

Department of Biotechnology

Proforma for submission of Annual Progress Reports supported under Star College Scheme

(Kindly note that the annual report from Point 6 to 10, should not be more than 5 A4 size sheets, with font size 12pt and line spacing 1.5)

1. Name of the College: Sri Guru Teg Bahadur Khalsa College, Sri Anandpur Sahib
2. Name of Coordinator, designation,
Address, Phone nos.
3. (A) Assessment duration : ---/---/---- to ---/---/---- (B) Duration in years :

(C) Extension period if any:
4. Details of Departments Supported

Sl No	Name of Department	Courses (B.Sc./M.Sc./PG Diploma, certificate etc) offered	Regular Faculty members	
			Total=5	
			With Ph.D.	Without Ph.D.
1	Physics	B.Sc.(N.M.), B.Sc.(Honors) Physics, M.Sc Physics	4	0

5. Number & Date of Advisory committee meeting: Yet to be held
6. Qualitative improvements due to DBT support. Please highlight 5 salient points (within 500 words).

1. Minor research activity has been done by B.Sc. (Non-Medical) Sem-3rd students for measuring background radiation dose in the college building different floors using pocket dosimeter. Maximum value was found at the ground floor in the Principal office as it was totally closed having AC facility leading to poor ventilation of the room. Students understood the importance of ventilation in the indoor environment.
2. The Physics Department has started four add-on courses to enhance the scientific skill and temperament of students of the department during session 2022-23. The titles of the courses are,
(i) VA.PHY.1 Domestic Electrical Circuits Grounding, Shielding and Testing
(ii) VA.PHY.2 Electrical Basics for Daily Life
(iii) VA.PHY.3 Radiation Based Imaging Techniques
(iv) VA.PHY.4 Basic Physical Quantities Measurement Tools

7. Any Novel aspect introduced or planning to introduce during the Scheme duration.

1. The minor research project has been introduced for a few students of final year of undergraduate classes to inculcate scientific temperament in the students.
2. With the help of DBT grant in 2022-23, physics department has substantially modified the old practical curriculum and has introduced 31 new experiments.
8. Lessons learnt/difficulties faced/suggestions if any, in implementation of the programme and utilization of DBT grant. (Max 3 points within 300 words).
NIL

9. Key performance indicators

Sr No.				Remarks					
		(2021-22)	(2022-23)	(2023-24)	(2024-25)	(2025-26)			
1.	No. of Students admitted	Total=	Total=	Total=	Total=	Total=			
		M =	F=	M =	M =	F =	M =	F =	
2.	No. of Students Passing out (%) Students admitted/Passing out (Pass%)						Detail in Annexure I		
3.	Drop-out rates						Detail in Annexure I		
4.	No. of Students opting for M.Sc. B.Sc. Class Students	11	15	10	7	7			
5.	Average marks						Detail in Annexure I		
6.	No. of hands on experiments being conducted	182	189	212	268	249	As per curriculum		
7.	No. of new experiments introduced	NIL	31	31	53	49	Details in Annexure I		
8.	Publications (scopus indexed)/ patents, if any.	17 (9 with DBT Acknowledgement)	16 (4 with DBT Acknowledgement)	18 (4 with DBT Acknowledgement)	8 Publications/ 1 Patent	13 publications/ 2 patents	Details in Annexure I (Bold Paper titles are with DBT acknowledgement and rest are without DBT acknowledgement)		
9.	Training received by faculty	10	16	25	20	20	Details in Annexure I		
10.	Exhibitions/Seminars/ training courses conducted.	5	9	4	10	33	Details in Annexure I		
11.	Books/journals subscribed form grants	261 Books, 2 Journals					Details in Annexure I		
12.	Outreach activities (Popular lectures)	1	1	2	NIL	2	Details in Annexure I		
13.	Colleges mentored to apply for DBT Star College grants								
14.	Invited lectures	1	3	NIL	NIL	3	Details in Annexure I		

10. Details of colleges / schools mentored during the Star Scheme Tenure (Name of college / school; class / standard; No. of students benefited; whether any mentored college applied under Star College Scheme, if yes what was the outcome.

11. Details of increase in the faculty generated resources viz extramural research grants from other funding agencies to strengthen the Star College Scheme efforts.

12. SOPs developed, lab manuals created and uploaded on website or submitted to DBT.

13. Self evaluation

Department	*Objective (as stated in proposal)	%achieved	Reasons for under achievement/If achieved, state in Quantitative metrics
Physics	Same 8 objectives as in last report	90 %	Institute being situated in rural area, it takes time and lot of effort to motivate students to pursue students to attend the distant scientific summer training programmes/workshops/conferences etc

*For quantitative analysis you may fix five objective(max) each having 2marks and accordingly can calculate the matrix.

14. Point-wise **achievements** against the **objectives** [Eight] given in the **Guidelines**

15. Details of **activities** performed as per as given in the **Guidelines**.

16. Details of the procured equipment (as per submitted asset certificate) which would be retained by the college after completion of the project for future research and academics as Annexure-I with request letter for the retention of procured equipment.

**Course Coordinator
(With Seal)**

**Head of the Institution
(WithSeal)**

Annexure-I**2. No. of Students Passing out (%)Students admitted/Passing out(Pass%)**

Courses	Passing out (Pass%)					
		2021-22	2022-23	2023-24	2024-25	2025-26
B.Sc. (N.M)		98.68	99.18	100	96	
B.Sc. (Hons.)		100	100	100	83	100
M.Sc.		98.36	100	100	96	93

12 Dropout Rate

Courses	Dropout Rate (%)					
		2021-22	2022-23	2023-24	2024-25	2025-26
B.Sc. (N.M)		1.31	0	6.6	0	0
B.Sc. (Hons.)		0	1.63	0	0	0
M.Sc.		0	0	6.6	0	0

5. Average Marks

Courses	Average Marks (%)					
		2021-22	2022-23	2023-24	2024-25	2025-26
B.Sc. (N.M)- III		62.3	79.3	77.0	96.4	
B.Sc. (Hons.)- I		77.8	80.2	61.6	66.6	
B.Sc.(Hons.)-II		46.3	57.13	79.07	71.4	100
B.Sc. (Hons.)- III		82.4	56.12	83.3	83.3	100
M.Sc.-I		79.2	53.2	76.3	93.3	84.6
M.Sc.-I I		56.4	50.3	79.8	96	93.3

7.No. of new experiments introduced**(2022-23)****B.Sc. (Hons) Physics Sem-I and II**

1. To study the working of household energy meter and to determine the power consumption of some electric appliances.
2. To determine resistance and specific resistance of copper with the help of Kelvin's double bridge.
3. To study the magnetic field of a circular conductor as a function of the current (Biot savart's law).
4. To study the magnetic field of a circular conductor as a function of distance from the axis of the conductor (Biot Savart's law).
5. To study the magnetic field as a function of loop radius (Biot Savart's law).
6. To verify the laws of transverse vibrations of stretched strings using a sonometer.
7. To determine the velocity of sound in air using water column and tuning fork.
8. To find the number of lines per centimeter of the given grating using sodium light.

9.To determine the principle points of a lens system.

B.Sc. (Hons) Physics Sem-III and IV

- 1.(a) To draw the temperature resistance characteristic of a thermistor (b) To find the temperature co-efficient of resistance of thermistor.
2. To measure the speed of EM wave using a microwave oven.
3. To study the dissipation of heat using a copper plate.
4. To study Colpitts oscillator.
5. To study the response of RC-circuit to various input voltages (square, sine and triangular).
6. To study the gain of an amplifier at different frequencies and to find band-width and gain
7. To determine the linear attenuation coefficient of given material using gamma source and scintillation detector.
8. To measure the pulse-height of gamma ray spectrum with multichannel analyzer (MCA).
9. To study 2 Bit, 3 Bit and 4 Bit adder and subtracter
- 10.To study multivibrators (astable, monostable and bistable) using discrete components.

B.Sc. (Hons) Physics Sem-V and VI

1. To demonstrate dia-para-ferro magnetism in an inhomogeneous magnetic field.
- 2.To study the magnetic field produced by a current carrying solenoid using a search coil and find value of permeability of air.
3. To observe the neon spectral bands formation in Frank-Hertz tube.
4. To record the Frank-Hertz characteristics curve for neon.
- 5.To study the effect of filament voltage and anode plate voltage on the characteristic curve (Frank Hertz)
- 6.To determine number of lines in a transmission diffraction grating by using a laser light with known wavelength
7. To measure the divergence of a given laser source.
8. To calculate the wavelength of Laser light by single Slit.

B.Sc. (Non-Medical)

- 1.To find mass susceptibility of
 - (i) $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$
 - (ii) Anhydrous FeCl_3
 - (iii) Molecular (or molar) susceptibility by Quinke's method
2. To determine the wavelength of Balmer series in the visible region from hydrogen emission.
3. To determine the Rydberg constant.
4. To minimize the given logic circuit and prove the output to be same.

