

DBT STAR COLLEGE SCHEME
PROGRESS REPORT
2017-2018

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	Antibacterial activity of different solvent extracts obtained from leaves of <i>Aegle marmelos</i> (L.) Corr.
2	Bactericidal activity of seeds extracts of <i>Aegle marmelos</i> (L.) Corr. using minimum inhibitory concentration and disc diffusion assay
3	In vitro antibacterial activity of bark extract of <i>Aegle marmelos</i> (L.) Corr. against gram positive and gram negative bacterial strains
4	Antibacterial properties of <i>Aegle marmelos</i> (L.) Corr. fruit pulp extracts prepared in different organic solvents
5	Isolation of Mycobacteriophages, Data Mining & Genome Annotation and Instrumentation
6	Study of Bacteriophage through Bioinformatics and Advanced Instrumentation
7	Pattern of Pupae Colouration and Pigmentation in Developing Fruit Fly

Botany

S. No.	Project Title
1	Effect of heavy metals and acids on aquatic plants like <i>Lemna gibba</i> , <i>Spirodella polyrrhiza</i> , <i>Wolffia globosa</i> and role in aquatic phytoremediation system
2	Environment Science: Green Chemistry
3	The study of diversity of bees during monsoon months in Delhi
4	To evaluate the air pollution tolerance index of different plant species as to select species to grow in respective areas and correlation with the pollutants
5	Production and Characterization of Exopolysaccharide by isolated Microorganisms and their Industrial Applications.
6	Effect of ROS signalling on growth of certain medicinal plants growing in college campus
7	Yakult Plant at Sonapat Haryana

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	Smpycode: An android based tutorial on Java and C++
2	Online Student Assistant

3	Social Campus for Social Media Platform for Students and Colleges.
4	The Learning Hub
5	Functional Group Analysis with Depth of Chemistry
6	Secure router based centralized controlled network in the college

Electronics

S. No.	Project Title
1	Plant electro stimulation and data acquisition
2	Assistive Gadgets for Visually Impaired Students a) Light to Sound Converter / Optocoupler; b) Color Detector
3	Mine Detection Drone
4	Development of nanostructured thin films
5	Paradigm shift in material science-2D materials: familiarity, synthesis and application

The Indian National Science Academy (INSA), Delhi and the Indian Academy of Sciences (IAS), Bengaluru along with University of Delhi colleges jointly celebrated the National Science Day on February 28, 2018 at INSA Auditorium, New Delhi. Following posters and projects/models were selected from the Department of Electronics for National Science Day.

S. No.	Event	Topic name	Teacher's name	Student's name
1	Project	Brain-Controlled Wheelchair	Dr Amit Garg (Electronics)	Abhishek Raiwani B. Sc. (H) Electronics, III Year
2	Project	Light in Action		Adarsh Maurya B. Sc. (H) Electronics, III Year
3	Poster	Promotion of Optics and Photonics		Hardik Minocha B. Sc. (H) Electronics, I Year

During the event, a total of 32 posters and 27 projects were put on display by different colleges of University of Delhi. The project "Brain-Controlled Wheelchair" by Abhishek Raiwani from Department of Electronics won the Second Prize in the Project Category

Physics

S. No.	Project Title
1	Automatic traffic light control with street light control circuitry
2	Spatio-temporal study on Ambient Air Pollution (AAP) - PM ₁₀ , SO _x , NO _x and CO concentration levels in New Delhi, Bengaluru (India) and Ljubljana (Slovenia)
3	Health concerns due to presence of dangerous metals in fine dust at Dariba Kalan, Delhi
4	Bio-sensing using Quartz Crystal Microbalance

Zoology

S. No.	Project Title
1	Studies on the alteration in the oviposition potential and fertility of insects exposed to various insecticides
2	Study of Regeneration in ciliates
3	To study the anti-oxidant properties of citrus fruits on <i>E.coli</i>
4	Analysis of water quality for Aquaculture: Dissolved oxygen, ammonia, nitrite, nitrate, pH, conductivity, turbidity, etc.

Industrial/Educational Visits

Electronic Materials & Devices Laboratory (EMDL), Department of Physics & Astrophysics, University of Delhi, Delhi

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. The students learnt rudiments of thin film deposition techniques including RF Sputtering, Thermal Evaporation, Sol-gel, Pulsed LASER deposition (PLD) and Molecular Beam Epitaxy (MBE).

Microelectronic Devices Fabrication Laboratory, University of Delhi, Delhi

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. Therein the students were given a hands-on feeling of working in an advanced semiconductor fabrication laboratory. Specifically, the students learnt finer nuances of Integrated Chip manufacturing in a Class-1000 room wearing anti-static clothing. They also got exposure to wafer fabrication/characterization equipments including thin film profilometer (Veeco, USA), Wafer Dicer (Disco, Japan), E-beam evaporation (6 kW gun Telemark, USA), Probe Station (Cascade, USA), Semiconductor Characterization System (Keithley, USA), Wire Bonder (Westbond, USA), Mask Aligner (Karl Suss, Europe) and Thermal Oxidation Furnace (MRL, UK) to name a few. The students were thus exposed to cutting-edge technology which commercially does not exist in India.

