

# DAV COLLEGE BATHINDA

## ANNUAL PROGRESS REPORT OF DBT STAR COLLEGE SCHEME: 2021-22

San. No. BT/HRD/11/019/2020  
Date of Advisory Committee Meetings: 11/11/2020 and 25/05/2022



### Name of equipments/ New experiment conducted - Chemistry

**pH meter** Preparation and measurement of pH of acetate buffers at different concentrations.

**Conductivity meter** To determine the strength of strong acid & weak acid by titrating it against base conductometrically. To calculate  $\lambda^\infty$  of weak electrolyte conductometrically.

**Colorimeter** To verify Beer - Lambert law colorimetrically for  $KMnO_4/K_2Cr_2O_7$  To determine the concentration of the given  $KMnO_4/K_2Cr_2O_7$  solution colorimetrically.

**Potentiometer** Potentiometric titration of monobasic acids HCl with NaOH.

**Digital Polarimeter** To study the inversion of cane sugar by optical rotation measurement.

**Abbes Refractometer** To determine unknown composition of the mixtures by refractometry.

**Experiments performed with DBT support - Physics**

To determine the value of air capacitance by De-Sauty method and to find the permittivity of air and also to determine the dielectric constant of medium.

To determine the low resistance using Carey Foster Bridge.

To determine the given inductance by Anderson's bridge.

Adiabatic expansion of a gas.

To determine the wavelength of a given light using bi-prism.

To determine the principal points of a lens system.

To study the gas discharge spectrum of hydrogen.

To determine the angle of wedge using interference method.

Thermal expansion of crystal using interference fringes.

Total radiation law, temperature dependence of radiation.

Study of rotation of plane of polarization with a polarimeter.

To study the absorption spectra of iodine vapours.

To determine the divergence and wavelength of a given laser source.

To measure the magnetic susceptibility of  $FeCl_2$  solution by Quinck's method.

### GLIMPSES OF STUDENTS PERFORMING



### DEMONSTRATIONS ON NATIONAL SCIENCE DAY 2021



### Visits to Research Institutes/Industries

S.No.	Name of the Research institute/Industry	Date
1.	MARAHAR INDUSTRIES LTD. facilitated by Er. Pargat Singh & Mr. Kulwant Singh, Marahar Industries Ltd., Dhuri (Sangrur)	29/10/2021
2.	EDISON TECH. LAB, Dhuri, Punjab facilitated by Er. Khushpreet Kaur, Mr. Kulwant Singh, Edison Tech Lab., DHURI.	29/10/2021
3.	Pushpa Gujral Science City, Kapurthla Ms. Meetu S. Wadhwa & Dr. Ranjeet Singh	26/11/2021



Marahar Industries Ltd., Dhuri



PG Science City, Kapurthla



Edison Tech. Lab., Dhuri

### Interdisciplinary Projects

Synthesis of Nanoparticles and its characterisation the particles by Sol Gel Method

Separation of Amino Acids by thin layer Chromatography

To find the saponification value of different samples of fats/oils

Synthesis of Nanoparticles by Sonication method

Compare the Caffeine content in different samples of Tea

To check the ions present in the toothpaste

To Study Adulteration in milk

To compare the cleansing power of different samples of detergents by surface tension.

Preparation of bio-diesel and bio-petrol

Extraction of Oil from Saunf and Ajwain using Soxhlet apparatus

To Study the presence of insecticides/pesticides (Nitrogen Containing) in various fruits.

Determination of Young's Modulus (Y) of Steel using cantilever

Measurement of "g" with different methods.

Measurement of Planck's constant with LED

SURVEY of SAR value of various mobile phone sets in the classroom.

Thermistor as a Temperature Sensor (An Innovative Project of Physics)

Teaching of Lissajous Figures With MS-Excel

Demonstration about the Black Body Radiations using MS-Excel

Study of B-H Curve for magnetic materials using DSO



Soxhlet Apparatus



Measurement of Planck's constant with LED



B-H Curve for magnetic materials using DSO

### Outreach Activities

S.No.	Name of the Activity	Date	No. of Teams
1.	Interschool & Intercollege Rangoli Competition	25/11/2021	23 31
2.	Intercollege Slideshow Competition	02/03/2022	10
3.	Interschool & Intercollege Poster Competition	02/03/2022	10 17
4.	Interschool & Intercollege Quiz Competition	02/03/2022	6 7



