

DBT STAR COLLEGE SCHEME
PROGRESS REPORT
2018-2019

1. Name of the College
Acharya Narendra Dev College

2. Name of Departments supported
Biomedical Science, Botany, Chemistry, Computer Science, Electronics, Physics, Zoology

Name of Coordinator, designation, address, phone nos.

S. No.	Parameter	Sub-Parameter
1	Name of Department: Biomedical Science Name of Contact Person	Name of Degree Course: B.Sc. (H) Biomedical Sciences Date of start of Course 1999 Dr. Archana Pandey Designation: Associate Professor Complete Address: Department of Biomedical Science Phone: 9811525520 Email: archanapandey@andc.du.ac.in
2	Name of Department: Botany Name of Contact Person	Name of Degree Course: B.Sc. (H) Botany Date of start of Course: 1994 Dr. Rashmi Sharma Designation: Assistant Professor Complete Address: Department of Botany Phone: 9013814002 Email: rashmisharma@andc.du.ac.in
3	Name of Department: Chemistry Name of Contact Person	Name of Degree Course: B.Sc. (H) Chemistry Date of start of Course: 1992 Dr. Seema Gupta Designation: Associate Professor Complete Address: Department of Chemistry Phone: 9811357733 Email: seemagupta@andc.du.ac.in
4	Name of Department: Computer Science Name of Contact Person	Name of Degree Course: B.Sc. (H) Computer Science Date of start of Course: 1992 Dr. Harita Ahuja Designation: Assistant Professor Complete Address: Department of Computer Science Phone: 9818511338 Email: haritaahuja@andc.du.ac.in

5	Name of Department: Electronics Name of Contact Person	Name of Degree Course: B.Sc. (H) Electronics Date of start of Course:1991 Dr. Ravneet Kaur Designation: Assistant Professor Complete Address: Department of Electronics Phone: 9810836367 Email: ravneetkaur@andc.du.ac.in
6	Name of Department: Physics Name of Contact Person	Name of Degree Course: B.Sc. (H) Physics Date of start of Course: 1992 Dr. Arijit Chowdhuri Designation: Assistant Professor Complete Address: Department of Physics Phone: 9811124002 Email: arijitchowdhuri@andc.du.ac.in
7	Name of Department: Zoology Name of Contact Person	Name of Degree Course: B. Sc. (H) Zoology Date of start of Course: 1994 Dr. Seema Makhija Designation: Associate Professor Complete Address: Department of Zoology Phone :9136563762 Email: seemamakhija@andc.du.ac.in

3. No. of regular faculty with Ph.D. in each participating department:

S. No.	Departments	No. of permanent Faculty
1	Biomedical Science	04
2	Botany	07
3	Chemistry	13
4	Computer Science	06
5	Electronics	06
6	Physics	11
7	Zoology	07

4. List of courses (B.Sc./M.Sc./PG Diploma, certificate etc) run by different participating departments:

S. No.	Name of the Course
1	B. Sc. (Hons.) Biomedical Science
2	B. Sc. (Hons.) Botany
3	B. Sc. (Hons.) Chemistry
4	B. Sc. (Hons.) Computer Science
5	B. Sc. (Hons.) Electronics
6	B. Sc. (Hons.) Physics
7	B. Sc. (Hons.) Zoology
8	B. Sc. (P) Life Sciences
9	B. Sc. (Hons.) Physical Sciences with a. Chemistry b. Computer Science c. Electronics

5. Cut off percentage for admission in different courses in participating departments, positions in university, percentage of result in 2017-18 academic session:

S. No.	Course	GENERAL	SC	ST	OBC	PWD
1	Botany	86.66 (PCB)	67.66 (PCB)	66 (PCB)	80.33 (PCB)	55 (PCB)
2	Biomedical Science	94 (PCB)	72 (PCB)	74 (PCB)	86.33 (PCB)	55 (PCB)
3	Chemistry	91 (PCM)	77.66 (PCM)	56 (PCM)	89.33 (PCM)	56 (PCM)
4	Computer Science	91.5 (M+L+2E)	65 (M+L+2E)	56 (M+L+2E)	84 (M+L+2E)	70 (M+L+2E)
5	Electronics	87 (PCM)	76 (PCM)	56 (PCM)	81 (PCM)	56 (PCM)
6	Physics	93.66 (PCM)	80 (PCM)	70 (PCM)	89 (PCM)	56 (PCM)
7	Zoology	87.33 (PCB)	79 (PCB)	71.66 (PCB)	82 (PCB)	56 (PCB)

