configuration of Analog to Digital Converter as data acquisition system for C2000 Delfino Microcontroller", Journal of Engineering & Technology Education, Volume 12, No. 1, January-June, 2018	Ritula Thakur, Sameer Singh
32.	"A Review on Active Filter for Power Quality Improvement", International Journal of Technical Innovation in Modern Engineering & Science, Vol.4, No.8, August 2018	Sanjeev Kumar, Ritula Thakur
33.	"A Review on Smart Waste Management System", International Journal of Research and Analytical Reviews (IJRAR) (E-ISSN 2348-1269, P-ISSN 2349-5138), Volume 5, Issue 4, December 2018	Mrinal Mitra, Ritula Thakur
34.	"Unified Power Quality Conditioner (UPQC)-An Extensive Review", International Journal for Research in Engineering Application & Management (IJREAM), Vol-04, Issue-09, pp.40-46, December 2018.	Vipin Kumar Mishra, Ritula Thakur
35.	"Bidirectional dc to dc Converters: An Overview of various Topologies, Switching Schemes and Control Techniques", International Journal of Engineering & Technology, 7(4.5)2018), pp 360-365 (Scopus Indexed)	Deepak Ravi, Bandi Mallikarjuna Reddy, Shimi S. L, Paulson Samuel
36.	"Modelling and Analysis of Novel Topology for Multilevel Inverter With Reduce Number of Switches", International	Rohit Kumar,

	Journal of Engineering & Technology, 7 (4.5) (2018) 379-385. (Scopus Indexed)	Shimi S. L, Shivena Kaura
37.	"Method for Non-Invasive Hemoglobin Determination", International Journal of Scientific Research and Review, Vol.7, Issue 3, March 2019	Akansha Deep,Yogesh Kumar, Poonam Syal, Sanjeev Kumar

Papers Published/Presented at Important Conferences/Seminars

International

Sr.No.	Name of the Paper Published	Author (s) Name
1.	IEEE – Industry Application Society 54th Annual Industrial & Commercial Power Systems (I&CPS) Technical Conference, at Marriot on the Falls, Niagara Falls, and presented a paper titled "Optimal Placement of United Power Flow Controller and Hybrid Power Flow Controller Using Optimization Technique	Lini Mathew
2.	27th IEEE International Symposium on Industrial Electronics held in Cairns, Queensland from 12-15 June 2018 and presented a paper on Hardware Implementation of Power Quality Improvement in Photo-voltaic Fed Cascaded H-bridge Multilevel Inverter	Shimi Sudha Letha co-authored by Tilak Thakur, Jagdish Kumar
3.	"A Review on Real Time Simulation of UPFC" IEEE International Conference on Computational and Characterization Techniques in Engineering & Sciences (CCTES-18) Lucknow, Uttar Pradesh, 14th-15th Sep.(2017). (Any Other)	Amritpreet Singh and Lini Mathew
4.	Data Acquisition System for the Development of Non-Invasive Hemoglobin Measurement, International Conference on New Trends in Engineering & Techno logy, held at Chennai on 7&8 September, 2018	Akansha Deep,Yogesh Kumar, Poonam Syal, Sanjeev Kumar
5.	Adaptive filter design for suppression of tremor in robotic surgery , International Conference on New Trends in Engineering & Technology, held at Chennai on 7&8 September, 2018	Amrita Singh, Poonam Syal, Sanjeev Kumar
6.	Advanced Skills for emerging trends and enhancing self-employment, International Conference on Skilling for Self-employment at NITTTR, Chandigarh organized by CPSC, Manila, Philippines and NITTTR, Chandigarh on 21-22 February, 2019	Shivaji G.Thube, Poonam Syal
7.	"Methods of Short Term Load Forecasting: A Systematic review", 2018 1st IEEE International Conference on Power Energy, Environment & Intelligent Control , (PEEIC2018), Greater Noida, 13th and 14th April, 2018	Dhruv Upadhaya, Ritula Thakur, Navneet Kumar Singh
8.	"Genetic Algorithm Optimized Artificial Neural Network for Short Term Load Forecasting: An Indian Scenario" - International Conference on Manufacturing, Advance	Dhruv Upadhaya, Ritula Thakur,

	Computing, Renewable Energy and Communication (MARC-2018), Lecture Notes in Electrical Engineering, Springer, Scopus Indexed book Series, New Delhi, 19th and 20th July, 2018	Navneet Kumar Singh
9.	"PSO Optimized ANN for Short Term Load Forecasting: An Indian Scenario"- International Conference on Manufacturing, Advance Computing, Renewable Energy and Communication (MARC-2018), Lecture Notes in Electrical Engineering, Springer, Scopus Indexed book Series, New Delhi, 19th and 20th July, 2018.	Dhruv Upadhaya, Ritula Thakur, Navneet Kumar Singh
10.	Real Time Simulation IEEE 9 bus system for Fault Analysis using Transient Response, Second International Conference on Advance Informatics for Computing Research, ICAICR-2018, Shimla, 14-15 July 2018	Ankit Singh, Ritula Thakur
11.	Fractional order PID Controller Design for DFIG Based Wind Energy Conversion System, Second International Conference on Advance Informatics for Computing Research, ICAICR-2018, Shimla, 14-15 July 2018	Renuka Thakur, Ritula Thakur
12.	Modeling and validation of shunt active power filter by using Opal-RT Second International Conference on Advance Informatics for Computing Research, ICAICR-2018, Shimla, 14-15 July 2018	Sanjeev Kumar, Ritula Thakur
13.	An Intelligent Machine Learning Model for Soil Image Classification, IEEE sponsored International Conference on Signal Processing, VLSI and Communication Engineering (ICSPVCE 2019), Delhi Technical University, Delhi, 28-30 March, 2019	Chandan, Ritula Thakur
14.	Comparative Study Analysis of GA Based PID and Fractional Order PID Controller for DFIG Based Wind System, IEEE International Conference on Intelligent Computing and Sustainable System(ICICSS 2018), Akshaya College of Engineering and Technology (ACET) Coimbatore, Tamil Nadu, 20-21 September, 2018	Renuka Thakur, Ritula Thakur
15.	Comparative Analysis of Fractional order PID Controller for pitch Angle Control of Wind Turbine System, 4th International Conference on Computing in Engineering & Technology (Springer), Aurangabad, January 9-11, 2019.	Shivaji Karad, Ritula Thakur
16.	" A Novel Topology of Fifteen Level Multilevel Inverter with Harmonic Elimination Using GA-SHE" , IEEE International Conference on Power Energy, Environment & Intelligent Control (PEEIC2018), Greater Noida, India, 14th April, 2018.	Rohit Kumar, Shimi S.L., Shivena Kaur
17.	"An overview of various DC-DC converter Topologies used for Fuel Cell based Applications". IEEE International Conference on Power Energy, Environment & Intelligent Control (PEEIC2018), Greater Noida, India, 14th April, 2018	R. Deepak, S.L. Shimi, S. Paulson, and R. Bandi Mallikarjuna
18.	Design and control of solar based three phase Brushless motors ive using D-STATCOM Batch R2015, 18th January,	Suneet Singh, Shimi S.L

	2019.		
19.	Design and Hardware Chip Implementation of Network Security Protocol for Smart Grid M 2013, 18th January, 2019.		PriyanshiVishnoi, Shimi S.L
20.	NN based Hybrid Model for the detection of Maximum Power Point Tracking in PV System. M2012, 18th January, 2019		Md. Naqui Akhtar, Shimi S.L
21.	Bearing Fault Diagnosis of Induction Motor using Thermal Imaging, IEEE International Conference on Computing, Power and Communication Technologies, Greater Noida, Utter Pradesh, 28th – 29th Sept, 2018		Anurag Choudhary, Sudha Letha Shimi, Aparna Akula

In-Country Training Programs

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	Capacity Building Training Program on Punjab Energy Conservation Building Code	11 – 13.07.2018.	NITTTR, Chandigarh	Poonam Syal
2.	Attended 4 days training conference- INDIA MASTERs 2018	04 – 07.12.2018	MICROCHOP at Bangalore	Ritula Thakur
3.	Attended 1 week FDP on Power Quality Analysis and Improvement Techniques	18 -23.06.2018	NIT, Warangal	Ritula Thakur
4.	SWAYAM workshop for newly selected NRCs	11.07.2018	NDIM, New Delhi, conducted by AICTE	Lini Mathew, Shimi S.L
5.	2 days workshop on " Typhoon HIL writers meet ", held at New Delhi	13 – 14.10.2018	New Delhi	Shimi S.L
6.	Launch of Annual Refresher Programme in Teaching (ARPIT) under Swayam platform	13.11.2018	MHRD, GOI, at Vigyan Bhawan, New Delhi	Ritula Thakur and Shimi S.L
7.	1st BID Hub Workshop: Strategy and Solutions for Better Health Care on 13th February 2019 organized by " Biomedical Instruments and Device Hub- A Centre for Innovation, Design and Clinical Validation"	13.02.2019	PGIMER, Chandigarh.	Shimi S.L and Lini Mathew

In-House Training Programs

Sr. No.	Title of Training Programme	Period of Training	Attended by
1.	Skill Development programme on Sustain and Enhance Technical Knowledge in Solar Energy Systems under Green Skill Development programme of ENVIS Scheme		Shimi S.L,

Sr. No.	Title of Training Programme	Period of Training	Attended by
2.	One-day workshop on "Design Thinking" conducted by IBM at NITTTR, Chandigarh.	18.03.2019	Lini Mathew, Ritula Thakur and Shimi S.L / Poonam Syal
3.	In collaboration with MATLAB an one hour session on " TAH license transition" was conducted in the ETV studio at 4.30PM. The MATLAB expert was Obaid Ullah, Customer Success Specialist, Math Works India Private Limited.	01.08.2018	Shimi S.L

Theses Guided by Faculty

Name of Faculty	No. of M.E. Theses Guided
Dr. Lini Mathew	8
Dr. Poonam Syal	3
Dr. Ritula Thakur	11
Dr. Shimi S L	15

"One man's "magic" is another man's engineering. "Supernatural" is a null word."

