

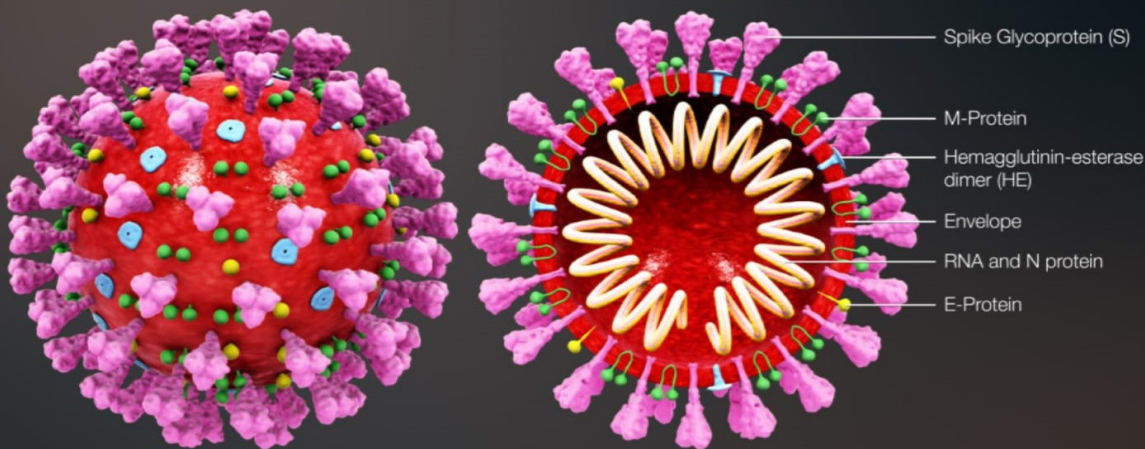


Bulletin of Institute of Science & Technology, 2020

(An Official Publication of Dean's Office, Institute of Science and Technology, Tribhuvan University)

विज्ञान तथा प्रविधि अध्ययन संस्थानको बुलेटिन २०७६

sars-cov-2



source: <https://www.scientificanimations.com>



KEEP SAFE DISTANCE



STAY HOME
STAY SAFE

EDITORIAL

At the end of the year 2019 Chinese scientists discovered the situation of outbreak of an infectious disease caused by a newly identified coronavirus, which is named "severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)". The scientists shared its sequence, so that other countries could diagnose it quickly and protect themselves. The disease associated to this novel coronavirus is named as COVID-19. The scientists appealed to WHO along with health workers and alarmed the governments of the different nations that rapidly evolving situation of new coronavirus will be very harmful to the human beings.

Within one month of the outbreak of this disease China lose many health workers and people and as well it spread most of the continent of the world. Till the second month of the spread of COVID-19 Nepal was not affected by it, however the situation was much dangerous to this country. Because of having no sufficient and effective health facilities and effective management, in that mean time Nepal not employed

strict safety measures effectively. Which in turn, the situation became poorer and the people in Nepal afraid too much in some extent.

Nepal government tried to control the spread through lock down which is assumed as the effective control process for the mass transportation of the disease. Nepali academicians and scientists suggested employing the RTPCR technology for the identification and diagnosis of the infected persons. They not only have suggested the methods, but identified the number of institutions having RTPCR machine in the country and recommended to use. They have collected the names of the microbiologists, biotechnologists and expert scientists, who can perform the diagnosis using RTPCR, and those who want to join hands on hand to the government voluntarily for combating COVID-19. Though, till date government have not utilized those resources and we hope that sooner or later these human and laboratory resources will be useful to the country.

Sections and Services of IoST

| S.N. | Section | Location | Service |
|------|---------------------------|--|--|
| 1 | Exam | Dean Office Building, Balkhu | <ul style="list-style-type: none"> All works related to semester examination Yearly system back exams (MSc) related works Grade sheet preparation, distribution and related works Making connection with central examination office |
| 2. | Research | Central Office Building, T.U., Kirtipur | <ul style="list-style-type: none"> All works related to Ph. D. Program Research and Mini Research related works |
| 3. | Planning | Central Office Building, T.U., Kirtipur | <ul style="list-style-type: none"> Academic program (old and new Syllabus) related works Monitoring & Supervision of campuses Organizing seminar, conferences, course refresher training related works Degree equivalency service Student transfer Miscellaneous |
| 4 | Account | Central Office Building, T.U., Kirtipur | <ul style="list-style-type: none"> Budgeting Billing & Payment |
| 5 | Personnel Administration, | Central Office Building, T.U., Kirtipur | <ul style="list-style-type: none"> Making relationships within organization Personnel training and appraising Maintaining Records (all information) of teacher and supporting staff Attendance and regularity checking works related to leave of teacher and supporting staff |
| 6 | General Administration | Central Office Building, T.U., Kirtipur | <ul style="list-style-type: none"> Managing general Administration Procurement plan and purchasing Organizing company records Making Relation to other institution Registration and Dispatch of letter about all relations (using sub branch Darta Chalani) |
| 7 | Store | Central Office Building, T.U., Kirtipur | <ul style="list-style-type: none"> Making entry of the purchseisng things and dispatch Preparing the records of all asset |
| 8 | Dean's Work Room | Central Office Building, T.U., Kirtipur | <ul style="list-style-type: none"> Reception service Secretarial service Personal assistance service to the Dean's work Miscellaneous |

A Brief Profile of Institute of Science and Technology, Tribhuvan University

a) Introduction:

The Institute of Science and Technology (IoST) is one of the oldest, largest & pioneering technical institutes in Tribhuvan University. It was established in January 2, 1989, as an Institute of Science and Technology. Before that it was as an "Institute of Science" and for some years it was also as Faculty of Science of Tribhuvan University. Previously it was situated at Sanothimi, Bhaktapur and now it is at Kirtipur, Kathmandu.

IoST has 13 Central Departments, 1 school, 25 constituent Campuses and 89 affiliated Campuses. Thirteen Central Departments run regular 16 Master's Degree Programs and PhD Programs in all subjects. Out of 25 constituent Campuses under IoST, nine Campuses run both the Bachelor's and Master's Degree programs, one Campus runs only Master's Degree Program and remaining all run Bachelor's Degree Programs. Some Campuses have given space for conducting PhD research programs for the candidates who enrolled in the respective Central Departments.

b) Vision and Objectives

IoST intends to promote the quality of its Departments and Campuses by setting up well equipped laboratories, libraries, infrastructures along with by employing skilled Human Resources and by providing advisory services in close collaboration with national and international agencies.

Its efforts are to improve teaching learning activities,

enhancing research strength of the faculties and students within this institute and make all the Departments as a centre of excellence. Ultimately, it aims at creating a scientific values and culture in society and improving the quality of life of the people.

The main objectives of IoST are:

- Making efforts to make science and Technology valuable for human beings to satisfy many basic human needs and improve their living standards.
- To produce / develop highly skilled human resources.
- To introduce, promote and implement new subjects in the departments and colleges.
- To provide infrastructures / facilities for research and teaching.
- To mobilize resources for overall development of Science & Technology.
- To establish linkages with the national and international organizations for collaborative work in the areas of Science & Technology,
- To organize seminars, workshops, conferences, trainings, orientations and refresher courses at all levels.

c) Programs and Courses Offered

| Bachelor's Level | | Master's Level | M. Phil | Ph. D. |
|--|---|--|--|--|
| Yearly System (4 years) | Semester System (8 semesters) | Semester System (4 semesters) | Semester System (4 semesters) | (2 Semesters + Research) |
| <ul style="list-style-type: none"> • B.Sc. General • B. Tech. (Food) | <ul style="list-style-type: none"> • B.Sc. (CSIT) • B. Math Sc. • B.Sc.(Nutrition & Dietetics) • BIT (Bachelor in Information Technology) | <ul style="list-style-type: none"> • M.Sc. CSIT • M.Sc. Math • M.Sc. Microbiology • M.Sc. Environmental Science • M.Sc. Statistics • M.Sc. Biotechnology • M.Sc. Biodiversity & Environmental Management • M.Sc. Physics • M.Sc. Chemistry • M.Sc. Zoology • M.Sc. Botany • M.Sc. Geology • M.Sc. Hydrology & Meteorology • M.Sc. Engineering Geology • M.Tech. Food Technology • M. Sc. in Environmental Health in Disaster | <ul style="list-style-type: none"> • M. Phil. (Math). | <ul style="list-style-type: none"> • Biotechnology • Botany • Chemistry • CSIT • Environmental Science • Food Technology • Geology • Hydrology & Meteorology • Mathematics • Microbiology • Physics • Statistics • Zoology. |

d) Admission Policy

1. Bachelor's Level (Yearly System): Based on entrance exam (September) / Annual entry/ Class starts at November
2. Bachelor's Level (Semester System): Based on entrance exam (September) / Annual entry (only one entry in a year) / Class starts at November
3. Master's Level (Semester System): Based on entrance exam (January / February) / Annual entry (only one entry in a year) / Class starts at March/ April.
4. M. Phil. (Semester System): Based on entrance exam (January / February) / Annual entry (only one entry in a year) / Class starts at March/ April.
5. Ph D. (2 Semesters + Research) (at least 3 yrs):

Admission: opens (July / August),

Basic needs: NOC or pre-agreement (from employer)

- Enrollment steps:
1. Supervisor's & Department's consent
 2. Proposal submission at concerned central departments (September)
 3. Entrance exam (September)
 4. Proposal defend and approval at concerned central departments
- (All 4 have to be completed within September to Mid_November)

Annual entry (only one entry in a year) / Admission on December / Class starts at February 1st week

e) Evaluation System

1. Bachelor's Level (Yearly System): Yearly Examination from the office of the controller of Examination (Theory + Practical), almost 50% practical in each year.
2. Bachelor's Level (Semester System): 40% internal evaluation + 60% external exam through Dean's Office
3. Master's Level (Semester System): 40% internal evaluation + 60% external exam through Dean's Office, results in grading system
4. M. Phil. (Semester System): 40% internal evaluation + 60% external exam through Dean's Office, results in grading system
5. Ph. D. Level (Semester System): For first two semesters (40% internal evaluation + 60% external exam, results in grade sheet), biannual evaluation of research progress in the Departments, Pre-viva at concerned Department after submission of thesis, evaluation of thesis by three external examiners, Viva-Voce exam.

Note: Internal exams for all levels are based on: Attendance /Assignment work / Oral test / Class test / Presentation / Class seminar / Project work/ Term exam etc.

f) Research activities

Faculty Research: Institute of Science and Technology, Tribhuvan University provides mini research grant for the faculties who are working within this Institute. This scheme started from the year 2015 and every year the number of grant awardees are increasing. In the year 2019, 20 faculties were selected for such grant on the basis of their research proposal.

Each selected faculty gets an amount of Rs. 50,000. They have to complete their work within the month of June, 2020.

Collaborative research: For the description of the collaborative (national and international) research of the faculties and Departments, please visit the *websites of Central Departments*.

g) Relations:

IoST has given high priority to collaborative exchange programs for strengthening capacity of the faculty, researcher, student and staff. For this purpose, IoST and the Central Departments have established linkages and coordination with different ministries, national and

international organizations and Academic Institutions. IoST has more than 30 MoUs with different Institutions and Universities. Till date, IoST has produced about 160 PhDs in different subjects of Science. Also, IOST has provided facilities to so many faculties for doing PhD and Post Docs going abroad.

h) Publications:

i) Institute of Science and Technology is bi-annually being publishing a peer-reviewed multidisciplinary science journal “Journal of Institute of Science & Technology (JIST)”. The first publication of this journal was done in the year 1978 in the name of “Journal of Institute of Science (JIS)”. The name of this journal was changed as “Journal of Institute of Science and Technology (JIST)” from the 7th volume published in 1984. From the year 1989 to 2001 its publication was interrupted and from 2002 to 2012 it was published in every two years’ of interval. From 2013 and onwards it is published in two volumes (biannually) in a year. Initially it was only in the printed form and in the year 2017 it was published online only. From 2018 it is available online as well as printed form.

JIST publishes original research papers, review articles, short communications/reports, comments and letters to the editor on all topics of different subjects of Science and Technology. It covers the field of Botany, Chemistry, Computer Science, Environment, Geology, Hydrology/meteorology, Mathematics, Microbiology, Physics, Statistics, Zoology, Food Technology and contemporary subjects. To publish the article in this journal author

(s) should declare that the submitted work has not been published elsewhere, and is not being considered for publication too.