(2023-24)

B.Sc. (Hons) Physics Sem-I and II

1. To find moment of inertia of an irregular body using a torsion pendulum.
2. To study the theorem of parallel axes by using Maxwell's needle apparatus.
3. To determine the restoring force per unit extension of a spiral spring by statical and dynamical methods and also to determine the mass of the spring.
4. To determine the value of 'g' and the moment of inertia of a bar about C.G. by means of a bar pendulum.
5. To study the magnetic field of a current carrying coil and determine the radius.
6. To study the superposition of magnetic fields generated by two coils at different positions.
7. To determine the frequency of A.C. mains using an electrical vibrator, by Melde's experiment using: (i) transverse arrangement or (ii) longitudinal arrangement.
8. To determine the speed of sound in air at room temperature using a resonance tube.
9. To study the formation of Newton's rings in the air-film in between a plano-convex lens and a glass plate using nearly monochromatic light from a sodium-source and hence to determine the radius of curvature of the plano convex lens.

10. To determine the grating element of the supplied plane diffraction grating using monochromatic source of light.
11. To determine the value of Rydberg's constant with the help of a grating spectrometer using hydrogen gas discharge tube.

B.Sc. (Hons) Physics Sem-III and IV

1. To study the relation between temperature of a hot body and time by plotting cooling curve (Newton's law of cooling).
2. To determine the conductivity of a good conductor by Searle's method.
3. To find the specific heat capacity of a liquid by the method of cooling.
4. To find the specific heat capacity of a liquid by an electrical heating method.
5. To find the specific heat capacity of a poor conductor by the method of mixtures.
6. To plot the calibration curve of given copper constantan thermocouple using a potentiometer arrangement.
7. To calibrate a thermocouple and to find out the melting point of naphthalene.
8. To study energy calibration of scintillation detector.
9. To study Frank Hertz experiment for quantization of Bohr's model of an atom.
10. To find Stefan's constant using Black Body radiation.
11. Implementation and verification of Decoder using logic gates.
12. Implementation and verification of Encoder using logic gates.
13. Implementation of 4x1 multiplexer using logic gates.
14. Implementation and verification of 1:4 de-multiplexer using logic gates.

B.Sc. (Hons) Physics Sem-V and VI

1. To measure the susceptibility of solids by Gouy's method.
2. To measure the magneto resistance of a semiconductor.

B.Sc. (Non-Medical)

1. To fit the given data to a straight line graph and calculate from the given observations (i) Standard deviation (ii) Standard error (iii) Probable error.
2. To study energy calibration of scintillation detector.
3. To calculate the wavelength of Laser light by Double Slit
4. To determine the wavelength of laser light with a transmission grating.

(2024-25)

B.Sc. (Hons) Physics Sem-I and II

1. Analysis of experimental data by:
 - (i) Fitting of given data to a straight line.
 - (ii) Calculation of probable error.
2. To study the dependence of solenoidal field on number of turns and current.
3. To study the magnetic field produced by a current carrying solenoid using a search coil and to find the value of permeability of air.
4. To determine the value of air capacitance and find the permittivity of air by de-Sauty's method.
5. To determine the Hall coefficient of the given sample and hence find the carrier concentration and mobility.
6. To determine the unknown capacitance using flashing and quenching of neon lamp.
7. To study the phase relationships between voltage and current using impedance triangle.
8. To study the resonance in series LCR circuits for different resistances and calculate Q-value.
9. To study the resonance in parallel LCR circuits for different resistances and calculate Q-value.
10. To find an unknown low Resistance using Carey Foster's Bridge.
11. To determine the value of unknown inductance with the help of Anderson's Bridge.
12. To study the induced e.m.f as a function of velocity of magnet.

Electronic Workshop -I

1. Draw symbols of various electronic components on drawing sheets. Draw the circuit diagrams of various (Simple to Complex) electronic circuits on drawing sheets.
2. Familiarization of Electronic Measuring Instruments and Components.
3. Testing of electronic components like Resistor, Capacitor, Diode, Transistor using Multimeter.
4. Measurement of resistance, voltage and current using Digital Multimeter.
5. To study the series and parallel combination of a resistor.
6. To study the series and parallel combination of a capacitor.
7. Practice to Solder different components such as resistor, capacitor, diodes and transistors.
8. Sketch, mount, solder and test at least one from following electronic circuit on bread board (Circuits given as a guideline only)
- (i) How to build a very simple circuit which lights up a single Light Emitting Diode (LED)?
- (ii) To build the transistor timer circuit.
- (iii) Fire alarm
- (iv) Electronic Eye Controlled Security System Applications
- (v) Half wave and Full wave rectifier
9. Study of domestic Smart Energy Meter.
10. Efficiency analysis of electronic/electrical equipments with star rating.

Sem-II

1. To setup CRO for Sine/triangular/Square wave and to find their frequency and amplitude.
2. To compare the frequencies of oscillations produced by audio oscillators using Lissajous figures.
3. To determine the frequency of an electrically maintained tuning fork using a CRO.
4. To measure the logarithmic decrement, co-efficient of damping, relaxation time and quality factor of a damped simple pendulum.
5. To determine the frequency of AC mains using a sonometer and an electro magnet.
6. To verify laws of transverse vibrations of stretched strings using a sonometer.
7. To determine the frequency of an electrically maintained tuning fork by Melde's experiment.
8. To verify the laws of vibrating strings by Melde's experiment.
9. To compare mass per unit length of two strings by Melde's experiment.
10. To determine velocity of ultrasonic waves in a given liquid.
11. To determine the frequency of a tuning fork using a sonometer. To setup CRO for Sine/triangular/Square wave and to find their frequency and amplitude.
12. To compare the frequencies of oscillations produced by audio oscillators using Lissajous figures.
13. To determine the frequency of an electrically maintained tuning fork using a CRO.
14. To measure the logarithmic decrement, co-efficient of damping, relaxation time and quality factor of a damped simple pendulum.
15. To determine the frequency of AC mains using a sonometer and an electro magnet.
16. To verify laws of transverse vibrations of stretched strings using a sonometer.
17. To determine the frequency of an electrically maintained tuning fork by Melde's experiment.
18. To verify the laws of vibrating strings by Melde's experiment.
19. To compare mass per unit length of two strings by Melde's experiment.
20. To determine velocity of ultrasonic waves in a given liquid.
21. To determine the frequency of a tuning fork using a sonometer. To determine the Cauchy's constants A and B for the material of prism using Hg vapour lamp.
22. To determine the angle of wedge using interference method
23. To determine the relationship between the intensity of the transmitted light through analyzer and ' θ ', the angle between the axes of polarizer and analyzer and to verify Malus Law.
24. To prove that for a plane diffraction grating the dispersive power is
$$d\theta/d\lambda = n/(a+b) \cos\theta$$
25. To measure an inaccessible height using sextant.

Electronic Workshop –II

1. To Create schematic and layout of given electronic circuit using any PCB design software:
 - (a) +/-12V Regulated Power Supply Using 7812 & 7912
 - (b) Light operated Relay
 - (c) TV remote checker using transistor, IR photo diode, red LED
 - (d) Touch switch using transistor
 - (e) Door safety using Reed and magnet
 - (f) Water level alarm using single transistor
 - (g) Opaque Object sensing alarm using LDR, transistor & Buzzer
 - (h) Realisation of Logic Gates.
2. To Create schematic, layout and fabricate PCB for an electronic circuit and prepare brief report on it.
3. Build extension board with at least two 5-pin socket, four switches, fuse and indicating lamp.
4. To make power supply of different voltages by connecting solar panels.
5. Developing a household electrical wiring connections board.

(2025-26)

B.Sc. (Hons) Physics Sem-III and IV

1. To study the adiabatic expansion of a gas and hence to find the value of γ - the ratio of specific heat at constant pressure to specific heat at constant volume for air using Clement and Desormes's apparatus.
2. To study the thermal expansion of crystal using interference fringes.
3. To find the value of Planck's constant using a photoelectric cell.
4. Determination of specific heat of a liquid using calorimeter.
5. To measure the half life time of a radioactive substance using G.M. counter.
6. To determine the coefficient of thermal conductivity of a bad conductor by Lee's disc method.
7. To draw the plateau curve for a GM counter.
8. Determination of the coefficient of thermal conductivity of copper using Searle's apparatus.
9. To investigate temperature dependence on radiation from a hot filament.
10. To compare the luminous intensity of the two light sources using photo-voltaic cell.
11. Measurement of Planck's constant using black body radiation and photo-detector, Photo-electric effect: photo current versus intensity and wavelength of light; maximum energy of photo-electrons versus frequency of light.
12. To determine work function of material of filament of directly heated vacuum diode.
13. To determine the Planck's constant using LEDs of at least 4 different colours.
14. To determine the wavelength of H-alpha emission line of Hydrogen atom.
15. To determine the ionization potential of mercury.
16. To determine the absorption lines in the rotational spectrum of Iodine vapour.
17. To determine the value of e/m by (a) Magnetic focusing or (b) Bar magnet.
18. To setup the Millikan oil drop apparatus and determine the charge of an electron.
19. To show the tunneling effect in tunnel diode using I-V characteristics.
20. To determine (i) wavelength and (ii) angular spread of He-Ne laser using plane diffraction grating.
21. Dependence of scattering angle on kinetic energy and impact parameter in Rutherford scattering (mechanical analogue).
22. Measurement of the electrical and thermal conductivity of copper to determine its Lorentz number.
23. To determine energy band gap of a given semiconductor.
24. Verification of laws of probability and radioactivity (mechanical analogue)

Optics Workshop

1. In the workshop student will fabricate and analyze the following optical jobs.
 - a) Lens
 - b) Prism
 - c) Mirror

Practicals related to the prepared optical instruments

1. To find refractive index of the material of the lens.
2. To determine the focal length and power of the fabricated convex/concave lenses.
3. To determine the radius/center of curvature of the different lenses and verify $\frac{1}{f} = (n - 1)\left(\frac{1}{R_1} - \frac{1}{R_2}\right)$ for a thin lens.