Indian Agricultural Research Institute (IARI), Delhi

Students of 2nd year B.Sc. (H) Zoology and 3rd year B.Sc. Life Science were taken on educational trip to IARI on Sept. 25, & Sept. 28, 2017, respectively. The students were introduced to the latest techniques involved in apiculture.

Aravalli Biodiversity Park, Gurugram, Haryana: On Oct. 13th 2017, 1st year students of B.Sc. (H) Zoology were taken for a trip to the Aravalli Biodiversity Park. While visiting the Biodiversity Park, the students were introduced to important issues such as the need to conserve biodiversity and the various biodiversity conservation strategies.

Haryana Agro Industries Corporation (HAIC), Murthal, Haryana: Students of 2nd year B.Sc. (H) Zoology and 3rd year B.Sc. Life Science were taken on educational trip to HAIC on Oct. 28, 2017. At HAIC, the students were provided technical know-how of the processes involved in the production of honey on an industrial scale.

National Centre for Medium Range Weather Forecasting (NCMRWF), Noida: Students of B.Sc.(H) Computer Science and B.Sc. (Physical Sc. with Computer Science) were taken on educational trip to NCMRWF on 18th September, 2017. Students were made aware of high performance computing of Super Computers CRAY, PARAM and BHASKARA. Also, students were exposed to operational applications emphasizing on bridging the gap between weather monitoring and weather forecasting.

7. Training received by faculty from participating departments

Dr Rashmi Sharma (Department of Botany)	11 day workshop on Bioinformatics and Computational Biology at Supercomputing facility for bioinformatics, IIT Delhi from 20-31 August, 2017
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8. List of exhibitions/seminars/training courses conducted by the college

Biomedical Science

S. No.	Exhibition/Seminar/Training Course conducted	Duration
1	Workshop on Forensic Examination of Documents for non-teaching staff of Delhi University colleges	One Day (June 16, 2017)
2	Workshop on Forensic Examination of Documents for faculty members involved in admissions	One Day (June 23, 2017)
3	Cathexis'18-Annual departmental festival of Department of Biomedical Science (Theme: Cancer)	One Day (March 12, 2018)
4	Cyber Criminalistics (One- day symposium on Forensic Science)	One Day (March 28, 2018)

Botany

S. No.	Exhibition/Seminar/Training Course conducted	Duration
1	Workshops on Microbial Techniques for college students	Three-Days each in January and 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	3-day workshop on Linux and FOSS	August 8, 2017 to August 11, 2017

Electronics

S. No.	Exhibition/Seminar/Training Course conducted	Duration
1	Workshop on Arduino	One day, September 27, 2017

Physics

S. No.	Exhibition/Seminar/Training Course conducted	Duration
1	Applications of Biomedical Imaging in Drug Discovery and Treatment Monitoring	One Day, September 26, 2017
2	Energy Harvesting – applications in day-to-day life	One Day, April 10, 2018
3	Hands-on workshop on the basics and applications of Arduino Micro-controllers	Two-day April 11 – 12, 2018

Zoology

S. No.	Exhibition/Seminar/Training Course conducted	Duration
1	Workshop on Anxiety at Workplace	One day workshop held on August 25, 2017
2	Seminar on IPR and Social Insects	One day seminar held on September 5, 2017

3	Symposium on Safety Measures and Laboratory Ethics'	Two-day symposium held on February 21-22, 2018
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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	Mr. V. N. Sehgal	Former Director	CFSL, CBI
3	Dr. Anju Gupta	HOD, Dept. of Surgery	Acharya Shree Bhikshu Hospital, GNCTD
4	Dr. Sushma Sinha	MBBS, MD	Acharya Shree Bhikshu Hospital, GNCTD
5	Dr. Abhishek Shankar	Assistant Professor	Department of Preventive Oncology, AIIMS

Botany

S. No.	Name of guest faculty	Designation	Host Institute
1	Dr CR Babu	Professor	University of Delhi
2	Dr Shailja Singh	Associate Prof	Jawaharlal Nehru University
3	Dr Rajesh Tandon	Professor	University of Delhi
4	Dr Pawan K Dhar	Professor	Jawaharlal Nehru University

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. A.K. Mohapatra	Associate Professor	Indira Gandhi Delhi Technical University for Women (IGDTUW)
2	Dr. Geeta Bhatt	Associate Professor	Department of Instrumentation, Bhaskaracharya College of Applied Sciences, University of Delhi.
3	Mr. Lalit Mathur	Director	DCIRRUS

Electronics

S. No.	Name of guest faculty	Designation	Host Institute
1	Mr. Sourabh Basu	Scientist/ Engineer 'SE'	ISRO Satellite Centre, Bangalore & Joint Deputy Director, NTRO, New Delhi

