

# FACULTY OF SCIENCES

## SYLLABUS

### FOR

#### Interdisciplinary Paper

**Compulsory for Undergraduate classes of Arts and Commerce  
Streams**

(12+3 SYSTEM OF EDUCATION)

**(Semester I-II)**

**Session: 2021-22**



## **KHALSA COLLEGE AMRITSAR**

*(An Autonomous College)*

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**(ii) Subject to change in the syllabi at any time. Please visit the  
College website time to time.**

**SCIENCE AND TECHNOLOGY -I  
INTERDISCIPLINARY PAPER**

**Compulsory for Semester I Undergraduate classes of Arts and Commerce Streams**

**Credit Hours (per week): 1.5**

**Total Hours: 23**

**Total Marks: 50**

**Time: 3 Hours**

**Instructions for the Paper Setter:**

Section A: -Twelve (12) Questions will be set in Section A. Students are required to attempt Ten (10) the questions. Each question carries Two (2) Marks.

Section B: - Eight questions will be set. Students are required to attempt any Six (6) out of the eight questions in about 100 words. Each question carries Five (5) Marks.

**Course Objective:** The objective of this course is to help students develop their cognitive abilities-brain-based skills and mental processes that are needed to carry out tasks. Students in this subject should learn how to access, understand, employ, and synthesize the expertise from science and technology.

**Course Contents:**

**Section- A**

1. Scientific terms and basic concepts of science: -

Brief Introduction to: Units of Physical Quantities, Conversion of Units (CGS To SI Units), Concept of Force (Centripetal and Centrifugal), Torque, Pressure, Density, Archimedes Principle, Bernoulli Theorem, Sound, Electromagnetic Radiations (Xrays), LASER, RADAR, SONAR, Important scientific instruments.

**Section- B**

1. Important Indian personalities of Science and Technology

Salim Ali (Ornithology), Srinivisan Ramanujan (Mathematics), C.V. Raman (Physicist), Homi Jehagir Bhabha (Physicist), Satyender Nath Bose (Mathematician/Physicist), Hargobind Khorana (Biochemist).

2. Computer Technology :

Terms and Concepts Computer and its Types, Generations of Computers, Supercomputers, Operating Systems, Wifi, Wimax, Cloud Computing, Anti Virus, Malware, Phishing.

**Prescribed Reading: -**

1. What, Why and How Series (Government of India publication)
2. Science reporter
3. General Knowledge 2020(Arihant Publications)
4. Introduction to Computers. (P.K. Sinha)

Interdisciplinary Paper 2021-22

5. Website ( [www.wikipedia.com](http://www.wikipedia.com))

6. Website ( [www.ipcc.ch](http://www.ipcc.ch))

7. Website ([www.moef.nic.in](http://www.moef.nic.in))

<b>Sr. No.</b>	<b>On completing the course, the students will be able to:</b>
CO1	Develop an awareness of interdisciplinary opportunities in science and technology and increase their exposure to a broad range of skills, experiences and knowledge.
CO2	Understand the various scientific terms and basic concepts of science.
CO3	Know about the important Indian personalities in the field of Science and Technology.
CO4	Understand the terms and concepts of computer and its types.
CO5	Know about the generations of Computers, Supercomputers and Operating Systems.

**SCIENCE AND TECHNOLOGY -II  
INTERDISCIPLINARY PAPER**

**Compulsory for Semester II undergraduate classes of Arts and Commerce Streams**

**Credit Hours (per week): 1.5**

**Total Hours: 23**

**Time: 3 Hours**

**Total Marks: 50**

**Instructions for the Paper Setter:**

Section A: -Twelve (12) Questions will be set in Section A. Students are required to attempt Ten (10) the questions. Each question carries Two (2) Marks.

Section B: - Eight questions will be set. Students are required to attempt any Six (6) out of the eight questions in about 100 words. Each question carries Five (5) Marks.

**Course Objective:** The objective of this course is to help students develop their cognitive abilities-brain-based skills and mental processes that are needed to carry out tasks. Students in this subject should learn how to access, understand, employ, and synthesize the expertise from science and technology.

**Course Contents:**

**Section- A**

1. Scientific terms and basic concepts of science: -

Electric current, Voltage, Resistance, Ohm's law, Electric Power, Electric fuse, Light (Diffraction, Reflection, Refraction), Lenses (Concave, Convex) Optical Fibre, Nano Science, Matter, Periodic Table, Acid-Base, Metallurgy, Nuclear Energy (Fission and Fusion) Common Names and Scientific Names of Commonly Used Chemicals, Soaps and Detergents, Antiseptics, Antibiotics.

**Section- B**

1. Important Indian personalities of Science and Technology

Birbal Sahni (Paleobotanist), APJ Abdul Kalam, Yashpal, Abdus Salam. Shanti SawroopBhatnagar (Chemistry), N.S. Kapany.

2. Intellectual Property Rights: Concept, Need, Implications, Issues related to IPR 54

**Prescribed Reading: -**

1. What, Why and How Series (Government of India publication)
2. Science reporter
3. General Knowledge 2020 (Arihant Publications)
4. Laws Relating to Intellectual Property Rights (4th edition, M.K. Bhandari)
5. Website ( [www.wikipedia.com](http://www.wikipedia.com))
6. Website ( [www.ipcc.ch](http://www.ipcc.ch))

7. Website ([www.moef.nic.in](http://www.moef.nic.in))

<b>Sr. No.</b>	<b>On completing the course, the students will be able to:</b>
CO1	Understand the various scientific terms and basic concepts of science.
CO2	Know about the important Indian personalities in the field of Science and Technology.
CO3	Understand the Concept, Need and Implications of Intellectual Property Rights.
CO4	Develop an awareness of interdisciplinary opportunities in science and technology
CO5	Increase their exposure to a broad range of skills, experiences and knowledge.