4. Measure change in focal length when lens is immersed in a liquid (verify dependence on refractive index of medium).
5. To find out the angle of prism and refractive index of the fabricated prism.
6. To determine the dispersive power and Cauchy's constants for prism.
7. To study the variation of angle of incidence with the angle of minimum deviation for prism.
8. To measure an inaccessible height using Sextant.
9. To determine the resolving power of a telescope.
10. To determine the resolving power of a microscope.
11. To study the aberrations of a convex lens.
12. Build a telescope using two convex lenses and measure angular magnification and image quality.

Sem-IV

1. Study of Electron spin resonance- determine magnetic field as a function of the resonance frequency.
2. Study of Zeeman effect: with external magnetic field; Hyperfine splitting.
3. Quantum efficiency of CCDs.
4. To verify certain laws of probability distribution (ii) To verify laws of probability by throwing one coin, two coins and 10 (or more) coins.
5. To study the absorption spectra of iodine vapours.
6. To verify inverse square law of light using a photo-voltaic cell.
7. To determine the value of Boltzmann constant using p-n junction diode.
8. To find the ionization potential of mercury using a gas filled diode.
9. Determination of Stefan's constant using black body radiation.
10. To study the variation of photoelectric current with anode potential in case of photo cell.
11. To plot a graph between difference of temperature of the two junctions and the thermo e.m.f. for a copper constantan thermo-couple using potentiometer.
12. To plot a graph between difference of temperature of the two junctions and the thermo e.m.f. for a copper constantan thermo-couple using a standard cell.
13. To study the gas discharge spectrum of hydrogen.

8. Publications

2017-18

1. **Measurement of indoor radon and thoron levels in environment of Roopnagar district, Punjab**
R. Kaur, D. Shikha, S P Singh, **V. Mehta**
Int. J. of Adv Res. In Sc. Tech, Vol. 7 (8), 186-90, March 2018
2. **Measurement of variation of radon-thoron and their progeny concentrations in dwellings using pin hole based dosimeters**
Deep Shikha, **Vimal Mehta**, R P Chauhan, G S Mudahar
Aero. Aerosol Air Qual. Res. Vol. 18(3), pp. 811-819, Impact Factor -- 2.735, **SCI**, SCOPUS Indexed, ISSN:1680-8584, March **2018**
3. **Study of structural, optical and electrical parameters of ZnSe powder and thin films**
Deep Shikha, **Vimal Mehta**, R P Chauhan, Jeewan Sharma
J Mater Sci: Mater Electron, Vol. 28(12), pp. 8359-8365, Impact Factor -- 2.22, **SCI**, SCOPUS Indexed, ISSN: 0957-4522, June **2017**.
4. **Measurement of indoor radon and thoron levels in environment of Roopnagar district, Punjab**
R. Kaur, **D. Shikha**, S P Singh, V. Mehta
Int. J. of Adv Res. In Sc. Tech, Vol. 7 (8), 186-90, March 2018
5. **Measurement of variation of radon-thoron and their progeny concentrations in dwellings using pin hole based dosimeters**
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Aero. Aerosol Air Qual. Res. Vol. 18(3), pp. 811-819, Impact Factor -- 2.735, **SCI**, SCOPUS Indexed, ISSN:1680-8584, March **2018**
6. **Study of structural, optical and electrical parameters of ZnSe powder and thin films**

2021-22

S.N.	Title with page no.	Name of Authors from Department	Name of Journal	ISSN No.
1	Estimation of Indoor Radon and Thoron Levels along with Their Progeny in Dwellings of Roopnagar District of Punjab, India, 330(3), 1365-81, 2021	Deep Shikha, Vimal Mehta	<i>Journal of Radioanalytical and Nuclear Chemistry</i>	1588-2780
2	Measurement of indoor ^{222}Rn , ^{220}Rn and decay products along with naturally occurring radionuclides in some Monuments and Museums of Punjab, India, 330(3), 1357-64, 2021	Deep Shikha, Vimal Mehta	<i>Journal of Radioanalytical and Nuclear Chemistry</i>	1588-2780
3	Measurement of Indoor Radon, Thoron and Their Attached and Unattached Progeny Concentrations in Dwellings of Gurugram, India, Vol. 9, No. 7, 633-639, 2021	Deep Shikha,	<i>Applied Ecology and Environmental Sciences</i>	2328-3920
4	Estimation of Indoor Radon and Thoron Levels along with Their Progeny in Dwellings of Roopnagar District of Punjab, India, 330(3), 1365-81, 2021	Deep Shikha,	<i>Applied Ecology and Environmental Sciences</i>	2328-3920
5	Effect of different concentrations of the precursor on the properties of chemically induced ZnSe thin films, Vol. 126, 112093, Feb. 2022,	Deep Shikha, Vimal Mehta	<i>Journal of Radioanalytical and Nuclear Chemistry</i>	0925-3467
6	Estimation of indoor radon and thoron concentration in some dwellings of Gurugram, Haryana, India, 2357, 070004 (May, 2022). doi.org/10.1063/5.0080640	Deep Shikha	<i>AIP Conference Proceedings</i>	ISSN: 0094-243X
7	Estimation of Naturally Occurring Radionuclides in Soil of Shaheed Bhagat Singh District of Punjab, 2357, 070003, (May, 2022)	Deep Shikha, Vimal Mehta	<i>AIP Conference Proceedings</i>	ISSN: 0094-243X
8	Indoor Radon Measurements in Environs of Panchkula, Haryana, Using Solid State Nuclear Track Detectors, 2357, 070007, (May, 2022).	Deep Shikha	<i>AIP Conference Proceedings</i>	ISSN: 0094-243X
9	Estimation of Indoor Radon, Thoron and Exhalation Rates in Some Samples of Shaheed Bhagat Singh District of Punjab, 2357, 070002, (May, 2022).	Deep Shikha, Vimal Mehta	<i>AIP Conference Proceedings</i>	ISSN: 0094-243X
10	Evaluation of Uranium concentration in some water samples of Anandpur Sahib., 107(1), 7671, May 2022,	Deep Shikha, Vimal Mehta	<i>ECS Transactions</i>	ISSN: 1938-5862
11	Estimation of Radon Thoron Levels in Jind Area of Haryana, 107(1), 4625, May 2022,	Deep Shikha	<i>ECS Transactions</i>	ISSN: 1938-5862
12	The effect of Sm^{3+} ions on the structural, optical	Vimal	<i>Journal of</i>	0022-3697

	and thermoluminescence properties of MnKB glass system, 161 (2022) 110408	Mehta	Physics and Chemistry of Solids	
13	Sequestration of mercury and cadmium by a heavy metals' tolerant Bacillus cereus strain JS-3: a microbial preparedness for terrestrial and anthropogenic hazards. doi.org/10.1080/10889868.2021.1965083	Amrit Singh	Bioremediation journal	ISSN: 15476529
14	Effects of target thickness on the shape of the bremsstrahlung energy spectrum of Pb in the photon energy region of 1–100 keV, 2352, 050020, (May, 2022).	Amrit Singh	AIP Conference Proceedings	ISSN: 0094-243X
15	Comparative computational studies for nucleophilic aromatic substitution of dinitro-substituted benzannulated heterocycles with 1H-1,2,3-triazole.34, pages505–517 (2023)	Amrit Singh	Structural Chemistry	ISSN: 15729001
16	Detailed spectral evaluation of rare earth co-doped glasses for photonic applications, March 2022 https://doi.org/10.1016/j.jlumin.2022.118861	Devinder Singh	Journal of Luminescence	ISSN: 00222313
17	Influence of Er ³⁺ on structural and optical properties of borophosphate glasses https://doi.org/10.1007/s00339-022-05530-z	Devinder Singh	Applied Physics A Material Science and Processing	ISSN: 14320630