JIST is indexed in Nepal Journals Online (NepJOL), which provides online publication. It is rated TWO-STARs by Journal Publishing Practices and Standards (JPPS) (assessed: 2019-01-14). Its eISSN number is 2467-9240 and from the volume 23 of the journal each articles have got DOI number. Till date, it has published 24 volumes and the current issue is volume 24, issue 2 (2019). Current issue of JIST can be found clicking <https://www.nepjol.info/index.php/jist/index>.

ii) IoST yearly publishes a bulletin (Bulletin of Institute of Science and Technology) compiling the activities within the institute. It gives information regarding central departments and different campuses of IoST. It collects and presents the information of yearly activities and publications in periodicals by the faculties of IoST. It consists the information regarding mini-research, PhD works going on, publication during past year, collaborative works and other activities of the Departments and Campuses of IoST. This issue, which is on your hand is the third issue of the bulletin.

i) Further Programs/ Courses (proposed)

The Academic Council of Tribhuvan University has already approved some new degree/ program / course to run within the Institute of Science and Technology. For the degree approved programs, IoST has developed the syllabus for launching the new programs in coming days. The statuses of such programs are given below.

| <i>Degree</i> | <i>Full Name</i> | <i>Status</i> | <i>Remark</i> |
|------------------------|----------------------------------|---|-----------------------|
| M. Data Science | Master in Data Science | Degree + course structure + course approved | Plan to start in 2020 |
| M.S. IMS | M.S.in Integrated Mountain Study | Degree approved, course structure approved / course in progress | |
| MIT | Master in information Technology | Degree approved | |
| M.Sc. Virology | M.Sc. Virology | Degree approved | |
| M. Math Sc. | Master in Mathematical Sciences | Degree approved | |
| M. CS | Master in Cyber Security | Degree + course structure approval procedure | |
| M.Sc. Material Science | <u>M.Sc.</u> in Material Science | Degree + course structure approval procedure | |
| M.Sc. Biochem | <u>M.Sc.</u> in Biochemistry | Degree + course structure approval procedure | |

Authorities and Supporting Staff of IoST Dean's Office

Authorities

| S.N. | Name | Post | Email address |
|------|--------------------------------|----------------|--------------------------------------|
| 1 | Prof. Dr. Ram Prasad Khatiwada | Dean | ram@tuiost.edu.np & ramktd@gmail.com |
| 2 | Prof. Dr. Ram Narayan Jha | Assistant Dean | ramnarayan_jha@yahoo.com |
| 3 | Prof. Dr. Shambhu Prasad | Assistant Dean | greenrevolution1980@gmail.com |
| 4 | Dr. Khageshwar Mandal | Assistant Dean | khageshwarmandal@gmail.com |
| 5 | Mr. Tej Bahadur BC | Assistant Dean | btejbhandari@gmail.com |

Supporting Staffs

| S.N. | Name | Post | Section |
|------|------------------------|-------------------------------------|--|
| 1 | Krishna Hari Acharya | Section Officer | Planning, Personnel Administration, General administration |
| 2 | Raju Thapa | Account Officer | Account |
| 3 | Kushu Ghale | Section Officer | Research |
| 4 | Hari Prasad Aryal | Section Officer | Exam |
| 5 | Indumaiya Rajopadhya | Head Office Assistant | Research |
| 6 | Mukunda Prasad Dulal | Head Office Assistant | Store |
| 7 | Binod Koirala | Head Office Assistant | Exam |
| 8 | Bimala Pokharel | Head Office Assistant | Personnel Administration |
| 9 | Anju Dabadi | Head Account Assistant | Account |
| 10 | Ram Prasad Wagle | Head Office Assistant | Exam |
| 11 | Sangita Shrestha | Head Office Assistant | Exam |
| 12 | Nilu Shrestha | Head Office Assistant | P.A. (Dean) |
| 13 | Upendra Subedi | Head Office Assistant | Administration |
| 14 | Jayanti Phuyal | Head Office Assistant | Store |
| 15 | Sabina Khadka | Head Technical Assistant (Computer) | Exam |
| 16 | Urmila Maharjan | Head Technical Assistant (Computer) | Exam |
| 17 | Sweta Tuladhar | Head Technical Assistant (Computer) | Account |
| 18 | Meena Shrestha | Office Assistant | Administration |
| 19 | Jaluram Chaudhary | Technical Assistant (Computer) | Exam |
| 20 | Asmita Dahal | Technical Assistant (Computer) | Exam |
| 21 | Sunita Koirala | Memograpnar | Administration |
| 22 | Krishna Bahadur Tamang | Senior Office Helper | Exam |
| 23 | Maina Pode | Senior Office Helper | Administration |
| 24 | Binabati Tamang | Office Helper | Administration |
| 25 | Basu Dev Thapa | Office Helper | Administration |
| 26 | Mohan Maharjan | Office Helper | Administration |
| 27 | Krishna Khatri | Office Helper | Exam |
| 28 | Hum Kumari Baral | Office Helper | Administration |
| 29 | Rita Lamichhane | Office Helper | Exam |
| 30 | Roshan Tamang | Driver | Administration |
| 32 | Mega Raj Shrestha | Driver | Exam |
| 33 | Buddha Maharjan | Driver | Administration |

Main Activities of IoST

1. Preparation for transforming into Alternative Teaching Method

Because of the pandemic effect of the COVID 19, all the universities have been affected directly and the daily works have also been disturbed. Our country has been lockdown to control the mass spread of the covid-19. In combating with novel coronavirus students, teachers, staff and all authorities of the institutes and university are at their home to stay safe. All examinations within university have been postponed. The regular works at office, teaching- learning and research activities at departments and colleges have also been postponed till the end of the lockdown.

In this context an initiative has been taken to transform the pedagogical procedure from face to face activities to the virtual learning in different departments. Most of the students are found enthusiastic to this procedure but the access of the technology is quite difficult for the students living at the remote places of the country. The situation developed due to pandemic of novel coronavirus is troublesome for the human being; though realizing it as an opportunity and challenge for us our university is somehow trying to implement and promote the online teaching.

The institute of science and technology has proposed some policy and planning issues for implementing online teaching-learning, combating the situation developed by the spread of COVID-19.

- Formation of a central authoritative body for the implementation of online teaching and facilitating it
- Structuring technical support team in each Faculty or institute
- Establishment of technical training team and pedagogical team as per need in Dean's office, Departments and Colleges

In spite of these three points on behalf of IOST, Dean has suggested three terms (approaches of works) of plan for the implementation of the virtual class.

a) Short Term Plan:

- Departments contact the scholars of PhD and M Phil and help them to continue their studies in virtual mode;
- Contact the MSc students who are studying in last 2 -3 semester and help them to complete their courses, seminars, projects and assignments;
- Trace the students enrolled in the first semester, encourage and prepare them for the virtual teaching learning activities and gradually start the online classes.

b) Medium Term Plan:

- Orient the faculties, and staff within institute, departments and colleges for online academic activities
- Make prepared the departments and the colleges for virtual classes,
- Take the classes of the courses that can be done in virtual mode,
- Go forward for the online seminars, assignments, projects and other works.
- Simultaneously, during this plan the university has to make a central authoritative body to go on online modality, make facilitated the faculty/institutes, departments and campuses and has to select an appropriate (blended or somewhat) model of online teaching.

c) Long Term Plan:

- Based on task performance on subject's diversity, University has to prepare and adopt appropriate model (models) of virtual teaching
- Modify the curricula to make pertinent on prescribed online mode (or to the blended mode).
- Streamline the record keeping system of the students and pedagogical activities
- Restructure the evaluation and examination system and so many other things pedagogy
- Organize several trainings and orientations for stream lining the system (pedagogy, system evaluation, performance auditing, assessment taking, practical works, examination, and so many other things)

2. Doctoral class orientation program (2019 batch)

Doctoral class orientation program (for the 2019 batch), organized by IOST, was held under the chief hospitality of Prof. Dharmakanta Baskota, the vice-chancellor of Tribhuvan University, on 27th January, 2020. The program was conducted in the meeting hall of Central Department of Physics in presence of Assistant Deans, Head of the different Central Departments, members of Research Committee, Supervisors, Doctoral researchers and supporting staff. Assistant Dean Prof. Ram Narayan Jha welcomed all the participants and said that the publication of research articles has made the university internationally known. Representing the supervisors Prof. Dr. Anjana Singh said that the current doctoral process has made the supervisor alert and the students aware of the research. Prof. Dr. Binil Aryal informed about the state of the university in the research and suggested ways to standardize it. He pointed out the possibility of the Institute of Science and Technology to play a significant role in the future.

From the seat of the chief guest, Vice Chancellor Dharma Kanta Baskota said that the future of pure

science is bright and also stated that there is not enough budgets for research at present and he has tried his best to increase it. Chair of the program Dean Prof. Dr. Ram Prasad Khatiwada explained the achievements of the current course-based doctoral program, and said that this program is not only an experimental but also a continuous process of study and writing.

In the second session of the program Prof. Dr. Ram Narayan Jha explained the 'Rules and Regulations for PhD', Prof. Dr. Binil Aryal gave details about 'Research Quality', Dr. Dinesh Raj Bhuju highlighted on 'Philosophy of Science and Research' and Prof. Dr. Ram Prasad Khatiwada discussed the work to be done to make the doctorate work excellent and presented the summary of the entire program. The program was announced by Mr. Upendra Subedi, personnel of the Institute.

3. Workshop on Research Supervision

IoST has initiated programs to improve the quality of Ph.D. with the aim to enable the doctoral students to achieve excellence in their chosen area of study, develop confidence in carrying out independent research, and commit themselves to academic pursuit and for the betterment of the society. As a part of this IoST organized a Workshop on Research Supervision during 31 May-01 June at Mirabel Resort Hotel, Dhuklikhel, Kavre inviting all the Ph.D. supervisors currently involved in supervising Ph. D. students of all 13 Central Departments under IoST. The program was attended by 92 participants, representing almost the entire faculty members involved in supervising Ph.D. students for the Ph.D. degree, resource persons and TU officials. Prof. Dr. Sudha Tripathi (Rector, TU) inaugurated the program in presence of Prof. Dilli Ram Uperty (Registrar, TU), Prof. Ram Prasad Khatiwada (Dean, IoST, and TU) and other officials.

Altogether 6 Talks/ Discussion sessions were held on the first day and in the second day 7 different activities were held. Presentations were focused in diverse areas relevant to on research supervision as follows.

- Dr. Deepak Khadka: "National and international policies of minimum standard, ethics and excellence in Ph.D. works",
- Prof. L.N.Jha: "Making uniformity in writing style (Proposal, Reports and Thesis)",
- Prof. Ram Narayan Jha: "Regulations of Ph.D. Programme (2017)",
- Prof. Krishna Das Manandhar and Prof. Shankar Khanal: "Managing progress and finishing the Ph.D. Work", v)
- Prof. Binil Aryal: "Ph.D. Evaluation: Role of student, Supervisor CDRC and IoST",
- Prof. Sangita Rajbhandari: "What every research students need to know: Achieving Balance in Research Supervision".

- Prof. Ridish Kumar Pokhrel: "Collaborative research and fund generating" and
- Dr. Ram Chandra Pokharel: "Collaborative research and fund generating".

A panel discussion session was also held to discuss various issues related to the promotion of research and innovation in TU. Prof. Binil Aryal, Prof. Rameshwar Adhikari, Dr. Madhab Baral, Prof. Riddish Pokhrel and Dr. Ram Chandra Pokharel were invited as panelist.

This was the first time IoST organized such a workshop on Research Supervision and it offered a unique opportunity to the supervisors to directly interact with the colleagues of different departments and discuss issues and their possible solutions. Various issues related to the Ph.D. programmers of the IoST were raised and recommendations were also made during the presentations. Most of the participants gave opinion and recommendations in "Regulations of Ph.D. Programme (2017)", Basic infrastructure for research activities in departments, Fund generation and prefects, career development, Issue related to Ph.D. students, Creation of academic environment, and others.

In his closing remarks Prof. Ram Prasad Khatiwada (Dean, IoST, TU) expressed his satisfaction for the active participation of delegates and requested for cooperation and constructive suggestions to improve the quality of Ph.D. in IoST. He assured that all the issues raised will be considered and will act for possible implementation to achieve a high standard of academic excellence through original research.

4. Orientation Class Ph.D. scholar enrolled in 2018

The Orientation Program for the PhD researchers enrolled in 2018 was held in 3 February, 2019 in the seminar hall of Central Department of Physics. The session was chaired by the Dean Prof. Dr. Ram Prasad Khatiwada and Assistant Dean Shambhu Prasad had given welcome speech. Altogether 59 researchers were oriented on 'PhD program in different subjects in IOST'. Assistant Dean Prof. Dr. Ram Narayan Jha, Prof. Dr. Binal Aryal, Prof. Dr. Shankar Khanal and Dr. Dinesh Bhuju were the resource persons of the orientation program. This program was conducted by Upendra Subedi.

5. Authorities visit

a) Dean's Visit :

Dean Prof. Dr. Ram Prasad Khatiwada visited to the Jaipur, Rajasthan from 1 to 4 December, 2019. He was invited as a key note speaker in the "International Conference on Data Science and Application (ICDSA-2019)". The program was held in Kautilya Institute of Technology & Engineering, a college affiliated to Rajasthan Technical University (RTU), Rajasthan. He highlighted there, the programs and expansions of

Tribhuvan University and gave a key note speech on 'Usefulness of Bayesian Approaches in Data Science'.

b) Assistant Dean's visit to NTHU, Taiwan

Assistant Dean of IoST, Prof. Dr. Ram Narayan Jha attended the International workshop on 'Sustainable Environment and Energy Development 2019 (SEED)'. The program is organized by Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Taiwan from may 16-25, 2019. Prof. Jha had been involved in the discussion with authorities of National Tsing Hua University for mutual relationship. He had also visited National Chiao Tung University, National Chung Hsing University and National Central University of Taiwan. He also interacted with various participants and authorities who were present in the workshop from the several universities of Thailand, Myanmar, Cambodia, Philippines and India.

