

Progress report of the Second and Third Year
(April 01, 2020 – July 31, 2021)
Deen Dayal Upadhyaya College (University of Delhi)
Supported under Star College Scheme (Department of Biotechnology)

1. **Name of the College:** Deen Dayal Upadhyaya College (University of Delhi)
2. **Name of Departments supported:** Botany, Zoology, Chemistry, Mathematics and Electronics
- Name of Coordinator, designation, address, phone nos.** Professor Manoj Saxena
 Department of Electronics
 Deen Dayal Upadhyaya College (University of Delhi)
 Sector-3, Dwarka, New Delhi-110 078
 09968393104

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

Name of the Participating Department	Total No. Faculty Members	Permanent Faculty with Ph. D	Ad-hoc Faculty Members with Ph. D
Botany	09	07	01
Zoology	09	06	03
Chemistry	14	14	--
Mathematics	13	06	02
Electronics	08	05	03

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

Name of the Participating Department	Courses Run by Different Departments	No. of Students
Botany	B. Sc. Hons. Botany	40
	B. Sc. Life Science	40
Zoology	B. Sc. Hons. Zoology	40
Chemistry	B. Sc. Hons. Chemistry	40
	B. Sc. Physical Sc. Chemistry	40
Mathematics	B. Sc. Hons. Mathematics	78
	B. Sc. Mathematical Science	40
Electronics	B. Sc. Hons. Electronics	60

5. **Cut off percentage for admission in different courses in participating departments, positions in university, percentage of result in 2020-21 academic session**

2020-21 academic session

Courses Run by Different Departments	% Gen (First/Last)	% OBC (First/Last)	% SC (First/Last)	% ST (First/Last)	%EWS (First/Last)	% PwD (First/Last)
B. Sc. Hons. Botany	92/88	88/72	82/70	75/71.33	91/75	75/53.33
B. Sc. Life Science	91/91	87/80	80/	72/71.66	90/80	70/44
B. Sc. Hons. Zoology	94/90	91/83	87/80	76/65	93/82	75/53.33
B. Sc. Hons. Chemistry	95/94	93/83	85/70	75/55	95/75	75/53.33
B. Sc. Physical Sc. Chemistry	92/89.66	88/85	75/69	70/66	91/75	70/44
B. Sc. Hons. Mathematics	97/94.5	94/92	87/87	73/73	96/89	75/43.75
B. Sc. Mathematical Sc.	94/91	91/88.5	85/78	75/50	93.5/72	70/44
B. Sc. Hons. Electronics	93/90	91/75	86/68	74/40	92/72	76/53.33

2019-20 academic session

Courses Run by Different Departments	% Gen (First/Last)	% OBC (First/Last)	% SC (First/Last)	% ST (First/Last)	%EWS (First/Last)	% PwD (First/Last)
B. Sc. Hons. Botany	92/87	88/84	82/78	75/68	91/83	75/50
B. Sc. Life Science	91/89	87/81	80/77.33	72/65	90/81	70/40
B. Sc. Hons. Zoology	94/91	91/85	87/83	76/76	93/87	75/70
B. Sc. Hons. Chemistry	96/92	93/92.33	85/81	75/64	95/94	75/50
B. Sc. Physical Sc. Chemistry	92/88.66	88/85.88	75/73	70/58	91/89	70/40
B. Sc. Hons. Mathematics	97/94	94/91.25	87/86	73/73	96/93	75/45
B. Sc. Mathematical Sc.	94/91	91/87	85/70	75/60	93.5/89	70/40
B. Sc. Hons. Electronics	92/88.33	90/83	85/74	73/53	91/89	75/50

2018-19 academic session

Courses Run by Different Departments	% Gen (First/Last)	% OBC (First/Last)	% SC (First/Last)	% ST (First/Last)	% PwD (First/Last)
B. Sc. Hons. Botany	92/89.33	88/79	80/79	72/70	75/50
B. Sc. Life Science	91/87	87/83	80/70	72/65	70/40
B. Sc. Hons. Zoology	94/90	91/87	85/84.66	75/74	75/50
B. Sc. Hons. Chemistry	96/94	92/91	85/84	75/75	75/50
B. Sc. Physical Sc. Chemistry	92/91	87/86.67	75/67	70/43	70/40
B. Sc. Hons. Mathematics	96.5/93	94.5/91.75	87/78	72/71.5	75/45
B. Sc. Mathematical Sc.	91/87	87/83	80/70	72/65	70/40
B. Sc. Hons. Electronics	94/88	90/83	85/70	73/50	75/50

2017-18 academic session

Courses Run by Different Departments	% Gen (First/Last)	% OBC (First/Last)	% SC (First/Last)	% ST (First/Last)	% PwD (First/Last)
B. Sc. Hons. Botany	92/89.33	88/79	80/79	72/70	75/50
B. Sc. Life Science	91/87	87/83	80/74	72/65	70/40
B. Sc. Hons. Zoology	94/90	91/87	85/84.66	75/74	75/50
B. Sc. Hons. Chemistry	96/94	92/91	85/84	75/75	75/50
B. Sc. Physical Sc. Chemistry	92/90	87/86.66	75/67	70/43	70/40
B. Sc. Hons. Mathematics	96.5/	94.5/91.75	87/78	72/71.5	75/45
B. Sc. Mathematical Sc.	94/89	91/87	85/70	75/71	70/65
B. Sc. Hons. Electronics	94/88	90/83	85/72	73/50	75/50

2016-17 academic session

Courses Run by Different Departments	% Gen (First/Last)	% OBC (First/Last)	% SC (First/Last)	% ST (First/Last)	% PwD (First/Last)
B. Sc. Hons. Botany	90/89.33	85/75	80/70	72/70	70/70
B. Sc. Life Science	89/87	83/70	75/74	72/65	65/40
B. Sc. Hons. Zoology	92/91.33	87/86	82/74	74/65	70/50
B. Sc. Hons. Chemistry	96/92	92/75	85/55	75/65	70/70
B. Sc. Physical Sc. Chemistry	88/78	83/82	78/73	75/55	65/40
B. Sc. Hons. Mathematics	96/93	93/91	87/74.75	72/69	70/70
B. Sc. Mathematical Sc.	90/90	85/84	80/78	75/Pass	65/35
B. Sc. Hons. Electronics	94/90	90/80	85/68	75/67	70/55