2022-23

S.No.	Title with page no.	Name of Authors from Department	Name of Journal	ISSN No.
1	Assessment of Macronutrients and Physicochemical Parameters of Agricultural Soils in Nawanshahr-Hoshiarpur Districts of Punjab, Vol. 61 (6), June 2023, pp. 401-409	Deep Shikha, Vimal Mehta	Indian Journal of Pure & Applied Physics	ISSN: 0975-1041
2	Assessment of indoor Radon levels in Residences of Jind District, Haryana using Solid-State Nuclear Track Detectors: Implications for Human Health, , Vol. 61 (6), June 2023, pp. 429-434	Deep Shikha, Vimal Mehta	Indian Journal of Pure & Applied Physics	ISSN: 0975-1041
3	Mapping the Variation in Indoor Radon, Thoron and Their Progeny Concentration for Different Seasons, Vol. 61 (6), June 2023, pp. 443-449	Deep Shikha, Vimal Mehta	Indian Journal of Pure & Applied Physics	ISSN: 0975-1041
4	A Study on the Bulk Etch Rate of LR-115 Solid State Nuclear Track Detector using Lithium Hydroxide as an Etching Solution, Vol. 61 (6), June 2023, pp.504-508	Deep Shikha, Vimal Mehta	Indian Journal of Pure & Applied Physics	ISSN: 0975-1041
5	Seasonal Variation of Indoor Radon and Thoron Concentration in Dwellings of Gurugram District, Haryana, Vol. 61 (6), June	Deep Shikha, Vimal	Indian Journal of Pure &	ISSN: 0975-1041

	2023, pp.509-514	Mehta	Applied Physics	
6	Assessment of Radionuclide Concentration and Exhalation Rates in some NORMs and TENORMs of Shivalik Region, Vol. 61 (6), June 2023, pp.520-525	Deep Shikha, Vimal Mehta	Indian Journal of Pure & Applied Physics	ISSN: 0975-1041
7	Tailoring the Properties of Nanocrystalline Tin(II) Selenide Films through Precursor Concentration Modulation (Vol. 30, June 2023, pp.365-368, DOI:10.56042/ijems.v30i3.3666	Deep Shikha, Vimal Mehta	Indian Journal of Engineering and Material Science	0975-1017
8	Efficiency of C = Se as hydrogen bond acceptor in controlling regioselective amination of 5,7-dinitroquinazoline-4-selenone: Quantum mechanical, AIM and docking analysis by density functional method., https://doi.org/10.1007/s11224-022-01993-1	Amrit Singh	Computational and Theoretical Chemistry	2210271X
9	Electrical relaxation and conduction behaviour in SmFeO ₃ modified PbZrTiO ₃ ceramics. https://doi.org/10.1007/s10854-022-09150-4	Amrit Singh	Journal of Material Science: Materials in Electronics.	1573-482X
10	Effect of Ce-dopant on photon interaction parameters of zirconolite-based borosilicate glass ceramics. https://doi.org/10.1016/j.jnoncrysol.2023.122196	Amrit Singh	Journal of Non-Crystalline Solids	223093
11	Optimization of sintering temperature for dielectric studies of La doped BZT ceramics., https://doi.org/10.1016/j.matpr.2023.02.301	Amrit Singh	Materials Today: Proceedings	2214-7853
12	Contributions of Sikh Gurus to Sports and Physical Fitness	Amrit Singh	Guru Teg Bahadur Journal of Religious Studies	2454-8995
13	UV-Vis Spectroscopic Analysis of Some Rare Earth Doped Heavy Metal Oxide Borophosphate Glasses, doi:10.48047/NQ.2022.20.7.NQ33533, July 2022	Randev Singh	NeuroQuantology	ISSN 1303-5150
14	Photon Interaction Parameters Investigation for Lead Borophosphate Glasses at 59.54 keV Incident Photon Energy, Dec. 2022, Doi:10.48047/NQ.2022.20.21.NQ99144	Randev Singh	NeuroQuantology	ISSN 1303-5150
15	Up-conversion and downconversion studies of Nd ³⁺ doped borophosphate glasses, Feb. 2023 https://doi.org/10.1016/j.optmat.2023.113586	Devinder Singh	Optical Materials	9253467
16	Corelation among optical properties and photon interaction parameters of some phosphate glasses for radiation shielding and sensing applications, March 2023	Devinder Singh	4 th National Research Scholar Meet 2023:Proceedings	ISBN 1-929890-8-2

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5. Assessment of concentration of radium, thorium, and potassium in soils of Rohtak and Jind districts of Haryana.
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2024-25

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Vaishali Dadwal, Deep Shikha, Sonika Gupta, Aditi Dalvi, Vimal Mehta, Raghunath Acharya
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2. Standardization and Comparative Evaluation of Laser Fluorimetry for Uranium Detection in Water Sources (Under Review)
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6. Measurement of Radon and Thoron Exhalation and Radionuclide Levels from the soil samples of Una District, Himachal Pradesh, India
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12. Amandeep Kaur, **Devinder Singh**, Bindu Bala, Shelly, and Dr Harpreet Kaur (2026) Smart strategies: Radiations for insect pest management approach. *World Journal of Advanced Research and Reviews*, 29(03), 1922-1927. DOI: <https://doi.org/10.30574/wjarr.2026.29.3.0702>

13. **Devinder Singh** and Amandeep Kaur (2025) Biomedical use of organic glasses: A comparative review in context to India and the world. *World Journal of Advanced Research and Reviews*, 28(03), 2360-2363. DOI: <https://doi.org/10.30574/wjarr.2025.28.3.3964>

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2. Shalom Akhai, Mahapara Abbass, Devinder Singh, Kamaldeep Kaur, Amandeep Kaur, Amandeep Singh Wadhwa (2026) Scissor with Integrated Bolt Opener. Patent Authority of India. 495621-001. 11/06/2026.

9. Training received by faculty

2021-22

S.No.	Training Programme	Name of Faculty	Date	Place
1	Participated in the one Week Online National Level Faculty Development Programme on "Advanced Computational and Experimental Research in Physics-2022	Dr. Amrit Singh	20th June to 27th June 2022	Department of Physics, SRM Institute of Science and Technology, Ramapuram Campus, Chennai
2	Participated Faculty Development Programme on "Recent Research Advances Materials: Water and Waste Water Treatment"	Dr. Amrit Singh	02-08-2021 to 07-08-2021.	Department of Science and Humanities, Bharat Institute of Engineering and Technology and Indian Ceramic Society, Hyderabad, Telangana
3	International Conference on Advances in Physical Sciences and Materials (ICAPSM 2021),	Dr. Deep Shikha	Aug 12-13, 2021	Coimbatore, Tamil Nadu, India,

4	25 th Punjab Science Congress on Future endeavors of science and technology for sustainable growth on	Dr. Deep Shikha	7-9 Feb 2022	Sri Guru Teg Bahadur Khalsa College, Sri Anandpur Sahib
5	DAE-BRNS two days theme meeting for Enhancing strategic planning for research reactor utilization.	Dr. Deep Shikha	May 6-7, 2022	Bhabha Atomic Research Centre, Mumbai
6	25 th Punjab Science Congress-2022 on Future Endeavors of Science and Technology for Sustainable Growth from	Dr. Amrit Singh	07-02-2022 to 09-02-2022	Sri Guru Teg Bahadur Khalsa College, Sri Anandpur Sahib
7	National Conference on Natural Sciences- Explorations Through Innovations (NCNSEI) from	Dr. Amrit Singh	27-05-2022 to 28-05-2022.	Maharaj Agrasen University
8	Online Refresher course in Research Methodology in Sciences	Dr. Amrit Singh	14-09-2021 to 27-09-2021	UGC-HRDC Panjab University Chandigarh.
9	Webinar and live demonstration of “Electro chemical Bio Sensors for Food and agriculture”	Dr. Amrit Singh	27th, April 2022	SSN Institutions, Kalavakkam, Chennai-603110,
10	Molecular Simulation and Docking Workshop-2022	Dr. Amrit Singh	24-01-2022 to 28-01-2022.	