6. New Degree started

IoST has started a new degree, Bachelors in Information Technology (BIT) Program (eight semesters with 120 credits hours) from 2019. The objective of BIT program is to provide students intensive knowledge and skill to

design, develop, and use information technology in different areas. It is envisaged that graduate of this program will be equipped with necessary knowledge of Information Technology to compete this global challenges.

Students enrolled in BIT program required to take foundation and core courses of information technology, courses of mathematics, statistics, management, economics, sociology, psychology, research methodology and technical writing and some elective courses. The students will have opportunity in the field of software development, information security, database administration, and network and system administration and in all the sectors that develop or use Information Technology

This program lunched in the following five constituent campuses of IoST.

1. Patan Multiple Campus, Patan, Lalitpur.
2. Mahendra Morang Adarsha Multiple Campus, Biratnagar.
3. Birendra Multiple Campus, Bharatpur, Chitawan
4. Mahendra Multiple Campus, Nepalgunj
5. Siddhanath Science Campus, Manendranagar

Mini Researches Completed in IOST (till 2019 June)

The Institute of Science and Technology has been started to provide a small grants for conducting mini research for the teachers who are working in various Campuses and the Departments. They have to submit proposal of research and candidates are selected by evaluating their proposal and on the basis of presentation. The following are the mini research projects completed till 2019 June. where the programs of IoST is running. Each individual gets an amount of Rs 50 thousand for his/ her mini research.

| S.N. | Name of Researcher | Campus/Depart. | Research Project Title |
|------|-------------------------|--|---|
| 1 | Nabanath Budhathoki | Amrit Campus | Change in bond length between carbon atoms and binding energy of graphene due to the adsorption of manganese atom. |
| 2 | Yam Prasad Dahal | Bhaktapur Multiple Campus | Quality assurance of high dose rate (HDR) brachytherapy at Bhaktapur Cancer Hospital. |
| 3 | Gayetri Prasad Adhikari | Trichandra Multiple Campus | Damage formation and calculation of energy loss during implantation of antimony (Sb) ion in the silicon target. |
| 4 | Santosh Gyawali | Central Department of Mathematics | Fundamental theorems in real analysis and their applications. |
| 5 | Santu Shrestha | Amrit Campus Biotechnology | Green synthesis and characterization of manganese nanoparticles using Banana Peels extracts and evaluation of antibacterial activity. |
| 6 | Khim Prasad Panthi | Trichandra Multiple Campus | Synthesis of composites of silica extracted from Rice Hull Ash (RHA). |
| 7 | Arina Sthapit | Central Dep of Hydrology and Meteorology | Climate change Risk analysis in Agriculture in Indrawati Watershed of Nepal. |
| 8 | Shiva Kumar Mahato | Trichandra Multiple Campus | The role of renewable energy to reduce the greenhouse effects and its contribution to a clean environment in Nepal. |
| 9 | Pitambar Dhakal | Central Dep. of Zoology | Coprolological survey of Gastrointestinal Parasites in captive mammals at Central Zoo, Lalitpur Nepal. |
| 10 | Sunita Shrestha | central Dep. of Botany | Study of antibacterial activity of some plants leaves (Lemongrass, Guava and Tulsi) on gram positive and gram negative bacteria. |
| 11 | Roshani Maharjan | Trichandra Multiple Campus | Bacteriological analysis of bottled drinking water sold in Kathmandu Valley. |
| 12 | AlinaShree Sapkota | Central Dep. of Biotechnology | Study of Serum Magnesium in overweight and obese individuals. |

| | | | |
|----|-------------------------|--|---|
| 13 | Narayan Datta Bastakoti | Prithivi Narayan Campus, Pokhara | An Ethnobotanical study of medicinal plants used by Kumal and Gandharva community of Pokhara Metropolis, Kaski, Nepal. |
| 14 | Teelmaya Dhakal | Siddhanath Science Campus, Mahendranagar | Assessment of Physico-chemical parameters and plant diversity: A case from Bedkot Lake, Kanchanpur, Nepal" |
| 15 | Rajendra Bahadur G.C. | Butwal Multiple Campus | Determination of concentration of toxic heavy metal lead and different ions available in the outdoor air of Bhairahawa and its' surroundings. |
| 16 | Dil Bahadur Limbu | Central Campus of Technology, Dharan | A study of thermodynamic parameters of cetyltrimethyl ammonium bromide and methyl orange in methanol-water binary mixture by absorption spectroscopy. |
| 17 | Chabilal Bhusal | Tribhuvan Multiple Campus Plapa | A study on the application of laplace transform in differential equation. |
| 18 | Roma Ghimire | Central Campus of Technology, Dharan | Study on factors affecting academic achievement of bachelor's level students in constituent campuses of TU, IOST in province no.1, Nepal. |
| 19 | Richa Bhattarai | Central Campus of Technology, Dharan | Effect of cooking methods on glycemic index of Rice. |
| 20 | Sabit Shrestha | Birendra Multiple Campus, Bharatpur | Geological and morphological setting along the Arunghola area, Nawalparasi District, sub-Himalaya, Nepal. |
| 21 | Ram Sovit Yadav | Central Campus of Technology, Dharan | Extraction and optimization of potato starch and its application as a stabilizer in yoghurt manufacturing. |

Ongoing Mini-Research _ 2019-2020 (Have to completed within June 2020)

The following 20 candidates (teachers) have been selected in the year 2019 to provide grants for mini Research. The proposals were called from the teachers of the constituent campuses or departments, where the program of IoST is running. The selection process was based on evaluation of the proposals received. Each individual gets an amount of Rs 50 thousand for his/ her mini research.

Kathmandu Valley

| S.N | Name | Campus/Depart. | Title |
|-----|------------------------|--------------------------------------|---|
| 1 | YogeshSingh Maharjan | Amrit Campus | Fabrication of ZnO thin film using dip coating for gas sensing application |
| 2 | Jyoti K.C. | Tri-chandra M. Campus. | Assessing allelopathic potentials of <i>parthenium hysterophours</i> in seed Germination and seeding growth of some crops through multiple approaches |
| 3 | Karan Giri | Tri-chandra M. Campus. | Study of damage profiles and calculation of energy loss during boron iron implantation on silicon substrate |
| 4 | Anita Tuitui | Cent.Dept.of Hydroogy and Meterology | Flood hazard mapping and vulnerability analysis of Balkhu Khola, Nepal |
| 5 | Rachana Ghimire | Tri-chandra M. Campus. | Kinetic monte carlo simulation of island formation in the presence of impurity with inclusion of detachment process. |
| 6 | Bimala Shakya | Natural History Museum | A study on some fungal diseases of Tomato and its management |
| 7 | Dipesh Raj Pant | Tri-chandra M. Campus. | Impact of climate change and integrated approach to adaptation strategies (A case study of Nuwakot Districst, Nepal) |
| 8 | Mohan Bahadur Kshetri | Amrit Campus | Synthesis of Thin Film of metal (Cu, Fe and Mn) doped ZnO using spin Coating and its utilization for fabrication of gas sensors. |
| 9 | Kusum Maiya Dhoubhadel | Amrit Campus | Phytochemical analysis, Antioxidant, and antibacterial activity of <i>Madhuca longifolia</i> |
| 10 | Ganesh Dahal | Tri-chandra M. Campus. | Phytoconstituent analysis and antibacterial study of orange (<i>Citrous aurantium</i>) and Lemons (<i>Citrous lemon</i>) |
| 11 | Sony Bajracharya | Amrit Campus | Assessment of physicochemical and microbial parameters of well water from Latitpur Metropolitan City in Pre-Monsoon season |
| 12 | Janak Raj Dhungana | Tri-chandra M. Campus. | Serotyping of vibrio cholerae Isolates in Nepal |

Out of Kathmandu Valley

| S.N. | Name | Campus/Depart. | Title |
|------|---------------------|-----------------------------------|---|
| 1 | Manisha K.C. | Central Campus of Technology. | Butterfly diversity in Vijaypur Area of Dharan, Sunsari, Nepal |
| 2 | Eliza Acharya | Mahendra Morang A. M. Campus. | Feasibility study for extraction of natural surfactants from different plants extract and their use in industries |
| 3 | Gopal Prasad Sedhai | Prithvi Narayan Campus. | Impact of social security allowance on satisfaction of elderly people between urban and rural area of Lamjung |
| 4 | Milan Kharel | Central Campus of Technology. | Species Distribution and Threats to Chinese Pangolin (<i>Manis pentadactyla</i>) in Jalthal Forest, Jhapa, Province No.1, Eastern Nepal |
| 5 | Saugat Shrestha | Dhankuta M.Campus | Diversity of ferns and fern-allies in Dhankuta District, East Nepal |
| 6 | Durga Upadhaya | Siddhanath S.Campus Mahendranagar | Comparative assessment of water quality: A case study from Ramaroshan and Jhilmal Lakes, Mid-hill and Lowland, Sudurpaschim province, Nepal |
| 7 | Menuka Gautam | BirendraM. Campus | Delineation of Groundwater Potential Zone in the Sedimentary Terrain of Sub-Himalaya, Central Nepal |
| 8 | Dipak Baral | Mahendra Morang A.M. Campus | The physicochemical analysis study on the influence of a biocompatible amino acid with the mixed surfactants |

Number of Ph.D. awarded and ongoing Ph.D. scholars' in IOST (till Dec. 2019)

Ph.D Awarded (subject wise, from 1972 to 1989)

| SN | Department | Male | Female | Total |
|----|------------|------|--------|-------|
| 1 | Botany | 1 | 0 | 1 |
| 2 | Chemistry | 3 | 1 | 4 |
| 3 | Zoology | 5 | 1 | 6 |
| | Total | 9 | 2 | 11 |

PhD Awarded (Subject wise, from 1990 to 2019)

| SN | Department | Male | Female | Total |
|----|---------------------------|------|--------|-------|
| 1 | Biotechnology | 3 | 1 | 4 |
| 2 | Botany | 20 | 24 | 44 |
| 3 | Chemistry | 13 | 11 | 24 |
| 4 | CSIT | 0 | 0 | 0 |
| 5 | Environmental Science | 4 | 1 | 5 |
| 6 | Food Technology | 2 | 0 | 2 |
| 7 | Geology | 5 | 0 | 5 |
| 8 | Hydrology and Meteorology | 4 | 0 | 4 |
| 9 | Mathematics | 7 | 3 | 10 |
| 10 | Microbiology | 8 | 0 | 8 |
| 11 | Physics | 18 | 2 | 20 |
| 12 | Statistics | 12 | 2 | 14 |
| 13 | Zoology | 7 | 2 | 9 |
| | Total | 103 | 46 | 149 |

Number of Ongoing PhD (Subject wise)

| S.N. | Department | Old (Not course based) | | Semester System (Course based) | | Total Ongoing PhD | | |
|------|-------------------------|------------------------|--------|--------------------------------|--------|-------------------|--------|-----------|
| | | Male | Female | Male | Female | Male | Female | All Total |
| 1 | Biotechnology | 6 | 2 | 4 | 2 | 10 | 4 | 14 |
| 2 | Botany | 19 | 15 | 11 | 4 | 30 | 19 | 49 |
| 3 | Chemistry | 12 | 4 | 20 | 6 | 32 | 10 | 42 |
| 4 | CSIT | 0 | 0 | 2 | 1 | 2 | 1 | 3 |
| 5 | Environmental Sc. | 7 | 1 | 6 | 3 | 13 | 4 | 17 |
| 6 | Food Technology | 0 | 0 | 2 | 1 | 2 | 1 | 3 |
| 7 | Geology | 3 | 1 | 8 | 1 | 11 | 2 | 13 |
| 8 | Hydrology & Meteorology | 2 | 0 | 5 | 0 | 7 | 0 | 7 |
| 9 | Mathematics | 8 | 0 | 13 | 2 | 21 | 2 | 23 |
| 10 | Microbiology | 6 | 3 | 6 | 3 | 12 | 6 | 18 |
| 11 | Physics | 20 | 2 | 30 | 2 | 50 | 4 | 54 |
| 12 | Statistics | 2 | 0 | 2 | 0 | 4 | 0 | 4 |
| 13 | Zoology | 13 | 1 | 14 | 3 | 27 | 4 | 31 |
| | Total | 98 | 29 | 123 | 28 | 221 | 57 | 278 |