– Robert A. Heinlein

ELECTRONICS & COMMUNICATION ENGINEERING DEPARTMENT

Faculty

Dr. Sandeep Singh Gill
Joint Professor
Research Areas - VLSI CAD, Soft Computing Techniques, Engineering Management

Dr. Amod Kumar
Professor
Research Areas - Artificial Intelligence, Biomedical Engineering

Dr. Kanika Sharma
Assistant Professor
Research Areas – Embedded System Design, Digital System Design, Wireless Sensor Network

Er. Garima Saini
Assistant Professor
Research Areas - Advanced Digital Communication, Wireless & Mobile Communication, Antenna

Dr. Rajesh Mehra
Joint Professor
Research Areas - VLSI Design, Advanced Digital Signal Processing, Embedded Design

During the year 2018-19, the department conducted **22** short term courses for polytechnic and engineering college teachers, which were attended by **308** participants. The department conducted **09** ICT Programs attended by **1528** participants. **01** student training program were conducted and **07** engineering students were trained in this student training program. The department also conducted **03** seminars attended by **230** participants. The department completed **02** print materials, **07** non-print material (video films). **02** consultancy projects were completed. The department faculty published **06** papers in SCI Journals and **27** papers published in non-SCI Journals. The department faculty also published/presented **03** papers in International Conferences.

Short Term Programs (Contact Mode)

1. 3G to 5G
2. FPGA Design Implementation
3. Antenna Design and Simulation
4. PCB Using CAD
5. Microcontroller and its Applications
6. CAM for PCB
7. Self-configured Wireless Sensor Network
8. DSP Using MATLAB
9. Embedded System Design
10. 4G & 5G
11. VLSI Design
12. FPGA & its Applications
13. Digital Communication using MATLAB
14. Next Generation Wireless Technology
15. Embedded World
16. Latest Wireless Technologies
17. Microcontroller and its Applications
18. Lab Practical in EDA Tools
19. CMOS Analog Design
20. Microwave Communication System
21. System Designing and its Application
22. MATLAB and its Application

Short Term Programs (ICT Mode)

1. Self Configured Wireless Sensor Networks
2. Embedded System Design
3. 4G & 5G
4. VLSI Design
5. Next Generation Wireless Technology
6. Digital System Design
7. CMOS Analog Design
8. Wireless Propagation
9. Recent Trends in Biomedical Instrumentation

Student Training Program

1. PCB Designing (11 June to 06 July, 2018)

National Seminar/Conference:

1. National Seminar on Digital India: Services and Solutions

2. Seminar for ME Students on Design Challenges in Low Power VLSI Design

3. Seminar for ME Students on Data Analysis for Engineers and Scientists

Papers Published in SCI Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1.	"Comparative Analysis of Electron Transport Materials in Mixed Halide Perovskite Solar Cells for Enhanced Efficiency", Journal of Nanoelectronics and Optoelectronics, Vol. 13, pp. 1–10, 2018.	Neha Thakur, Rajesh Mehra
2.	"Efficient Design of Perovskite Solar Cell Using Parametric Grading of Mixed Halide Perovskite and Copper Iodide", Journal of Electronic Materials https://doi.org /10.1007/s11664-018-6620-z.	Neha Thakur, Rajesh Mehra, Chandni Devi
3.	"Efficient Tandem Organic Light Emitting Diode Using Organic Photovoltaic Charge Generation Layer", International Journal of Optics, Volume 86, 2018, https://doi.org/10.1155/2018/9458530.	Akansha Jetly, Rajesh Mehra
4.	"Design of Tandem Organic Light Emitting Diode using efficient charge generation layer", International Journal of Optics, Volume 88, pp. 304-312, 2019.	Akansha Jetly, Rajesh Mehra
5.	"Device simulation of lead-free MASnI3 solar cell with CuSbS2 (copper antimony sulfide)", Journal of Material Science (Electronic Materials), Volume 54, Number 7, pp. 5615-5624, 2019. DOI 10.1007/s10853-018-03265-y.	Chandni Devi, Rajesh Mehra
6.	"Breast Cancer Histology Images Classification: Training from Scratch of Transfer Learning", Journal of ICT Express, Vol. 4(4), 247-254, 2018.	Shallu, Rajesh Mehra

Papers Published in non-SCI Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1.	"A Review on Interference Mitigation Technique for Two Tier Macro-Femto Network", International Journal of Research In Electronics and Computer Engineering, Vol. 6, Issue 2, pp. 1914- 1919, APR-JUNE 2018, ISSN:2348-2281, UGC Journal No. 44816	Jyoti Bala, Garima Saini
2.	"Performance Analysis of Fractional Frequency Reuse Schemes Works", International Journal of Electronics Engineering, Volume 10, Issue 2, pp. 393-398, June 2018-Dec 2018, ISSN:0973-7383 UGC Journal No. 2946	Girisha Kumar, Garima Saini
3.	"Various Handover Techniques for Heterogeneous Networks: A Survey", International Journal of Research In Electronics And Computer Engineering, Vol. 6, Issue 2, pp. 1909 - 1913, APR-JUNE 2018, ISSN:2348-2281, UGC Journal No. 44816.	Konika Mahajan, Garima Saini

4.	"Planar Antennas for UHF RFID Reader Applications-A Review", International Journal of Electronics Engineering, Volume 10, Issue 1, pp. 136-139, Jan 2018 -June 2018, ISSN:0973-7383, UGC Journal No. 2946	Naveen Kumar, Garima Saini
5.	"Interference Mitigation Technique for Two Tier Macro-Femto Network using Grey Wolf Optimization", International Journal of Electronics Engineering, Volume 10, Issue 2, pp. 372-377, June 2018-Dec 2018, ISSN:0973-7383, UGC Journal No. 2946	Jyoti Bala, Garima Saini
6.	"Vertical Handover Technique for LTE-A Heterogeneous Network by using Expectation Maximization Algorithm", International Journal of Electronics Engineering, Volume 10, Issue 2, pp. 378-384, June 2018-Dec 2018, ISSN:0973-7383, UGC Journal No. 2946	Konika Mahajan, Garima Saini
7.	"Compact UHF Patch Antennas for RFID Reader Applications", Journal of Advance Research in Dynamical & Control Systems, Vol. 10, Special Issue-09, pp. 2477-2483, 2018, ISSN - 1943-023x, Scopus Indexed.	Naveen Kumar, Garima Saini
8.	"Design Analysis of 2.4GHz PIFA using ABS Material", Vol. 10, Journal of Advance Research in Dynamical & Control Systems Special Issue-09, pp. 2386-2391, 2018, ISSN - 1943-023x, Scopus Indexed.	Arshpreet Kaur, Garima Saini
9.	"Implementation of fractional Frequency Reuse Schemes in LTE-A Network", Lecture Notes in Networks and Systems, Springer, Volume 46, pp. 313-321, 2019, Scopus Indexed.	Girisha Kumar, Garima Saini
10.	"A Novel Wineglass Shaped Wide Band Antenna for TV White Space Communication", International Journal of Engineering & Technology, 7(45), pp. 324-328, 2018, Scopus Indexed.	Ghulam Ahmad Raza, Garima Saini, Naveen Kumar
11.	"Multi-Level Fractional Frequency Reuse Schemes for 5G Networks", Journal of Advance Research in Dynamical & Control Systems , Vol. 10, Special Issue-06, pp. 2027-2033, 2018, ISSN - 1943-023x, Scopus Indexed	Girisha Kumar, Garima Saini
12.	"Method & Implementation of Optimal Routing Mechanism with Wakeup Schedule in WSN", Journal of Emerging Technologies and Innovative Research (JETIR), ISSN: 2349-5162, Vol. 5, No. 7, pp. No.521-528, July 2018. (UGC Journal No. 63975)	Sushila, Kanika Sharma
13.	"Balanced and Energy-Efficient Wireless Sensor Network Using A-Star Algorithm", Journal of Emerging Technologies and Innovative Research (JETIR), ISSN: 23495162, Vol. 7, No. 5, pp. No.380-385, July 2018. (UGC Journal No. 63975)	Harsh Sharma, Kanika Sharma
14.	"Wireless Nano-sensors: A Review", Journal of Emerging Technology and Innovative Research (JETIR), ISSN-2349-5162, Vol. 5, No. 6, pp. 70-74, June 2018. (UGC Journal No. 63975)	Pooja Kataria, Kanika Sharma
15.	"Improved Pulse Based Localization Algorithm for Wireless Nano-sensor Network", International Journal of Electronics and Engineering (IJEE), ISSN-2349-5162, Vol.5, No. 6, pp.	Pooja Kataria, Kanika Sharma