2022-23

S.No.	Training Programme	Name of Faculty	Date	Place
1	Completed One Week (Online) Faculty Development Programme on “Principles of Radiation Detection and Measurement and Experimental Techniques”	Dr. Amrit Singh	April 3-9, 2023	IQAC, Ramjas College, University of Delhi in collaboration with Mahatma Hansraj Faculty Development Centre Hansraj College, University of Delhi.
2	Participated in the FDP cum workshop entitled “ One-Week Faculty Development Programme on Computational Modelling of Materials”	Dr. Amrit Singh	May 08-12, 2023	Department of Physics, Madanapalle Institute of Technology and Sciences.
3	22 nd National Conference on Solid State Nuclear Track Detectors and Their Applications,	Dr. Vimal Mehta	Nov18 - 20, 2022.	NIT, Kurukshetra
4	First Int. Conf. on Radiation awareness and detection in natural environment.	Dr. Vimal Mehta	March 2-4, 2023	Dolphin (PG) Institute of Biomedical and Natural Sciences, Dehradun

5	National Seminar on Condensed Matter Physics and Materials.	Dr.Vimal Mehta	May 8, 2023	Punjabi University Patiala
6	22 nd National Conference on Solid State Nuclear Track Detectors and Their Applications (SSNTDs-22)	Dr. Deep Shikha	Nov. 18-20, 2022	NIT, Kurukshetra
7	First Int. Conf. on Radiation awareness and detection in natural environment.	Dr. Deep Shikha	March 2-4, 2023	Dolphin (PG) Institute of Biomedical and Natural Sciences, Dehradun
8	National Seminar on Condensed Matter Physics and Materials.	Dr. Deep Shikha	May 8, 2023	Punjabi University Patiala
9	15 th Chandigarh Science Congress-2022 on “Towards Holistic Development of Science & Technology through Interdisciplinary approach” .	Dr.Amrit Singh	Sept 15-17, 2022	Panjab University Chandigarh in association with CRIKC
10	International Conference on Recent advances in Mathematical Sciences, Artificial Intelligence & Machine Learning organized by Department of Mathematica and Computer science.	Dr. Amrit Singh	March 14-15,2023	Sri guru Teg Bahadur Khalsa College, Sri Anandpur Sahib
11	interdisciplinary Two-Week Refresher Course On “Managing Online Classes & Co-creating MOOCS 17.0”	Dr. Amrit Singh	August07 – 21, 2022	Online course by MOOCS
12	one week on-line Short-Term Course on “Optical materials and Characterization Techniques & Synchrotron radiation and Neutron based Characterization Techniques”	Dr.Amrit Singh	Feb 24 to March 3, 2023.	Department of Physics, NIT Uttarakhand
13	webinar on “Microplastic Pollution: Role of educators and researchers”	Dr.Amrit Singh	Aug 6, 2022	Bharat Institute of Engineering and Technology, CRHESIHRD and ICERS Hyderabad
14	Workshop on Advanced composites and functional materials congress	Dr.Amrit Singh		IAAM, Ulrika 590 53, Sweden
15	THE ONLINE COURSE ON “Basics of "Remote Sensing, Geographical Information System and Global Navigation Satellite System	Dr.Amrit Singh	Aug 8, 2022 to Nov 25, 2022	
16	online workshop on “National Education Policy 2020: Research, Innovation and Rankings”	Dr.Amrit Singh	March 16, 2023	HRDC Guru Nanak Dev University, Sponsored by UGC

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2023-24

S.No.	Training Programme	Name of Faculty	Date	Place
1	One week online national level FDP on “Advanced Materials & Quantum Technology”	Dr. Randev Singh	04-12-2023 to 09-12-2023	Department of Applied Physics, Yashwantrao Chavan College of Engineering, Nagpur

2	Oneweek FDP on “NEP Orientation & Sensitization Programme”	Dr. Randev Singh	19-02-2024 to 26-02-2024	Teaching Learning Centre, Ramanujan College, University of Delhi.
3	Two-Week Refresher Course in Physics	Dr. Vimal Mehta	30-8-2023 to 13-9-2023	Teaching Learning Centre of Ramanujan College, New Delhi in collaboration with Bhaskaracharya College of Applied Sciences and Deshbandhu College, New Delhi
4	One -week FDP on “NEP Orientation & Sensitization Programme”	Dr. Vimal Mehta	19-02-2024 to 26-02-2024	Teaching Learning Centre, Ramanujan College, University of Delhi.
5	Attended National Seminar on Condensed Matter Physics and Materials	Dr. Vimal Mehta	8-5-2023	Punjabi University Patiala(Pb.)
6	Two-Week Refresher Course in Physics	Dr. Deep Shikha	30-8-2023 to 13-9-2023	Teaching Learning Centre of Ramanujan College, New Delhi in collaboration with Bhaskaracharya College of Applied Sciences and Deshbandhu College, New Delhi
7	One -week FDP on “NEP Orientation & Sensitization Programme”	Dr. Deep Shikha	19-02-2024 to 26-02-2024	Teaching Learning Centre, Ramanujan College, University of Delhi.
8	Attended National Seminar on Condensed Matter Physics and Materials	Dr. Deep Shikha	8-5-2023	Punjabi University Patiala(Pb.)
9	FIP	Dr. Devinder Singh	22-8-2023 to 21-9-2023	UGC HRDC North Eastern Hill University, Shillong
10	NEP 2020 Orientation & Sensitization Program	Dr. Devinder Singh	14-8-2023 to 23-8-2023	UGC MMTTC Kumaun University, Nainital
11	Attended the IPA Young Physicists Meet (YPM)	Dr. Amrit Singh	26-2-2024	Indian Physics Association (IPA), Visakhapatnam Chapter in association with GITAM (Deemed to be University), Visakhapatnam
12	National level Online Workshop on ARTIFICIAL INTELLIGENCE AWARENESS IN PHYSICS	Dr. Amrit Singh	15-2-2024 to 20-2-2024	RC 12A

13	Four-week online FDP on “How’s & Why’s in Learning UG level Quantum Mechanics”	Dr. Amrit Singh	1-2-2024 to 29-2-2024	IAPT RC-22 Telangana in collaboration with Government Degree College, Siddipet
14	webinar on “Implementation of NEP 2020 at HEIs – Pathways and Challenges”	Dr. Amrit Singh	29-2-2024	Internal Quality Assurance Cell (IQAC), SR University, Warangal, India.
15	INUP-i2i Familiarization workshop on Nanofabrication Technologies	Dr. Amrit Singh	18-01-2024 to 20-01-2024	IIT Madras, Chennai
16	One Day International Webinar Titled “Metal Organic Framework Derived Nanomaterials for High Performance Supercapacitors”	Dr. Amrit Singh	19-9-2023	Department of PHYSICS, GASCW, Barugur-635 104.
17	“NEP 2020 Orientation & Sensitization Programme”under Malaviya Mission Teacher Training Programme (MM-TTP) of University Grants Commission (UGC)	Dr. Amrit Singh	3-11-2023to 17-11-2023	Mahatma Hansraj Malaviya Mission Teacher Training Centre (MH-MMTTC), Hansraj College, University of Delhi
18	INUP-i2i Familiarization workshop on Quantum Materials and Nano Devices,	Dr. Amrit Singh	6-12-2023 to 8-12-2023	center of Nanotechnology, IIT Guwahati,
19	webinar themed “From Pollution to Solution: Confronting the Plastic Menace”	Dr. Amrit Singh	4-11-2023	department of Chemistry, LBS Govt degree College
20	workshop on Atomic and Molecular Physics (ATMOL’23)	Dr. Amrit Singh	14-9-2023 to 15-9-2023	Inter University Accelerator Centre New Delhi
21	Participated European Advanced Material Congress, Southampton UK	Dr. Amrit Singh	23-9-2023 to 26-9-2023	International Association of Advanced Materials, Sweden
22	Participated in five days faculty development program on “Advanced Materials for Energy Applications	Dr. Amrit Singh	9-10-2023 to 13-10-2023	Sathyabama Institute of Science and Technology. Chennai.
23	online lecture on "Fascinating World of Quantum Dots”	Dr. Amrit Singh	3-7-2023	Department of Physics, Ramjas College, University of Delhi
24	Online Course on “Overview of Space Science and Technology”	Dr. Amrit Singh	20-07-2023 to 7-8-2023	Department of Space, Government of India, Indian Space Research Organization (ISRO), Indian Institute of Remote Sensing (IIRS).

