

SHIVAJI UNIVERSITY, KOLHAPUR



**Accredited By NAAC with 'A++' Grade
CHOICE BASED CREDIT SYSTEM**

Syllabus For

B. A. Part - I

Science, Technology and Development (S.T.D.)

(Syllabus to be implemented from June, 2022 onwards)

Shivaji University, Kolhapur

PROGRAM /COURSE STRUCTURE and SYLLABUS

as per the Choice Based Credit System (CBCS) designed in accordance with

Learning Outcomes-Based Curriculum Framework (LOCF)

of National Education Policy (NEP) 2020

for B. A. Part - I Degree (Basic/Honours)

w.e.f. Academic Year 2022-23 and onwards

PREAMBLE

This paper is specially designed to cater to foundation building of the students by imparting knowledge about the science, technology and development. STD students of B. A. Part-I can better understand all latest concepts in Science, Technology and Development in brief but in adequate manner. The objective of this course is to introduce the latest concepts in Science, Technology and Development, specifically fundamental concepts in scientific thinking, contribution of eminent scientists, non-conventional power resources of India, human health, disaster management, communication and information technology, space and ocean research, defense and agriculture.

ELIGIBILITY FOR ADMISSION

Candidates who have passed any PUC Science, Commerce, Arts examinations in Maharashtra State or any other States in India with equal qualifications are eligible for admission to the course.

DURATION OF THE COURSE

The duration of the B.A./B.Sc. Geography Program shall extend over 8 semesters (four academic years) of 16 weeks or more, each with a maximum of 90 actual working days of instruction in each semester.

MEDIUM OF INSTRUCTION:

The medium of instruction shall be Marathi and English.

PROGRAM OUTCOMES

GENERAL OBJECTIVES OF THE COURSE

- 1) To study the fundamental concepts of science, technology and development.

- 2) To study the contribution of eminent scientist in the development of science and technology.
- 3) To study non-conventional power resources of India.
- 4) To study impact of science and technology on human health.
- 5) To study various types of disasters and its management.
- 6) To study means of communication and information technology.
- 7) To study science technology in space and ocean research.
- 8) To study space technology in India's defence and agriculture.

COURSE OUTCOMES

- 1) Student should be able to understand in-depth about the concepts of science, technology and development.
- 2) Students should be able to understand contribution of eminent scientists in the development of science and technology.
- 3) Students should be able to study non-conventional power resources in the country.
- 4) Students should understand impact of science and technology on human health.
- 5) Students should understand types of disasters and its management.
- 6) Students should understand means of communication and information technology.
- 7) Students should be able to understand science technology in space and ocean research.
- 8) Students should understand technology in India's defence and agriculture.

SCHEME OF EXAMINATION:-

- The examination shall be conducted at the end of each term for semester pattern.
- The Theory paper shall carry 40 marks (as applicable to the course)
- The Theory paper shall carry internal 10 marks (as applicable to the course)
- The evaluation of the performance of the students in theory papers shall be on the basis of Semester Examination of 50 marks.
- Question Paper will be set in the view of the /in accordance with the entire Syllabus and preferably covering each unit of syllabi.

Continuous Evaluation Methods (40 Marks):

Q. 1: Multiple Choose Question (05)

Q. 2: Write short notes (any three) (15)

Q. 3: Write detail answers on any two (20)

Internal Evaluation 10 Mark

B.A.-I Semester-I - Home Assignment / Unit Test / Case Study

B.A.-I Semester-II – Home Assignment / Unit Test / Case Study

Generic Elective for B. A. Part – I Semester I
Science Technology and Development (STD)
(THEORY)

Title of the Course: Science, Technology and Development

Code: CGE-1B

Number of Theory Credits	Number of lecture hours/ semester	Number of Theory Classes per week
04	60	04

Semester – I

	No. of Lectures	Credits
Module – I Introduction to Science and Technology	15	01
1.1 Science and Technology: Definitions, Nature, Scope		
1.2 Fundamental Concepts in Scientific Thinking		
1.3 Stages in the Study of Science Observation, Experiment, Analysis, Result and Hypothesis.		
1.4 Science and Superstitions		
1.5 Development of Science and Technology		
1.6 Impact of Science and Technology on Society		
Module - II Contribution of Eminent Scientist in the Development of Science and Technology	15	01
2.1 Louis Pasteur		
2.2 Albert Einstein		
2.3 Thomas Alva Edison		
2.4 Dr. Homi Bhabha		
2.5 Dr. M.S. Swaminathan		
2.6 Dr. A.P.J. Abdul Kalam		
Module – III Non-Conventional Power Resources of India	15	01
3.1 Resource: Concept and Importance		
3.2 Types of Power Resource		
3.3 Non-Conventional Power Resources		
3.3.1 Solar Energy		
3.3.2 Wind Energy		
3.3.3 Hydel Power Energy		
3.3.4 Nuclear Energy		