- Data (First cut off) unavailable

2015-16 academic session

Courses Run by Different Departments	% Gen (First/Last)	% OBC (First/Last)	% SC (First/Last)	% ST (First/Last)	% PwD (First/Last)
B. Sc. Hons. Botany	90/87.66	85/80	80/76*	72/60	70/**
B. Sc. Life Science	89/84	83/76	75/68	72/64*	65/**
B. Sc. Hons. Zoology	92/91.66*	87/81.66	82/81.66*	74/70	70/65*
B. Sc. Hons. Chemistry	96/93	92/88.66	85/82*	78/45	70/60*
B. Sc. Physical Sc. Chemistry	88/83	83/67	78/67*	75/**	65/**
B. Sc. Hons. Mathematics	96/93.75	93/90	87/82*	72/60	70/70*
B. Sc. Mathematical Sc.	90/89.75*	85/84.5	80/63	75/70	65/**
B. Sc. Hons. Electronics	94/91*	90/83	85/70	75/40	70/**

*- Seventh cut off is not available.

** - Minimum pass marks for the respective board

2014-15 academic session

Courses Run by Different Departments	% Gen (First/Last)	% OBC (First/Last)	% SC (First/Last)	% ST (First/Last)	% PwD (First/Last)
B. Sc. Hons. Botany	88/80	82/76	82/71	72/62	70/50
B. Sc. Life Science	85/80	80/76	75/71	72/60	70/40
B. Sc. Hons. Zoology	90/86.33	86/80	85/69	74/71	70/50
B. Sc. Hons. Chemistry	94/91	93/90	91/77	75/71	80/50
B. Sc. Physical Sc. Chemistry	85/82	80/78	75/68	75/53	75/40
B. Sc. Hons. Mathematics	93/92.5	90/89	85/78.5	72/60	80/40
B. Sc. Mathematical Sc.	85/84.5	80/79.5	75/71	75/50	75/35
B. Sc. Hons. Electronics	96/88	90/85	90/69	80/61	89/50

6. List of projects undertaken by students, industrial visits by students, summer training in last one year i.e. during April 2020 – July 2021:

List of Projects undertaken by Students

- i. Developing Melay FSM Code for Sequence Detector with and without overlap
- ii. Developing Moore FSM Code for Sequence Detector with and without overlap
- iii. Design of Synchronous FIFO memory
- iv. Reducing clock using Clocking Wizard IP Core and getting results.
- v. Create a Vivado project and use VIO core to perform logic analysis.
- vi. Synthesizing a RTL Design
- vii. Implementing the clock divider circuit onto FPGA and getting the results
- viii. Implementing Physical Constraints in Vivado.
- ix. Analyze the real time waveform using Chipscope-Pro analyzer
- x. Static Timing Analysis - Global Timing Constraints, Path specific timing constraints, Achieving Timing Closure, Introduction to Reset techniques, Clock Domain Crossing, Multiple Clock Domains

Industrial Visit: *Could not be held due to COVID 19 Pandemic*

Summer Training/Project:

Date	Department	Details	Page No. of Annexure
June 17, 2020 – July 17, 2020	Electronics	Online Internship - cum - Hands-on Training Workshop On “Verilog Implementation of Digital Circuit Designs on FPGA using Vivado” in collaboration with CoreEL Technologies	53 - 62

7. Training received by faculty from participating departments:

Could not be held due to COVID 19 Pandemic

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

Date	Department	Type of Activity	Details	Page No. of Annexure
July 20, 2020 – July 25, 2020	Electronics	Summer School	Online Summer School on Advances in Signal Processing and Machine Learning	02-23
August 03-10, 2020	All	Faculty Training Program	Pedagogical Training for Effective Online Teaching and Learning in association with K.T.H.M. College, Nashik	63 – 76
September 14-19, 2020	All	Online Lecture Workshop	Online Lecture Workshop On Frontiers in Science & Engineering - Opportunities for Graduates –	77 – 95
February 8-13, 2021	All	Online International Workshop	Online International Workshop on Intellectual Property Right (Equivalent to Faculty Development Program)	96 – 114
February 01, 2021 – March 06, 2021	All	Atmanirbhar Bharat Abhiyan Webinar Series – National Level Lecture Workshop	Atmanirbhar Bharat Abhiyan Webinar Series – National Level Lecture Workshop in Frontiers in Science and Engineering by Women in Science	115 – 168
March 08 – 26, 2021	All	Lecture Workshop (Online)	Fifth Joint Science Academies Lecture Workshop (Online) on "Trans-disciplinary Areas of Research and Teaching by Shanti Swarup Bhatnagar (SSB) Awardee"	169 - 194

Outreach Program:

Date	Department	Details	Page No. of Annexure
October 20, 2020	All	World Food Programme (WFP) – a Journey to the Nobel Peace Prize 2020	96

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

Date	Department	Details	Page No. of Annexure
June 20, 2020	Electronics	Finding needles in a haystack: Liquid biopsy for nucleic acid and protein molecular biomarkers for disease diagnosis Prof. Brian T. Cunningham Donald Biggar Willett Professor in Engineering, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign	28
June 08, 2020	Chemistry	Endofullerenes: Nano-scale test tubes for single molecules and atoms Professor Malcolm Levitt, School of Chemistry at the University of Southampton	29
June 25, 2020	Electronics	Printed and Flexible Electronics and Devices Dr. Jin-Woo Han, Research Scientist, Center for Nanotechnology, NASA Ames Research Center, Moffett Field, California, USA	30