	70-74, June 2018. (UGC Journal No. 2946)	
16.	"Algorithm for Improved Normalized Residual Energy in Wireless Nano - Sensor networks", International Journal of Electronics and Engineering (IJEE), ISSN-2455-2585, Vol.4, No. 10, pp. 272-282, October 2018. (UGC Journal No. 47719)	Pooja Kataria, Kanika Sharma
17.	"A Review on Cluster Based Routing Protocols for Wireless Sensor Network", International Journal of Research In Electronics and Computer Engineering, Vol. 6, Issue 2, pp. 1896-1900, June 2018, ISSN: 2393-9028 (print)/ISSN: 2348-2281 (online). (UGC Journal No. 44816)	Shilpa Mohina, Kanika Sharma
18.	"Cluster Head Selection using Gradient Descent Algorithm For Wireless Sensor Network", International Journal of Technical Innovation in Modern Engineering and Science, Vol. 4, Issue 9, pp. 62-69, September 2018, ISSN: 2455-2585. (UGC Journal No. 47719)	Shilpa Mohina, Kanika Sharma
19.	"Efficient Clustering Algorithm Based on Gradient Descent Approach for Wireless Sensor Network", UGC Approved International Journal of Electronics and Engineering (IJEE), ISSN: 0973-7383, Vol.10, No. 2, pp. 385-392, June 2018.	Shilpa Mohina, Kanika Sharma
20.	"Grid Based Clustering Protocol In Wireless Sensor Network: A Review", Journal of Emerging Technology and Innovative Research (JETIR), ISSN-2349-5162, Vol. 5, No. 7, pp. 441-444, July 2018. (UGC Journal No. 63975)	Monika Chauhan, Kanika Sharma
21.	"Improved Grid Based Clustering and Combinational Routing for Wireless Sensor Network", UGC Approved International Journal of Electronics and Engineering (IJEE), ISSN-2349-5162, Vol.10, No. 2, pp. 336-341, July 2018. (UGC Journal No. 2946)	Monika Chauhan, Kanika Sharma
22.	"INPMAC: An Improved Node Power Based MAC Protocol with Adaptive Listening Period", International Journal of Technical innovation in Modern Engineering and Science, ISSN-2349-5162, Vol.4, No. 7, pp. 1322-1327, July 2018. (UGC Journal No. 47719)	Vishakha, Kanika Sharma
23.	"A Review on Energy Efficient MAC Protocols in Wireless Sensor Network", Journal of Emerging Technology and Innovative Research (JETIR), ISSN-2455-2585, Vol. 5, No. 7, pp. 607-611, July 2018. (UGC Journal No. 63975)	Vishakha, Kanika Sharma
24.	"Enhancing the Lifetime of EADUC using PSO for Wireless Sensor Networks", International Journal of Electrical, Electronics and Computer Science Engineering, E-ISSN: 2348-2273	P-ISSN: 2454-1222, Vol. 5, No. 3, pp. 100-105, June 2018.	Ankita Mahajan, Kanika Sharma
25.	"Low noise amplifier using Darlington pair at 90 nm Technology" Scopus Indexed International Journal of Electrical and Computer Engineering, 8(4), pp. 2054-2062, 2018.	Singh R, Rajesh Mehra
26.	"Automatic Magnification independent classification of breast cancer tissue in histological images using deep convolution neural network" Scopus Book Chapter on Communications in Computer and Information Science, pp. 772-781, 2019.	Shallu, Rajesh Mehra
27.	"Qualitative Analysis of Darlington feedback amplifier at 45 nm Technology" Scopus Indexed Bulletin of Electrical	Singh R, Rajesh Mehra

	Engineering and Informatics, 7(1), pp. 21-27, 2018.	

Papers Published/Presented at Important Conferences/Seminars

International

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author(s) Name
1.	"Comparative Evaluation of Cluster Head Selection Algorithm for Wireless Sensor Networks", International Conference on Manufacturing Advance Computing, Renewable Energy and Communication (MARC-2018) from 19-20th July 2018 at HMRITM, New Delhi.	Tanvi Sood, Kanika Sharma
2.	"A Comparative Analysis on the Scheduling Algorithms for Wireless Sensor Networks", IEEE 13th International Conference on industrial and Information Systems from 01-02 December, 2018 at IIT Ropar.	Tanvi Sood, Kanika Sharma
3.	"A Survey on Routing Algorithms for Wireless Sensor Network", IEEE International Conference on Recent Innovations in Electrical, Electronics & Communication Engineering (ICRIEECE), Manuscript ID – 355 with catalog "CFP18P98-PRT:978-1-5386-5994-6" July 2018.	Harsh Sharma, Kanika Sharma

In-Country Training Programs

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	Data Analysis for Engineers and Scientists	08 -12.10.2018	MNIT Jaipur	Kanika Sharma
2.	Inter-Governmental International Organization COLMBO PLAN STAFF COLLEGE on Entrepreneurship in TVET	18 – 22.02.2019	NITTTR Chandigarh	Garima Saini

In-House Training Programs

Sr. No.	Title of Training Programme	Period of Training	Attended by
1.	Digital India: Services and Solutions	13.09.2018	Rajesh Mehra Kanika Sharma Garima Saini
2.	Workshop on Mindfulness Integrated Cognitive Therapy	19 – 20.01.2019	Kanika Sharma
3.	Workshop on "Designing Thinking" organized by IBM	18.03.2019	Garima Saini

Theses Guided by Faculty

Name of Faculty	No. of M.E. Theses Guided
Er. Garima Saini	6
Dr. Kanika Sharma	5
Dr. Rajesh Mehra	5

ENTREPRENEURSHIP DEVELOPMENT & INDUSTRIAL COORDINATION DEPARTMENT

Faculty

Dr. Suresh Kumar Dhameja
Professor
Research Areas – Entrepreneurship Development, Industry Institute Interaction, Technical and Vocational Education and Training

Er. Amardev Singh
Assistant Professor
Research Areas – Entrepreneurship Development, Intellectual Property Rights, Technology Adoption and Management

Dr. Upendra Nath Roy
Joint Professor
Research Areas – Watershed Management, Rural Sanitation, Climate Change & Disaster Management, Organic Farming

Dr. Sandeep Singh Gill
Joint Professor
Research Areas - VLSI CAD, Soft Computing Techniques, Engineering Management

During 2018-19, the department conducted **15** short term courses for polytechnics and engineering colleges which were attended by **441** teachers. The department also trained **670** teachers from polytechnics and engineering colleges in **06** training programs organised through ICT. The department also conducted **02** DST sponsored programs which were attended by **155** participants and **01** International Seminar in which **162** persons attended. **02** Workshops were organised by the department which were attended by **227** participants. The department faculty published **05** papers in non-SCI Journal. The department completed **22** Non-Print Material. The department also completed **03** Extension Services Project.

Short Term Programs (Contact Mode)

1. Intellectual Property Rights and Patenting.
2. Annual Review cum operational preparation & training of project Coordinators
3. Entrepreneurial opportunity identification and Project Formulation
4. Blue Ocean Strategy for Entrepreneurship Promotion
5. Intervention for Effective Industry Academia Integration
6. Students Grooming for Entrepreneurship
7. Economic Environment and Policies for Business
8. Empowering the persons with Benchmark Disabilities

17. Achievement Motivation Training
18. Entrepreneurship Promotion Though Technical Institutions
19. CPSC- NITTTR Collaborative regional Programme on Skill Development for Employability for officials of Asia Pacific Region
20. SWOT Analyses
21. Entrepreneurial Project Formulation
22. Entrepreneurship Promotion Though Polytechnics
23. Entrepreneurship Awareness Program

Short Term Programs (ICT Mode)

1. Business Incubation in Technical Institutions
2. Promoting Industry Institute Integration
3. Strategic Management and SWOT Analysis of Technical Institutions
4. DST/EDI Sponsored FDP in Entrepreneurship
5. Green Entrepreneurship
6. Entrepreneurship and Business Incubation

Student Training Program

1. Entrepreneurship Awareness Camps

International / National Seminar/Conference:

1. Skilling for Self-Employment in collaboration of CPSC Manila held on 21 – 22 February, 2019.

Papers Published in non-SCI Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1.	"Role and Contribution of Commercial Banks in Fulfilling Funding Requirement of MSMEs of Himachal Pradesh", International Journal for Research in Engineering Application & Management, Vol IV, No-7, October 2018, PP422-431	Gupta Varsha, Saini JS and Chaddha Sanjeev
2.	"MSME Financing: Growth and Challenges", International Journal for Research in Engineering Application & Management Vol IV, No-7, Oct. 2018, PP 716-727	Gupta Varsha, Saini JS and Chaddha Sanjeev
3.	"A Study of Effect of Training & Development on the Organizational Commitment: A Case Study of Selected Banks in India", International Journal of Management Studies, Volume V, Issue-4(8), October, 2018, pp 64-73.	Prabhjot Kaur, Jasmer Singh Saini & Mukesh Chauhan
4.	"A Study of Effect of Performance Appraisal on the Organizational Commitment: A Case Study of Selected Banks in India", International Journal of Management Studies, Volume-V, Issue-4(9) October, 2018, pp 38-47.	Prabhjot Kaur, Jasmer Singh Saini & Mukesh Chauhan
5.	"Job Satisfaction and its determinates: A Review Paper", International Journal of Applied Sciences (UGC Approved Journal), Vol V, Issue 1, November,2018	Madhulika & SK Dhameja

Training Programs attended by Institute Faculty/Staff

International Training / Visits

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	Refresher Training Program for APACC Accreditors	4 - 5.12.2018	CPSC Manila, Philippines	SK Dhameja
2.	Contemporizing Development Economics Research on Innovation, Entrepreneurship & Sustainability and attended other Professional Development Workshops in the Academy of Management Annual Meeting	10 -14.12.2018	Chicago, Illinois, USA	Amardev Singh

In-House Training Programs

Sr. No.	Title of Training Programme	Period of Training	Attended by
1.	Practitioner in Neuro-Linguistic Programming" at NITTTR, Chandigarh .	06 – 10.10.2018.	SK Dhameja

The library catalogue can be accessed through WEB-OPAC from anywhere on the internet. For this a link has been provided in the Central Library tab on the NITTTR web page. It is likely to be accessed directly as and when the Library website is registered. The e-resources subscribed by the library are being accessed by the students anywhere in the institute campus. During the period more than 800 users have accessed and consulted the -journals. A directory of open source journals in computer science, electronics and electrical engineering has been compiled. The directory is available on the institute website, which can be accessed through a link provided in the central library tab. The holding of the library can also be accessed through IndCAT a Union Catalogue Project on the INFLIBNET.

The Library has compiled user guide i.e. NITTTR Library Guide. In addition, the library is bringing out Current Contents of Journals received in the library. The department has organized/conducted **06** short term courses for the Polytechnics Librarians and Engineering Colleges Librarians **89** participated in these courses.

Short Term Programs (Contact Mode)

1. Digital Library Management
2. Recent Trends in Libraries
3. Cloud Computing Applications in Libraries
4. Knowledge Organisational Tools
5. Information Literacy and Life Long Learning
6. Building Digital Library using GSDL

The Librarian

Mr. Manmohan Singh

MECHANICAL ENGINEERING DEPARTMENT

Faculty

Dr.Sukhdeep Singh Dhami
Professor
Research Areas – Mechatronics, Automation & Control System, Modeling & Simulation

Dr. B S Pabla
Professor
Research Areas - Manufacturing Technology, CAD/CAM & CNC Machines, Optimization Techniques

Dr. S S Banwait
Professor
Research Areas – Engineering Design, Production Management, Manufacturing Tech.
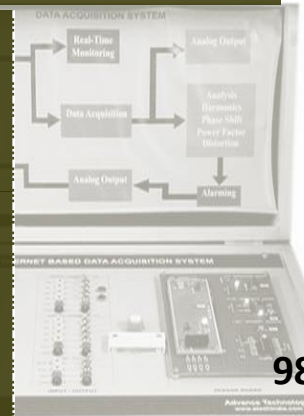
Er. Sunil D Jassal
Associate Professor
Research Areas - Thermal Engineering

Dr. P Sudhakar Rao
Assistant Professor
Research Areas - CAD/CAM, Manufacturing Technology

During the year 2018-19, the department conducted **19** short term courses for polytechnic and engineering college teachers, which were attended by **326** participants. The department conducted **13** ICT Programs and **1677** participants attended. **03** student training programs in the Advanced Areas of Mechanical Engineering were conducted and **17** engineering students were trained by the department.

The department conducted **01** workshop on quality improvement which was attended by **40** participants. The department completed **02** print materials and **02** CAI Packages. Department conducted **02** Curriculum Development Workshops which were attended by **44** participants. **57** final thesis of M.E. Students were guided by department faculty. **12** projects under extension services and **03** recruitment projects under consultancy were completed. The department faculty published **02** papers in SCI Journal, **57** papers in International journals other than SCI Journal. The department faculty also published/presented **03** papers in International Conferences/Seminars. The department attended **03** In-Country Training Programmes and **01** In-House Training Programme during 2018-19.

Short Term Programs (Contact Mode)

1. Workshop Safety Practices
2. Materials Testing and NDT
3. PLC Programming for Mechanical Applications
4. Automation & Robotics
5. Supervisory Skill Development for Workshop Instructors
6. Computer Aided Manufacturing
7. Welding Laboratory Practices
8. Ergonomics & Product Design
9. Production Management
10. CNC Machines: Operation & Programming
11. Reverse Engineering
12. Auto CAD
13. Rapid Prototyping Technology
14. Optimization Techniques
15. Repair and Maintenance of Machine Tools
16. CAD Using CREO
17. CAD Using CREO
18. NBA Accreditation of Engineering Programmes
19. Skill Development Programme

Short Term Programs (ICT Mode)

1. Optimization Using MATLAB
2. Human Engineering in Design
3. Modeling & Simulation using MATLAB
4. Gear Design using KissSoft
5. CAD using Fusion
6. IOT in Manufacturing
7. Manufacturing Resource Management
8. Advances in Manufacturing
9. Industry 4.0 Standard
10. Green Manufacturing
11. Recent Trends in Automobile Technology
12. CAD using SOLIDWORK
13. Computer Aided Design & Manufacturing

Student Training Program

1. Student Training Programmes in the advanced areas of Mechanical Engineering.

Papers Published in SCI Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1.	"Bio-inspired low elastic biodegradable Mg-Zn-Mn-Si-HA alloy fabricated by spark plasma sintering", Materials and Manufacturing Processes, 2019/3	Chander Prakash, Sunpreet Singh, BS Pabla, Sarbjeet Singh Sidhu, MS Uddin,
2.	"Hybrid data fusion approach for fault diagnosis of fixed-axis gearbox", Structural Health Monitoring, July, 2018	Vanraj, SS Dhami, BS Pabla

Papers Published in Non-SCI Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1.	"Optimization of Machining Parameters During CNC Milling of Incoloy 800", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 5, Issue 4, April 2019, Page No. 894-901.	Balwant Singh and P. Sudhakar Rao
2.	"Optimization of Cutting Temperature and MRR During CNC Milling of Incoloy 800 Using DOE Technique", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 5, Issue 4, April 2019, Page No. 1069-1076.	Balwant Singh and P. Sudhakar Rao,
3.	"Review on Real Time Control of Lathe Machine During Turning Operations", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 5, Issue 4, April 2019, Page No. 47-51.	Santosh Gangwar and P. Sudhakar Rao
4.	"Neural Network Based Modelling for Prediction of Response Variables in Machining Processes: A Review", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 5, Issue 4, April 2019, Page No. 52-57.	Sumit Kumar and P. Sudhakar Rao
5.	"Minimum Quality Lubrication (MQL) During Conventional Machining Operations: A Review", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 5, Issue 4, April 2019, Page No. 41-46.	Sukhdev Gangwar and P. Sudhakar Rao
6.	"Heat and Mass Transfer Modelling of Lyophilization Process for Food Materials-A Review", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 5, Issue 4, April 2019, Page No. 860-863.	Vikas Garg and P. Sudhakar Rao
7.	"Developments in Work-holding Devices – A Review", International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES), 2019	Deepam Goyal, SS Dhami BS Pabla
8.	Rajeev Kumar Dang, B. S. Pabla, "Condition Monitoring of Rotating Machines: A Review", World Scientific news- An International journal, 2018	S. S. Dhami, Deepam Goyal, Anurag Chaudhary
9.	"Optimization of face milling process parameters using response surface methodology", International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES), 2018	B. S. Pabla Vineet Kumar, Deepam Goyal
10.	"Spark Plasma Sintering of Mg-Zn-Mn-Si-HA Alloy for Bone Fixation Devices: Fabrication of Biodegradable Low Elastic Porous Mg-Zn-Mn-Si-HA Alloy", Handbook of Research on	M. S. Uddin BSP, Chander Prakash, Sunpreet Singh,