Merit Positions in University of Delhi (2016 - 2017)

S. No.	Name	Course	Year	Rank in University
1.	Ayushi Raturi	B.Sc. (H) Zoology	I	II

Merit Positions in University of Delhi South Campus (2016 - 2017)

S. No.	Name	Course	Year	Rank in UDSC
1.	Mudita Sanjive	B.Sc. (H) Computer Science	I	III
2.	Shivam Agarwal	B.Sc. (H) Computer Science	III	II
3.	Harshita Pathak	B.Sc. Life Sciences	III	III
4.	Surya Pratap Singh	B.Sc. Physical Sciences	I	II

5.	Monal	B.Sc. Physical Sciences	II	II
6.	Vivek Kumar	B.Sc. Physical Sciences	II	III
7.	Ayushi Raturi	B.Sc. (H) Zoology	I	II
8.	Harveen Kaur	B.Sc. (H) Zoology	II	II
9.	Ankit Pant	B.Tech. Computer Science	III	III

6. List of projects undertaken by students, industrial visits by students, summer training in last one year

Projects

Biomedical Science

S. No.	Project Title
1	Knowledge, Attitude and Practice (KAP) study on the awareness of Vitamin D deficiency in the Indian Population (with a special emphasis on people in the Age Group of 18-22): A Pilot Study
2	Computational analysis of immunogenic factors responsible for the growth of tumor
3	Green Synthesis, Characterization and Biological evaluation of metallic nanoparticles
4	Nanoparticle synthesis and their physicochemical characterization
5	Functional Analysis and Characterization of specific Mycobacteriophage Genes
6	Column chromatography assisted fractionation of active constituents of aegle marmelos leaves and their antibacterial activity

Botany

S. No.	Project Title
1	Survey of plants for presence of trypsin modulators.
2	Isolation, identification and characterisation of fungal isolates for their lignocellulolytic potential.

Chemistry

S. No.	Project Title
1	Biological nutrient removal (BNR) of waste water pollutants using Micro Organisms
2	Effect of Industrial Chemicals in the four important rivers and its tributaries of India
3	Application of magnetic chitin composites for the removal of Toxic Metal and Organic Dyes from Industrial Effluents.
4	Synthesis, Characterization of various metal sulfide nanoparticles with different precursors and stabilizing agents and their applications

Computer Science

S. No.	Project Title
1	ANDC Career Counseling and Placement Cell (Mentor(s): Dr. Sharanjit Kaur, Dr. Harita Ahuja)
2	Online Ranking of Educational Web-Sites (Mentor(s): Dr. Sharanjit Kaur)
3	Automatic assignment evaluations (Mentor(s): Dr. Sharanjit Kaur)

Electronics

S. No.	Project Title
1	Smart Dustbin (Sensobin)

2	Solar Piezoelectric charger
3	Assistive Gadgets for Visually Impaired Students a) Light to Sound Converter/ Optocoupler; b) Color Detector

Physics

S. No.	Project Title
1	Designing a working PROSTHETIC LEG using advanced Arduino® applications
2	Using optical technique of surface plasmon resonance (SPR) for detection
3	Environmental Monitoring
4	Bio-sensing using Quartz Crystal Microbalance
5	Quartz crystal microbalance and environmental science
6	Effect of Heavy Metals and Ethidium Bromide on DNA.
7	Micro-controller for Environmental applications
8	Market research on commercial Gas sensors and Electronic Nose in India and abroad

Zoology

S. No.	Project Title
1	Studies on the alteration in the oviposition potential and fertility of insects exposed to various insecticides
2	Micro biological analysis of leach ate collected from Okhla dumping site, Delhi
3	Analysis of water quality for Aquaculture: Dissolved oxygen, ammonia, nitrite, nitrate, pH, conductivity, turbidity, etc.
4	Protein profiling of haemolymph of <i>Helicoverpa armijera</i>

Industrial/Educational Visits

A trip of I Year students was organized to Department of Zoology, DU (under the aegis of DBT STAR college scheme) on March 7, 2019. Students observed *Drosophila* cultures, life cycle stages and mutant flies.