Ph.D. Degree Awarded in 2019

| S.N. | Name | Subject | Research Title |
|------|--------------------------|---------------|---|
| 1 | Pitri Bhakta Adhikari | Physics | Investigation of the features of electromagnetic fields due to lightning measured in Kathmandu. |
| 2 | Rajendra Man Shrestha | Statistics | Modeling for assessing impacts of climate change on River-Hydrology for Bagmati River basin in Nepal. |
| 3 | Kishori Yadav | Physics | Theoretical Study of Multiphoton Ionization of Hydrogen Atom by Non-Perturbative Method with Intense Laser Pulse |
| 4 | Krishna Badan Nakarmi | Chemistry | Investigation of low cost homemade heavy metal ion selective electrode for environmental analysis" |
| 5 | Ghanshyam Thakur | Physics | Production of Arc Plasma and Its Characterization for Different Materials of the Electrodes Producing the Arc. |
| 6 | Basant kumar Dhakal | Statistics | Impact of Tourism in Socio- Economic Development of Nepal : A Multivariate Approach. |
| 7 | Punam Yadav | Biotechnology | Characterization of Lignocellulases Produced by Thermophilic Bacteria Isolated from Hot Springs of Myagdi Nepal. |
| 8 | Arjun Kumar Gautam | Physics | Study of Far Infrared Cavities At 60 and 100 Micron Infrared Astronomical Satellite Maps Around Asymptotic Giant Branch Stars" |
| 9 | Dhruba Kumar Khadka | Microbiology | Identification of Mutations in rpoB Gene (β -Sub Unit of DNA Dependent RNA Polymerase) in Rifampicin Resistant Mycobacterium Tuberculosis Among Retreatment Tuberculosis Patients in Nepal. |
| 10 | Saran Lamichhane | Physics | Electronic and Magnetic Properties of Ordered and Disordered Binary Alloy Ni-Al |
| 11 | Shankar Prasad Khatiwada | Chemistry | Effect of Block Copolymer (BCP) Architecture on Morphology and Deformation Behaviour of Epoxy Resin/ BCP Blends |
| 12 | Mukti Ram Paudel | Botany | Biological activities of in vivo and in vitro plant materials of some dendrobium species. |
| 13 | Buddhi Prasad Sapkota | Mathematics | Numerical Modeling of Indoor Air Pollution Distribution in A Biomass Kitchen in Nepal |
| 14 | Shrawan Kumar Mishra | Biotechnology | Study on Immune Reconstitution Inflammatory Syndrome (IRIS) in HIV/AIDS Infection |

Ph.D. Scholars Enrolled in the year 2019

| S.N. | Name of Candidate | Department | Research Title |
|------|--------------------------------|---------------|---|
| 1 | Prakash Chandra Ghimire | Geology | Large Landslides on Some Road Sections of Nepal: Their Causes and Mechanisms of Failure |
| 2 | Rajendra Kumar Chhetri | Geology | Geological Study of Pokhara Valley, Western Nepal |
| 3 | Govinda Prasad Sharma (Bhutan) | Environment | Effects of Air Pollution on Apiculture in Thimphu District, Bhutan |
| 4 | Buddhi Ram Kumal | Environment | Pesticides-Induced Contamination in Vegetables, Soil and Water in Kavrepalanchowk and Dhading Districts of Nepal |
| 5 | Jaya Ram Khajju | Environment | Hydrological Dynamics and Water Stress in Hilly Regions of Nepal using Geospatial Techniques and Modelling |
| 6 | Deepa Pradhan | Environment | Rainfall runoff analysis and flood vulnerability assessment of Bagmati Basin Nepal. |
| 7 | Dipendra Kumar Mandal | Biotechnology | Application of Lytic Bacteriophage Against MDR and Biofilm Producing Bacterial Isolates Causing Urinary Tract Infection and Cloning of Holin and Lysin gene Using Expression Vector |
| 8 | Eans Tara Tuladhar | Biotechnology | Human Virome in Fever of Unknown Origin and Immune Responses |
| 9 | Soma Kanta Baral | Biotechnology | Epstein-Barr Virus and Expression of Oncogenic Protein Markers in Patients with Nasopharyngeal Carcinoma |
| 10 | Til Maya dhakal | Botany | Soil Physicochemical and Microbial Characteristics of Different Land-use Regimes along Elevation Gradients in Shivapuri-Nagarjun National Park, Central Nepal |
| 11 | Chandra Bahadur Thapa | Botany | In Vitro Culture and Comparative Photochemical Analysis in Some Medicinal Plants |
| 12 | Trishna Goswami | Botany | Bioprospecting of Different Species of Berberis L. for the Isolation of Compounds with Antidiabetic Potential |
| 13 | Munesh Ratna Gubhaju | Botany | Population Ecology and Conservation Status of <i>Bergenia ciliata</i> (Haw.) Sternb. s.l. in Mid Hills of Nepal |
| 14 | Ratna Silwal Gautam | Botany | Utilization Pattern of Plant Species and Carbon Estimation in Konjyosom rural Municipality of Lalitpur District, Nepal |

| | | | |
|----|-------------------------|---|---|
| 15 | Ganesh Tamang | Zoology | Ecology of Asian Openbill <i>Anastomus oscitans</i> (Boddaert, 1783) in Lowland and Midland of Eastern Region, Province No. 1 & 2, Nepal |
| 16 | Siddha Raj Pant | Zoology | Influence of Wetland Characteristics on Bird Communities of Lowland Areas, Sudurpaschim Province, Nepal |
| 17 | Dibya Raj Dahal | Zoology | Elevational Diversity of Bats and Predicting their Distribution in Nepal |
| 18 | Puja Jiaswal | Zoology | Biological Control of Root-knot Nematode <i>Meloidogyne incognita</i> (Chitwood, 1949) Using Indigenous Species of <i>Trichoderma</i> and <i>Bacillus</i> on Tomato Plant (<i>Lycopersicon esculentum</i> M.), Nepal |
| 19 | Ramji Gautam | Zoology | Population Structure, Breeding Success and Human dimensions of White-rumped Vultures <i>Gyps bengalensis</i> in Rampur Valley, Palpa, Nepal |
| 20 | Santosh Khanal | Microbiology | Comparison of Microbial Diversity and Antibiotic Resistance between Pharmaceutical Wastewater and Sewage |
| 21 | Sudeep K.C. | Microbiology | Microbial Community Structure and Antibiotic Resistance in Hospital Waste Water |
| 22 | Bindu Ghimire | Microbiology | Characterization of Antimicrobial Resistance in <i>Escherichia coli</i> Isolated from River Basin of Kathmandu Valley |
| 23 | Manju Shree Shakya Hada | Microbiology | Molecular Microbial Identification of Virulence <i>Acinetobacter baumannii</i> and its Antimicrobial Resistance from Clinical Isolates in Different Tertiary Care Hospitals of Kathmandu |
| 24 | Bijoy Lakshmi Dewasy | Microbiology | Prevalence of Bacteriological Agents on Surgical Wound Infections with Special Reference to Anaerobic bacteria by conventional and rapid technique in Eastern Nepal |
| 25 | Pawan Kumar Gupta | Microbiology | Molecular Epidemiology and diseases Progression of Hepatitis B Virus Infection in Nepalese Population |
| 26 | Shiva Pandeya | Chemistry | Synthesis and Characterization of Flexible TiO ₂ Based Composite Nanofibers for High Performance Photocatalytic Applications |
| 27 | Ram Darash Pandey | Chemistry | Natural Products Discovery and Characterization of Bioactive Compounds from Nepalese Medicinal Plants |
| 28 | Bijaya Bahadur Thapa | Chemistry | Isolation and Characterization of Antibiotics from Actinomycetes Collected in Nepal |
| 29 | Devi Prasad Bhandari | Chemistry | Chemical Investigation, Standardization, and Bioactivities of Essential Oil from Unexplored Aromatic Plants of Nepal |
| 30 | Dev Raj Acharya | Food Technology | Enhancement of Antioxidant Potential, Quality and Shelf Life of Broiler Chicken Meat Fed with Herbs and Spices Dietary Supplements |
| 31 | Dambar Bahadur Khadka | Food Technology | Characterization of Nutritional Quality and Bio-functional Properties of Whey Protein Hydrolysate Produced by Using Proteases from Different Sources |
| 32 | Durga Prasad Khanal | Mathematics | Continuous Dynamic Flow Problems with Flow-Dependent Transit times |
| 33 | Badri Prasad Pangen | Mathematics | Continuous Dynamic Flow with Intermediate Storage |
| 34 | Khagendra Adhikari | Mathematics | Dynamics of cholera Transmission with Control Measures |
| 35 | Anjana Acharya | Mathematics | Dynamics of Transmission and Control of Measles |
| 36 | Ramesh Gautam | Mathematics | Modeling and Analysis of Dynamics of malaria Transmission with Control Measures: Imported |
| 37 | Gyan Prasad Paudel | Mathematics | A Study of Fuzzy Logic and Fuzzy Sequence with their Applications to the Real World |
| 38 | Prakash Regmi | Hydrology & Meteorology | Hydro-Meteorological Disasters in West Rapti Basin of Province 5 of Nepal |
| 39 | Bhumi Raj Budhathoki | Hydrology & Meteorology | Impacts of Climate Change on Hydrological Regimes in Southern Slopes of Central Himalayas |
| 40 | Dhan Maya Thapa | Computer Science & Information Technology | Prediction and Elucidation for Academic Performance of Students using Data Mining Techniques |
| 41 | Rudra Prasad Khanal | Physics | Measure of radiation absorbed dose during radiation therapy treatment. |
| 42 | Ram Lal Sah | Physics | Experimental study of breakdown of Gas discharge using dielectric barrier discharge at reduced atmospheric pressure. |
| 43 | Gang Bahadur Acharya | Physics | Investigation of Novel Topological Properties in Kagome Metals A ₂ T ₃ S ₄ (Where A are K, Rb & Cs and T are 3d & 4d Transition Metals) |
| 44 | Sanjay Kumar Sah | Physics | Study of thermodynamic behaviour of mixing of ternary alloys in different compositions. |
| 45 | Alok Lal Karn | Physics | Electronic and Magnetic Related Properties Mxene (Ti ₃ C ₂ , V ₂ C) and Corresponding Maxphase |
| 46 | Arjun Acharya | Physics | Study of the physical and chemical properties of nephrolithiasis. |

A Brief Profile of Central Departments under IoST

| SN | Central Department of | Location | Phone | Academic Program | Name of HOD/ Director | email of HOD/ Director |
|----|-------------------------|----------|--------------------|---|---------------------------------|---------------------------|
| 1 | Biotechnology | Kirtipur | 4336221 | M. Sc., Ph. D. | Prof. Dr. Krishna Das Manandhar | manandhar@gmail.com |
| 2 | Botany | Kirtipur | 4331322 4333515 | M. Sc. Botany M. Sc. BEM Ph. D. | Prof. Dr. Ram Kailash Yadav | rkp.yadav@cbtu.edu.np |
| 3 | Chemistry | Kirtipur | 4332034 4330537 | M. Sc., Ph. D. | Prof. Dr. Ram Chandra Basnyat | basnyatram@gmail.com |
| 4 | Computer Science & IT | Kirtipur | 4333010 4332619 | M. Sc., Ph. D. | Mr. Nawaraj Paudel | nawarajpauldel@yahoo.com |
| 5 | Environmental Science | Kirtipur | 4332147 4332711 | M. Sc., Ph. D. | Prof. Dr. Rejina Maskey | rmaskey@cdes.edu.np |
| 6 | Food Technology | Dharan | 025-526726 | M. Tech. Ph. D. | Mrs. Geeta Bhattarai | geetabhattarai4@gmail.com |
| 7 | Geology | Kirtipur | 4332449 | M. Sc. Geology M. Sc. Eng. Geo Ph. D. | Prof. Dr. Khum Narayan Paudyal | khum99@gmail.com |
| 8 | Hydrology & Meteorology | Kirtipur | 4333887 | M. Sc., Ph. D. | Dr. Deepak Aryal | deepak@cdhmtu.edu.np |
| 9 | Mathematics | Kirtipur | 4331977 | M. Sc. M Phil, Ph. D. | Prof. Dr. Tank Nath Dhamala | amb.dhamala@daadindia.org |
| 10 | Microbiology | Kirtipur | 4331869 | M. Sc., Ph. D. | Dr. Megharaj Banjara | banjaramr@gmail.com |
| 11 | Physics | Kirtipur | 4331054 | M. Sc., Ph. D. | Prof. Dr. Binil Aryal | aryalbinil@gmail.com |
| 12 | Statistics | Kirtipur | 4331710 | M. Sc., Ph. D. | Prof. Dr. Sirjan Lal Shrestha | srijan_shrestha@yahoo.com |
| 13 | Zoology | Kirtipur | 4331896 | M. Sc., Ph. D. | Prof. Dr. Tej Bahadur Thapa | tejthapa@gmail.com |
| 14 | School of Math Science | Balkhu | | B. Math. Sc. | Prof. Dr. Narayan Prasad Pahari | nppahari@gmail.com |