July 03, 2020	Chemistry	New chemistry and physics in magnetic oxides Prof. J. Paul Attfield, FRS, FRSE, FRSC, Foreign Fellow INSA Centre for Science at Extreme Conditions and School of Chemistry, University of Edinburgh, Mayfield Road, Edinburgh EH9 3JZ, UK	31
July 09, 2020	All	Flow inside the Sun Professor Katepalli Sreenivasan, Foreign Fellow INSA Dean Emeritus of NYU Tandon School of Engineering; The Eugene Kleiner Professor for Innovation in Mechanical Engineering; Professor of Physics (Faculty of Arts and Science); Mathematics (Courant Institute of Mathematical Sciences)	32
July 10, 2020	All	Can Future Energy Needs be met sustainably? Professor Sir Chris Llewellyn Smith FRS, FAPS (USA), Honorary Fellow, IOP (UK), Foreign Fellow INSA(India) Rudolf Peierls Centre for Theoretical Physics, Parks Road, Oxford OX1 3PU	33
July 11, 2020	Mathematics	Are we there yet? How do cells find their way? Professor Philip K. Maini FRS, FIMA, FRSB, FMedSci, Foreign Fellow INSA (India), Wolfson Centre for Mathematical Biology, Mathematical Institute, Oxford	34
July 14, 2020	Zoology	The influence of infection on Society before Covid19 Professor Sir Peter Julius Lachmann FRS, FRCP, FRCPATH, FMedSci, Foreign Fellow INSA(India) Fellow, Emeritus Sheila Joan Smith Professor of Immunology, Christ College, University of Cambridge	35
July 23, 2020	Electronics	When to trust a self-driving car.. Professor Marta Kwiatkowska FRS Associate Head of MPLS Division Fellow of Trinity College, Department of Computer Science University of Oxford, Oxford	36
July 24, 2020	Electronics	A Reinforcement Learning Framework for Mobile Relay Beamforming Professor Athina Petropulu, President-Elect, IEEE Signal Processing Society (2020-2021), Distinguished Professor, Department of Electrical & Computer Engineering, Rutgers, The State University of New Jersey	37
July 26, 2020	Electronics	Empathetic Conversational Artificial Intelligence (AI) Professor Pascale Fung, FIEEE FISCA Director, Centre for Artificial Intelligence Research (CAIRE), Professor, Department of Electronic & Computer Engineering and Department of Computer Science & Engineering, Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong	38
July 28, 2020	Electronics	Physics Does Digital Optimization- for Machine Learning, Control Theory, Back Propagation Professor Eli Yablonovitch The James & Katherine Lau Engineering Chair Professor, Electrical Engineering & Computer Sciences Dept., Director of the NSF Center for Energy Efficient Electronics Science,	39

		E3S Member, Kavli Energy Nano-Sciences Institute at Berkeley Senior Faculty Scientist, Lawrence Berkeley National Laboratory University of California, Berkeley	
August 06, 2020	All	Engineering the future of Medicine Professor Molly S. Shoichet, FRS Tier 1 Canada Research Chair in Tissue Engineering, Professor of Chemical Engineering & Applied Chemistry and Biomaterials & Biomedical Engineering Donnelly Centre for Cellular & Biomolecular Research, University of Toronto	40
August 14, 2020	All	Nature's Engines: Active Matter Professor Julia Yeomans FRS The Rudolf Peierls Centre for Theoretical Physics, 1 Keble Road, Oxford, OX1 3NP, UK	41
August 18, 2020	All	Solar magnetic fields and solar irradiance: implications for Earth's climate Professor Mike Lockwood, FRS Space and Atmospheric Electricity Group, Department of Meteorology, University of Reading, UK	42
August 20, 2020	Botany	The Molecular Magic of the Primary Steps of Photosynthesis Professor Graham R Fleming FRS Professor of Chemistry, University of California Berkeley & Senior Faculty Scientist, Lawrence Berkeley National Laboratory	43
August 28, 2020	All	Machine Learning Methods in Computational Cancer Biology Professor Mathukumalli Vidyasagar FRS, FTWAS, FIEEE, FNA, FNAE, FASc DST SERB National Science Chair & Distinguished Professor, Indian Institute of Technology Hyderabad	44
August 30, 2020	Electronics	Wireless AI: A New Sixth Sense to Deciphering our World Professor K. J. Ray Liu Electrical and Computer Engineering Department, University of Maryland, College Park	45
September 22, 2020	Electronics	Lessons learned on optical coatings for gravitational wave interferometers Carmen S. Menoni Department of Electrical & Computer Engineering, Department of Chemistry and School of Advanced Material Discovery, Colorado State University, Fort Collins	46
September 28, 2020	All	Granular Mining, Uncertainty Modelling and Data Science Concepts, Models and Challenges Prof. Sankar K. Pal FNA, FASc, FTWAS, FIEEE, FIAPR National Science Chair and Emeritus Professor, Distinguished Scientist and former Director Indian Statistical Institute, Kolkata, India	47
September 30, 2020	Electronics	Organic Electronics Professor Sir Richard Friend FRS Cavendish Professor of Physics & Director Winton Programme for the Physics of Sustainability Cavendish Laboratory, Cambridge	48

October 03, 2020	Chemistry	Benzene to Boron without Alchemy Professor Eluvathingal D. Jemmis FASc, FNA, FNASc, FTWAS & Year of Science Chair Professor SERB-DST, Dept of Inorganic and Physical Chemistry, Indian Institute of Science, Bangalore	49
October 08, 2020	All	A Voyage through time: Dynamics at molecular length and time scales Prof. Biman Bagchi FNA, FASc, FNASc, FTWAS, Foreign Fellow, American Academy of Arts and Sciences, National Science Chair, Honorary Professor, Indian Institute of Science, Bangalore	50
October 11, 2020	All	Building stars, planets and the ingredients for life in space Professor Ewine F. van Dishoeck President-International Astronomical Union 2015 Albert Einstein World Award of Science and the 2018 Kavli Prize for Astrophysics, Leiden Observatory, Leiden University, the Netherlands	51
October 11, 2020	All	Astrophysical Black Holes Professor Andrew Fabian, FRS Former President – UK's Royal Astronomical Society (2008-2010); Foreign Member of the US National Academy of Sciences & 2020 Kavli Prize for Astrophysics, Institute of Astronomy, University of Cambridge	52
September 21, 2020	Chemistry	Special Public Lecture Steps Towards Complex Matter: Chemistry! Nobel Laureate Prof. Jean-Marie LEHN SIS, University of Strasbourg Institute for Advanced Study	26
October 06, 2020	All	Special Public Lecture A New Measure: The Reform of the International System of Units Nobel Laureate William D. Phillips Quantum Institute, National Institute of Standards and Technology and University of Maryland	27
January 13, 2021	All	Special Public Lecture Does the everyday world really obey quantum mechanics? Sir Anthony J. Leggett, Nobel Laureate Physics Professor Emeritus, Department of Physics, Grainger College of Engineering, University of Illinois Urbana-Champaign	195
February 16, 2021	All	Special Public Lecture Atomic Clocks David Wineland, Nobel Laureate Physics 2012 Philip H. Knight Distinguished Research Chair & Research Professor, Department of Physics, University of Oregon	196
February 24, 2021	All	Special Public Lecture Topological Defects and Phase Transitions in Two Dimensions (<i>A Random Walk Through Physics To The Nobel Prize</i>) J. Michael Kosterlitz, Nobel Laureate Physics 2016 Harrison E. Farnsworth Professor of Physics, Brown University	197
March 12, 2021	All	Special Public Lecture How cells manufacture and export proteins and RNA	198 - 199