A trip of II year students was organized to Finger Print Department, Crime Branch, New Delhi on April 9, 2019. Students learned about the automated finger print analysis through AFIS.

Indian Agricultural Research Institute (IARI), Delhi Students of 2nd year B.Sc. (H) Botany were taken on educational trip to IARI on October 3, 2018. The students were introduced to the application and scope of biofertilizers in India.

CSIR-IHBT, and CSK-HPKV, Palampur, Himachal Pradesh: From March 27-31, 2019, 3rd year students of B.Sc. (H) Botany went for a trip Palampur, HP to visit CSIR-IHBT and CSK-HPKV.

Curriculum based trip to Jaisalmer was conducted for 2nd year B.Sc. (H) Botany students to Jaisalmer from 18-22 February 2019. Students visited Desert National Park and Fossil Museum.

B.Sc.(H) Computer Science and B.Sc. (Physical Sc. with Computer Science) were taken on educational trip to ASHOKA (Super Computing Facility) and Data Center-ICAR at Indian Agricultural Statistics Research Institute (IASRI) on 11th October, 2018.

Inter University Accelerator Centre (formerly Nuclear Science Centre), the Department of Physics planned a visit for its students to Inter University Accelerator Centre (IUAC) located at Vasant Kunj in two trips of 10 students each on 5th & 28th February 2019..

Undergraduate students of the Department of Physics were sent to INSA to attend a one-day seminar on the occasion of conferment of Meghnad Saha Medal (2018) Award,

Undergraduate students of the Physics Department attended the investiture ceremony at Vigyan Bhawan, Maulana Azad Marg, New Delhi wherein Council of Scientific & Industrial Research (CSIR), Govt. of India announced Winners of the most Coveted and Prestigious ‘Shanti Swarup Bhatnagar’ awards.

Students of Final year B.Sc. (H) Physics were taken to an educational trip to EMDL, Department of Physics & Astrophysics, University of Delhi and introduced frontier areas of research in experimental material science.

Students of Final year B.Sc. (H) Physics and B.Sc. Physical Science (Electronics) were taken on an educational trip to Microelectronic Devices Fabrication Laboratory based in University of Delhi, Delhi. IISF (Indian International Science Festival), 2018 @ Lucknow

The Indian International Science Festival which was organised by the Ministry of Science and Technology, Ministry of Earth Sciences in association with Vijnana Bharati at Indra Gandhi Pratishtan, Lucknow; held from 5th to 8th October, 2018.

THISTI Visit Four students were given the opportunity to visit the Translational Health Sciences and Technology Institute and work under their scientists for a period of one week from 20th of December 2018 to 28th of December 2018. They worked in the Pediatric Biology Centre (PBC) of THISTI.

Animal Cell Culture Laboratory Visit

7. Training received by faculty from participating departments

10-day workshop on ‘Blended Learning and University functioning’ organised by Guru Angad Dev Teaching Learning Centre, SGTB Khalsa College, University of Delhi from 8-20 December, 2018

Department of Computer Science, Acharya Narendra Dev college, in collaboration with ICT Academy under star scheme 2018-19, organised a two-day Faculty Development Program on “Emotional Intelligence (EI)”. In this Faculty Development Program, the participants got to know about the importance of Emotional Intelligence (EI) over Intelligence Quotient (IQ). The talk emphasized on awareness of self-emotion and social emotion (other people). It narrows your ability to think clearly, function effectively, and enjoy life. There was the participation from around 30 faculty members from various Universities.