Brief Profile and Programs of Constituent Campuses associated to IoST

| S.N | Name of the Campuses | Address | Telephone | B.Sc. | M.Sc. |
|-----|--|------------------|-----------|---|---------------------------------|
| 1 | Mechi Multiple Campus | Bhadrapur, Jhapa | 023520044 | General + (Env. Science, Tea Science, CSIT), | |
| 2 | Dhankuta Multiple Campus, | Dhankuta | 026520297 | General + (Env. Science) | |
| 3 | Central Campus of Technology | Dharan | 025520228 | General + (Microbiology, Nutrition & Dietetics, Geology) B. Tech. (Food) | Microbiology M. Tech. (Food) |
| 4 | Mahendra Morang Adarsha Multiple Campus | Biratnagar | 021526791 | General + (Microbiology, Meteorology), CSIT, BIT | Physics, Chemistry |
| 5 | Post Graduate Campus | Biratnagar | 021526327 | | Botany, Zoology, Math |
| 6 | Mahendra Bindeshwori Multiple Campus | Rajbiraj | 031520092 | General + (Microbiology) | |
| 7 | Surya Narayan Satya Na. Mo. Yadav Campus | Siraha | 033520387 | General + (Env. Science) | |
| 8 | Ramsorup Ramsagar Multiple Campus | Janakpur | 041520174 | General + (Microbiology, Env. Sc., CSIT) | Math |
| 9 | Thakur Ram Multiple Campus | Birgunj | 051522187 | General | |
| 10 | Birendra Multiple Campus | Bharatpur | 056520253 | General + (Microbiology, Geology, Meteorology), CSIT, BIT | Physics, Chemistry |
| 11 | Prithivi Narayan Multiple Campus | Pokhara | 061526837 | General + (Microbiology, Geology, CSIT) | Physics, Math, Chemistry |
| 12 | Sidha Nath Science Campus | Mahendranagar | 099521220 | General + (Env. Sc, Microbiology), CSIT, BIT | Physics, Math |
| 13 | Mahendra Multiple Campus | Nepalgunj | 081520278 | General + CSIT, BIT | |
| 14 | Butwal Multiple Campus | Butwal | 071542834 | General + CSIT | |

| | | | | | |
|----|------------------------------|------------|-----------|--|--|
| 15 | Tribhuvan Multiple Campus | Palpa | 075520090 | General | |
| 16 | Tri- Chandra Multiple Campus | Ghantaghar | 014244047 | General + (Env. Science, Geology, | Chemistry, Eng. Geology, Microbiology, |
| 17 | Amrit Science Campus | Lainchour | 014411637 | General + (Env. Science, | Physics, Math, Botany, Chemistry |
| 18 | Patan Multiple Campus | Patan | 05547710 | General + (Env. Scienc), CSIT, BIT | Physics |
| 19 | Bhaktapur Multiple Campus | Bhaktapur | 016610200 | General + CSIT | |
| 20 | Padma Kanya Multiple Campus | Bagbazar | 014224149 | General + (Env. Science, Microbiology, CSIT) | |
| 21 | Mahendra Multiple Campus | Dang | 082560035 | General | |
| 22 | Dhaulagari Campus | Baglung | 068521344 | General | |
| 23 | Bhairawaha Multiple Campus | Bhairawa | 071520205 | General + CSIT | |
| 24 | Gorkha Campus | Gorkha | 064421398 | General (program not running) | |

General B.Sc. includes: Chemistry, Botany, Zoology, Statistics, Physics and Mathematics

Recent Activities of Central Departments and Campuses

Recent Activities of Central Department of Biotechnology

1. Ongoing International Projects

- Dengue – CDBT-LJI-KARIUS Project. PI – Prof. Krishna Das Manandhar, International Collaborator: Dr. Sujun, USA Dengue fever and Dengue like illness in Nepal. Funding by La Jolla Institute for Allergy & Immunology and KARIUS Inc. USA 25000 USD. Dec 2016- Dec 2020.
- Switzerland PI- Prof. Krishna Das Manandhar, Virology lab, CDBT-TU and Prof. Cristian Munz. Immunology Department, University of Zurich and Tropical Infectious Disease Screening of Epstein Barr virus and Kaposi Sarcoma antiserum in Nepalese healthy population and molecular diagnosis. 2019-2020.

2. Ongoing National projects

- Streptomyces – UGC collaborative Project. PI – Prof. Rajani Malla. Biodiversity of Streptomyces from soil collected from various parts of Nepal and screening for potent bioactive compounds. UGC Institutional, 2018 - 2020 (2074 - 2076 B.S.)
- Dengue – UGC collaborative Project. PI – Prof. Krishna Das Manandhar. Profiling Cellular Immune Responses in Dengue Virus Infected Nepalese Population. UGC Institutional Grant. 2019-2022 (2075 – 2078 B.S.)
- Ayurved Drug – National collaboration. PI- Prof. Krishna Das Manandhar Cytotoxicity and Anticancer activities of “Heerak Bhasma” (Diamond Particles) on different cell lines. National Ayurveda Training and Research Center, Gov. of Nepal. 2019-2020

3. visitors for the year 2019.

- Dr. Livio Tvaiuotti, Department of Biology, University of Palova, Palova, Italy.

- Prof. Salv Thomes, Vice -chancellor, Mahatma Gandhi University, Kottayam, Kerala, India
- Max Paoli, TWAS Programme Co-ordinator
- Dr. Sangeet Lamichhane, Kent State University, USA
- Dr. Hari Om Singh, Scientist, ICMR-NARI, Pune, India
- Dr. Motonari Uesugi, Kyoto University
- Prof. Deok Soon Yim, Science Technology Policy Institute (STEPI), Republic of Korea and Team from KOICA.

4. MOU with different National and International Institutes:

| Institution/ Organization | Start Date | End Date |
|--|--|---|
| Alpha Agro. Pvt. Ltd. | January 12, 2020 (Magh 6, 2076) | |
| Natural History Museum, Tribhuvan University, Swayambhu, Kathmandu | 13 th August, 2019 (Shrawan 28, 2076) | 13 th August, 2023 (4 years) |
| Medi Quest Laboratory Clinic P. Ltd. | June 1 st , 2019 (Jestha 18, 2076) | June 1 st , 2022 (3 years) |
| Sukraraj Tropical and Infectious Disease Hospital, Teku | April 17, 2019 (Baisakh 4, 2076) | 2022 (3 years) |
| State Key Laboratory of Genetic Resources and Evolution, Kunming Institute of Zoology, Chinese Academy of Sciences, Kunming, China | 18 December, 2018 (Poush 3, 2075) | 2023 (5 years) |
| National Ayurveda Research and Training Center (NARTC), Govt. of Nepal, Kirtipur | July, 2018 (Ashad, 2075) | |

Recent Activities of Central Department of Botany

1. Based on the final report and review of Peer Review Team QAA Division/UGC Nepal, awarded the Certificate of Institutional Accreditation in an Institutional Accreditation Award Ceremony held on Sunday, January 6, 2019 (2075-09-22) in UGC Seminar Hall, Sanothimi, Bhaktapur
2. Training Program
 - Field training on plant collection One-day field training workshop was organized on January 9, 2019
 - Herbarium preparation and plant identification A two day training workshop on herbarium preparation and plant identification was organized from February 18- 19, 2019
 - Field and Microscopic Techniques in Mushrooms Dr. Martina Vasutova, the eminent mycologist, from Department of Botany, University of South Bohemia, Czech Republic visited the department and conducted a one-day workshop on September 5, 2019.
3. A Results Sharing Meeting of the research project 'Mobilizing occurrence data of alien and endemic plant species of Nepal' funded by Biodiversity Information Fund for Asia (BIFA) program of the Global Biodiversity Information Facility (GBIF), Denmark was organized on May 22, 2019, Wednesday (Jestha 8, 2076)
4. Digitization Of Herbarium and Database Published In GBIF Occurrence data of alien and endemic plants of Nepal based on the herbarium specimens that has been deposited at the Tribhuvan University Central Herbarium (TUCH) have been digitized. Digitization and databasing of the plant specimens deposited at the Tribhuvan University Central Herbarium (TUCH) was formally started on 18 February 2019 .
5. Perpetual Planet Extreme Expedition to Mt. Everest, April-June, 2019.
6. Talk Program
 - Prof. Dr. Jay Prakash Sah of Florida International University, Miami, Florida, USA delivered a talk on 'Quantifying spatio-temporal changes in Plant Communities along Environmental Gradients and their implications for ecosystem management' on March 19, 2019.
 - Prof. Dr. Alistair Jump, Head, Biological and Environment Science School, Stirling University UK had an interaction program on March 28, 2019.
 - Prof. Camille Parmesan of University of Plymouth, UK and University of Texas at Austin, USA delivered a talk on 'Climate Change and its Consequences' on July 22, 2019.

Recent Activities of Central Department of Chemistry

1. Quality Assurance Accreditation (QAA): A Letter of Intend (LOI) for QAA has already submitted in February, 2018 and Self Study Report also already submitted by completing TU QAA office process to University Grant Commission (UGC) in June 2019 for final feed backs of SSR and approval of QAA certificate, waiting from response from UGC about SSR report of Central Department of Chemistry submitted by TU QAA office Kirtipur.
 - Prof. Dr. Masaki Tanemura, Nagoya Institute of Technology, Japan. Title of the talk: Challenge to the controllable synthesis of nanocarbon based in situ TEM (May 26th, 2019).
 - Dr. Santosh Tiwari, Postdoctoral fellow Dept. of Mechanical Engineering, Seoul Campus Hanyang University, South Korea. Title of the talk: Synthesis and dispersion of graphene oxide/reduced graphene oxide in polymer blends for enhanced thermomechanical properties (April 12th, 2019).
2. Departmental talks
 - Dr. Rekha R. Srinivasan, Senior Instructor of Chemistry in Case Western Reserve University, USA. Title of the talk: A Journey of Innovation in STEM education. (October 17th, 2019).
 - Dr. Hem Raj Sharma, Faculty at the University of Liverpool, UK. Title of the talk: Quasicrystals with Crystallographic Rotational Symmetry. Date/time: (September 5, 2019).
 - Prof Dr. Hanbin Mao, Department of Chemistry, Kent State University, USA. Title of the talk: Click Chemistry Assisted Characterization of DNA G-quadruplex Structures at the Single Molecule Level. (Sept 3rd, 2019)
3. Symposia and workshops
 - The most recent event was workshop on "Tools and Techniques and Advanced Data Analysis in Chemistry" that was conducted from August 30-31, 2019 in CDC. The program was organized in collaboration with Nepal Chemical Society. Around 45 participant from different campuses/universities were present in the program
 - Asst. Prof. Dr. Bhanu Bhakta Neupane for being recipient of "Science and Technology Youth Award" from NAST.

4. Foreign visits of our faculties

- As a guest/invited/plenary speaker (Prof. Dr. Megh Raj Pokhrel, Prof. Dr. Kedar Nath Ghimire, Prof. Dr. Vinay Kumar Jha, Prof. Dr. Rameshwar Adhikari, Prof. Dr. Armila Rajbhandari, Prof. Dr. Nirajan Parajuli, Assoc. Prof. Sabita Shrestha, and Asst. Prof. Dr. Bhanu Bhakta Neupane), As visiting faculty (Prof. Dr. Amar Prasad Yadhav and Asst. Prof. Dr. Achyut A dhaikari)
- As representative of professional and other societies (Prof. Dr. Motee Lal Sharma, Prof. Dr. Nirajan Parajuli, Asst. Prof. Dr. Bhanu Bhakta Neupane), and
- As paper/poster presenter in international conferences/meetings [all of our faculties].

5. Congratulations

- Prof. Dr. Nirajan Parajuli for being elected to president of Nepal Chemical Society (NCS), Asst. Prof. Dr. Bhanu Bhakta Neupane for being elected to General Secretary of NCS, and Asst. Prof. Dr. Bimala Subba for being elected to Treasurer of NCS. We wish all of them a successful tenure.
- Prof. Dr. Vinay Kumar Jha for being recipient of "Technology Award" from Nepal Academy of Science and Technology (NAST).
- Asst. Prof. Dr. Bhanu Bhakta Neupane for being recipient of "Science and Technology Youth Award" from NAST.

Recent Activities of Central Department of Environmental Science

1. Seminar/ Talks

- CDES organized Fifth Graduate Conference on Environment and Sustainable Development (GCESE) on April 5-6, 2019 in Kathmandu University, Dulikhel in collaboration with ISET-Nepal, ScHEMS, Kathmandu University and Resources Himalaya Foundation.
- Central Department of Environmental Science, Tribhuvan University (CDES-TU), in collaboration with Kathmandu Center for Research and Education (KCRE) has successfully organized a half day seminar entitled: New Nepal emissions inventory (NEEMI): A basis for advancing further understanding of science and mitigation of air pollution in Nepal: 20th October, 2019. The key speaker of the program was Dr. Maheswar Rupakheti from Institute for Advanced Sustainability Studies, Potsdam, Germany. The program was chaired by Prof. Dr. Rejina Maskey, Head of CDES-TU

2. MoU Signing

- An agreement was made on 8th December 2019 between Central Department of Environmental Science, Tribhuvan University and Institute of Environmental Science,

University of Rajsashi, Bangladesh, to collaborate and cooperate in enhancing academic and research opportunities.