25	Attended national Conference on “Emerging Trends in Science & Technology for Sustainable Development”	Dr. Amrit Singh	2-3-2024	DAV college Bathinda
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2024-25

S.No.	Training Programme	Name of Faculty	Date	Place
1	One week UGC Sponsored Short Term Course(Online) conducted	Dr. Vimal Mehta	25 June-1 July, 2024	Aligarh Muslim University under MMTTC Center.
2	One week UGC Sponsored Short Term Course(Online) conducted	Dr. Deep Shikha	25 June-1 July, 2024	Aligarh Muslim University under MMTTC Center.
3	Session Chair in International Conference on Physics Education (IUPAP-2025),	Dr. Vimal Mehta	16-20 Dec, 2025	IIT Ropar in Collaboration with IISER Mohali
4.	Attended International Conference on Physics Education (IUPAP-2025),	Dr. Deep Shikha	16-20 Dec, 2025	IIT Ropar in Collaboration with IISER Mohali
5.	One-week Faculty Development Program (Online) on “Innovative Trends in Designing Materials and Mathematical Modelling for Sustainable Development”	Dr. Amrit Singh	27 to 31 January, 2025	Department of Physics, Chemistry and Mathematics, Vivekanandha Arts and Science College for women, Sankagiri
6.	One-week Faculty Development Program on “Computational and Experimental Insights into Material Research (CEIMR-2025)	Dr. Amrit Singh	22 to 26April, 2025.	Department of Physics and Chemistry (S&H) JB Institute of Engineering and Technology, Hyderabad
7.	One-week National Level Faculty Development Program on “Neuro-Linguistic Programming”	Dr. Amrit Singh	13 to 18 January, 2025.	Organized by IQAC, Sri Guru Teg Bahadur Khalsa College, Sri Anandpur Sahib, in collaboration with Nucleus of Learning and Development
8.	Seven Day International Faculty Development Program on “Frontiers in Physics from Fundamental to Emerging Technologies”	Dr. Amrit Singh	12-18 May 2025.	Department of Physics, Academy of Maritime Education and training (AMET), Deemed to be University, Chennai
9.	Online Short course on “Earth’s Atmosphere and Climate Change	Dr. Amrit Singh	October 21-25, 2024	CSSTEAP, Dehradun, and conducted by Physical Research Laboratory, Department of Space, Ahmedabad, India

10	Online Short course on "Planetary Science"	Dr. Amrit Singh	September 9-13, 2024.	CSSTEAP, Dehradun, and conducted by Physical Research Laboratory, Department of Space, Ahmedabad
11	International webinar	Dr. Amrit Singh	07th April 2025.	Post Graduate Department of English, and Institute Innovation Council, Sri Guru Teg Bahadur Khalsa College Sri Anandpur Sahib
12	One Week National Workshop on the theme "Role of Nanotechnology for Environmental Remediation"	Dr. Amrit Singh	6th November to 12th November, 2024	Under the aegis of Centre of Excellence in Nanotechnology, MAU & Navyug Kanya Mahavidyalaya, Lucknow, In collaboration with SAIF-CIL, Panjab University, Chandigarh
13	Energy Literacy Training" the course spanning over 12 modules. The training helps people in understanding energy, its generation, consumption, wastage, carbon footprint, impact on the environment, means to avoid and minimize energy usage, alternative energy solutions, ways to become carbon neutral, misconceptions on solar energy, and approach to adopt Dr. Amrit Singh solar energy solutions	Dr. Amrit Singh	28 May 2025	Supported by Adani
14	One Week National Level FDP on Introduction to Intellectual Property Rights	Dr. Devinder Singh	11 Nov to 16 Nov 2024	Gokul Global University Siddhpur and Nucleus of Learning and Development Gujarat
15	Unlocking Critical Thinking: Strategies for Problem Solving,		15 April to 21 April 2025	PG Department of English, Sri Guru Teg Bahadur Khalsa College Sri Anandpur Sahib.
16	One week online workshop on advanced statistical data analysis using SPSS		22 April to 28 April 2025	Resilient foundation for academic innovation and scientific research (Reg by NITI Aayog, GOI).
17	28 th Punjab Science Congress		7 Feb to 9 Feb 2025	Khalsa College Amritsar.
18	Cybercrime & Safeguards in the contemporary times: An Introduction.		7 August to 13 August 2025	IIC, Sri Guru Teg Bahadur Khalsa College Sri Anandpur Sahib and Nucleus of learning and Development.
19	Participated in the one Week Online National Level Faculty	Prof. Kajal	22-04-2024 to 28-04-2024	Sri Guru Teg Bahadur Khalsa College, Sri Anandpur Sahib collaboration with Nucleus of learning and development ,

	Development Programme on "Advanced Presentation Techniques"			Gujarat
20	Participated in the one Week Online National Level Faculty Development Programme on “ The power of choice: Sharpening decision making skills”	Prof. Kajal	27-02-2025 to 05-03-2025	GokulGlobalUniversity,Siddhpur,Gujarat collaboration with Nucleus of learning and development

2025-26

S.No.	Training Programme	Name of Faculty	Date	Place
1	One week online National level faculty Development Program on “ CHATGPT 5.0 In ACADEMICS EXPLORING LATEST UPDATES< APPLICATIONS AND PEDAGOGICALSHIFTS”	Dr. Vimal Mehta	27 October-1 November, 2025	Sri Guru Teg Bahadur Khalsa College, Sri , Anandpur Sahib
2	One week online National level faculty Development Program on “ CHATGPT 5.0 In ACADEMICS EXPLORING LATEST UPDATES, APPLICATIONS AND PEDAGOGICALSHIFTS”	Dr. Deep Shikha	27 October-1 November, 2025	Sri Guru Teg Bahadur Khalsa College, Sri , Anandpur Sahib
3.	Faculty Development Programme on “Research Methodology”	Dr. Vimal Mehta	15 Dec- 22 Dec, 2025	Sri Guru Teg Bahadur Khalsa College, Sri , Anandpur Sahib
4.	Faculty Development Programme on “Research Methodology”	Dr. Deep Shikha	15 Dec- 22 Dec, 2025	Sri Guru Teg Bahadur Khalsa College, Sri , Anandpur Sahib
5.	Online workshop on “Curriculum Design for Quality and Global Relevance: Aligning NAAC, NBA, NIRF with QS & the Frameworks”	Dr. Amrit Singh	23 November, 2025	IQAC, Sri Guru Teg Bahadur Khalsa College, Sri Anandpur Sahib

6.	Online Short course on“Space Science: Present to the Future”organized by CSSTEAP, Dehradun, and conducted by Science Program Office (SPO), ISRO Headquarters,	Dr. Amrit Singh	June08-19, 2026	Indian Space Research Organization
7.	One-week Faculty Development Program on “Literature, Culture, and Universal Human Values: Interdisciplinary Perspectives from Humanities”	Dr. Amrit Singh	02 to 08 January, 2026.	PG Department of English, Sri Guru Teg Bahadur Khalsa College, Sri Anandpur Sahib
8.	One-week Faculty Development Program on “Research Methodology” Sponsored by DBT STAR Status GOI, Organized by PG Department of Mathematics	Dr. Amrit Singh	15 to 22 December, 2025	IQAC Sri Guru Teg Bahadur Khalsa College, Sri Anandpur Sahib
9.	National One-week Faculty Development Program on “Addressing Mental Health Concerns in Classrooms: An Educator’s Approach for managing Psychological Well-Being of the Students”	Dr. Amrit Singh	28 May to 03 June, 2026	Sri Guru Teg Bahadur Khalsa College, Sri Anandpur Sahib
10.	Online National One-week Faculty Development Program on “Cybercrime & safeguards in the Contemporary Times: An Introduction”	Dr. Amrit Singh	07-13 August, 2025	Institution’s Innovation Council (IIC), Sri Guru Teg Bahadur Khalsa College, Sri Anandpur Sahib,
11.	National One-week Faculty Development Program on “AI Tools for Research: Enhancing Academic Productivity and Innovation”	Dr. Amrit Singh	17-22 November, 2025.	Sri Guru Teg Bahadur Khalsa College, Sri Anandpur Sahib, in collaboration with Nucleus of Learning and Development
12.	One-week Faculty Development Program on “Indian Knowledge Systems: Exploring the World of Yoga & Its Philosophy”	Dr. Amrit Singh	28 July to 02 August, 2025.	Organized by PG Department of English and Indian Knowledge System Cell, Sri Guru Teg Bahadur Khalsa College, Sri

				Anandpur Sahib
13.	Certificate course on Integrating Indian Knowledge Systems in Academia Through NEP 2020: A Vision for civilizational reclamation.	Dr.Devinder Singh	17 th November to 28 th November	IKSC, Sri Guru Teg Bahadur Khalsa College Sri Anandpur Sahib in Collaboration with Nucleus of Learning
14.	FDP on Cybercrime and safeguards in the contemporary times: An introduction	Dr.Devinder Singh	7 th August to 13 th August 2025	IIC, Sri Guru Teg Bahadur Khalsa College Sri Anandpur Sahib and Nucleus of learning
15.	Participated in the one Week Online National Level Faculty Development Programme on "Indic Local Self Governance: The Indigenous Roots"	Prof. Kajal	08-09-2025 to 13-09-2025	SriGuru TegBahadur Khalsa College,Sri AnandpurSahib collaboration with Nucleus of learning and development
16.	Participated in the one Week Online National Level Faculty Development Programme on " Harnessing AI Tools: A step towards strategic teaching approach"	Prof. Kajal	29-12-2026 to 4-01-2026	Sri Guru TegBahadur Khalsa College, Sri Anandpur Sahib collaboration with Nucleus of learning and development
17.	Participated in the one Week Online National Level Faculty Development Programme on "Indic Local Self Governance: The Indigenous Roots"	Prof. Gaganpreet kaur	08-09-2025 to 13-09-2025	Sri Guru TegBahadur Khalsa College, Sri Anandpur Sahib collaboration with Nucleus of learning and development
18.	Participated in the one Week Online National Level Faculty Development Programme on "Indic Local Self Governance: The Indigenous Roots"	Prof. Gaganpreet kaur	08-09-2025 to 13-09-2025	Sri Guru TegBahadur Khalsa College, Sri Anandpur Sahib collaboration with Nucleus of learning and development
19.	Participated in the one Week Online National Level Faculty Development Programme on Cyber Crime and Safeguards in the contemporary times: An Introduction"	Prof. Gaganpreet kaur	07-08-2025 to 13-08-2025	Sri Guru TegBahadur Khalsa College, Sri Anandpur Sahib collaboration with Nucleus of learning and development