	Green Engineering Techniques for Modern Manufacturing, 2018	Ahmad Majdi Abdul-Rani
11.	"Development of surface properties on Ti6Al4V by electric discharge machining", International Journal of Research in Engineering and Innovation (IJREI), 2018	Harmesh Kansal Rananjay Lamba, Pabla BS
12.	Robin Singh, "Development of low-cost non-contact structural health monitoring system for rotating machinery", Royal Society Open Science, 2018	BS Pabla, SSD Vanraj
13.	"Optimization of parameters in cylinical and surface grinding for improved surface finish", Royal Society Open Science, 2018	Dinesh Kumar Patel, Deepam Goyal, B. S. Pabla
14.	"Cost Estimation for Rapid Manufacturing-Laser Sintering Production for Low to Medium Volumes Production Economics: Evaluating Costs of Operations in Manufacturing and Service Industries", 2018	B.S Pabla, Anoop Desai, Aashi Mital
15.	"Development of Flexible Machine Controller for Electrical Discharge Machine", American Journal of Mechanical Engineering, May 2018, Vol. 6, Issue 2, pp. 48-53.	Manish Pawade/ SS Banwait
16.	"Performance Evaluation of Flexible Machine Controller for Electrical Discharge Machine" Journal of Emerging Technologies and Innovative Research, June 2018, Vol. 5, Issue 6, pp. 43-48.	Manish Pawade/ SS Banwait
17.	"Study on Mechanical Behaviour of Boron Carbide and Rice Husk Ash Based Aluminium Alloy 6061 Hybrid Composite", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 6, June 2018, Page No. 1-9.	Shipra Verma and P. Sudhakar Rao,
18.	"Friction Stir Processing of Zamak Z5 Zinc Alloy Sheets", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 6, June. 2018, Page No. 1-4.	Asaf Hanief Kohli, P. Sudhakar Rao & Joy Prakash Misra,
19.	"Study on Fabrication and Mechanical Behavior of Boron Carbide and Rice Husk Ash Based Aluminium Alloy 6061 Hybrid Composite", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 6, June 2018, Page No. 1-9.	Shipra Verma and Sudhakar Rao,
20.	"Study and Effect of Process Parameters of Electrodeposited Ti-O2-HAP Composite Coated Ti-6Al-4V Substrate", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 6, June 2018, Page No. 1-9.	Vinod Kumar, P. Sudhakar Rao & Sukhdev Singh Bhagol
21.	"Effect of Process Parameters on Micro-Hardness of Electrodeposited Ti-O2-HAP Composite Coating on Ti-6Al-4V using Taguchi Method", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 6, June 2018, Page No. 1-10.	Vinod Kumar, P. Sudhakar Rao and Sukhdev Singh Bhagol
22.	"Optimization of Process Parameters on Micro-Hardness of Electrodeposited Ti-O2-HAP Coating on Ti-6Al-4V Substrate using Taguchi Method", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 6, June 2018, Page No. 1-10.	Vinod Kumar, P. Sudhakar Rao and Sukhdev Singh Bhagol
23.	"Preparation and Properties of Electrodeposited Ti-O2-HAP	Vinod Kumar,

	Composite Coating", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 6, June 2018, Page No. 1-9.	P. S. Rao and Sukhdev Singh Bhagol
24.	"Adaptive Speed Control of Lathe Machine by Simulation for VFD Application Using MATLAB", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 6, June 2018, Page No. 1-5.	Santosh Gangwar and P. Sudhakar Rao
25.	"Electrical Discharge Machining of Carbon Fiber Reinforced Plastics: A Review", Journal of Material Science and Mechanical Engineering (JMSME), Vol. 5, Issue 3, Jul-Sep. 2018, Page No. 115-125.	Shruti Singh, P. Sudhakar Rao, Manas Pandey and Vishwa Prakash Pandey
26.	"A Calculation Procedure and Optimization for Pass Scheduling in Rolling Process: A Review", Journal of Material Science and Mechanical Engineering (JMSME), Vol. 5, Issue 3, Jul-Sep. 2018, Page No. 126-130.	Vishwa Prakash Pandey, P. Sudhakar Rao, Shruti Singh and Manas Pandey,
27.	"Application of RRT in Medical Science: A Review", Journal of Basic and Applied Engineering Research, Vol. 5, Issue 5, Jul-Sep. 2018, Page No. 445-451.	Manas Pandey, P. Sudhakar Rao, Shruti Singh and Vishwa Prakash Pandey
28.	"Study on Mechanical Behavior of Aluminum Alloy 6061 Based Composite: A Review", IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE), Vol. 15, Issue 4, V III, Jul-Aug. 2018, Page 16-20	Shipra Verma and P. Sudhakar Rao
29.	"Influence of Reinforced Particles on Mechanical Properties of Fabricated Al/(SiC/Gr)-Metal Matrix Composite", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 10, Oct. 2018, Page No. 310-318.	Ankush Thakur and P. Sudhakar Rao
30.	"A Review on Coating of Nano Titanium Dioxide with Dip-Coating Method", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 10, Oct. 2018, Page No. 214-218.	Aakash and P. Sudhakar Rao
31.	"Cladding of Mild Steel Plates Using GMAW Process", International Journal of Emerging Technologies in Engineering Research (IJETER), Vol. 6, Issue 10, Oct. 2018, Page No. 1-10.	Varsha Chaubey, P. Sudhakar Rao abd Sanjay Kumar Gupta
32.	"Study the Effects of Process Parameters during Electric Discharge Machining of Titanium Alloy (Ti-6246)", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 11, Nov. 2018, Page No. 131-136.	Abhishek Thakur and P. Sudhakar Rao
33.	"A Review of Electrical Discharge Machining on Titanium based Alloy", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 11, Nov. 2018, Page No. 172-175.	Abhishek Thakur and P. Sudhakar Rao
34.	"Effect of Process Parameters on Dilution in Cladding of Stainless Steel on Mild Steel Plate Deposited by GMAW", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 11, Nov. 2018, Page No. 176-182.	Varsha Chaubey, P. Sudhakar Rao and Sanjay Kumar Gupta

35.	"A Review on Research Trends in Electrochemical Discharge Machining", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 12, Dec. 2018, Page No. 466-470.	Ashish Rao and P. S. Rao
36.	"A Review on Different Types of Manufacturing Methods of Carbon Fibres", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 12, Dec. 2018, Page No. 702-708.	Sanjay Kumar and P. S. Rao
37.	"Review Paper on Reverse Engineering for Medical Application", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 12, Dec. 2018, Page No. 524-527.	Vivek Deswal and P. Sudhakar Rao
38.	"Review on Abrasive Jet Machining of Titanium Alloys", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 12, Dec. 2018, Page No. 471-474.	Chanakant Chaturvedi and P. Sudhakar Rao
39.	"A Review on Electro Discharge Machining of Metal Matrix Composite", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 12, Dec. 2018, Page No. 410-414.	Mumtaz Rizwee and P. Sudhakar Rao
40.	"Review paper on Extrusion of Al-Alloy Series", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 4, Issue 12, Dec. 2018, Page No. 589-595.	Sumit Swapnil Minz and P. Sudhakar Rao
41.	"Performance of Coated Carbide Tools During CNC Machining- A Review", International Journal of Research and Scientific Innovation (IJRSI), Vol. V, Issue XII, Dec. 2018, Page No. 78-80.	S. Parkash and P. S. Rao
42.	"A Review on Material and Ballistic Energy Absoption of Body Armour", International Journal of Research and Scientific Innovation (IJRSI), Vol. V, Issue XII, Dec. 2018, Page No. 93-99.	Nikky and P. Sudhakar Rao
43.	"A Review on Ultrasonic Machining of Titanium Alloys", International Journal of Research and Scientific Innovation (IJRSI), Vol. V, Issue XII, Dec. 2018, Page No. 81-87	Arun Kumar Singh and P. Sudhakar Rao
44.	"A Review on Current Research Trends in Mirco-EDM", International Journal of Research and Scientific Innovation (IJRSI), Vol. V, Issue XII, Dec. 2018, Page No. 88-92.	Yashpal Singh and P. S. Rao
45.	"Rapid Prototyping Technology: Applications, Advantages and Limits- A Review", International Journal of Technical Innovation in Modern Engineering and Science, Vol. 4, Issue 12, Dec. 2018, Page No. 568-572.	B. Sriharsha and P. S. Rao
46.	"Green Manufacturing Technology- Solution for Environment Impact and Waste", International Journal of Technical Innovation in Modern Engineering and Science, Vol. 4, Issue 12, Dec. 2018, Page No. 532-535.	Ravi Kumar and P. S. Rao
47.	"Review Paper on Forging Process Using FEA", International Journal of Technical Innovation in Modern Engineering and Science, Vol. 4, Issue 12, Dec. 2018, Page No. 555-557.	Neeraj and P. Sudhakar Rao
48.	"Review Paper on Abrasive Machining Process", Journal of Mechatronics and Automation, Vol. 5, Issue 3, 2018, Page	Ravikant and P. Sudhakar Rao