		Professor Randy Schekman Nobel Laureate Physiology/Medicine 2013 Howard Hughes Institute Investigator and Professor of Cell and Developmental Biology, University of California, Berkeley	
March 22, 2021	All	Special Public Lecture From the Possibility to the Certainty of a Supermassive Black Hole Professor Andrea Ghez, Nobel Laureate Physics 2020 Professor of Physics and Astronomy, University of California, Los Angeles	200 - 222

10. Date of Advisory committee meeting: Online meeting held on November 12, 2020

11. List of New Practicals/ demonstrations introduced in different departments in last one year i.e. April 2020 – July 2021

No new practicals were added as the college was closed due to COVID 19 pandemic from March 2020 to July 2021.

12. Details of equipment purchased in each department from DBT grant during 2018-2021:
(item, no., cost, date of order placed, purchase/installation)

Details of equipment purchased in Department of Botany

S. No.	Department	Budget Head	Title	Qty	Sub-details	Amount (in)	Stock Register Page No.
1.	Botany	Non Recurring	Camera	1 No.	Paid to M/s Mittal Agencies against bill no. 17897 towards purchase of NIKON D5300 DSLR entered in Stock Register of DBT Star College on page no 17	49,867.00	17
2.	Botany	Non Recurring	Laminar Air Flow	1 No.	Paid to M/s Rescholar Equipment - GEMC - 511687785871083 dt June 27, 2018. Bill entered in stock register on page no. 27	99,225.00	27
3.	Botany	Non Recurring	Autoclave	1 No.	M/s Hansraj Scientific Metal Works. GEMC-511687791923580. Bill entered on page no. 40	66,150.00	40
4.	Botany	Non Recurring	Plant Growth Chamber	1 No.	M/s Ocean Life Science Corporation. Bill entered in DBT Star College Stock Register on page no. 76.	1,94,700.00	76
5.	Botany	Non Recurring	Microwave Oven	1 No.	M/s Sargam India Electronics Pvt Ltd. GEMC-511687703152413. Bill entered on page No. 55	16,500.00	55
6.	Botany	Non Recurring	Minus 20 deep	1+1	Paid to M/s Ocimum Life Sciences, bill no. OLS/2018-	1,50,000.00	116

			freezer and Refrigerated Water Bath		19/400 dt. 18/03/2019 towards purchase of Vestfrost make single solid door upright freezer and Refrigerated water bath.	0	
7.	Botany	Non Recurring	Ice Box	2	M/s Paras Trading Company., Bill No. GEMC-511687756631086 dt 31/08/2019 (@ Rs. 3100 per piece)	6,200.00	117
8.	Botany	Non Recurring	Pipette	1	M/s Jain Brothers, Bill No. 511687705553186 dt 31/08/2019	5,289.00	118
9.	Botany	Non Recurring	Magnetic Stirrer	1	M/s Macro Scientific Works Pvt Ltd., Bill No. GEMC - 511687774755659 DT 31/08/2019	11,700.00	119
10.	Botany	Non Recurring	Clamp Meter	1	M/s Kolosh Instruments, Bill No. GEMC-511687752657046 DT 05/09/2019	11,490.00	120
11.	Botany	Non Recurring	Digital Water Testing Kit	2	M/s Accumax India GEMC-511687736390754 DT 13/09/2019	49,800.00	127
12.	Botany	Non Recurring	Distillation and Digestion Unit	1	M/s Accumax India GEMC-511687784675157 DT 13/09/2019	42,000.00	128
13.	Botany	Non Recurring	Accupipette	1	M/s Jain Scientific Biotech, Bill No. GEMC-511687706090746 DT 13/09/2019	11,547.00	129
14.	Botany	Non Recurring	Digital-Thermo-Hygrometer	2	M/s Mercury Lab Planners, Bill No. GEMC-511687788144349 DT 31/08/2019	2,998.00	130
15.	Botany	Non Recurring	BOD Incubator	1	M/s M. K. Scientific Instruments, Bill No. GEMC-511687778575672 DT 13/09/2019	50,000.00	131
16.	Botany	Non Recurring	Soxhlet Extraction	2	M/s Accumax India GEMC-511687751234415 DT 27/09/2019	48,000.00	139
17.	Botany	Non Recurring	Soil Moisture Meter	1	M/s Gera Ventures - GEMC-511687779421887 dt 07/10/2019	21,499.00	140
18.	Botany	Non Recurring	Cryo Gloves	2	M/s New Golden Enterprise - GEMC-51687786018636 DT 21/10/2019	23,000.00	148
19.	Botany	Non Recurring	Laboratory Tissue Culture Rack	4	M/s Gera Ventures - GEMC-511687787848845 dt 10/12/2019	41,579.00	150
20.	Botany	Non Recurring	Chlorophyll Leaf Area Meter	1	M/s Gera Ventures - GEMC-511687797326351 dt 10/12/2019	94,497.00	151
Total						9,96,041	