20.	Participated in the one Week Online National Level Faculty Development Programme on 'Integrating Indian Knowledge System in Academia NEP 2020 : A Vision for civilization reclamation	Prof. Gaganpreet kaur	17-11-2025 to 28-11-2025	Sri Guru TegBahadur Khalsa College, Sri Anandpur Sahib collaboration with Nucleus of learning and development
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7. Exhibitions/Seminars/ training courses conducted

2021-22

Programme Name	Date	Class Participated	No. of Benefited Students
Punjab Science Congress (Conference)	Feb 7-9,2022	More than 20 colleges participated	
A lecture on the topic "Importance of Science in Daily Life"	5th September, 2021	M.Sc. Physics, B.Sc. Non-Medical and B.Sc. Hons.	200
One-day educational tour to Mohendra Chaudhry Zoological Park, Zirakpur (Chhatbir Zoo, Chandigarh)	October 6, 2021	B.Sc. (Hons.) Physics.	35
Science day Celebration	Feb 28,2022	B.Sc.(Hons.) Physics, B.Sc.(Non-Medical) and M.Sc. Physics	50
A one day Inter School Competition	March 3,2022	20 schools	500

2022-23

Programme Name	Date	Class Participated	No. of Benefitted students
A one day Inter College Competition, Scifest 2023	March 1, 2023	20 different colleges	500
Educational Tour to Aryabhata Research Institute of Observational Sciences (ARIES), Nainital.	April 23, 2022	M.Sc. Physics and B.Sc. Honors Physics	27
A quiz competition 'Practical Physics Based Hands-on Experience'	Feb 9, 2023	B.Sc.-II (Non-Medical) and B.Sc.-III (Non-Medical)	23
A Declamation Contest 'TOPICS on PHYSICS'	Feb 10, 2023	B.Sc.-II (Non Medical) Semester-IV	20
E-learning session on topic "X-ray diffractometer for material characterization"	Feb 10, 2023	M.Sc.-II Physics and B.Sc (Hons.) -III Physics	30
Poster Presentation Competition	Feb 22, 2023	B.Sc. Hons Physics and M.Sc. Physics Sem-II	25

A minor research activity” ‘To Find Background Radiation Levels of a Building Using Pocket Radiation Monitor”	Feb 24,2023	B.Sc. (Non-Medical) Sem.-IV	20
A minor research activity “How to fabricate thin films by using spin coater”	Feb 27,2023	M.Sc.-II Physics and B.Sc (Hons.) -III Physics	30
Educational Tour to Pushpa Gujral Science City, Kapurthala (Punjab)	March 3,2023	B.Sc. Hons. Physics, B.Sc. Non Medical I, II & III	120

2023-24

Programme Name	Date	Class Participated	No. of Benefited Students
Three-day excursion trip to Rishikesh, Haridwar and Dehradun.	March 29-April 2, 2023	M.SC Physics and B.Sc. (N.M.) Sem - VI	45
A visitto DST-FIST Research lab for “Understanding of working of UV-VIS spectrophotometer”	April 12, 2023	M.Sc. Physics sem.-IV and B.Sc. Honors Physics sem.-VI	24
Model Making Competition of school students	Jan 30, 2024	10 schools Participated	30
Science day celebration (Quiz competition, Rangoli competition, Ppt presentation competition etc.)	Feb 28, 2024	M.Sc. Physics, B. Sc (Hons.) Physics and B.Sc. (N.M.)	35

2024-25

Programme Name	Date	Class Participated	No. of Benefited Students
National Space Day Celebration (educational talk)	August 23,2024	M.SC Physics and B.Sc. (Hons.) Physics	40
Educational tour to Ganguwal Power House	February 13,2025	B.Sc. Hons Physics, B.Sc. Non-Medical	28
One day excursion trip to Chokhi Dhani, Panchkula, Haryana	February 20, 2025	B.Sc. Hons Physics, B.Sc. Non-Medical and M.Sc. Physics	40
Paper Reading Competition on Science in Indian Knowledge System (IKS).	Feb 24, 2025	M.Sc. Physics, B. Sc (Hons.) Physics and B.Sc. (N.M.)	13
Quiz Competition on General Science	February 25, 2025	B.Sc. Hons Physics, B.Sc. Non-Medical	40
Science day Celebration (Sci Fest 2025) (Various events Working Model, Slogan Writing, Quiz, Rangoli Making, Best Out of Waste, PPT	February 28, 2025	B.Sc. (H) Physics, B.Sc. Non- Medical and M.Sc. Physics	45

Making and Paper Reading competitions)			
Participation in Working Model, “Anti-Sleep Alarm” on the Science Day celebration held at Sri Guru Granth Sahib World University, Fatehgarh Sahib	March 05, 2025	B.Sc. Hons Physics	3
Poster Presentation Competition on Recent Innovations in Physics	March 10, 2025	B.Sc. Hons Physics and M.Sc. Physics	15
Paper Reading Competition on “Mechanics and its Applications”	March 20, 2025	B.Sc. (H) Physics, B.Sc. Non- Medical and M.Sc. Physics	17
Essay Writing Competition on topic “THAT IS WHY I CHOSE TO STUDY PHYSICS”	March 25, 2025	B.Sc. (H) Physics, B.Sc. Non- Medical and M.Sc. Physics	20

2025-26

Programme Name	Date	Class Participated	No. of Benefited Students
Education trip to Marahar Power Controls Pvt. Ltd., Dhuri	September 12, 2025	B.Sc. Hons Physics, B.Sc. Non-Medical	50
Educational trip to science city, Kapurthala	September 24, 2025	M.Sc. Physics, B. Sc (Hons.) Physics and B.Sc. (N.M.)	40
Educational Trip to IIT, Ropar	January 21, 2026	B. Sc (Hons.) Physics and M.Sc. Physics	25

8. Books/journals subscribed form grants

S.No.	Book with Edition	Author	Publisher	Quantity
1	Digital Systems Principles and Applications	Ronald J Tocci, Neal S. Widmer	Pearson	5
2	Basic Electronics and Linear Circuits	N N Bhargava, D C Kulshetra, S C Gupta	McGraw Hill Edu (India) Pvt Ltd	15
3	Computational Physics	RC verma, SC gupta	Ane Books Pvt. Ltd.	5
4	Classical Electrodynamics	Jackson	Wiley	3
5	Statistical Mechanics	RK Patharia	AP	2
6	Classical Mechanics	Goldstein	Pearson	3
7	CSIR NET Physical Sciences	--	IFAS	3
8	Quantum Mechanics	Zetli	Wiley	3
9	Introduction to Solid State Physics	Charles Kittel	Wiley Publication	5

10	Solid State Physics	Ashcroft/Mermin	Cengage Learning	2
11	Solid State Physics	S.O.Pillai	New Age International	9
12	Introduction to Solids	Azaroff	Tata McGraw Hill	1
13	Physics Practical	C.L.Arora	S.Chand	10
14	Lasers and Non Linear Optics	B.B.Laud	New Age International	5
15	Optical Fiber Communication	Senior	Pearson Edu.	5
16	Lasers : Techniques and Applications, 2/E	Prasad	Ane Books Pvt. Ltd	4
17	A Textbook of optics	subrahmanyam	S. Chand	3
18	Quantitative Aptitude for competitive exams	Dr. RS Aggarwal	S.Chand	2
19	General Knowledge	—	Lucent	2
20	A Modern Approach to verbal and Non verbal reasoning	Dr. RS Aggarwal	S.Chand	2
21	Computer awareness	—	Arihant	2
22	IIT JAM Solved Papers Physics		Arihant	2
23	JEE Solved Paper Physics		Oswal	2
24	Elementary Statistical Mechanics	Gupta	PPM	5
25	Mathematical Physics	Satyaprakash	Sultan Chand and Sons	3
26	Laser Fundamentals and Applications	Ghatak and Thyagarajan	Laxmi Publication	10
27	Quantum Mechanics Theory and Applications	Ghatak and Lokanathan	Laxmi Publication	5
28	Quantum Mechanics	Satyaprakash	KNRN	2
29	Statistical Mechanics	Satyaprakash	KNRN	3
30	Atomic and Molecular Spectra: Laser	Raj Kumar	KNRN	6
31	Statistical Physics Thermodynamics and Kinetic Theory	V S Bhatia	Vishal Publishing Co	10
32	Electronic Devices and Circuits	J B Gupta	S K Kataria & Sons	5
33	Physics for Engineers	NK Verma	PHI Learning Pvt Ltd	1
34	Principles of electronics	VK Mehta	S Chand	1
35	FEYNMAN LECTURES ON PHYSICS - VOLUME I : MAINLY MECHANICS RADIATION AND HEAT THE NEW MILLENNIUM EDN	RICHARD D. FEYNMAN, LEIGHTON & SANDS	PEARSON INDIA	2
36	FEYNMAN LECTURES ON PHYSICS - VOLUME II :THE NEW MILLENNIUM EDITION: MAINLY ELECTROMAGNETISM AND MATTER	FEYNMAN, RICHARD, ROBERT AT. AL.	PEARSON INDIA	2
37	FEYNMAN LECTURES ON PHYSICS - VOLUME III: QUANTUM MECHANICS	FEYNMAN	PEARSON INDIA	2
38	Introductory Nuclear Physics	Krane	Wiley Publication	2
39	Modern Physics	Harris	Pearson	1