	No. 1-6.	
49.	"Characterization and Experimental Analysis of Boron Carbide and Rice Husk Ash Reinforced AA7075 Aluminium Alloy Hybrid Composite", Journal of Alloys and Compounds, Vol. 741, 2018, Page No. 981-998. (Name not mentioned).	Nishant Verma and S.C. Vettivel,
50.	"Review on Hybrid Aluminium Metal Matrix Composites", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 5, Issue 01, Jan. 2019, Page No. 166-170.	Vandana Yadav and P. Sudhakar Rao
51.	"Investigation of Physical and Mechanical Properties of Hybrid Nickel Powder and Silicon Carbide Reinforced Aluminium Alloy Composites", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 5, Issue 02, Jan. 2019, Page No. 8-14.	Vandana Yadav and P. Sudhakar Rao,
52.	"y Sliding Wear Behaviour of Hybrid Nickel Powder and Silicon Carbide Reinforced Aluminium Alloy Composites", International Journal of Technical Innovation in Modern Engineering and Science (IJTIMES), Vol. 5, Issue 02, Jan. 2019, Page No. 1-7.	Vandana Yadav and P. Sudhakar Rao
53.	"Hyaulic and Thermal Analysis of Corrugated and Smooth Double Pipe Heat Exchanger using Computational Fluid Dynamics", Journal of Emerging Technologies and Innovative Research (JETIR), Vol. 6, Issue 1, Jan. 2019, Page No. 110-120.	Shubham Sood and P. Sudhakar Rao
54.	"A Review on Friction Stir Welding of Aluminum Alloys", International Journal of Research in Engineering, Science and Management, Vol. 2, Issue 1, Jan. 2019, Page No. 69-71.	Sharda Sharma and P. Sudhakar Rao
55.	"Computer Aided Green Manufacturing: A Review", International Journal of Research in Engineering, Science and Management, Vol. 2, Issue 1, Jan. 2019, Page No. 72-75.	Pushpender Kumar and P. Sudhakar Rao
56.	"A Review on Current Research Trends in Wire Electrical Discharge Machining (WEDM)", International Journal of Research in Engineering, Science and Management, Vol. 2, Issue 1, Jan. 2019, Page No. 13-17.	Sanjay Kumar and P. Sudhakar Rao
57.	"Impact of Extrusion Process on Product Quality", International Research Journal of Engineering and Technology (IRJET), Vol. 6, Issue 1, Jan. 2019, Page No. 115-124.	Sunil Kumar and P. S. Rao

Theses Guided by Faculty

Name of Faculty	Total M.E. Theses Guided
Dr. Sukhdeep Singh Dhami	
Dr. B S Pabla	
Dr. S S Banwait	57
Er. Sunil D Jassal	
Dr. P Sudhakar Rao	

Papers Published/Presented at Important Conferences/Seminars

International

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author(s) Name
1.	"Condition based maintenance management system for improvement in key performance indicators of mining haul trucks-a case study", 2018 IEEE International Conference on Innovative Research and Development (ICIRD), 2018	BS Pabla, M. Kalra, Tilak Thakur
2.	"Gear fault classification using Vibration and Acoustic Sensor Fusion: A Case Study", Condition Monitoring and Diagnosis (CMD), Curtin University, Perth, Australia, 23-26 September 2018	Vanraj, S. S Dhami, BS Pabla
3.	"A Review of Electrodeposited HAP Coatings on CP-TI and TI-6Al-4V", Proceedings of International Conference on Advances and Soft Computing Applications in Design and Manufacturing (ASCADM-2018) held on 4th-6th June, 2018, Page No. 415-422.	Vinod Kumar, P. S. Rao and S.S. Bhogal

In-Country Training Programs

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	GIAN STC on "laser assisted surface micro and nano fabrication"	08 - 14.07.2018	IIT Indore	PS Rao
2.	STC Course on "Additive manufacturing	11 – 15.02.2019	IIT, Kanpur.	PS Rao
3.	STC Course on "Mechanical Properties and Deformation Behavior of Structural Materials"	27.08.2018 to 01.09.2018	IIT BHU, Varanasi	PS Rao

In-House Training Programs

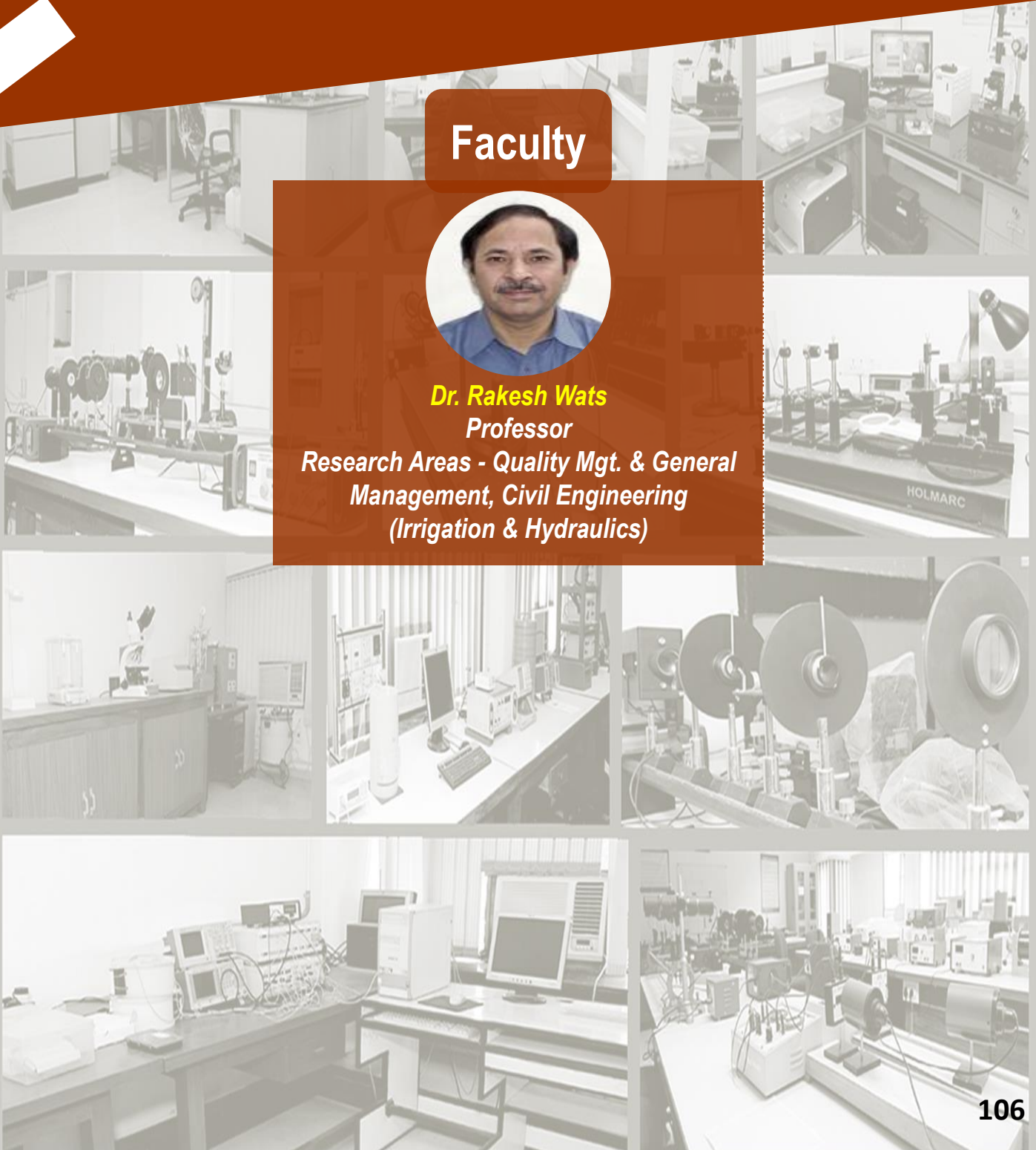| Sr. No.	Title of Training Programme	Period of Training	Attended by
1.	CNC simulation training	03 – 06.03.2019	PS Rao/Mukesh Singh

MEDIA CENTRE

Faculty

Dr. Rakesh Wats
Professor
Research Areas - Quality Mgt. & General Management, Civil Engineering (Irrigation & Hydraulics)

During the year 2018-19, the department conducted **04** short term courses in Contact Mode and **06** Short Term Programmes in ICT Mode for polytechnic and engineering college teachers, which were attended by **88** and **897** participants respectively. The department also conducted **02** National Conferences/Seminars which were attended by **500** participants.

The department completed **03** print materials, **14** non-print material (video films). The department also provided assistance in **05** recruitment projects under consultancy projects. The department published/presented **01** paper in International Conference. The department also completed **01** Extension Services Project and **05** Consultancy Services Project.

Short Term Programs (Contact Mode)

1. Smart Classroom, Concept, Design, Operation & Maintenance
2. NBA Accreditation through Outcome Based Education
3. Instructional Material Development using Latest Media
4. E-Governance in Technical Education

Short Term Programs (ICT Mode)

1. Strategic Management and SWOT Analysis for Institutional Excellence
2. Sustainable Creativity & Innovation Management in Institutions
3. Faculty Development: Planning & Management for Institutional Excellence
4. Technical Teacher's Self Esteem, Motivation and Professionalism
5. NBA Accreditation for Quality Assurance

National Seminar/Conference:

1. Education – Employment Summit 2018 held on 6th September, 2018.
2. Education 4.0: Remaining & Transforming Learning Environments held on 17th January, 2019.