Environmental Rangoli Utsav Interschool & Intercollege



Intercollege Poster Competition



Intercollege Quiz Competition



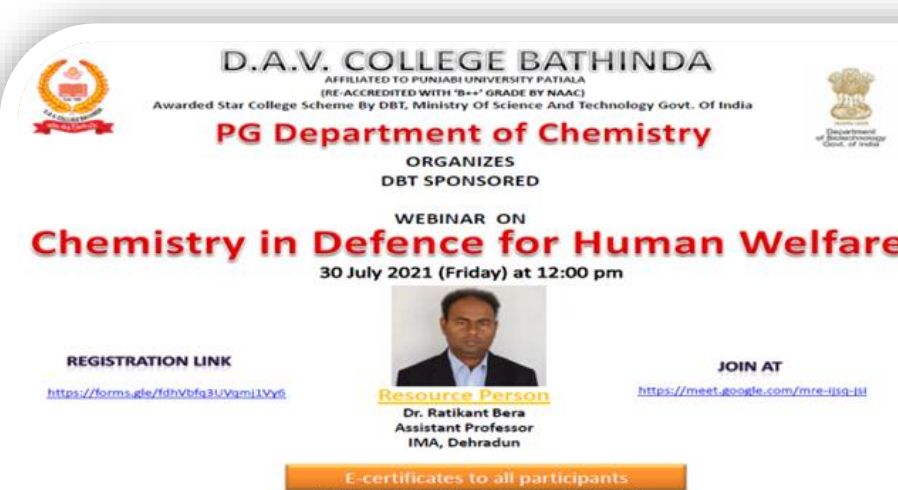
Prize distribution of Interschool Quiz Competition

### Seminars/Webinars/Journal's Club/Training Programmes/Workshops

S.No.	Name of Activity	Date	Resource Person
Webinar/ Seminar			
1.	Physics of Forces in Nature	04/09/2021	Dr. S. Devashankar, Assistant Professor, Department of Physics, L.N. Govt. College, Ponneri, Tamilnadu
2	Environmental Radioactivity	21/01/2022	Dr. Rohit Mehra, Associate Professor, Department of Physics, DR. B.R. Ambedkar National Institute of Technology, Jalandhar
3	Solar PV Cells	19/02/2022	Dr. Sudesh Bhagwat, Homi Bhabha State University, Mumbai
4	Applications of Physics in Medical Field	27/04/2022	Dr. Rajiv Dhawan, Associate Professor, Department of Radiotherapy, Govt. Medical College, Amritsar
5	Chemistry in Defense for Human Welfare	30/07/2021	Dr. Rati Kanta Bera, Indian Military Academy, Dehradun
6	Fluorescence Spectroscopy and its Applications	20/01/2022	Dr. Vinod Kumar, Associate Professor, J.C. Bose University of Science & Technology, YMCA, Faridabad
7	Integrated Approach in Science & Technology for Sustainable Future	02/03/2022	Dr. Rajeev Kumar Answal, Assistant Professor, Department of Environment Studies, Punjab University, Chandigarh.
8	Mock Interviews	21/03/2022	Mr. Lalit Sachdeva, Territory Manager (Training & Development) Sanofi India Ltd.
Journal Club Activities			
S.No.	Topic	Faculty	
1	Application of green chemistry for sustainable development	Ms. Meetu Sukheja	
2	Green Approach for Synthesis in Pharmaceutical Industry	Ms. Meetu Sukheja	
3	Geoengineering: Resetting the Thermostat	Mr. Aman Malhotra	
4	Stubble Burning: An Environmental Concern	Mr. Aman Malhotra	
5	Application of green chemistry	Dr. Parveen Bala	
6	Modern fabric for future	Dr. Parveen Bala	
7	Bioplastics: An Ecofriendly and Facile alternative for a Greener Environment	Dr. Paramjeet Kaur	
8	Bioplastic: Boon or Bane	Dr. Paramjeet Kaur	
9	Immunoassay Techniques for diagnosis of COVID-19: A review	Dr. Neha Jindal	
10	Environmental Toxicology	Dr. Neha Jindal	
Training Programmes			
1	Tracker Software for Physics Practicals	01/11/2021	Dr. Leena Joshi, Department of Physics, St. Xavier's College, Mumbai
2	Oscilloscopes: DSO Vs. CRO	17/05/2022	Dr. Asha Rani, Dev Samaj College for Women, Ferozepur, Punjab
3	Workshop on UV & IR Spectroscopy	10/10/2021	Dr. Paramjeet Kaur, Department of Chemistry, D.A.V. College, Bathinda