8. List of exhibitions/seminars/training courses conducted by the college

Biomedical Science

S. No.	Exhibition/Seminar/Training Course conducted	Duration
1	Cathexis'19-Annual departmental festival of Department of Biomedical Science (Theme: Demystifying myths surrounding human health)	One Day (January 31, 2019)
2	Workshop on "FOLDSCOPE" microscope	One Day (February 2, 2019)
3	Learning R-programming Skills and Applications to Proteomics	Two Day (March 15-16, 2019)
4	"Fraud, Forgery, and Forensics: Examining Handwriting, Fingerprints and Security Documents" (April 3, 2019)	One Day (April 3, 2019)

Botany

S. No.	Exhibition/Seminar/Training Course conducted	Duration
1	Workshops on Microbial Techniques for college students	Three-Days 4-6 April, 2018

Chemistry

S. No.	Exhibition/Seminar/Training Course conducted	Duration
1	Workshop on Systematic Use of Digital Information in Academic Activities'	One Day held on November 10, 2017
2	Symposium on Safety Measures and Laboratory Ethics'	Two-day symposium held on February 21-22, 2018

Computer Science

S. No.	Exhibition/Seminar/Training Course conducted	Duration
1	Three day workshop on Linux and FOSS	28 Aug to 4 th Sept 2018
2	One day Workshop on Awareness on Digital India Initiative	18 th Sept 2018

Electronics

S. No.	Exhibition/Seminar/Training Course conducted	Duration
1	SPIE Chapter (Orientation Day)	Three days, 20 th -23 rd July, 2018
2	Induction Workshop (SPIE)	Two days, 25 th -26 th September, 2018

Physics

S. No.	Exhibition/Seminar/Training Course conducted	Duration
1	Paradigm shift in Physics Education through hands-on techniques in Optics	5 & 7 September 2018
2	Nanotechnology – Applications in Optoelectronics and Renewable Energy'	One Day, 31 January 2019

3	Functional Materials for Device Applications'	One Day-15 March 2019
4	Molydenum DiSulphide (MoS₂): a promising 2D Material'	One Day-15 March 2019
5	Multiple-Input and Multiple-Output (MIMO) antennas for 5G and Internet of Things'	One Day-15 March 2019

Zoology

S. No.	Exhibition/Seminar/Training Course conducted	Duration
1	Workshop on Hands on Training of ELISA Technique	5 h
2	Workshop on "Hands-on to Computational biology for (meta)genomic analysis	14 h

9. Name, designation, host institute of guest faculty invited:

Biomedical Science

S. No.	Name of guest faculty	Designation	Host Institute
1	Mr. J. K. Semwal	Course Director, Documents Division	LNJN-NICFS, Ministry of Home Affairs, GoI
2	Dr Anurag Agrawal	Director	IGIB (CSIR)
3	Professor Rajiv Janardhanan	Director	Amity Institute of Public Health
4	Professor Priya Ranjan	Professor	Amity School of Engineering and Technology, Noida,
5	Dr. Surender Nimesh	UGC-Assistant Professor	Department of Biotechnology, Central University of Rajasthan

Botany

S. No.	Name of guest faculty	Designation	Host Institute
1	Dr Rita Singh	Professor	IP University
2	Dr Suman Kundu	Professor	University of Delhi
3	Dr S.B. Babbar	Professor	University of Delhi
4	Dr Ganesh Bagler	Assistant Professor	IIIT, Delhi

Chemistry

S. No.	Name of guest faculty	Designation	Host Institute
1.	Dr. Tariq Ashraf	Deputy Librarian,	South Campus, University of Delhi
2.	Dr. Rita Singh	Professor	Department of Zoology, University of Delhi
3.	Dr. Mrutyunjay Suar	Director	School of Biotechnology, KIIT University, Odisha
4.	Dr. Sanjeev Kumar Sharma	Senior Manager	Health & Safety, Jubilant Generics Limited