3.3.5 Bio Energy

3.3.6 Geo-Thermal Energy

3.3.7 Tidal Energy

3.4 Carbon Credit

Module – IV Science, Technology and Human Health

15

01

4.1 Impact of Science and Technology on Human Health

4.2 Human Blood – Blood Groups, Importance of Matching Blood Groups in Human Health

4.3 Addiction a Social Problem, types, Causes, Effects and Solution

4.4 AIDS – A Challenge before World, Facts, Figures, Causes, Effects, Treatment, Social Outlook.

4.5 Need of Cleanliness: Swachh Bharat Abhiyan

Reference Books

1. Annual Review of Information Science and Technology (ARIST) 39. By Blaise Cronin, Information Today, 2004.
3. Encyclopedia of Computer Science and Technology (Facts on File Science Library) – Import, 15 Jan 2009
4. Encyclopedia of Space Science and Technology, Wiley Online Library.
5. Indian Ocean Research Volumes: Geopolitical Orientations, Regionalism and Security in the Indian Ocean (Routledge Revivals), Dennis Rumley, Sanjay Chaturvedi (Editor) 2015
6. Disaster Management in India, Kadambari Sharma and Chiranjeev Avinash, Jnanda Prakashan, 2010.
7. Bagila A.V. (Ed) Science and Society, Lavani Publication House, 1972.
8. Bose D.M (Ed), A Concise History Science in India, Indian National Science Academy, 1971.
9. Butle J.A.V, Science and Human Life, Pergamon Press, London. (Year)
10. Encyclopaedia Britannica.
11. Flower W.S, The Development of Scientific Method, Pergamon Press, London, 1962.

मराठी पुस्तके

1. विज्ञानाचा समाज धारणेवरील परिणाम - दीक्षित कमलाकर, समाज प्रबोधन संस्था

2. शास्त्रीय विचार पद्धती - अ.भि. शहा, समाज प्रबोधन संस्था
3. जीवनाभिमुख विज्ञान - शिवाजी विद्यापीठ प्रकाशन
4. वैज्ञानिक अभ्यासाची गाथा - शिवाजी विद्यापीठ प्रकाशन
5. विज्ञान, तंत्रज्ञान आणि प्रगती - डॉ.पवार जयसिंगराव, प्रा. सूर्यवंशी निशांत फडके प्रकाशन कोल्हापूर
6. विज्ञान, तंत्रज्ञान आणि प्रगती - प्रा. पाटील हरिश्चंद्र, प्रा. घस्ते अनिल , प्रा. पाटील अरुण, प्रा. माने देशमुख रामराजे, निराली प्रकाशन, पुणे
7. मराठी विश्वकोश

Websites:

e-PG Pathshala: <https://epgp.inflibnet.ac.in/>

MOOCS - NPTEL: <https://nptel.ac.in/>

MOOCS - SWAYAM: <https://swayam.gov.in/>

National Digital Library of India: <https://ndl.iitkgp.ac.in/>

Shivaji University Library (E-Resources): <http://www.unishivaji.ac.in/library/E-Resources>

**Generic Elective for B. A. Part – I Semester II
Science Technology and Development (STD)
(THEORY)**

Title of the Course: Science, Technology and Development

Code: CGE-2B

Number of	Number of lecture hours/	Number of Theory
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Theory Credits	semester	Classes per week
04	60	04

Semester – II

Module - I Disaster Management 15 01

1.1 Disaster: Concept and Types

1.2 Earthquake 1.3 Flood

1.4 Drought 1.5 Fire

1.6 Accident 1.7 Crowd

Module –II Means of Communication and Information Technology 15 01

2.1 A Brief History of Communication

2.2 Origin, Development and Importance of Computer 2.3 Computer Network

2.4 Internet

2.5 Computer Viruses

2.6 Information Technology

Module – III Science Technology in Space and Ocean Research 15 01

3.1 Artificial Satellite – Types and Usages

3.2 Indian Space Research Organisation

3.3 Introduction of: a) Geographical Information System (GIS)

b) Global Navigation Satellite System (GNSS)

3.4 Importance of Ocean Study

3.5 National Institute of Oceanography

Module – IV Science Technology in India's Defence and Agriculture 15 01

4.1 Science Technology in National Defence

4.2 Defence Research and Development Organization (DRDO)

4.3 New Technology in Irrigation System

4.4 Chemical and Bio Fertilizers

4.5 Modern equipment's in agriculture

4.6 Plant Protection Methods

Reference Books

1. Annual Review of Information Science and Technology (ARIST) 39. By Blaise Cronin, Information Today, 2004.
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