Details of equipment purchased in Department of Zoology

S. No.	Department	Budget Head	Title	Qty	Sub-details	Amount (in Rs.)	Stock Register Page No.
1.	Zoology	Non Recurring	Laminar Ar Flow (Horizontal)	1	M/s Rescholar Equipment - GEMC - 511687703643865 DT June 06, 2018. Bill entered in stock register on page no. 22	80,325.00	22
2.	Zoology	Non Recurring	Refrigerated Incubator	1	M/s Jain Sciencetech Biotech - GEMC-511687742437779 DT June 09, 2018. Bill entered in stock register on page no. 23	44,500.00	23
3.	Zoology	Non Recurring	Magnus Zoom Stereo Binocular Microscope	1	M/s Olympus Opto Systems India Pvt Ltd. GEMC-511687776114074 dt. June 09, 2018. Bill entered on page no. 39	49,900.00	39
4.	Zoology	Non Recurring	Autoclave	1	M/s Hansraj Scientific Metal Works. GEMC-511687791923580. Bill entered on page no. 40	66,150.00	40
5.	Zoology	Non Recurring	Refrigerator	1	M/s Mahalaxmi Trading Co. GEMC-511687772095025 DT Sept 08, 2018. Bill entered in DBT Star College Stock Register on page no. 51.	30,200.00	51
6.	Zoology	Non Recurring	Orbital Shaker	1	M/s Jain Sciencetech Biotech - GEMC-511687771608663 DT September 24, 2018. Bill entered in stock register on page no. 53	48,999.00	53
7.	Zoology	Non Recurring	Distillation Water Plant	1	M/s Jain Sciencetech Biotech - GEMC-511687740538600 DT September 25, 2018. Bill entered in stock register on page no. 54	40,000.00	54
8.	Zoology	Non Recurring	magnetic stirrer with hot plate - 2 mlH	1	M/s Janki Impex Pvt Ltdd. GEMC-511687709657999 dt. 01/10/2018. Bill entered in DBT Star College Stock Register on page no. 64	7,009.00	64
9.	Zoology	Non Recurring	Magnetic Stirrer -5mlH	1	M/s Gera Ventures. GEMC-511687786263923 dt. 03/10/2018. Bill entered in DBT Star College Stock Register on page no. 65.	9,599.40	65
10.	Zoology	Non Recurring	Electrophoresis Power Supply	1	M/s Jain Sciencetech Biotech. GEMC-	37,999.00	66

					511687700478431 DT 03/10/2018. Bill entered in DBT Star College Stock Register on page no. 66.		
11.	Zoology	Non Recurring	Hot air oven	1	M/s M. K. Scientific Intstruments. Bill entered in stock register on page no. 67.	39,599.00	67
12.	Zoology	Non Recurring	Rotary Microtome	1	M/s Radical Scientific Equipments Pvt Ltd. Bill entered in stock register on page no. 68.	34,900.00	68
13.	Zoology	Non Recurring	Vertical Dual Mini GEL System: Mini D	1	M/s Jain Sciencetech Biotech. Bill entered in stock register on page no. 71.	21,216.00	71
14.	Zoology	Non Recurring	Vertical Dual Mini GEL System: Mini D	1	M/s Jain Sciencetech Biotech. Bill entered in stock register on page no. 71.	14,750.00	71
15.	Zoology	Non Recurring	Homogenizers	1	M/s Jain Sciencetech Biotech. Bill entered in stock register on page no. 72.	13,098.00	72
16.	Zoology	Non Recurring	Microscope (MLX-B Plus with Semi Plan Objectives)	5	M/s Olympus Opto Systems India Pvt Ltd. GEMC-511687783848417 dt. October 30, 2018. Bill entered on page no. 74.	1,55,000.00	74
17.	Zoology	Non Recurring	Vortex Mixer	2	M/s AARSON Scientific Works. GEMC- 511687709629298 dt. October 05, 2018. Bill entered on page no. 75.	10,500.00	75
18.	Zoology	Non Recurring	Water and Soil Analysis Kit	2	M/s Mercury Lab Planners GEMC-511687795103439 DT 21/09/2019	55998.4	136
19.	Zoology	Non Recurring	DNA Electrophoresis with Power Supply	1	M/s Jain Scientific Biotech. GEMC- 511687711468004 DT 01/10/2019	16,499.00	137
20.	Zoology	Non Recurring	Remi Water Bath 6 Hole	2	M/s Gera Ventures. GEMC-511687799900054 dt. 12/10/2019. Bill entered in DBT Star College Stock Register on page no. 138	67,999.32	138
21.	Zoology	Non Recurring	Sartorius Analytical Weighing Balance	1	M/s Techchem Solutions Pvt. Ltd GEMC- 511687798520755 DT. 21- 11-2019	87,360.00	149
22.	Zoology	Non Recurring	PH Meter (Mettler Toledo)	1	M/s The Precision Scientific Company) GEMC-511687758302359 dt Sept 13, 2019	44,500.00	77
Total						9,76,101	

Details of equipment purchased in Department of Chemistry

S. No.	Department	Budget Head	Title	Qty	Sub-details	Amount (in Rs.)	Stock Register Page No.
1.	Chemistry	Non Recurring	Magnetic Stirrer with Hot Plate	4 No.	Paid to M/s International Scientific Equipments Co. against bill no. 2018-2019/1010 dt June 06, 2018 entered in Stock Register of DBT Star College on page no 16	39,080	16
2.	Chemistry	Non Recurring	Hot Air Oven	1 No.	Paid to M/s Jain Scientific Biotech - GEMC - 511687744074799 dt June 16, 2018 against bill no. GST/2018-19/153. Bill enetered in DBT Star College Stock Register on page no. 28.	30,800	28
3.	Chemistry	Non Recurring	Rotavapour	1 No.	Paid to M/s Jain Scientific Biotech - GEMC - 511687791249098 dt June 28, 2018 against bill no. GST/2018-19/188. Bill enetered in DBT Star College Stock Register on page no. 30.	48,999	30
4.	Chemistry	Non Recurring	Vacuum Pump	1 No.	Paid to M/s Jain Scientific Biotech - GEMC - 5116877731048139 dt June 28, 2018 against bill no. GST/2018-19/177. Bill enetered in DBT Star College Stock Register on page no. 31.	33,900	31
5.	Chemistry	Non Recurring	Muffle Furnace	1 No.	Paid to M/s Jain Scientific Biotech - GEMC - 511687741063777 dt June 28, 2018 against bill no. GST/2018-19/214. Bill enetered in DBT Star College Stock Register on page no. 32.	49,350	32
6.	Chemistry	Non Recurring	Heating Mantle with Stirrer	5	Paid to M/s Jain Scientific Biotech - GEMC - 5116877847311786 dt July 04, 2018 against bill no. GST/2018-19/174. Bill enetered in DBT Star College Stock Register on page no. 43	42,500	43
7.	Chemistry	Non Recurring	Digital PH Meter	6	Paid to M/s Jain Scientific Biotech - GEMC - 511687706285204 dt Sept 18, 2018 against bill no. GST/2018-19/337. Bill enetered in DBT Star College Stock Register on page no. 49	70,200	49
8.	Chemistry	Non Recurring	Digital Conductivity Meter	6	Paid to M/s Jain Scientific Biotech - GEMC - 511687756531717 dt Sept 17, 2018 against bill no.	88,794	50