Physics

S. No.	Name of guest faculty	Designation	Host Institute
1	Dr. Soumya Mitra	Senior Scientist II, Pathology & Imaging Group, Department of Immunology Pharmacology	Abbvie Bioresearch Center, Massachusetts, USA
2	Dr. David Kocman	Head of Research Group, Department of Informatics	Jozef Stefan Institute, Ljubljana, Slovenia
	Professor Vinay Gupta	Dean, Examinations and Professor, Department of Physics & Astrophysics	University of Delhi, India
4	Dr. Amit Garg	Associate Professor, Department of Electronics	ANDC, University of Delhi, India

Zoology

S. No.	Name of guest faculty	Designation	Host Institute
1.	Dr. Dr. S.A. Basir	Psychiatrist	Wellness Hospital, Delhi
2.	Mr. R. Saha	Advisor CII & Former Director PFC, TIFAC, DST	CII
3.	Dr. Debjani De	Principal Scientist, Division of Entomology	IARI, Pusa, Delhi
4.	Dr. Rekha Chaturvedi	IPR Chair Professor	University of Delhi

5.	Ms. Amanpreet Kaur	Project Assistant under IPR Chair	University of Delhi.
6.	Dr. Rita Singh	Professor	Department of Zoology, University of Delhi
7.	Dr. Mrutyunjay Suar	Director	School of Biotechnology, KIIT University, Odisha
8.	Dr. Sanjeev Kumar Sharma	Senior Manager	Health & Safety, Jubilant Generics Limited
9.	Dr. Vijay Pal Singh	Deputy Director	Food Safety and Standards Authority of India (FSSAI)
10.	Dr. Rup Lal	Professor	Department of Zoology, University of Delhi
11.	Dr. Gagan Dhawan	Assistant Professor	ANDC, University of Delhi
12.	Dr. Sanjukta Subudhi	Scientist	TERI
13.	Dr. Kamal Gupta	Associate Professor	Deshbandhu College, University of Delhi

10. Date of Advisory committee meeting:

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

Biomedical Science

Western Blotting
Southern Blotting

Botany

Preparation of plant tissue culture medium
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

Study of 16 QAM modulation and Detection with generation of Constellation Diagram
To determine the Characteristics of LVDT
Measure of low resistance by Kelvin's double bridge
To determine the Characteristics of resistance transducer - Strain Gauge (Measurement of Strain using half and full bridge)
Study of FDM

Physics

To determine the complex dielectric constant and plasma frequency of metal using Surface Plasmon resonance (SPR) technique

To determine the refractive index of a dielectric layer using SPR technique.

Zoology

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)

Biomedical Science

S. No.	Name of the Item	Quantity	Cost Per Unit (in INR)	Date of Order Placed	Date of Purchase/ Installation
1	Hybridization Oven	1	64,000	14/03/2018	19/03/2018
2	Weighting Balance -0.1 mg	1	53,100	15/02/2018	06/03/2018
3	Weighting Balance - 0.1 g	1	19,470	15/02/2018	15/03/2018
4	Laminar Air Flow	1	64,546	15/02/2018	15/03/2018
5	Visualizer	1	41,500	26/03/2018	24/03/2018
6	Stereo Microscope	1	1,07,380	27/02/2018	27/03/2018

Botany

S. No.	Name of the Item	Quantity	Cost Per Unit (in INR)	Date of Order Placed	Date of Purchase/ Installation
1	Deep Freezer	1	43,520	24/03/2017	31/03/2017
2	Refrigerated Microcentrifuge	1	1,39,943	24/03/2017	31/03/2017
3	Autoclave	1	43,520	24/03/2017	31/03/2017
4	Ph Meter	4	56,640	24/03/2017	31/03/2017
5	Micropipette	16	76,144	24/03/2017	31/03/2017
6	Horizontal Gel Electrophoretic unit	2	18,762	24/03/2017	31/03/2017

Chemistry

S. No.	Item	No.	Cost	Date of order placed	Date of Purchase
1	4-digit electronic balance; 0.1 mg	2	1,46,556	05/03/18	15/03/18
2	Vacuum Pump	3	90,000	05/03/18	12/03/18
3	UV Cabinet	2	15,010	05/03/18	15/03/18
4	Digital pH-Meter with glass electrode	4	27,376	05/03/18	15/03/18
5	Potentiometer	6	51,401	05/03/18	15/03/18

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
2	LaserJet Printer M202dw	1	14602.5	26/03/18	28/03/18
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	Function generator	05	64900	20/12/2017	13/02/2018
2	Digital Multimeters	08	23600	20/12/2017	13/02/2018
3	16 QAM modulation and detection	01	35199.4	20/12/2017	13/02/2018

Physics

S. No.	Name of the Item	Quantity	Cost Per Unit (in INR)	Date of Order Placed	Date of Purchase/ Installation
1.	Complete Surface Plasmon resonance set-up with LASER (633nm), detector and Au coated prisms	1	2,99,720/-	23/01/2018	29/01/18

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

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.