- An agreement has been signed on 27th March 2019 between Central Department of Environmental Science and WWF Nepal to work together in research work.
 - Central Department of Environmental Science (CDES) and International Center for Integrated Mountain Development (ICIMOD) Lalitpur signed an agreement and collaborated together to work in research sector for emission of air pollutants especially from the transport sector dated February 2, 2019.
- #### 3. Lecture from International Professors
- Prof Dr. Durga D Poudel from Environmental Science Program, School of Geosciences, University of Louisiana was invited to CDES-TU to deliver a guest lecture in May 2019.
 - TU-CDES invited Dr. Sanat Kumar Sahawho delivered guest lecture on "Energy Security and Environmental Wellness-India and Nepal Prospective" on December 14, 2019

Recent Activities of Central Department of Geology

1. International Relation: Japan, Garman, India, China, Poland, Italy (Scientific Exchange)

2. National and International MOU:

- University of Erlangen-Nürnberg, Geo-Zentrum Nord Bayern, Germany
- AGH University, Faculty of Geology, Geophysics, and Environmental Protection, Krakow, Poland
- School of Civil Engineering, Southwest Jiaotong University, Chengdu City, Sichuan Province, China
- University of Torino, Italy
- Likhu Rural Municipality, Nuwakot, Nepal

- Phalebas Municipality, Parbat, Nepal
- President Chure-Terai-Madhes Conservation and Development Committee, Government of Nepal
- Water Resource Research and Development Centre, Government of Nepal
- Nepal Academy of Science and Technology (NAST), Khumaltar, Lalitpur

3. Lecture from International Professors:

- Prof. Dr. Jorn Kruhl: Geotourism in Nepal: State of art and Possibilities on 19th Decemebr 2019

Recent Activities of Central Department of Hydrology and Meteorology

1. International Collaborations

| SN | Partner institutes | Country | Research Collaboration | Commence date | Target date |
|----|---|---------|---|---------------|-------------|
| 2 | Institute of Research for Development, IRD | France | Understanding high mountain cryospheric processes and glaciers hazards in the Everest Region | 2017 | 2019 |
| 3 | International Centre for Integrated Mountain Development (ICIMOD) | Nepal | Cryosphere Monitoring Program | 2011 | Long-term |
| 4 | United Nation World Food Program (WFP) | Nepal | Weather and flood forecasting and verification, crop modeling | 2018 | 2019 |
| 5 | The World Academy of Sciences (TWAS) | Italy | Improving numerical weather prediction of severe weather phenomenon in the Central Himalayan Region | 2018 | 2019 |
| 6 | National Geographic Society | USA | Life in the extreme Everest expedition | 2019 | |

2. National Collaboration

| SN | Partner institutes | Country | Research Collaboration | Commence date | Target date |
|----|--|---------|--|---------------|-------------|
| 1 | Department of Hydrology Meteorology (DHM) | Nepal | Upper Air Observation Station | 2016 | Long-term |
| 2 | Department of Environment | Nepal | Air pollution monitoring station | 2017 | Long-term |
| 3 | Kathmandu Institute of Applied Sciences (KIAS) | Nepal | Drought monitoring, research outreach and knowledge exchange | 2018 | 2019 |

3. MoU

- Institute of Research for Development, IRD, France (Objective: Understanding high mountain cryospheric processes and glaciers hazards)
- Department of Hydrology Meteorology (DHM), Government of Nepal (Objective: Establishment of radiosonde observation station)
- Institute of Tibetan Plateau Research, Chinese Academy of Science, Beijing (Objective: Collaborative research on Hydro-Meteorology of Himalaya/Tibetan Plateau regions) (
- The International Center for Integrated Mountain Development (ICIMOD) (Objective: Monitoring and assessment of changes in Glaciers, Snow and Glacio-hydrology in the Hindu Kush – Himalayas)
- Small Earth Nepal (SEN) (Objective: Joint scientific research in the field of hydrology, meteorology and glaciology)
- United Nations World Food Program (WFP) (Objective: Improvement of the quality of weather and flood forecasts, including forecasts from numerical weather, climate and hydrological models and crop modelling)
- Kathmandu Institute of Applied Sciences (KIAS) (Objective: Drought monitoring, research outreach and knowledge exchange)
- National Geographic Society (NGS) (Objective: Life in the extreme Everest expedition)

4. Conference/Seminar/Workshops/Meetings

- Cryosphere monitoring programme (CMP) Nepal and Bhutan joint meeting, 1 February, 2019
- TWAS Research Grants Conference organized by TWAS Trieste, Italy, 4-6 June 2019, Kathmandu, Nepal
- International (SAARC) Youth Scientific Conference (IYSC), 5-6 June, 2019 Kathmandu, Nepal
- Research Coordination Meeting for APN Research Project on Improving Assessment of Drought and Its Impact on Food and Water Resources in South Asia, 22-23 August 2019, Dhaka, Bangladesh
- International Workshop on Models for Multinational Collaboration on Disaster Resilience Institute for Disaster Management and Reconstruction, Sichuan University, Chengdu, June 30 – July 4, 2019.
- 16th Annual meeting of the Asia Oceania Geosciences Society held at SUNTEC, Singapore, 28 Jul to 02 Aug, 2019
- International Forum on the Cryosphere and Society, The Voice of the HKH, 28-30, August, 2019, ICIMOD, Kathmandu, Nepal
- Koshi Disaster Risk Reduction Knowledge Hub (KDKH) Nepal Country Consultation: Building a resilient Koshi basin, 23-24 September, 2019
- 4th International Conference on Mountains in the Changing World, 18-19 October, 2019, Kathmandu, Nepal

- HIMALICE Symposium on Climate, Cryosphere, Hazard and Livelihood, 18-19 October 2019, Kathmandu, Nepal
- "International cooperation in science, technology and innovation: strategies for regional development" 2019 ANSO Young Scientists Forum and Zhejiang International Science and Technology Cooperation Conference, Nov10 to11, 2019 Hangzhou China
- "Initiatives of Kathmandu Center for Research and Education (KCRE) in High Mountain Research" In the Fourth International Conference on MOUNTAINS IN THE CHANGING WORLD, October 18 to 19, 2019 Kathmandu Nepal.
- "Impacts of Flooding and its Response a case Study in 2017 from Terai Region of Nepal" International Conference on Silk Road Disaster Risk Reduction and Sustainable Development, May 11 to 12, 2019 Beijing China
- Sigdel M., Variation of Carbon-dioxide and heat flux over southern slope of Himalaya, Asia Oceania Geoscience Society (AOGS) Annual meeting, 28 July-2 August, 2019 Singapore IYSC-2019 Abstracts Book IYSC-2019 Conference Proceedings
- "Tree ring based Precipitation from the Everest region of Central Himalayas " American Geophysical Fall Meeting 8 to 13 December 2019, San Francisco USA

Recent Activities of Central Department of Mathematics

1. Central Department of Mathematics (CDM) in collaboration with Nepal Mathematical Society (NMS), Association of Nepalese Mathematicians in America (ANMA) and Kathmandu University (KU) organized a "Summer School in Mathematical Biology" and "Second International Conference on Applications of Mathematics to Nonlinear Sciences (AMNS-2019)" (June 17-26 & 27-30), in Kathmandu and Pokhara, respectively. The CDM faculty members Prof. Kedar Nath Uprety, Dr. Shree Ram Khadaka, Mr. Pawan Shrestha, Mr. Jhavi Lal Ghimire and Dr. Jeevan Kafle presented the papers at this conference. Mr. Ghimire also presented a paper at "International Youth Conference on Science, Technology and Innovation", jointly organized by NAST, MoEST and NTY, October 21-23.
2. The CDM was a collaborative part of the workshop (31 August-14 September) organized by Mindanao State University, IIT, the Philippines in Bohol in jointly with University of Kaiserslautern, Germany supported by DAAD under the partnership program "GraThO (*Graph Theory and Optimization for the Industry and Society*)" for 2016-2019. Prof. Dr. Tanka Nath Dhamala and Associate Prof. Mr. Tulasi Pd. Nepal together with other 5 mathematics scholars participated. Prof. Dhamala along with two math faculty members visited University of Kaiserslautern in 2019 under this partnership program.
3. The CDM was a collaborative part of "7th National Conference on Mathematics and Its Applications (NCMA-2019)" organized by NMS in collaboration with KU and Nepal Samskrit University held in Butwal (January 12-15). The CDM faculty members Prof. Dr. Narayan Prasad Pahari, Associate Prof. Mr. Tulasi Pd. Nepal, Dr. Shree Ram Khadaka, Mr. Pawan Shrestha, Mr. Jhavi Lal Ghimire and Dr. Jeevan Kafle presented the papers at this conference.
4. Prof. Dhamala delivered talks at "International Conference on Recent Advances in Informatics, Communication, Management, Health and Applied Science" organized by Brainware University, Kolkata, India (February 2-4) as a plenary speaker, TU Bergakademie Freiberg, Germany (June 11), University of Luxembourg (June 23-25), University Putra Malaysia (August 31, 2019), "International Conference on Applied Mathematics in Science and Engineering" organized by Center for Applied Mathematics & Computing and Department of Mathematics of SOAU, Odisha, India (October 24-26) as a guest of honor and an invited speaker, DAAD-ASIA Network Conference, Myanmar (November 11-13).
5. Prof. Dr. Uprety delivered talks as a keynote speaker at "4th ICRDTCAD (January 21-23) organized by SAU, New Delhi and "International Conference on Applied Mathematics and Computational Sciences" (ICAMCS-2019) organized by DIT University (October 17-10), Dehradun, India. The faculty members Mr. Pawan Shrestha presented a paper and Mr. Jhavi Ghimire participated at this conference.
6. Prof. Dr. Chet Raj Bhatta, have been nominated as a steering committee member of Silkroad Mathematics Center (SMC) Beijing of Chinese Mathematical Society for the tenure 2019-2021 representing the NMS. Prof. Dhamala and Prof. Bhatta attended the steering committee meeting (April 11) and Prof. Bhatta delivered a colloquium talk.
7. Prof. Bhatta, as the President NMS has signed the grant awarded by Nick Simons Foundation, USA for the "capacity building workshop for university mathematics faculties". The Grant will be awarded for continuously three years as \$25000 per year and around 120 mathematics faculty will get benefit from orientation program, workshop, refresher and short term courses.
8. The SMC had organized an International Conference in Mathematical Optimization (April 8-13) in Beijing and "12th International Conference on Numerical Optimization and Numerical Linear Algebra" (April 15-18) in Shangrao, Jianxi, China. Prof. Dhamala delivered talks as a plenary speaker and Prof. Bhatta participated the conferences.

9. Associate Prof. Dr. Urmila Pyakurel presented papers at "International Conference on Recent Advances in Informatics, Communication, Management, Health and Applied Sciences (RAICMHAS-2019)" organized by Brainware University, Kolkata, India (2-4 February), "4th International conference on Dynamics of Disasters" (July 1-4), Kalamata, Greece, and "Workshop on Optimization" (March 14-15), Olbernhau, Germany. Dr. Pyakurel completed her post-doctoral research visit at TU Bergakademie Freiberg and meanwhile attended the annual meeting (June 28-29) in Berlin, Germany, and also

participated in the study tour (August 12-24) of Alexander von Humboldt Foundation.

10. Mr. Jeevan Kafle received his PhD from Kathmandu University, School of Science, Department of Mathematics. Dr. Kafle presented papers at "International Conference on Nano-Sciences and High Energy Physics" (ICNHEP-2019)(4-6 February) organized by Central Department of Physics, Tribhuvan University, "Geophysical Union General Assembly 2019" in Vienna, Austria, and "21st BMS International Mathematics Conference" (6-8 December) organized by Department of Applied Mathematics, University of Dhaka, Bangladesh.

Recent Activities of Central Department of Microbiology

1. Talk programme was held in the department on 28 June, 2019 (13 Ashad, 2076) on "Mice model of immunoncology research". The talk was delivered by Assoc. Prof. Dr. Yong Wha Moon, Haematology and Oncology, Department of Internal Medicine, CHA University, Seongnam-Si, Gyeonggi-do, South Korea.
2. Assoc. Prof. Dr. Pratap Singhasivanon, Dean, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand and the delegates from the faculty visited Central Department of Microbiology, Tribhuvan University on 7th March 2019. The two institutes discussed the areas of cooperation in the field of tropical medicine and microbiology. The Dean Institute of Science and Technology, Tribhuvan University and the Dean Faculty of Tropical Medicine, Mahidol University signed the Memorandum of Understanding (MoU) between two institutes.
3. Central Department of Microbiology, Kirtipur, Kathmandu, Nepal successfully organized "Hands on Training on Water Quality Testing" at Central Department of Microbiology, Tribhuvan University on 6-10 Jestha,

2076 (20-24 May 2019). Altogether twenty participants from different B.Sc. running colleges have been trained in the program. The program was financially supported by UGC, Sanothimi, Nepal.

4. Dr. Shyam Prakash Dumre Assistant Professor at Nagasaki University, Japan delivered a talk "Dengue research: From basic science to clinical application" on 9 December, 2019 at Central Department of Microbiology, Tribhuvan University.
5. Memorandum of Understanding (MoU)
 - Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand (7 March, 2019)
 - The Institute of Tropical Medicine, Antwerp, Belgium (29 August, 2019)
 - Stanford University, Department of Microbiology and Immunology, USA (18 August, 2019)
6. Department's Publications
 - Annual Report of Central Department of Microbiology, Tribhuvan University, 2075/076 (August, 2019)
 - Tribhuvan University Journal of Microbiology (TUJM), Volume 6, Issue 1 (November, 2019).

