

 <p>Estd. 1962 "A++" Accredited by NAAC (2021) With CGPA 3.52</p>	<p>SHIVAJI UNIVERSITY, KOLHAPUR - 416 004, MAHARASHTRA PHONE : EPABX - 2609000, www.unishivaji.ac.in, bos@unishivaji.ac.in शिवाजी विद्यापीठ, कोल्हापूर - ४१६ ००४, महाराष्ट्र दूरध्वनी - ईपीएबीएक्स - २६०९०००, अभ्यासमंडळे विभाग - ०२३१-२६०९०९४</p>	
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जा.क्र./शिवाजी वि./अ.मं./भूगोल/६८
प्रति,

दि.१०/११/२०२२

मा. प्राचार्य/संचालक,
सर्व संलग्नित महाविद्यालये/मान्यताप्राप्त संस्था,
शिवाजी विद्यापीठ, कोल्हापूर

विषय : बी. ए. भाग १ एस. टी. डी. विषयाच्या अभ्यासक्रमाबाबत..
संदर्भ : या कार्यालयाचे पत्र क्र.३३२ दि.१९/०९/२०२२.

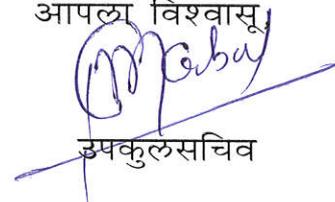
महोदय,

उपरोक्त संदर्भिय विषयास अनुसरून आपणास आदेशान्वये कळविण्यात येते की, शैक्षणिक वर्ष २०२२-२३ पासून लागू करण्यात आलेल्या बी. ए. भाग १ एस. टी. डी. विषयाच्या अभ्यासक्रमामध्ये किरकोळ दुरुस्ती करण्यात आलेली आहे. सोबत सदर अभ्यासक्रमाची प्रत जोडली आहे. तसेच विद्यापीठाच्या www.unishivaji.ac.in (Online Syllabus) या संकेतस्थळावर ठेवण्यात आला आहे.

सदर अभ्यासक्रम सर्व संबंधित विद्यार्थी व शिक्षकांच्या निदर्शनास आणून द्यावी ही विनंती.

कळावे,

आपला विश्वासू,



उपकुलसचिव

सोबत : अभ्यासक्रमाची प्रत.

- प्रत : १. अधिष्ठाता, विज्ञान व तंत्रज्ञान विद्याशाखा.
२. समन्वयक, भूगोल अभ्यास मंडळ.
३. संचालक, परीक्षा व मुल्यमापन मंडळ कार्यालयास.
४. परिक्षक नियुक्ती ए व बी विभागास.
५. बी. ए. परीक्षा विभागास.
६. संगणक केंद्र/आय. टी. सेल विभागास.
७. दूरस्थ व ऑनलाईन शिक्षण विभाग.

माहितीसाठी व पुढील कार्यवाहीसाठी.

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 and 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 Classification of Resources		
3.3 Non-Conventional Power Resources		
3.3.1 Solar Energy		
3.3.2 Wind Energy		
3.3.3 Nuclear Energy		

3.3.4 Bio Energy

3.3.5 Geo –Thermal Energy

3.3.6 Tidal Energy

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

Semester – II

	No. of Lectures	Credits
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 and Technology in Space, Defense and Ocean Research	15	01
3.1 Artificial Satellite –Types and Usages		
3.2 Indian Space Research Organization		
3.3 Introduction of: a) Geographical Information System (GIS)		
b) Global Navigation Satellite System (GNSS)		
3.4 Science and Technology in National Defense		
3.5 Defense Research and Development Organization(DRDO)		
3.6 Importance of Ocean Study		
3.7 National Institute of Oceanography		

- 4.1 Introduction to Agriculture
- 4.2 Modern Tools and Techniques in Agriculture
- 4.3 Fertilizer: Chemical and Bio Fertilizers
- 4.4 Issues and Challenges in Modern Agriculture
- 4.5 Sustainable Agriculture

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

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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
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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>

-Notice-

All the concern faculties and departments of the concern course is hereby informed that following changes are made in the previous syllabus of B. A. Part-I Science, Technology and Development (STD) and the corrected syllabus of same course is as above to be implemented from June, 2022 onwards.

Do needful changes according to following:

Old / Previous	New or Revised
<p style="text-align: center;">Semester I</p> <p>Module – III Non-Conventional Power Resources of India 15 01</p> <p>3.1 Resource: Concept and Importance</p> <p>3.2 Types of Power Resource</p> <p>3.3 Non-Conventional Power Resources</p> <p>3.3.1 Solar Energy</p> <p>3.3.2 Wind Energy</p> <p>3.3.3 Hydel Power Energy</p> <p>3.3.4 Nuclear Energy</p> <p>3.3.5 Bio Energy</p> <p>3.3.6 Geo-Thermal Energy</p> <p>3.3.7 Tidal Energy</p> <p>3.4 Carbon Credit</p>	<p style="text-align: center;">Semester I</p> <p>Module – III Non-Conventional Power Resources of India 15 01</p> <p>3.1 Resource: Concept and Importance</p> <p>3.2 Classification of Resources</p> <p>3.3 Types of Power Resource</p> <p>3.4 Non-Conventional Power Resources</p> <p>3.4.1 Solar Energy</p> <p>3.4.2 Wind Energy</p> <p>3.4.3 Nuclear Energy</p> <p>3.4.4 Bio Energy</p> <p>3.4.5 Geo-Thermal Energy</p> <p>3.4.6 Tidal Energy</p>
<p style="text-align: center;">Semester II</p> <p>Module – III Science Technology in Space and Ocean Research 15 01</p> <p>3.1 Artificial Satellite – Types and Usages</p> <p>3.2 Indian Space Research Organisation</p> <p>3.3 Introduction of: a) Geographical Information System (GIS)</p> <p style="padding-left: 40px;">b) Global Navigation Satellite System (GNSS)</p>	<p style="text-align: center;">Semester II</p> <p>Module – III Science and Technology in Space, Defense and Ocean Research 15 01</p> <p>3.1 Artificial Satellite – Types and Usages</p> <p>3.2 Indian Space Research Organization</p> <p>3.3 Introduction of: a) Geographical Information System (GIS)</p> <p style="padding-left: 40px;">b) Global Navigation</p>

<p>3.4 Importance of Ocean Study 3.5 National Institute of Oceanography</p> <p>Module – IV Science Technology in India’s Defence and Agriculture 15 01</p> <p>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</p>	<p>Satellite System (GNSS)</p> <p>3.4 Science Technology in National Defense 3.5 Defense Research and Development Organization (DRDO) 3.6 Importance of Ocean Study 3.7 National Institute of Oceanography</p> <p>Module – IV Science and Technology in Agriculture 15 01</p> <p>4.1 Introduction to Agriculture 4.2 Modern Tools and Techniques in Agriculture 4.3 Fertilizer: Chemical and Bio Fertilizers 4.4 Issues and Challenges in Modern Agriculture 4.5 Sustainable Agriculture</p>
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