Talk on National Science day



Chemistry in Defence for Human Welfare



Poster Presentation Based on the Journal Club Activities



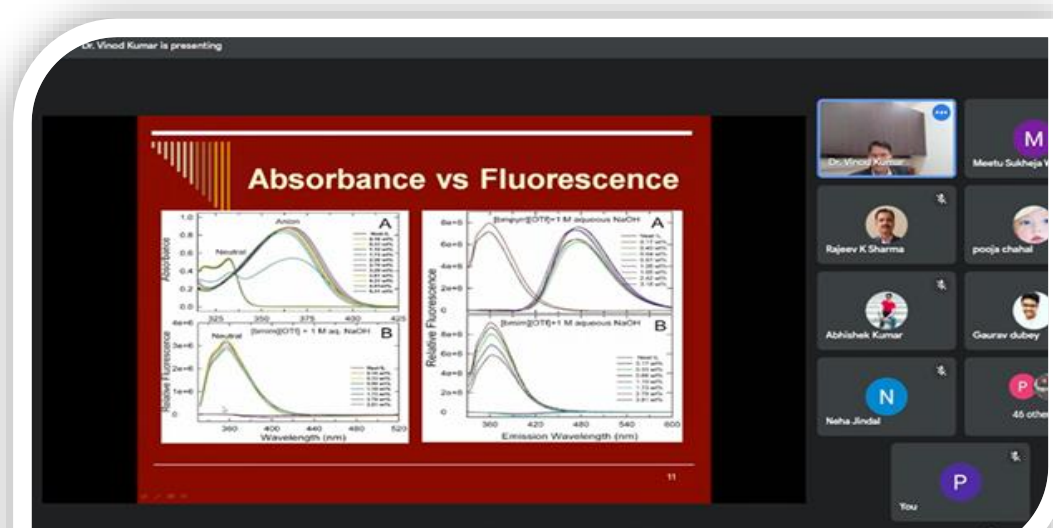
Workshop on UV & IR Spectroscopy



Webinar on Environmental Radioactivity



Mock Interview Session



Webinar on Fluorescence Spectroscopy



Oscilloscopes: DSO Vs. CRO

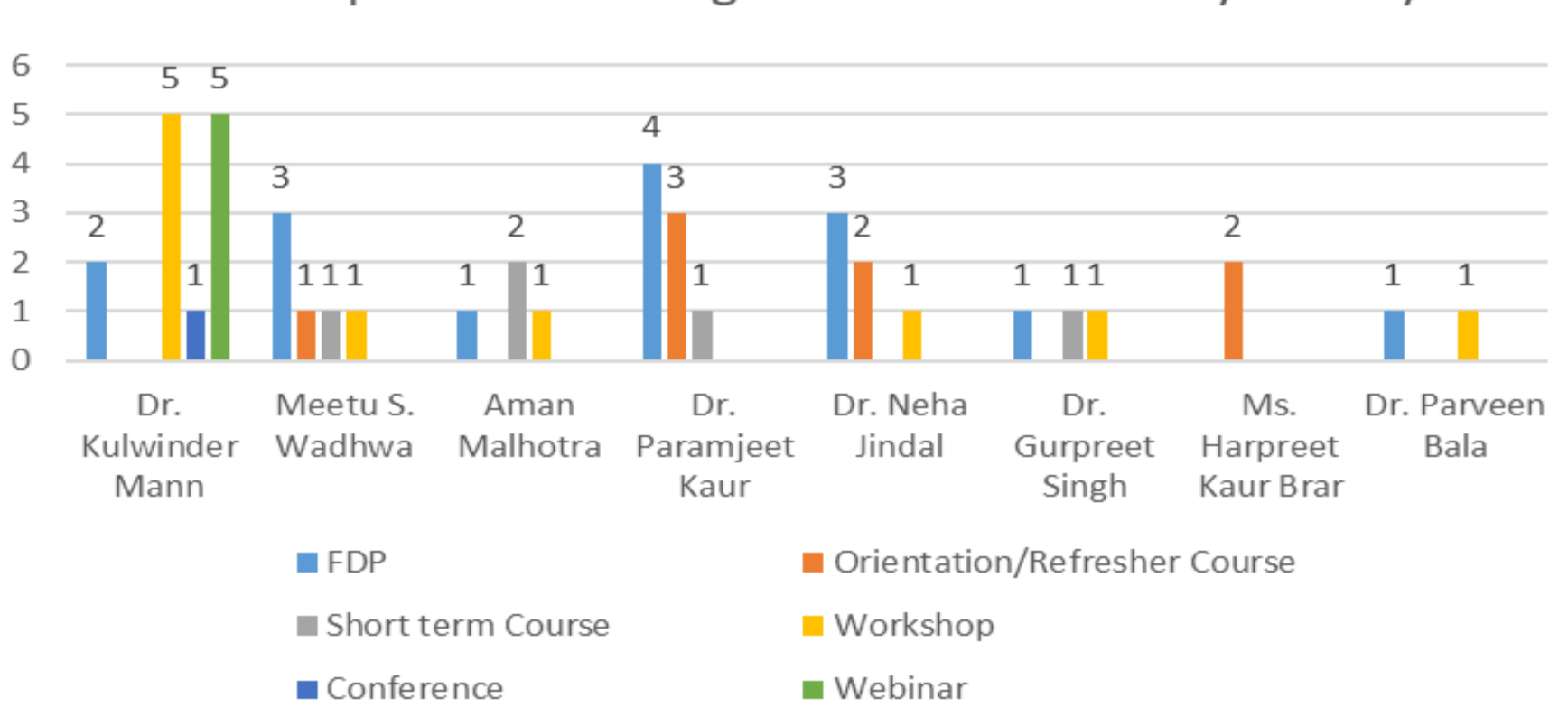
### SERB-DST & DBT sponsored National Conference Recent Advances in Science and Technology for Sustainable Development on 05 March, 2022