					GST/2018-19/336. Bill entered in DBT Star College Stock Register on page no. 50		
9.	Chemistry	Non Recurring	Digital Melting Point Appartus	1	Paid to M/s Jain Scientific Biotech - GEMC - 511687703662115 dt October 30, 2018. Bill entered in DBT Star College Stock Register on page no. 78	24,000	78
10.	Chemistry	Non Recurring	Lux Meter	2	Paid to M/s Jain Scientific Biotech - GEMC - 511687709399557 dt November 02, 2018. Bill entered in DBT Star College Stock Register on page no. 79	21,400	79
11.	Chemistry	Non Recurring	Laboratory Chiller	1	Paid to M/s Bhagwati Industries - GEMC - 511687769371719 dt October 30, 2018. Bill entered in DBT Star College Stock Register on page no. 80.	48,000	80
12.	Chemistry	Non Recurring	Microprocessor Water and Soil Analysis Kit	1	Paid to M/s IGENE LABSERVE Pvt Ltd - GEMC-511687707612150 dt November 01, 2018. Bill Entered in DBT Star College Stock Register on Page No. 83.	37,900	83
13.	Chemistry	Non Recurring	Pressure Cooker	10	Paid to M/s Shiv Home World, 12-5-11/1, Maruti Moosapet, Hyderabad, Telangana, 500018 against GEMC-511687722567347 DT March 01, 2019. Entered in DBT Stock Register on page No. 93	8,100	93
14.	Chemistry	Non Recurring	Digital PH Meter	6	M/s Gera Ventures, GEMC-5116884698844 DT 07/09/2019	79,114	132
15.	Chemistry	Non Recurring	Digital Conductivity Meter	6	M/s Gera Ventures, GEMC-51168772236309 DT 07/09/2019	1,19,470	133
16.	Chemistry	Non Recurring	Digital Colorimeter(Photometer)	11	M/s Gera Ventures, GEMC-511687748970559 DT 07/09/2019	1,63,616	134
17.	Chemistry	Non Recurring	Digital Analytical Weighing Balance	1	M/s Mercury Lab Planners, GEMC-511687742761869 DT 07/09/2019	86,702.84	135
Total						9,91,925	

Details of equipment purchased in Department of Electronics

S. No.	Department	Budget Head	Title	Qty	Sub-details	Amount (in Rs.)	Stock Register Page No.
1.	Electronics	Non Recurring	temperature controlled soldering	1 No.	Paid to M/s Sakshi Enterprises - GEMC - 511687741016806 dt	4,990.00	29

			station		July 18, 2018 against bill no. 407. Bill entered in DBT Star College Stock Register on page no. 29.		
2.	Electronics	Non Recurring	Universal Embedded Trainer (Advance) Model : UET - A	10	Paid to M/s EXCEL Technologies against bill no. 033 dt. August 10, 2018 towards purchase of Universal Embedded Trainer (Advance) Model : UET - A. Bill entered in DBT Star College Stock Register on page no. 38.	1,23,900.00	38
3.	Electronics	Non Recurring	AVR ATMEGA 16 Daughter Board; Model ET - AVR 16D	10	Paid to M/s EXCEL Technologies against bill no. 033 dt. August 10, 2018 towards purchase of AVR ATMEGA 16 Daughter Board; Model ET - AVR 16D. Bill entered in DBT Star College Stock Register on page no. 38	29,500.00	38
4.	Electronics	Non Recurring	Dual Channel Fibre Optics Communication Training System with on board RS 232 Interface & Dual wavelength Optical power meter Make/Model (Scientech 2502A and 2551)	1 No.	DDU/2018-2019/DBT Star College/Electronics/NR/05 Date: August 08, 2018. M/s Excel technologies, C-92, Sector-63, Noida 210309,UP, India	49,560.00	46
5.	Electronics	Non Recurring	Exp. Setup to study e/m Measurement by Thomson method Make/Model (Nvis 6103)	1 No.	DDU/2018-2019/DBT Star College/Electronics/NR/05 Date: August 08, 2018. M/s Excel technologies, C-92, Sector-63, Noida 210309,UP, India	20,650.00	47
6.	Electronics	Non Recurring	Nexys 4 DDR Boards	10	DDU/2018-2019/DBT Star College/Electronics/NR/05 Date: August 31, 2018 - M/s CoreEL technologies (I) Pvt Ltd. #21, 7th Main, 1ST Block, Koramangala, Bangalore 560034	1,55,760.00	48
7.	Electronics	Non Recurring	ADS Premier University	1	Paid to M/s Agmatel, E-366, II nd Floor, Nirman	2,14,760.00	89

			License Bundle 1+1 year term bound license		Vihar, Vikas Marg Delhi 110092 against bill No. DDU/2018-19/1010 dt 11/10/2018 Invoice No. DT_1819_24397 DT 14/12/2018		
8.	Electronics	Non Recurring	EMPro Standard University License Bundle 1+1 year term bound license	1	Paid to M/s Agmatel, E- 366, II nd Floor, Nirman Vihar, Vikas Marg Delhi 110092 against bill No. DDU/2018-19/1011 dt 11/10/2018 Invoice No. DT_1819_24384 DT 14/12/2018	1,82,000.00	89
9.	Electronics	Non Recurring	Workstation	1	Paid to Dharam Agencies - GEMC 15530853099892756429 DT Feb 21, 2019	1,94,999.00	114
Total						9,76,119	