5.	Dr. Vijay Pal Singh	Deputy Director	Food Safety and Standards Authority of India (FSSAI)
6.	Dr. Rup Lal	Professor	Department of Zoology, University of Delhi
7.	Dr. Gagan Dhawan	Assistant Professor	ANDC, University of Delhi
8.	Dr. Sanjukta Subudhi	Scientist	TERI
9.	Dr. Kamal Gupta	Associate Professor	Deshbandhu College, University of Delhi

Computer Science

S. No.	Name of Guest Faculty	Designation	Host Institute
1	Dr. Vasudha Bhatnagar	Professor	Department of Computer Science, University of Delhi.
2	Mr. Lovetesh	Academy Member	ICT Academy
3	Mr. Jitender Singh	Sr. Principal Software Engineer	Caastle

Electronics

S. No.	Name of guest faculty	Designation	Host Institute
1	Mr. Rohit Gambhir	Lead in Mobile Application Development QA Infotech	QA Infotech
2	Ms. Anju Kumari	Founder	Crafting Leaders
3	Prof. Mridula Gupta	Professor	Department of Electronics, University of Delhi, South Campus

Physics

S. No.	Name of Resource persons invited	Designation	Host institute
1.	Prof. Hark Hoe Tan	Professor at Department of Electronic Materials Engineering, Research School of Physics and Engineering	Australian National University, Canberra, ACT – 2601, Australia
2.	Prof. Vinay Gupta	Dean, Examinations and Professor, Department of Physics & Astrophysics,	University of Delhi, Delhi, India

3.	Mr. Sujit Kumar	Visiting Scholar	National Device Laboratory, Taiwan and Taiwan Semiconductor Manufacturing Company (TSMC)
4.	Ms. Phalguni Mathur	Research Scholar and Specialist in Microwave Electronics and RADAR Systems	Department of Physics, Bharatiar University, Coimbatore, Tamil Nadu, India
5.	Ms. Anshumala Gupta	Founder Director	Joy of Learning Foundation, Delhi

Zoology

S. No.	Name of guest faculty	Designation	Host Institute
1.	Dr. Shailja Singh	Associate Professor,	Special Center for Molecular Medicine, Jawaharlal Nehru University
2.	Dr. Kamaraju Raghavendra;	Deputy Director	National Institute of Malaria Research, Dwarka
3.	Mr Vikas Sachdev	Technical Officer	All India Institute of Medical Sciences
4.	Dr Utkarsh Sood	Director	PhiXGen Pvt. Ltd
5.	Dr Vipin Gupta	Director	PhiXGen Pvt. Ltd

10. Date of Advisory committee meeting:

11. List of New Practicals/demonstrations introduced in different departments in last one year:

Biomedical Science

1. Hands on practical on various methods of developing finger prints.
2. Study of security features present in Bank notes and CBSE mark sheets.
3. Hands on performance of Polymerase Chain Reaction (Earlier demonstrated)

Botany

Preparation of plant tissue culture medium & Micropropagation

Genomic DNA isolation from *E.coli*

Gel Electrophoresis

Chemistry

Synthesis of Inorganic Pigments: Barium white, Synthetic malachite, Chrome yellow, Chrome Oxide Green, Prussian Blue

Synthesis of Conducting Polymer: Polyaniline

Synthesis of Nanoparticles of metallic sulfides and metallic halides: CdS, MnS, ZnS, AgI

Computer Science

Building GUI for application in python.

Electronics

Measurement of Low Resistance of Kelvin's Double Bridge

To determine the characteristics of resistance transducer-strain gauge (Measurement of strain using half and full bridge)

To determine the characteristics of LVDT

Study of Pulse Code Modulation (PCM), DPCM, Delta Modulation (DM), ADM

Study of ASK, PSK, FSK

Study of FDM

SPARK V Robot (I/O Programming)

SPARK V Robot (Motion Control and Obstacle Detection)

AVR Programming in Assembly and C in AVR Studio

Interfacing of AVR microcontroller with LED, buzzer, seven segment display and LCD

Interfacing of AVR microcontroller with D.C. motor and stepper motor.

Study of various characteristics of EM Wave propagation (in scilab).

Representation and transformation of vectors in Cartesian, cylindrical and spherical coordinates

Plotting of Gradient of a scalar field, Curl and Divergence of vector fields.