Papers Published/Presented at Important Conferences/Seminars

International

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author(s) Name
1.	Status of Surface Water Quality in River Markanda and its Correlation with Ground Water Quality and Health of the residents of Shahabad, Kurukshetra, Haryana, India- A Case Study", at International Conference on Civil, Architectural and Environmental Sciences(ICCAES-2018), Portmore, Jamaica from December 20-21, 2018	Rakesh K Wats

"Surely we have a responsibility to leave for future generations a planet that is healthy and habitable by all species."

– Sir David Attenborough

RURAL DEVELOPMENT DEPARTMENT

Faculty

Dr. Upendra Nath Roy
Professor
Research Areas – Watershed Management, Rural Sanitation, Climate Change & Disaster Management, Organic Farming

Dr. Poonam Syal
Associate Professor
Research Areas - Energy Management, Instrumentation for Envt. Engg., Assistive Technologies, Research Methodology

Dr. Amit Goyal
Joint Assistant Professor
Research Areas - Structure Dynamics, Masonry Structure, Low Cost Housing

The Department has conducted **16** training programs for polytechnics and engineering colleges teachers. **433** polytechnic teachers and engineering college teachers participated in these programs. The department also conducted **02** ICT based training programs in which **284** teachers participated. **06** workshops with respect to implementation of the SPAI, Sansad Adarsh Gram Yojana, Unnat Bharat Abhiyan were organized for different States in the northern region in which **403** participants participated. The department also conducted **01** Pre-Job Training Programs for MBA (Rural Development) Students of Institute of Integrated Himalayan Studies [IIHS], Himachal Pradesh University, Shimla which were attended by **38** MBA students. The department faculty have presented their papers in **03** International Conferences and in **04** National Conferences. The faculty of department also attended one In-Country Training Programme in CPSC Manila, Kathmandu. The department completed **12** Print Material (Modules) and **02** Non-Print Material (video films). The department also **04** Extension Services Project and **01** Consultancy Services Project.

Short Term Programs (Contact Mode)

1. Technological Innovations for Rural Development.
2. Earthquake Resistant Low Cost Housing
3. Role of Technical Institutions in Sansad Adarsh Gram Yojana.
4. Mentoring Rural Youth for Start-Up & Entrepreneurship
5. Climate Change and Disaster Management
6. Technologies for Sustainable Rural Development.
7. Technologies for Sustainable Development
8. Role of Technical Institutions
9. Affordable Housing in Disaster Prone Areas
10. Technological Innovation and Value Addition for Rural Dev.
11. Corporate Social Responsibility for Sustainable Rural Development.
12. Inovation in Building Construction"in collaboration with industry
13. Start-UP on Organic Farming
14. Innovative Approach Towards Green and Sustainable Building
15. NSQF Aligned Courses for CDTP Beneficiaries
16. Pre-Job Training of MBA Students from Integrated Institute of Himalayan Studies, Himachal Pradesh University, Shimla

Short Term Programs (ICT Mode)

1. Skill Development for Employment Generation in India
2. Climate Change and Disaster Management

Student Training Program

1. Pre-Job Training of MBA (Rural Management) Students-IIIrd Semester on "Integrated Village Development" from IIHS, HP University, Shimla, 15-31 January 2018 at NITTTR, Chd.

Rural Development Department

Papers Published in SCI Journal:

Sr.No.	Name of the Paper Published	Author(s) Name
1. *	"Increasing trend of wearables and multimodal interface for human activity monitoring: A Review", Biosensors and Bioelectronics, Vol. 90, pp. 298-307, 2018. Elsevier [SCI, IF = 8.173]	Preeti Kumari, Lini Mathew, and Poonam Syal

Papers Published in Non-SCI Journal:

Sr.No.	Name of the Paper Published	Author (s) Name
1. *	"A Review of Techniques for Tremor Suppresion in Robotics Surgery", International Journal of Research in Engineering, IT and Social Sciences (IJREISS), ISSN-2250-0588 (Online), UGC approved Journal No. 42301, Volume-8, Special Issue, June 2018, page 81-93.	Amrita Singh, Poonam Syal, Sanjeev Kumar
2. *	"Haptic Feedback in Surgical Robotic Applications – A Review", International Journal of Research in Engineering, IT and Social Sciences (IJREISS), ISSN-2250-0588 (Online), UGC approved Journal No. 42301, Volume-8, Special Issue, June 2018, P 94-104.	Vikram Singh, Poonam Syal, Sanjeev Kumar
3. *	"Smart Lighting and Interior Blinds Control through IoT", International Journal of Computer Sciences and Engineering, UGC approved Journal No. 63193, ISSN: 2347-2693 (E) Vol. 6, Issue 5, May, 2018, pp 1018-1023	Deepak Makkar, Poonam Syal
4. *	"Implementation of Current Sensing Technique for Providing Force Feedback in Robotic Surgical Application", International Journal of Research in Electronics & Computer Engineering (IJRECE)UGC Approved journal, ISSN (Online): 2348-2281; ISSN (Print): 2393-9028 Vol. 6 Issue 3 (July - September 2018)	Vikram Singh, Poonam Syal, Sanjeev Kumar;
5. *	"Optimal Placement of Solar based DG in Distribution System for minimizing losses and THD using PSO Technique", IOSR Journal of Engineering (IOSRJEN) , UGC approved Journal – Sr. No. 4814 ISSN (e): 2250-3021, ISSN (p): 2278-8719 Vol. 08, Issue 12 , December 2018 , pp - 25-32	Md. Firoz Ansari and Poonam Syal
6. *	"NZEB: A Case Study of Indira Paryavaran Bhawan", International Journal for Research in Engineering Application & Management (IJREAM) ISSN : 2454-9150 Vol-04, Issue-10, Jan 2019	Balkar Singh, Sanjay Sharma, Poonam Syal
7. *	"Defining Design Criteria of Net Zero Energy Building for Composite Climate Zone", International Journal of Research and Analytical Reviews (IJRAR) January 2019, Volume 6, Issue 1, www.ijrar.org	Balkar Singh, Sanjay Sharma, Poonam Syal
8. *	"Brain Computer Interface based Control Techniques and their Applications : A Review", Journal of Engineering &	Prateek Virdi, Poonam Syal,

Sr. No.		Author(s) Name
	Technology Educatiion, Vol.12, No.1, January – June, 2018, ISSN 2229 – 631X.	Preeti Kumari
9. *	"Method for Non-Invasive Hemoglobin Determination", International Journal of Scientific Research and Review, Vol.7, Issue 3, March 2019	Akansha Deep,Yogesh Kumar, Poonam Syal, Sanjeev Kumar

Papers Published/Presented at Important Conferences/Seminars

International

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author(s) Name
1.	"TVET Accreditation System in India. An Approach to Train the Youth with Quality as per International Standard "Paper Presented in International Conference on "Innovation in TVET for Socio-economic Development" 4th and 5th October, 2019, held at Kathmandu Nepal, Organized by CPSC Manila and DEAN, CTVET, Nepal	UN Roy/ Hussain Jeevakhan
2.	"Green TVET and Green Technologies for Sustainable Development" in an International Workshop on "Networking of Technology and Education for Sustainable Development" on 12th October, 2018 organized by Dept. of Civil Engineering, Delhi Technical University, Delhi.	UN Roy
3.	"Interlinked Block Masonary System with Energy Dissipator Links" in International Conference on "Next Frontiers in Civil Engineering- Sustainable & Resistant Infrastructure" held at IIT, Bombay from 30.11.2018 to 01.12.2018.	Amit Goyal
4. *	Data Acquisition System for the Development of Non-Invasive Hemoglobin Measurement, International Conference on New Trends in Engineering & Techno logy, held at Chennai on 7&8 September, 2018	Akansha Deep,Yogesh Kumar, Poonam Syal, Sanjeev Kumar
5. *	Adaptive filter design for suppression of tremor in robotic surgery , International Conference on New Trends in Engineering & Technology, held at Chennai on 7&8 September, 2018	Amrita Singh, Poonam Syal, Sanjeev Kumar
6. *	Advanced Skills for emerging trends and enhancing self-employment, International Conference on Skilling for Self-employment at NITTTR, Chandigarh organized by CPSC, Manila, Philippines and NITTTR, Chandigarh on 21-22 February, 2019	Shivaji G.Thube, Poonam Syal

*Also reported in EE Department

Rural Development Department

Sr. No.	Title of the Paper Presented/Accepted alongwith a Name of the Conference/Seminar (venue, with date)	Author(s) Name
1.	"Recent Development and Future Demands for Civil Engineers" by UN Roy, Keynote Speaker during the National Conference on "Advances in Electrical and Information Communication Technology" held at RV Institute of Technology, Bijnor (UP) from 13-14 April, 2018.	UN Roy
2.	"Role of ICT in Interlinked Block Masonry in Rural Construction" by Amit Goyal, Keynote Speaker during the National Conference on "Advances in Electrical and Information Communication Technology" held at RV Institute of Technology, Bijnor (UP) from 13-14 April, 2018.	Amit Goyal
3.	Key Note Address in a Regional Seminar on "Rural Development Community Programmes and Role of Media" Organized by Hans Raj Mahila Mahavidyalaya, Jalandhar on 8th September, 2018.	UN Roy
4.	Key Note Speaker "Opportunities of Employment and Entrepreneurship in Agriculture and Allied Actives in India: A Case Study" Paper presented in National Conference on Emerging Research Trends in Chemical, Physical and Life Sciences for Entrepreneurial Skill Development" organized by Department of Bio-technology, HP University, Shimla on 26th and 27th December, 2018.	UN Roy