Recent Activities of Central Department of Physics

1. Research Collaboration

| CDP Faculty | Collaboration with | for | Collaborators | Nature |
|-----------------------|--|---------------|---|---|
| Prof. Dr. Binil Aryal | Institute of Astrophysics, Innsbruck University, Austria | Ph.D. | Prof. W. Saurer Prof. R. Weinberger | A part of Austrian Science Fund (PI: Prof. Weinberger) Joint Ph.D. Supervision |
| Prof. Dr. Binil Aryal | Institute of Physics, Koeln University, Germany | Ph.D. | Prof. J. Stutzki | DAAD (Exchange visit), software facility / Publication Fee Joint Ph.D. Supervision |
| Prof. Dr. Binil Aryal | University of Washington, Seattle, USA | Ph.D. | Prof. Noam Soker | Faculty Exchange / Joint Ph.D. Supervision |
| Prof. Dr. Binil Aryal | Yonsei University, South Korea | Ph.D. / M.Sc. | Dr. Sanjay Paudel | Database / Software / Student Exchange / Publication |
| Prof. Dr. Binil Aryal | IUCAA, Pune, India | Ph.D. / M.Sc. | Dr. Kanak Shah Dr. Tek Pd Adhikari | Database / Software / Student Exchange / Publication / Joint Supervision |
| Prof. Dr. Raju Khanal | Baba Saheb Bhimrao Ambedkar Bihar University, Muzaffarpur, India | Ph.D. | Dr. Bijoyendra N and Dr. Lalan K Jha | Development of experimental set-up for arc discharge And Computational training for cross section for ionization and electron capture process |

| | | | | |
|-----------------------------------|---|------------------------------|--|---|
| Prof. Dr. Raju Khanal | School of Advanced Sciences, VIT University Chennai Campus, India | Ph.D. and M.Sc. dissertation | Prof. Arun Kumar Sarma and Dr. Bornali Sarma | Assembly of dedicated power supplies, exchange of faculties / students, and proposal development |
| Prof. Dr. Raju Khanal | Department of Physics, School of Science, Kathmandu University, Dhulikhel, Nepal | Ph.D. and M.Sc. | Prof. Deepak Prasad Subedi | Experimental set-up and for comparative diagnosis of plasma And development of simulation model for dielectric barrier discharge system |
| Prof. Dr. Raju Khanal | Institute for Theoretical Physics, Innsbruck University, Austria | Research collaboration | Prof. Siegbert Kuhn | Problem identification / sharing, mutual visits |
| Prof. Dr. Narayan Prasad Adhikari | The Abdus Salam ICTP, Trieste, Italy | Ph.D. | Prof. Sandro Scandolo/Prof. Hassanali Ali | Travel of students, scientific discussion etc. |
| Prof. Dr. Narayan Prasad Adhikari | Florida international University USA | Ph.D. | Prof. Prem Chapagain | Travel of students, scientific discussion etc. |
| Prof. Dr. Narayan Prasad Adhikari | Jawaharlal Nehru Center for Adv. Sci. Research, Bangalore, India | Ph.D. | Prof. Shobhana Narasimhan | Network project of ICTP |
| Prof. Dr. Narayan Prasad Adhikari | Indian Institute of Technology, Kharagpur | Ph.D. | Prof. Arghya Taraphder | Network project of ICTP |
| Prof. Dr. Narayan Prasad Adhikari | Indian Institute of Scientific Education and Research, Pune | Ph.D. | Prof. Prasenjit Ghosh | Network project of ICTP |
| Prof. Dr. Narayan Prasad Adhikari | Uppsala University Sweden | Ph.D./M.Sc. | Prof. Biplab Sanyal | Swedish Govt. Project |
| Prof. Dr. Narayan Prasad Adhikari | IIT Kanpur | Ph.D. | Prof. Nisanth Nair | On-going |
| Dr. Gopi Chandra Kaphle | ABV, IITM, Gwalior, India | Ph. D. | Prof. Dr. Anurag Shrivastava | Student exchange and lab facility |
| Dr. Gopi Chandra Kaphle | IFW, Dresden e.v. Dresden, Germany | Ph. D. | PD. Dr. Manuel Richer | Student exchange and lab facility |
| Dr. Gopi Chandra Kaphle | Baylor University, Walo, USA | M. Sc. Project Ph. D. | Prof. Walter Wilcox | Student exchange and lab facility |
| Dr. Gopi Chandra Kaphle | The Ames Laboratory Iowa State Univ., USA | Ph. D. | Dr. Durga Paudyal, | Student exchange and lab facility |
| Dr. Gopi Chandra Kaphle | Baylor University, Walo, USA | M.Sc. Project Ph. D. | Dr. Suman Baral (Lab member) | Student exchange and lab facility |
| Dr. Madhav Prasad Ghimire | Leibniz Institute for Solid State and Materials Research Dresden - IFW Dresden, Germany | Ph.D. & M. Sc. | Prof. Jeroen van den Brink | German Research Foundation (DFG), Germany (PI: Prof. Jeroen van den Brink) [server, softwares, etc.] |
| Dr. Madhav Prasad Ghimire | Leibniz Institute for Solid State and Materials Research Dresden - IFW Dresden, Germany | Ph.D. & M. Sc. | PD Dr. Manuel Richter | Alexander von Humboldt Foundation, Germany (PI: PD Dr. Manuel Richter & Assoc. Prof. Madhav P. Ghimire) [softwares, server, equipments, etc.] |
| Dr. Madhav Prasad Ghimire | Massachusetts Institute of Technology, USA | Ph.D. & M. Sc. | Prof. Joseph G. Checkelskey | A part of STC Center for Integrated Quantum Materials, National Science Foundation, USA (PI: Prof. J. G. Checkelskey) [exchange visits, publication fees, etc.] |
| Dr. Madhav Prasad Ghimire | University of Texas at El Paso, USA | Ph.D. & M. Sc | Prof. H. S. Nair | UTEP start-ups grant, USA & HERP, Tribhuvan University (PI: Asst. Prof. H. S. Nair & Assoc. Prof. M. P. Ghimire) [experimental + supervision, equipments, etc.] |
| Dr. Madhav Prasad Ghimire | National Institute for Materials Science, Japan | Ph.D. | Prof. Kazunari Yamaura | KAKENHI Grant, Japan [exchange, visits, publication fees, etc.] (PI: Prof. Yamaura) |
| Dr. Madhav Prasad Ghimire | Indian Institute of Technology, India | M. Sc. | Prof. H. C. Kandpal | DST grant, India [exchange, visits, etc] (PI: Assoc. Prof. Dr. Madhav Prasad Ghimire) |

| | | | | |
|---------------------------|---|------------------|----------------------------------|---|
| Dr. Madhav Prasad Ghimire | Mizoram University, India | M. Sc. | Prof. R. K. Thapa & Dibya P. Rai | Supervision |
| Dr. Madhav Prasad Ghimire | San Jose State University, USA | M. Sc. | Dr. Santosh K. C. | |
| Dr. Madhav Prasad Ghimire | Kathmandu Univ, Nepal | M. Sc. | Dr. Rajendra Adhikari | |
| Dr. Madhav Prasad Ghimire | National Cheng Kung University, Taiwan | M. Sc. | Prof. Ching-Hao Chang | |
| Dr. Madhav Prasad Ghimire | The State University of New Jersey, USA | M. Sc. | Dr. Sobhit Singh | |
| Dr. Nurapati Pantha | Canadian Nuclear Laboratory, Ontario, CANADA | M. Sc. | Dr. Thaneshwor Kaloni | Scientific discussion |
| Dr. Sanju Shrestha | Dept. of ETCE, Jadavpur Univ., Kolkata | Guest researcher | Prof. C. K. Sarkar | NSA-JRD-Tata Fellowship, INSA, New Delhi, India |
| Dr. Sanju Shrestha | Thin Film Laboratory, Department of Physics IIT, Delhi New Delhi (IITD) | Guest researcher | Prof. B. R. Mehta | Visiting Scholar in Central of Excellencies, The Third World Academy of Sciences (TWAS), Trieste, Italy |
| Dr. Sanju Shrestha | Jamia Millia Islamia University, New Delhi | Guest researcher | Dr. Manika Khanuja | Ministry of MoEST, Government of Nepal |
| Dr. Sanju Shrestha | New Jersey Institute of Technology, USA | Postdoc | Prof. Durga madhab Misra | FULBRIGHT VISITING SCHOLAR PROGRAM FOR POST-DOCTORAL RESEARCHERS, USEF-Nepal |

2. Research Grant

| 1 | Prof. Dr. Narayan Pd Adhikari | Collaborative Research Grant | 20,00000/- | UGC |
|---|-------------------------------|-------------------------------|------------|----------|
| 2 | Prof. Dr. Ram Prasad Regmi | Collaborative Research Grant | 20,00000/- | UGC |
| 3 | Prof. Dr. Ram Prasad Regmi | Fast Track Research Incentive | 10,00000/- | HERP, TU |
| 4 | Prof. Dr. Madhav Pd Ghimire | Fast Track Research Incentive | 10,00000/- | HERP, TU |
| 5 | Dr. Gopi Chandra Kaphle | Faculty Grant | 4,00000/- | UGC |
| 6 | Dr. Ajay Kumar Jha | Faculty Grant | 4,00000/- | UGC |
| 7 | Prof. Dr. Binil Aryal | Research Infrastructure Grant | 4,00000/- | TU |

* Seventeen Ph.D. students have grant from UGC and 5 students have grant from NAST.

* One each PhD students have grant from ICIMOD and UGC, India.

* Twenty Three M.Sc. students have grants from UGC for their masters' dissertations 9 have grants from BPKM-DB for masters' dissertation. Thirty seven students have grant from Municipality for their term paper and projects.

3. Conference / workshop

- International Conference on Nanoscience and High Energy Physics(ICNHEP-2019) (4-6 Feb, 2019). The main aim of the program was to bring together leading academicians, scientists, and researchers to exchange and share their experiences and research results related to Nano materials, computational Physics and magnetic materials and applications.
- Southampton, (UK) – IUCAA (Inter University Centre for Astronomy & Astrophysics, India) training for Astronomical Research and Education (SITARE)Workshop, Nepal (13-15 June, 2018)
- Winter Lecture Series in Natural Science: Technique and Philosophy in Physical Sciences (10-12 Feb., 2019)
- Central Department of Physics Wins Geo-Science Exhibition (11-13 Feb, 2019)
- CDP celebrates 'Astrofest Nepal 2018' (22 April, 2018) Every year the astronomers celebrate an event, the global astronomy month (GAM). The GAM invites everyone from all countries to participate in this event and encourages to take part in night sky party, Astro-poetry, Astro-art and Astro-poster contests. For the first time in Nepal, the Central Department of physics hosted Global Astronomy Month (GAM) in presence of renowned professors and professionals interested in Astronomy
- Workshop on Computational Materials Engineering and Scientific writing (CMESW-2018/ 30 December 2018)
- Confident, Successful and Clean CDP (5 April, 2018)

- Central Department of Physics with the collaboration with Central Department of Chemistry, TU organized the TU Futsal Competition -2075 (20-22 Asad, 2075)
 - Welcome & Farewell Program (27 Dec 2018)
4. Talk Program at CDP
- Dr. Laxman Mainali, Department of Biophysics, Medical College of Wisconsin, Milwaukee, WI, USA delivered a talk entitled '*Membrane Cholesterol in Eye Lens Health*' on 22 Jan 2019.
 - Dr. D. P. Rai, Physical Sciences Research Center, Pachhunga University College, India delivered a talk entitled '*Theoretical Investigation of New Class of Thermoelectric Materials among the Family of half-Heusler compounds*' on 26 Dec 2018.
 - Dr. Michael S. Kirk, Research Scientist, Heliophysics Science Division, Goddard Space Flight Center, NASA, USA, delivered a talk entitled '*Measurements of Polar Coronal Holes*' on 14 Nov 2018.
 - Dr. Krishna Neupane, Dept of Physics, University of Alberta, Canada delivered a talk entitled '*Direct observation and characterization of transition paths during the folding of Biomolecules*' on 25 October 2018.
 - Dr. Fernando Quevedo, Director of International Centre for Theoretical Physics (ICTP) visited our department on 14 October, delivered a speech on '*Importance of fundamental science for the development*'.
 - Dr. Amod Pokhrel, Lecturer, Department of Environmental Health Sciences, University of California, Berkeley delivered a talk entitled '*Maximizing the environment and health benefits of clean air in urban Nepal*' on 16 August 2018.
 - Dr Rajan Chhetri, Postdoctoral Researcher, International Centre for Radio Astronomy Research (ICRAR), Curtin University, Australia & also at ARC Centre of Excellence for All-sky Astrophysics (CAASTRO) delivered a talk on '*Studying low frequency sub-arcsecond radio source populations with the Murchison Widefield Array*' on 21 March 2018.
 - Dr. Madhav Prasad Ghimire, Post Doc Scholar, IFW Dresden, Germany delivered a talk on '*Chemical gating of a weak topological insulator & cleavage energies of layered materials*' on 29 April 2018.
 - Prof. Dr. Kazuo SHIOKAWA, Institute for Space-Earth Environmental Research (ISEE), Nagoya University, Japan, delivered a talk entitled '*Introduction to the Solar-Terrestrial Physics*' on 3 May 2018.
 - Dr. Bandan Chakraborty of Plant Developmental Biology, Wageningen University, The Netherlands, delivered a talk entitled '*Microtubule-based mechanism for cell division orientation in plant embryogenesis*' on 4 September 2018.
 - Dr. Chetan Dhital, Post Doctorate Fellow, Louisiana State University, USA delivered a talk entitled '*Controlling Topological spin Textures in Metallic Magnets*' on 6 July 2018.
 - Dr. Amba Datt Pant, Post Doc Scholar, College of Science, Ibaraki University, Japan & Muon Science Laboratory, Institute of Materials Structure Science, High Energy Accelerator Research Organization (KEK), Ibaraki, Japan, delivered a talk on '*Ultra slow Muon and its Applications*' on 7 May 2018.
 - Dr. Nirmal J. Ghimire, Director's Postdoctoral Fellow, Materials Science Division, Argonne National Laboratory, USA delivered a talk entitled '*A Materials-Driven Approach to Condensed Matter Physics*' on 10 July 2018.
 - Prajwal Niraula, Ph D Candidate, MIT delivered a talk on '*Planet Hunting and Characterization with K2*' on 13 July 2018.
 - Ramesh Mainali, Ph.D. Candidate, Steward Observatory, University of Arizona, USA, delivered a talk entitled '*Spectroscopy of galaxies in the first billion years of cosmic time*' on 24 May 2018.
 - Prof. Dr. Jaichan Lee, School of Advanced Materials Science and Engineering, Sungkyunkwan University, Suwon, Korea, delivered a talk entitled '*Defects in Functional Oxides*' on 25 April 2018.
 - Dr. Hem Raj Sharma, The University of Liverpool, the United Kingdom delivered a talk entitled '*Quasicrystals with Crystallographic Rotational Symmetry*' on 30 March 2018