Details of equipment purchased in Department of Mathematics

S. No.	Department	Budget Head	Title	Qty	Sub-details	Amount (in Rs.)	Stock Register Page No.
1.	Mathematics	Non Recurring	Printer-HP Laserjet	1 No.	Paid to M/s Cyber Max Enterprises against bill no. CME/F/B-347 dt May 22, 2018 entered in Stock Register of DBT Star College on page no 18	35,900.00	18
2.	Mathematics	Non Recurring	Workstation	1 No.	Paid to M/s Transtek Infoways Pvt Ltd. against bill no. TIPL/1819/G02041 dt June 06, 2018 entered in Stock Register of DBT Star College on page no 19	69,960.00	19
3.	Mathematics	Non Recurring	Computer	6 No.	Paid to M/s Digitech Computer against bill no. DIGI/SALE/121/18-19 dt June 18, 2018	3,53,364.00	20
4.	Mathematics	Non Recurring	Computer	6 No.	Paid to M/s Jintech Solution Ltd against bill No. JSL-00399 dt 10/12/2018	4,43,400.00	88
5.	Mathematics	Non Recurring	Software	10	Paid to M/s Binary Semantics Ltd. Gurgaon against bill no. BSL/1819/1031 dt 29-03- 2019. Bill entered in Stock Register on page no. 115.	96,712.00	115
Total						9,99,336	

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

During 2020-2021

S. No.	Department	Title of the Book	Authors	Publisher	Qty	ISBN
1	Electronics	TFET Integrated Circuits From Perspective Towards Reality	Gupta, N., Makosiej, A., Amara, A., Vladimirescu, A., Anghel, C.	Springer	1	Hardcover ISBN 978-3-030- 55118-6

During 2019-2020

S. No.	Department	Title of the Book	Authors	Publisher	Qty	ISBN
1	Electronics	Modeling and Electrothermal Simulation of SiC Power Devices	Bejoy N Pushpakaran (Texas Tech University, USA) and Stephen B Bayne (Texas Tech University, USA)	World Scientific	1	978-9813237827

During 2018-2019

S. No.	Department	Title of the Book	Authors	Publisher	Qty	ISBN
1.	Chemistry	Environmental Chemistry	Stanley Manahan	CRC Press	1	13-9781498776936
2.	Chemistry	Environmental Chemistry	Jorge G. Lbazez, Margarita Hernandez- Esparza, Carmen Doria-Serrano, Arturo Fregoso- Infante, Mono Mohan Singh	Springer	1	13-9781441920799
3.	Electronics	The AVR Microcontroller and Embedded Systems Using Assembly and C	Muhammad Ali Mazidi, Sarmad Naimi and Sephr Naimi	Pearson India Education Services Ltd.	4	9789332518407
4.	Electronics	Circuit Design and Simulation wuth VHDL	Volnei A. Pedroni	PHI Learning Pvt. Ltd	1	9788120343016
5.	Electronics	Fundamentals of Digital Logic with VHDL Design	Stephan Brown and Zvonko Vranesic	Mc Grw Hill Education (India) Pvt. Ltd.	1	13-9781259025976
6.	Electronics	VERILOG HDL - A Guide to Digital Design and Synthesis IEEE 1364-2001 Complaint	Samir Palnitkar	Pearson India Education Services Ltd.	1	9788177589184
7.	Electronics	Beginner's Guide to Reading Schematics	Stan Gibilisco	Mc Graw Hill Education	1	9780071827782

8.	Electronics	Making Things Move - DIY Mechanisms for Inventors, Hobbyists and Artists	Dustyn Roberts	Mc Graw Hill Education	1	9780071741675
9.	Electronics	Practical Electronics for Inventors	Paul Scherz and Simon Monk	Mc Graw Hill Education	1	9781259587542
10.	Electronics	Programming FPGAs - Getting Started with VERILOG	Simon Monk	Mc Graw Hill Education	1	9781259643767
11.	Electronics	Programming the Raspberry Pi - Getting Started with Python	Simon Monk	Mc Graw Hill Education	1	9781259587405
12.	Electronics	Microwave Circuit Design using Linear and Nonlinear Techniques	George D. Vendelin, Anthony M. Pavio and Ulrish L. Rohde	Wiley	1	9788126527885
13.	Electronics	Microwave Engineering	David M. Pozar	Wiley	1	9788126541904
14.	Electronics	Radio Frequency and Microwave Electronics	Matthew M. Radmanesh	Pearson India Education Services Ltd.	1	9788177584011
15.	Electronics	Analog Interfacing to Embedded Microprocessors	Stuart Ball	Newnes	1	0750677236 978075677233
16.	Electronics	Digital Image Processing for Medical Applications	Geoff Dougherty	Cambridge University Press	1	9780521181938
17.	Electronics	Digital Integrated Circuit Design From VLSI Architectures to CMOS Fabrication	Hubert Kaeslin	Cambridge University Press	1	9780521127356
18.	Electronics	Fundamentals of Error-Correcting Codes	W. Cary Huffman and Vera Pless	Cambridge University Press	1	13-9780521613880
19.	Electronics	Fundamentals of Machine Design - Volume 1	Ajeet Singh	Cambridge University Press	1	9781316630402
20.	Electronics	Fundamentals of Machine Design - Volume 2	Ajeet Singh	Cambridge University Press	1	9781316630419
21.	Mathematics	An Introduction to Astronomy and Astrophysics	Pankaj Jain	CRC Press	1	13-9781439885901
22.	Mathematics	Modeling Biological Systems - Principles and Applications	James W. Haefner	Springer	1	13-9780387250113
23.	Mathematics	An Introduction to Celestial Mechanics	Richard Fitzpatrick	Cambridge University	1	9781107023819