Training Programs attended by Institute Faculty/Staff

In-Country Training Programs

Sr. No.	Title of Training Programme	Period of Training	Venue	Attended by
1.	CPSC Manila Sponsored Programme on "TVET for Socio-Economic Transformation"	1 – 5.10.2018	CPSC Manila, Kathmandu	UN Roy

INFORMATION MANAGEMENT AND COORDINATION DEPARTMENT

Faculty

Dr. Maitreyee Dutta
Professor
Research Areas - Digital Signal & Image Processing, Data Warehousing & Data Mining, Advanced Computer Architecture

Dr. Srinivasa KG
Professor
Research Areas - High Performance Computing, Cloud Computing, Data Science, IoT, Digital Pedagogy

Dr. Sandeep Singh Gill
Professor
Research Areas - VLSI CAD, Soft Computing Techniques, Engineering Management

During the year under report, the department prepared annual report of the institute for the year 2017-18 and submitted to MHRD, Government of India for their perusal and placing in the Parliament. The other major activity of the department during 2018-19 was preparation of Operational Plan of the institute depicting the annual calendar of Training Programs for Faculty and Technical Staff of Engineering Colleges and Polytechnics, Research and Development, Instructional Material Development, Curriculum Development, Extension Services and Consultancy activities for the year 2018-19 after consolidating the needs of various states of the Northern region through conduct of annual workshops held with each state representative. The department is also in the process of developing STC Management System of the institute in collaboration with Computer Science Department of the institute. The department prepared **03** MoU which were signed with different organisations and provided necessary liaising with MHRD, DTEs, BTEs, Training Hubs and other private technical institutions and industry to promote various activities of the Institute.

Activities of Hindi Cell of the Institute

संस्थान के कामकाज़ 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 दो पद वरिष्ठ अनुवादक तथा एक हिन्दी टाइपिस्ट का पद है। इस समय एक हिंदी अनुवादक तथा एक पद हिन्दी टाइपिस्ट हैं जिनके कार्य का सर्वेक्षण (सुपरविज़न) फैकल्टी इंचार्ज प्रशासन द्वारा किया जाता है।

हिन्दी एकक की गतिविधियां निम्नलिखित हैं :

1. संस्थान की वार्षिक रिपोर्ट, तुलन-पत्र, लेखा-परीक्षा एवं अन्य दस्तावेज़ इत्यादि का अनुवाद कार्य एवं टाईप कार्य।

2. संस्थान का ऑपरेशनल प्लान (संक्रियात्मक योजना) का अंग्रेजी से हिन्दी में अनुवाद कार्य एवं टाईप कार्य।

3. मानव संसाधन विकास मंत्रालय एवं नगर राजभाषा कार्यान्वयन समिति, 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।

7. संस्थान में हिन्दी के प्रगामी प्रयोग से संबंधित तिमाही/छमाही एवं वार्षिक रिपोर्ट मानव संसाधन विकास मंत्रालय को 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, चण्डीगढ़ की बैठकों में भाग लेना तथा समिति द्वारा आयोजित नगर स्तरीय प्रतियोगिताओं में इच्छुक स्टाफ को नामित करना ।

10. संस्थान के दैनिक कामकाज़ में प्रयुक्त होने वाले दस्तावेज़/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।

Hindi Cell

Achievements of Start-Up of NITTTR Chandigarh:

1. The Institute established a Start-Up **'Enovate Skills'** on 1st August, 2016 to work on the following major areas:
1. Robotics & Automation
2. Renewable Energy
3. Product design and development
4. ATL Lab Establishment in Schools

During current year, the following were the achievements:

ACTIVITY	Nos of programs	No of persons trained	Beneficiary
2 days workshop	32	2300	Diploma & Engineering Students
3 & 5 d Workshop	6	320	
1 day Workshop & Seminar	25	980	
Summer training- 6 weeks	1	55	
2 National Level Workshop	2	"" Electronics 4 Your" Conference, Bangalore	
World Skill Competition	2	One got selected for International with gold Medal at national level	Diploma & Engineering Students

2. ReLearn Academy

Relearn Academy has performed the following activities:

- Created Blockchain based ERP solution for the Academic Institutions.
- Sent Joint Project of Rs 5.10 Cr on Blockchain with NITTTR, Chandigarh to Ministry of Electronics & Information Technology, GoI
- Started Pardhan Mantri Kaushal Vikas Yojana with NITTTR, Chandigarh
- Under Pardhan Mantri Kaushal Vikas Yojana 34 registered candidates are being trained in two batches.
- Created Cyber Security Lab which will act as Cyber Security Centre of Excellence in near future.

Services to Differently Abled Persons

1. Sarthak SMART+ Centre:

At the Centre, PwDs were provided skill development training of 4 months with the objective of employment. There were 180 candidates who were provided training out of which 129 candidates were provided placement through this Centre. In addition, the following activities were also carried out:

- *Number of mobilization and awareness camps organised   : 5*
- *Total number of UDID camps organised: : 3*
- *Total number of candidates mobilised in   : 530*

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 include:

- **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.
- The institute has playground, volley ball ground, children park and outdoor gym in the campus.
- **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. In Sector 29, total built up area is 2731.26 sqm and in Sector 42, total built up area is 13005.68 sqm. 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 2018-19, the following renovation work was completed:

- Addition/Alteration of 03 Nos. Type-II, Staff Quarters, 03 Nos. Stores & 03 Nos. Staircase of Type-II Quarters, NITTTR Campus, Sector 29, Chandigarh (Rs.26.5 Lacs Work Completed).
- Renovation of PG Hostel Rooms and Corridors at NITTTR, Sector 26, Chandigarh (Rs.158 Lacs, Work Completed).
- Addition/Alteration of 10 Nos. Type-II Staff Quarters, 15 Nos. Stores & other Miscellaneous civil works at NITTTR Campus, Sector 26, Chandigarh (Rs.119 Lacs Work Completed).
- Renovation of Old Hostel (Chander Shekhar Hall) 100 Rooms with Balconies, bathrooms, corridors and staircase at NITTTR, Sector 26, Chandigarh (Rs.215 Lakhs, Work in Progress).

Institutional Infrastructure

3.2 Equipment

Equipment worth **₹1077.38 lakh** was purchased during the year **2018-19**. The total value of equipment increased to **₹5878.23 lakh as on 31.03.2019**. After providing necessary depreciation on the assets, the net value of the equipment remained at **₹2535.25 lakh** as on **31.03.2019**.

3.3 Furniture

Furniture worth **₹ Nil** was purchased during the year **2018-19**. The total value of furniture was **₹380.51 lakh as on 31.03.2019**. After providing necessary depreciation under rules, the net value of furniture remained at **₹165.90 lakh** as on **31.3.2019.**

3.4 Expenditure

An expenditure amounting to **₹4325.38 lakh** has been incurred during the financial year **2018-19** under various schemes as indicated below:

Sr. No.	Name of the Scheme	(Rupees in Lakh) Expenditure incurred
1.	OH-35 (Capital)	1342.04
2.	OH-31 (Gen eral)	977.80
3.	OH-36 (Salary)	2005.54
	Total Expenditure	**4325.38**

3.5 Library

Sr. No.	Particulars	No. available as on 31.03.2017
1.	Number of Books	49487
2.	Number of ISI and IRC	10043
3.	Bound Journals	4051
4.	Print Journals	37
5.	Newspapers	10
6.	Magazines	14
7.	e-journals (Through INFLIBNET Consortia) • IEL • ASCE • ASME • Economic & Political Weekly • Institute for studies in Industrial Development (ISID) • J Gate Plus (JCCC) • JSTOR (2500) • Springer Link 1700 collection • Nature • Web of Science Lease Access	

Audited Accounts

The accounts of the institute for the year 2018-19 submitted for audit to be duly certified by Accountant General's office are enclosed.

*"Partnering builds Strength
Networking creates Wealth
Empowering leads Progress"*

**Prof. S S Pattnaik
Director
NITTTR Chandigarh**

PARTNERING, NETWORKING, DIGITIZING & EMPOWERING
FOR
QUALITY TECHNICAL EDUCATION

NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH
SECTOR – 26, CHANDIGARH –160 019 (INDIA)
(An ISO 9001 : 2015 Certified Institute)
Phone: EPABX: (0172) 2759500 | Fax: (0172) 2791366, 2793893
E-mail : director@nitttrchd.ac.in; dirnitttrchd@yahoo.com
Website : www.nitttrchd.ac.in
App : NCDLS
Facebook Page : facebook.com/NITTTRChandigarh