40	Physics for Engineering Applications	Sanjiv Puri	Narosa Publishing House	2
41	Introduction to Quantum Mechanics	Griffths	CAMBRIDGE INDIA	2
42	An Introduction to Mechanics	Kleppner and Kolenkow	CAMBRIDGE INDIA	2
43	Fundamentals of Optics	Jenkins	MC GRAW HILL INDIA	1
44	The classical Theory of Fields	Landau	Elsevier	1
45	Introduction to Elementary Particles	Griffths	Wiley	1
46	Fundamentals of Digital Circuits	A. Anand Kumar	PHI Learning Pvt Ltd	13
47	Optical Electronics	Ghatak and Thyagarajan	CAMBRIDGE INDIA	10
48	Optical Fiber Communication	Keiser	MC GRAW HILL INDIA	1
49	Classical Mechanics	JC Upadhyaya	Himalaya Publishing House	2
50	Engineering Mechanics	Shames and Rao	Pearson	1
51	MCQ on Physics	Kailash	Pepsu Publications	2
52	PCS General Studies Paper-I	Swaran	Sahil Publications	1
53	Modern Spectroscopy	Hollas	Wiley	1
54	Introduction to Fiber Optics	Ghatak	CAMBRIDGE INDIA	1
55	Thermal Physics, 2nd Edn	S.C. Garg, R.M. Bansal, C.K. Ghosh	Mc Graw Hill India	5
56	200 Puzzling Physics Problems With Hints And Solutions	Gnadig	Cambridge India	5
57	3000 Solved Problems In Physics (Sie) Revised First Edition (Schaum Outline Series), 1ed	Halpern	Mc Graw Hill India	2
58	Classical Thermodynamics: A Basic Approach	Sk Ashok Kumar	Sip	5
59	Introduction To High Energy Physics: Particle Physics For The Beginner	Lee G Pondrom	World Scientific India	1
60	Physics At The Large Hadron Collider	Datta	Springer India	2
61	Physics For Scientists And Engineers With Moder Physics, 9th Edn	Raymond Serway, John Jewett	Cengage India	2
62	Physics Of Atoms And Molecules, 2nd Edn	B.H. Bransden& C.J. Joachain	Pearson India	2
63	Physics: Oscillation, Waves, Optics And Quantum Mechanics	Alok Agrawal	Pearson India	3
64	Principles Of Physics: International Student Version, 10th Edn	Halliday	Wiley India	5
65	Schaum's Easy Outline Of Applied Physics, Revised Edition	Arthur Beiser	Mc Graw Hill India	2

66	Schaum's Outline Of Group Theory	B. Baumslog,B. Chandler	Mc Graw Hill India	2
67	Schaum's Outline Of Modern Physics / 2nd Edition	Ronald Gautreau	Mc Graw Hill India	2
68	Schaum's Outline Of Physical Science / 2nd Edition	Beiser	Mc Graw Hill India	2
69	Schaum's Outline Of Thermodynamics / 2nd Edition	Abbott And Van Ness	Mc Graw Hill India	2
70	Solid State Physics A Introduction	Hofmann	Wiley India	3
71	Students Guide To Fourier Transforms: With Applications In Physics And Engineering	James	Cambridge India	1
72	Theoretical Astrophysics : Astrophysical Processes, Vol 1	T. Padmanabhan	Cambridge India	1
73	Theoretical Astrophysics : Galaxies And Cosmology, Vol 3	Dr T R Padmanabhan	Cambridge India	1
74	Theoretical Astrophysics : Stars And Stellar Systems, Vol 2	T. Padmanabhan	Cambridge India	1
75	Thermal And Statistical Physics	Sharma	Ane Books Pvt. Ltd.	3
76	Mathematical Physics	Balakrishnan	Springer	4
77	Nuclear And Particle Physics	Jain	Ane Books Pvt. Ltd.	3
78	Quantum Physics	Jain	Phi Learning Pvt Ltd	3
79	Textbook Of Optics	Suresh Chandra	Ane Books	3
Total Quantity				261

JOURNAL'S DETAIL

S. No.	JOURNALS SUBSCRIPTION	Quantity	Period	Cost (Rs.)
1	Indian Academy of Sciences	1	1 Year	2000/-
2	Current Science	1	1 Year	3000/-

9. Outreach activities (Popular lectures)

2021-22

Programme Name	Name of Faculty	Place	Date
Interaction of Faculty Members of S.D.College Barnala for Mentoring of DBT Star College Scheme	Dr. Vimal Mehta	S.D.College Barnala	March 25,2022

2022-23

Programme Name	Name of Faculty	Place	Date
Interaction of Faculty Members of Guru Nanak College, Mukutsar Sahib for Mentoring of DBT Star College Scheme	Dr. Vimal Mehta	Guru Nanak College, Mukutsar Sahib	May 5,2022

2023-24

Programme Name	Name of Faculty	Place	Date
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Mentorship program under star college Scheme of DBT to Department of Basic Sciences and Mathematics	Dr. Vimal Mehta	Guru Nanak College, Sri Muktsar Sahib (Online Mode).	March 23,2024
Extension lecture on “Nanotechnology and Experimental Techniques”).	Dr. Deep Shikha	Department of Physics, Guru Nanak College, Sri Muktsar Sahib (Online Mode	March 30,2024

2024-25

Programme Name	Name of Faculty	Place	Date
Guest Lecture on “Methodological Approaches to Research” in One day Workshop on Methodological approaches to Research (Qualitative, Quantitative and Mixed Methods)[Hybrid Mode]	Dr. Amrit Singh	Guru Nanak Khalsa College, Daroli Kalan, Jalandhar	April 30,2025

2025-26

Programme Name	Name of Faculty	Place	Date
Interschool Winter carnival (Model Making Competition) of different school students	Dr. Randev, Dr. Vimal Mehta, Dr. Deep Shikha	Physics Department, Sri Guru Teg Bahadur Khalsa College, Sri Anandpur Sahib	Feb 4, 2026
Hands on training in Nuclear Physics Experiments to students of Bibi Sharan Kaur Khalsa College, Chamkaur Sahib	Dr. Davinder Singh	Physics Department, Sri Guru Teg Bahadur Khalsa College, Sri Anandpur Sahib	11 th April 2026

10. Invited lectures

2017-18

Name	Designation	Host Institute	Topic
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Dr.Gurmel Singh	Professor	Punjabi University Patiala	Radiation Physics
Dr. Esha Mudhar	Asstt.Prof.	Punjabi University Patiala	Carbon Nanotubes

2021-22

Name	Designation	Host Institute	Date	Topic
Dr. Madan Lal	Assistant Professor	Government PG College Una	13-6-2021	a lecture on the topic Future Scope in Physics

2022-23

Name	Designation	Host Institute	Date	Topic
Dr. Manish Dev Sharma	Assistant Professor	Department of Physics, Panjab University Chandigarh	20th April, 2022.	a Lecture on “Evolution of Electronics to Digital Electronics”
Dr. Anjum	Assistant Professor of Commerce and Management	DAV College, Chandigarh	27th April, 2022.	a Lecture on “Issues and Challenges in New Education Policy-2020”
Dr. S.K.Mehta	Vice Chancellor	University of Ladakh, Ladakh	May 2,2022	A lecture on “New Education Policy-2020”

2025-26

Name	Designation	Host Institute	Date	Topic
Dr. Manoj Kumar Gupta	Assistant Professor	S.D. College, Barnala	17 September, 2025	Lecture on “Radiations : A Necessary Evil”
Dr. Akshay Kumar	Associate Professor and Head	Sardar Patel University, Mandi(HP)	18 September, 2025	Lectutre on “Nanomaterials: Building Blocks of the Future”
Dr. Preet kaur	Assistant Professor and Head	Sri Guru Granth Sahib World University, Fatehgarh Sahib	23 September, 2025	One day workshop on Gamma ray, UV-Visible and PL Spectroscopy:Principle, Techniques and Instrumentation