				Press		
24.	Mathematics	Astrophysics Through Computation with Mathematics Support	Brian Koberlein and David Meisel	Cambridge University Press	1	9781107010741
25.	Mathematics	Biology by Numbers - An encouragement to quantitative thinking	Richard F. Burton	Cambridge University Press	1	9780521571562
26.	Mathematics	Textbook on Spherical Astronomy	W. M. Smart and R. M. Green	Cambridge University Press	1	521291801
27.	Mathematics	The Student's Introduction to Mathematica - A Handbook for Precalculus, Calculus and Linear Algebra	Bruence F. Torrence and Eve A. Torrence	Cambridge University Press	1	9780521717892
28.	Mathematics	Bio-Inspired Computing and Networking	Yang Xiao	CRC Press	1	13-9781138115255
29.	Mathematics	A student's Guide to the study, Practice and Tools of modern mathematics	Donald Bindner and Martin Erickson	CRC Press	1	9781439846063
30.	Mathematics	An Introduction to Stellar Astrophysics	Francis Le Blanc	Wiley	1	9780470699560
31.	Mathematics	Beginning R - The Statistical Programming Language	Mark Gardener	Wiley	1	9788126541201
32.	Mathematics	Essential Mathematical Biology	Britton	Springer	1	185233536X
33.	Mathematics	Mathematical Modeling for the Life Sciences	Jacques Istas	Springer	1	9783540253051
34.	Mathematics	Modeling Life	Garfinkel	Springer	1	978331959730

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

Publications/Awards during 2020-2021

International Refereed Journals

1. K. Sehra, V. Kumari, M. Gupta, M. Mishra, D. S. Rawal, and M. Saxena, "Optimization of π – Gate AlGaIn/AlN/GaN HEMTs for Low Noise and High Gain Applications," Accepted for Publication in Springer's Nature Silicon, 2020. (Impact Factor: 1.499).
2. A. K. Visvkarma, K. Sehra, R. Laishram, D. S. Rawal, and M. Saxena, "Advances in DC/RF Performance of AlGaIn/GaN MIS – HEMT by Incorporating Dual Metal Gate Architecture," Accepted for Publication in IETE Technical Review, 2020. (Impact Factor: 1.845). DOI: 10.1080/02564602.2020.1843555.

3. Neha, V. Kumari, M. Gupta, and M. Saxena, "TCAD-Based Optimization of Field Plate Length & Passivation Layer of AlGaN/GaN HEMT for Higher Cut – Off Frequency & Breakdown Voltage," IETE Technical Review, 2020. (Impact Factor: 1.845). DOI: 10.1080/02564602.2020.1824624
4. K. Sehra, V. Kumari, M. Gupta, M. Mishra, D. S. Rawal, and M. Saxena*, "TCAD Investigation of Total Ionizing Dose (TID) Effects on Gallium Nitride HEMTs," in *Silvaco's Simulation Standard*, vol. 31, no. 1, pp. 1 – 6, Jan. 2021.
5. K. Sehra, V. Kumari, M. Gupta, M. Mishra, D. S. Rawal, and M. Saxena*, "Impact of heavy ion particle strike induced single event transients on conventional and π -Gate AlGaN/GaN HEMTs," in *Semiconductor Science and Technology*, vol. 36, no. 3, art. no. 035009, pp. 1 – 10, Jan. 2021, doi: 10.1088/1361-6641/abdba3.
6. S. Raut, K. Sehra, M. Mishra, D. S. Rawal, M. Gupta, and M. Saxena*, "Proton irradiation effects on buffer-free gallium nitride on silicon carbide high electron mobility transistor-based radio frequency power amplifier," in *Semiconductor Science and Technology*, vol. 36, no. 4, art. no. 045019, pp. 1 – 11, March 2021, doi: 10.1088/1361-6641/abe2df
7. Khushwant Sehra, Samriddhi Raut, Ashutosh Mishra, Poonam Kasturi, Shweta Wadhera, Geetika Jain Saxena and Manoj Saxena, "Robust and Secure Digital Image Watermarking Technique Using Arnold Transform and Memristive Chaotic Oscillators," in *IEEE Access*, vol. 9, pp. 72465-72483, 2021, doi: 10.1109/ACCESS.2021.3079319.
8. K. Sehra, V. Kumari, M. Mishra, D. S. Rawal, M. Gupta, and M. Saxena*, "A Π - Shaped Gate p-GaN HEMT for Reliable Enhancement Mode Operation," Communicated in *IEEE Transactions on Nanotechnology*, Jan 2021
9. S. Das, V. Kumari, K. Sehra, M. Gupta, and M. Saxena*, "TCAD based Investigation of Single Event Transient Effect in Double Channel AlGaN/GaN HEMT," Communicated in *IEEE Transactions on Device and Materials Reliability*, June 2021.
10. A. Anand, Reeta, D. S. Rawal, R. Narang, M. Mishra, M. Saxena, and M. Gupta*, "A comparative study on the accuracy of small-signal equivalent circuit modeling of large gate periphery GaN HEMT with different source to drain length and gate width," Communicated in *Microelectronics*, June 2021.

International Conferences

1. Sehra, K., Kumari, V., Gupta, M., Mishra, M., Rawal, D.S., Saxena, M., 2020, TCAD Investigation of Gate - Lag Measurements on Conventional and π - /HEMTs, Proceedings of the IEEE Conference on Nanotechnology 2020-July 9183484, Vol. 128, No. 133 , DOI: 10.1109/NANO47656.2020.9183484, Scopus Indexed.
2. Mishra, A., Sehra, K., Sahil, Joshi, A., Kasturi, P., Saxena, M., 2020, Memristor Based Cryptographic Information Processing for Secured Communication Systems, ICDCS 2020 - 2020 5th International Conference on Devices, Circuits and Systems, Article No.9075763, pp. 167-171, DOI:10.1109/ICDCS48716.2020.243573
3. K. Sehra, V. Kumari, M. Gupta, M. Mishra, D. S. Rawal, and M. Saxena*, "Degradation Mechanisms in a Proton Irradiated HEMT with 3DEG Conduction and 3DHG as a Back Barrier," Accepted in 21st IEEE International Conference on Nanotechnology (IEEE – NANO), Montreal, Canada, July 2021.
4. S. Raut, K. Sehra, M. Mishra, D. S. Rawal, M. Gupta, and M. Saxena*, "Investigation of Single Event Transients in Buffer – Free GaN-on-SiC HEMT," Accepted in 5th IEEE International Conference on Emerging Electronics (IEEE – ICEE 2020), Delhi, India, 2021.

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

Due to COVID 19, the college was closed due to COVID 19 pandemic from March 2020 to July 2021 so most of the planned activities could not be completed. However, the same shall be included in the proposal for star college status application.