Recent Activities of Central Department of Statistics

1. Workshop/Talk Program by Professors from abroad universities in 2019
 - Kazumi Asak, Professor emeritus, Hitotsubashi University, Tokyo, Japan & Professor of Economics, Rissho University, Tokyo, Japan. 12 February, 2019.
 - S. K. Upadhyay, Department of Statistics, Banaras Hindu University, Varanasi, India. 17 February, 2019
 - Arvind Pandey, Former Director, ICMR, National Institute of Medical Statistics, New Delhi, India. 11 July, 2019
 - Bhaswati Ganguli, Professor, Department of Statistics, University of Calcutta. Topic: Determination of functional form of the log hazard ratio for a Cox model, 4 April, 2019.
 - Dr. Sayanti Jana, University of Calcutta, Topic: Application of the multiple testing procedures for assessing multiple co-morbidities in large health-administrative data on 4 April, 2019.
2. Publication
 - Nepalese Journal of Statistics, A peer reviewed annually published journal, Vol. 3, Indexed in NepJOL with Two Star status and Google Scholar, September 2019. URL: <https://www.nepjol.info/index.php/NJS>

Recent Activities of Central Department of Zoology

1. Participation in Conference (Indra Prasad subedi)_Oral presentation entitled “An Updated Checklist of Nepalese Ants” on World Ant Forum (12th ANeT) Organized by International Network for Ant Research in Asia (ANeT) and Kasetsart University, Bangkok, Thailand, 11-15 November, 2019.
2. **Foreign Scientists Visited, delivered lectures and participated in interaction at the Central Department of Zoology during 2019.**
 - Dr. Dionisios Youlatos, Aristotle University of Thessaloniki, School of Biology, Department of Zoology, Thessaloniki, Greece.
 - Dr. Leak Geheber, Department of Chemistry, Ben Gurion University of the Negev, Israel.
 - Dr. Tarekul Islam, Institute of Water and Flood Management, Bangladesh University of Engineering and Technology, Palasi, Dhaka, Bangladesh.
 - Prof. KRS Saboniva, Vice Chancellor, Mizoram University, India
 - Dr. Dusan Jelic. Lecture title “Ecological research of Amphibian and Reptiles in Croatia and Nepal
 - Prof. Ming Chen Su, Vice Dean of International Affairs, South Korea
 - Punnet Kumar Gupta, Division of Nematology, IARC, India
 - Achyut Prasad Sharma, Department of Microbiology
 - Woo Sik Chung, Dean of International and External Cooperation, Gyeongsang National University, South Korea
 - Steve Lockett, Mahaseer Trus
 - Dr. Bhupendra Kumar, BHU, India; Guest Researcher under NAST- INSA Bilateral Exchange Program (May-July)
 - Sany Georing Lee, Gyeong Sang National University, South Korea
 - Dae Young Jung, Chengdeung National University, South Korea, 2019/01/21
 - C. Kasorndorubuch, Thailand 2019/07/1
 - Zhibin Zhang, Institute of Zoology, Chinese Academy of Science, China. 2019/07/07
 - Matt Hawett, University of Florida, USA
 - Prof. S. Sithandnathan, India, 2019/08/
 - Dr. Bhupendra Kumar 2019/08/13
 - Dr. Weihong Zi

Recent Activities of School of Mathematical Science

1. Two Days Research Based Workshop: 2076/08/16-2076/08/17
2. School of Mathematical Sciences. in collaboration with International Actuarial (IAA) organized a two days research based Workshop on 'Pricing and Reserving in life Insurance' on December 2-3, 2019 at Solti hotel.

Recent Activities of Post Graduate Campus Biratnagar

1. Seminar/Conference/Talk-programs:
 - Co-organiser of National Conference entitled “National Conference on Integrating Biological Resources for Prosperity” on February 6-7, 2020.
 - Seminar “Scientific Article Writing in Mass Media” on 2076/11/02 (Presenter: Ram Chandra Adhikari, Lecturer, Department of Zoology, Post Graduate Campus Biratnagar
 - Seminar on topic “Distribution of Alien Species in Nepal” presented by Dr. Mohan Siwakoti, Professor and former Head of Central Department of Botany on 2075/10/24.
 - Talk program entitled “Enhancing presentation skill” by Kul Prasad Limbu, Associate Professor, Department of Zoology on 2075/05/31.
2. MOU/Agreement:
 - Agreement with Education Development Directorate, Ministry of Social Development, Province No. 1 for the development of “Information and communications technology (ICT)” in Campus.
 - Agreement with Ministry of Social Development, Province 1 for the development of Botanical Garden of the campus.

- Agreement with ministry of Industry Tourism Forest and Environment, Province 1 for Research support fund for M. Sc. students.
 - Agreement with ministry of Industry Tourism Forest and Environment, Province 1 for the initiation of development of Regional Herbarium and Museum in the Campus.
 - MOU with Program Directorate T. U. for the development of laboratories.
 - MOU with Higher Education Reform Project Execution Office, Tribhuvan University for the Grant to support semester system in the campus.
3. REPORT SUBMITTED BY Ram Chandra Adhikari.
- ETHNOBOTANY AND ETHNOZOOLOGY OF PROVINCE 1, SUBMITTED TO MINISTRY OF SOCIAL DEVELOPMENT.2019.
 - MASTER PLAN OF WETLAND CONSERVATION OF BELBARI MUNICIPALITY MORANG .2019.
 - STUDY OF TRADITIONAL HEALERS IN PROVINCE 1, SUBMITTED TO MINISTRY OF SOCIAL DEVELOPMENT.2019.
 - PAPER PRESENTATION BY Ram Chandra Adhikari:
 - *Environmental Issues and Challenges in Province 1*. On the forum of Ministry of Forest and Environment, Nepal government and Department of Environmental Science, Tribhuvan University and Purwanchal University.-2019
 - *Wetlands: Importance, Challenges and Conservation* . On the forum of Forest Division Office Morang and the Networks of Wetland Conservation Committee Network Morang, Nepal.2019
 - *Scientific Article Writing in Mass Media*: On the forum of Nepal Biological Society and Post Graduate Campus, Biratnagar 2019
 - *General Knowledge, Conservation of Snake and preventive measures of Snake Bite*. On the Forum of Ministry of Internal Affairs, Province 1, In different places of Province 1.2019

Prithivi Narayan Campus, Pokhara

Memorandum of Understanding with Other Institutions

- Muroran Institute of Technology, Japan
- Hefei University, China
- Wakkanai Hokusei Gakuen University, Japan
- Andalas University, Indonesia
- Shri Ram College of Commerce, University of Delhi, India

Recent Activities of Natural History Museum

1. In collaboration with Kathmandu Metropolitan City Ward No.1, the Natural Science Museum visited and observed by mayors of eight nations including the United States, China, Japan, Korea, India on September 29, 2019.
2. Seminar and Workshop
 - Dr. Ishan Gautam "Challenges in Medical Entomological Studies in Nepal: Research Trends and Current Problems" Presented on workshop of "Challenges in Vector Surveillance and Control" on March 25-30 2019 organized by Institute of Tropical Medicine (ITM) Belgium .
 - Rajman Maharjan attended International Cultural Exchange Program June-July 2019 organized by Asian Culture Center, South Korea, Gyanju.
 - The Natural History Museum, in collaboration with Bookbus, Kathmandu, provided three-week training on wildlife conservation to science teachers in different schools on September 29.
 - Dr. Ishan Gautam trained on wildlife crime control to the police officers of seven provinces, organized by the Police Headquarter on October 29 at the Natural History Museum.
 - Dr. Ganesh Bahadur Thapa & Dr. Ishan Gautam "Task and role of Natural History Museum as the scientific authority (fauna) for CITES in Nepal" Presented on seminar on November 21-22 2019 organized by International Council of Museums/ICOM.
3. MoU
 - MoU with Nepal Government, Nepal Health Research Council, Ramsar Path Kathmandu for EntoCAP Project on 2019
 - MoU with Central Department of Biotechnology, T.U. for Herpeto Fauna of Nepal on August 2019.

Publications of the teachers of IoST in the Year 2019

Biotechnology

- Shrestha, M., Khatri-Chhetri, M., Poudel, R., Maharjan, J., Dumre, SP., Manandhar, K., Pandey, B., Pun, S. & Pandey, K. (2019). Molecular evidence supports the expansion of visceral leishmaniasis towards non- program districts of Nepal. *BMC Infectious Diseases*. 19. 10.1186/s12879-019-4083-3. (Peer-reviewed journal)
- Timilsena, S. Ardsiri, S., Lerdwana, S., Manandhar, K. D., Pattanapanyasat, K. & Nolsri, E. (2019). Accuracy of lymphocyte counts from UniCel DxH 800 in β -thalassemia/HbE patients having various numbers of nucleated red blood cells. *Asian Pac J Allergy Immunol*. doi: 10.12932/AP-170119-0472 (H index, Impact factor 1.747)
- Bastola, A., Shrestha, M., Lamsal, M., Shrestha, S., Prajapati, S., Adhikari, A., Gupta, B. Hide, M., Devkota, L. Chalise, B., Pandey, K. & Manandhar, K. (2019). A case of high altitude cutaneous leishmaniasis in a non-endemic region in Nepal. *Parasitology International*. 74. 101991. 10.1016/j.parint.2019.101991. (Impact factor 2.017, SCI Rank 0.849)
- Saud, B., Malla, R. & Shrestha, K. (2019). Stem Cell Therapy in Nepal: Challenges & Opportunities. *Hosa Journal of Stem Cells Research, Development & Therapy*. DOI: 10.24966/SRDT-2060/100022. (Indexed journal)
- Saud, B., Malla, R. & Shrestha, K. (2019).. A Review on the Effect of Plant Extract on Mesenchymal Stem Cell Proliferation & Differentiation. doi: 10.1155/2019/7513404, (Impact factor- 4)
- Joshi, J., Dhungana, P., Prajapati, B., Maharjan, R., Poudyal, P., Yadav, Mainali, M. M., Yadav, A. P., Bhattarai, T. & Sreerama, L. (2019). [Enhancement of ethanol production in electrochemical cell by *Saccharomyces cerevisiae* \(CDBT2\) & *Wickerhamomyces anomalus* \(CDBT7\)](#). *Front. Energy Res. - Bioenergy & Biofuels*. 7:70. (Q2 journal)
- Yadav, M., Bista, G., Maharjan, R., Poudyal, P., Mainali, M., Sreerama, L. & Joshi, J. (2019). Secretory laccase from *Pestalotiopsis* species CDBT-F-G1 fungal strain isolated from high altitude: Optimization of its production & characterization. *Appl. Sci*. 9: 340. (Q2 journal)
- Kelsey, K. m., Zigo, M., Thompson, W. E., Kerns, K., Mandhar, G., Sutovsky, M., Sutovsky, P. (2019). Reciprocal surface expression of arylsulfatase A & ubiquitin in normal & defective mammalian spermatozoa. *Cell & Tissue Research*. DOI: 10,1007/s00441-019-03144-1. (Impact factor- 3.043)

Botany

- Bajracharya, I. & Baniya, C. B. (2019). Vascular plant colonization pattern along the Gangapurna glacier foreland, Manang, Nepal. In: *Proceeding of the International (SAARC) Youth Scientific Conference (IYSC) on Science & Technology for Prosperity, Kathmandu, Nepal*. pp.146-151.
- Balami, S., Thapa, L.B. & Jha, S.K. (2019). Effects of invasive *Ageratina adenophora* on mycelial growth of some important soil fungi. *Songklanakar Journal of Science & Technology*, 41(2): 465-470.
- Bhattarai, P.D. & Aryal, H.A.. (2019). Effect of seed-borne pathogens against maize seedlings in-vivo condition *International Journal of Ayurvedic & Herbal Medicine*, 9(2): 3477-3485.
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- Chalise P., Paneru, Y.R. & Ghimire, S.K. (2019). Floristic diversity of vascular plants in Gyasumbdo valley, lower Manang, Central Nepal. *Journal of Plant Resources*, 17: 42-57.
- Chapagain D.J., Meilby, H. & Ghimire, S.K. (2019). Plant density & life history traits of *Aconitum spicatum* in North-central Nepal: Effects of elevation & anthropogenic disturbances. *Peer J*. 7: e7574 <http://doi.org/10.7717/peerj.7574>.
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Chemistry

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