Plot of Electric Field and Electric Potential due to various charge distributions.

Plots of magnetic flux density due to current carrying wire

Studying the variation of thermo-emf of a thermocouple.

Frequency measurement using change in resistance using LDR.

To design a RC Phase Shift Oscillator using op-amp for a given specification

Design a counter using D/T/JK Flip-Flop.

Design a shift register and study Serial and Parallel shifting of data.

To Study the I-V Characteristics of the UJT, SCR, FET Configuration.

To study power supply using C filter and Zener diode.

To study Fixed Bias, Voltage divider and Collector-to-Base bias Feedback configuration for transistors

Physics

Holography

Optical Fibres and their properties

Zoology

ELISA-Hands on Workshop

Bioinformatics workshop on Metagenomic analysis - Hands on

Genomic DNA isolation from *E.Coli*.

Polymerase Chain Reaction

Agarose Gel Electrophoresis

Southern Blotting

SDS PAGE

12. Details of equipment purchased in each department from DBT grant. (item, no., cost, date of order placed, purchase/installation)

Botany

S. No.	Name of the Item	Quantity	Cost Per Unit (in INR)	Date of Order Placed	Date of Purchase/ Installation
1	Power pack for Electrophoresis	2	33566	29/03/2019	30/03/2019
	Mini Dual Vertical Electrophoresis	2	24341	29/03/2019	30/03/2019

Computer Science

S. No.	Name of the Item	Quantity	Cost Per Unit (in INR)	Date of Order Placed	Date of Purchase/ Installation
1	Online UPS 10KVA	1	83716.2	26/03/18	28/03/18
				26/03/18	28/03/18
2	LaserJet Printer M202dw	1	14602.5		
3	Projector (Sony)	1	44000	26/03/18	29/03/18
4	Desktop (Model: Dell Optiplex 3050MT, Core i5)	4	194400	26/03/18	31/03/18
5	HDD (Portable, 1TB, Make: Seagate)	6	24540	29/05/18	13/06/18

Electronics

S. No.	Name of the Item	Quantity	Cost Per Unit (in INR)	Date of Order Placed	Date of Purchase/ Installation
1.	PCB Prototyping Machine	01	253700/-	29/03/2019	order placed
2.	Function generator	05	64900	20/12/2017	13/02/2018
3.	Digital Multimeters	08	23600	20/12/2017	13/02/2018
4.	16 QAM modulation and detection	01	35199.4	20/12/2017	13/02/2018

Zoology

S. No.	Name of the Item	Quantity	Cost Per Unit (in INR)	Date of Order Placed	Date of Purchase/ Installation
1.	Weighing Balance (10mg-200g)	2	1,34,378	7/02/2018	28/03/18
2	Weighing Balance (1000 g)	1	19167.00	7/02/2018	28/03/18
3	Digital pH Meter	1	14160.00	7/02/2018	28/03/18
4	Vertical Electrophoresis Apparatus	2	14160.00	7/02/2018	28/03/18
	Cold Micro-centrifuge	1	99,372.00	30/04/2019	30/04/2019
	Laboratory Centrifuge	1	36,567.02	30/04/2019	30/04/2019
	Electrophoresis Power Supply	4	79,904.88	30/04/2019	30/04/2019
	Water bath	2	28,152.44	30/04/2019	30/04/2019
	Horizontal Electrophoresis Apparatus	2	65,324.80	30/04/2019	30/04/2019

13. Details of books & journals subscribed from DBT grant.

NA

14. Qualitative improvements due to DBT support Please highlight (5 salient lines)

- Improved student-instrument ratio enabling students to learn better.
- The grant has helped in creating better infrastructure in the departments (equipment)
- Enabled us to conduct more workshops and talks than usually done.
- The DBT supported the hands-on science learning to the students through the projects.
- The DBT grant has enabled more interdisciplinary student research projects.

15. Problems faced, if any, in implantation of the programme and utilization of DBT grant (in two-three lines)

- There should be provision for maintenance of instruments under DBT fund.