S.N.	Topic	Speakers
1.	Effects of Global Warming on Cold Deserts	Prof. S.K. Mehta Vice Chancellor, University of Ladakh, Ladakh
2.	Advancing the e2 Concept: Quest for Sustainable Development	Prof. G. S. Chauhan CSIR-Emeritus Scientist, Himachal Pradesh University, Shimla
3.	Gender and Climate Change Adaptation	Prof. Jagbir Singh, Department of Zoology and Environmental Sciences, Punjabi University Patiala
4.	Potential of Nanomaterials for Thermosensors development and water purification	Dr. Narinder Singh, Department of Chemistry, IIT, Ropar, Punjab
5.	Synthesis and Characterization of Oxide Materials for Application in Luminescent and Energy Storage Devices	Prof. Atul Khanna, Department of Physics, Guru Nanak Dev University, Amritsar

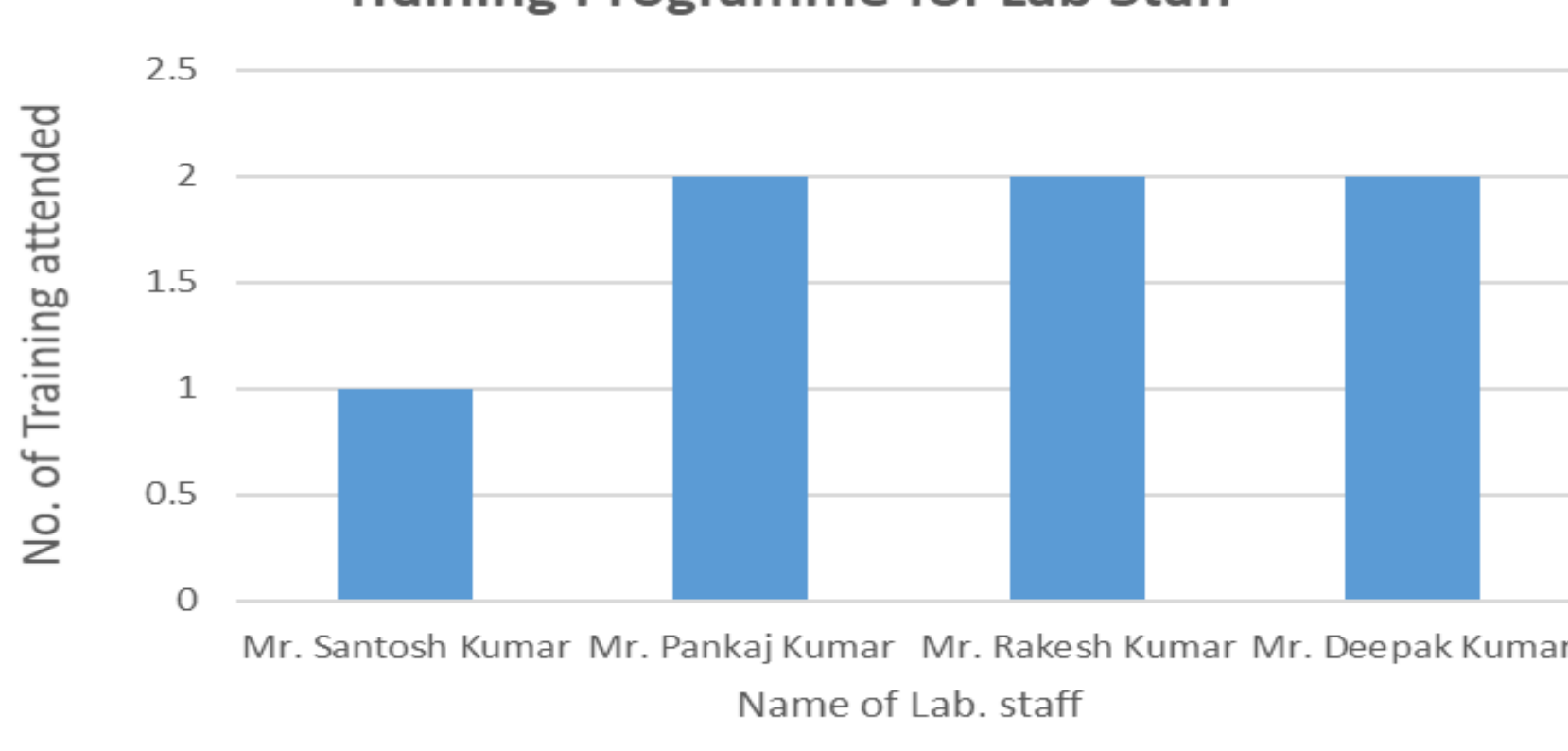
### GLIMPSES OF THE CONFERENCE



### Skill Improvement Programmes attended by Faculty



### Training Programme for Lab Staff



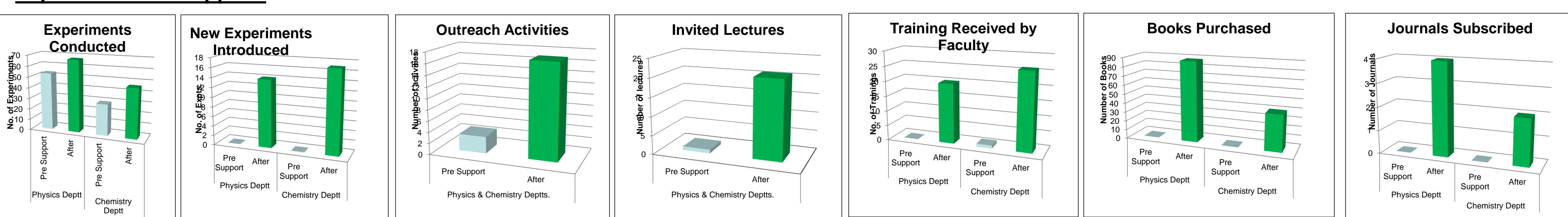
### Memorandum of Academic Support with MRS Punjab Technical University, Bathinda



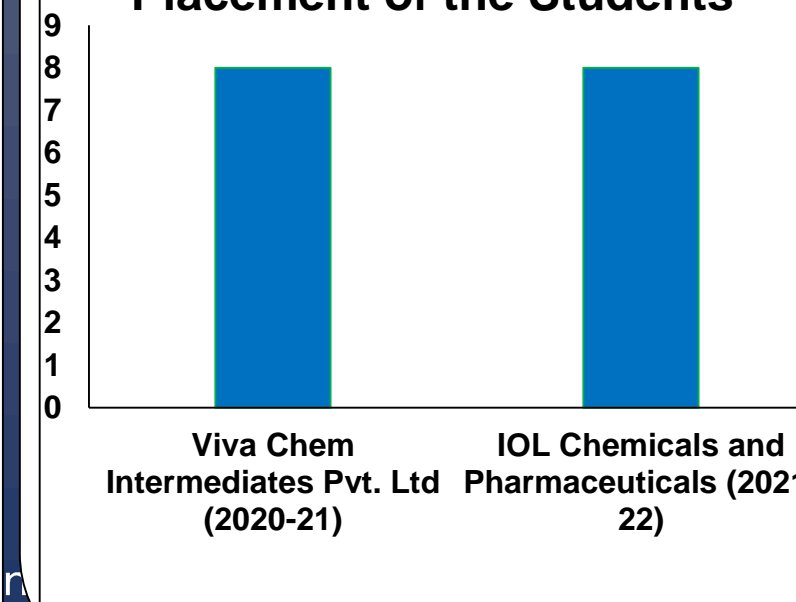
### Impact of the Star College Scheme



### Impacts of DBT Support:



### Placement of the Students



### Students Progression to higher education

