SONOPANT DANDEKAR ARTS, V.S. APTE COMMERCE
AND M.H. MEHTA SCIENCE COLLEGE, PALGHAR

Department of Foundation Course

PROJECT REPORT

SYBSC

Foundation Course

Academic Year 2022-2023

Prepared by

Department of Foundation Course

Sonopant Dandekar Arts, V.S. Apte Commerce and
M.H. Mehta Science College, Palghar

INDEX

Sonopant Dandekar Shikshan Mandali's
Sonopant Dandekar Arts,
V. S. Apte Commerce &
M. H. Mehta Science College, Palghar
Estb.: 14 August 1968
Dr. Kiran Save, Principal

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Ref No.:

Date : 05/08/2023

Notice

Department of Foundation Course

(Foundation Course)

This is to inform you that all the **Second Year Bachelor of Science (Sub. Foundation Course)** students are required to submit the hard copy of your final project report as per below schedule**.** All submissions should be made to the **Foundation Course Department** during office hours on **12th August 2023 from 09.30 am to 01.30 pm.** Ensure your report is properly written.

Dr. Kiran J. Save
Principal

PRINCIPAL
Sonopant Dandekar Arts College,
V.S. Apte Commerce College &
M.H. Mehta Science College
PALGHAR (W.R.)
Dist. Palghar, Pin-401404

Cover Page

AC_____
Item No. _____

UNIVERSITY OF MUMBAI

Syllabus for Approval

Sr. No.	Heading	Particulars
1	Title of the Course	**Foundation Course (SYBA, SYBSc, SYBCom; Semesters III and IV)**
2	Eligibility for Admission	Not Applicable
3	Passing Marks	**40 %**
4	Ordinances / Regulations (if any)	Not Applicable
5	No. of Years / Semesters	**III and IV Semesters**
6	Level	~~P.G. /~~ **U.G.**~~/ Diploma / Certificate~~ **(Strike out which is not applicable)**
7	Pattern	~~Yearly /~~ **Semester** **(Strike out which is not applicable)**
8	Status	~~New /~~ **Revised** **(Strike out which is not applicable)**
9	To be implemented from Academic Year	**From Academic Year 2017-18**

Date: **8th May, 2017** Signature :

Name of BOS Chairperson ~~/ Dean~~ : **Dr Agnelo Menezes**

Cover Page

UNIVERSITY OF MUMBAI

Essentials Elements of the Syllabus

1	Title of the Course	**Foundation Course (SYBA, SYBSc, SYBCom – III and IV Semesters)**
2	Course Code	
3	Preamble / Scope	Not Applicable
4	Objective of Course / Course Outcome	Not Applicable
5	Eligibility	Not Applicable
6	Fee Structure	Not Applicable
7	No. of Lectures	**3 lectures per week**
8	No. of Practical	Not Applicable
9	Duration of the Course	**III and IV Semesters respectively**
10	Notional hours	Not Applicable
11	No. of Students per Batch	Not Applicable
12	Selection	Not Applicable
13	Assessment	Not Applicable
14	Syllabus Details	Given
15	Title of the Unit	Not Applicable
16	Title of the Sub-Unit	Not Applicable
17	Semester wise Theory	Not Applicable
18	Semester wise List of Practical	Not Applicable
19	Question Paper Pattern	Given
20	Pattern of Practical Exam	Not Applicable
21	Scheme of Evaluation of Project ~~/ Internship~~	Given
22	List of Suggested Reading	Given
23	List of Websites	Given
24	List of You-Tube Videos	Not Applicable
25	List of MOOCs	Not Applicable

UNIVERSITY OF MUMBAI

SECOND YEAR B.A., SECOND YEAR B.Sc., SECOND YEAR B.Com.

SEMESTER III AND IV

FOUNDATION COURSE

UNDER THE CBCGSS SYSTEM

EFFECTIVE FROM 2017-2018

FOUNDATION COURSE

Semester III

Internal marks: 25 **External marks: 75** **Total Marks: 100**

Lectures: 45

Objectives

i. Develop a basic understanding about issues related to Human Rights of weaker sections, ecology, and science and technology.
ii. Gain an overview of significant skills required to address competition in career choices
iii. Appreciate the importance of developing a scientific temper towards technology and its use in everyday life

Module 1 Human Rights Provisions, Violations and Redressal (12 lectures)

A. Scheduled Castes- Constitutional and legal rights, Forms of violations, Redressal mechanisms. **(2 Lectures)**
B. Scheduled tribes- Constitutional and legal rights, Forms of violations, Redressal mechanisms. **(2 Lectures)**
C. Women- Constitutional and legal rights, Forms of violations, Redressal mechanisms. **(2 Lectures)**
D. Children- Constitutional and legal rights, Forms of violations, Redressal mechanisms. **(2 Lectures)**
E. People with Disabilities, Minorities, and the Elderly population- Constitutional and legal rights, Forms of violations, Redressal mechanisms. **(4 Lectures)**

Module 2 Dealing With Environmental Concerns (11 lectures)

A. Concept of Disaster and general effects of Disasters on human life- physical, psychological, economic and social effects. **(3 Lectures)**
B. Some locally relevant case studies of environmental disasters. **(2 Lectures)**
C. Dealing with Disasters - Factors to be considered in Prevention, Mitigation (Relief and Rehabilitation) and disaster Preparedness. **(3 Lectures)**
D. Human Rights issues in addressing disasters- issues related to compensation, equitable and fair distribution of relief and humanitarian approach to resettlement and rehabilitation. **(3 Lectures)**

Module 3 Science and Technology I (11 lectures)

A. Development of Science- the ancient cultures, the Classical era, the Middle Ages, the Renaissance, the Age of Reason and Enlightenment. **(3 Lectures)**
B. Nature of science- its principles and characteristics; Science as empirical, practical, theoretical, validated knowledge. **(2 Lectures)**
C. Science and Superstition- the role of science in exploding myths, blind beliefs and prejudices; Science and scientific temper- scientific temper as a fundamental duty of the Indian citizen. **(3 Lectures)**

D. **Science in everyday life**- technology, its meaning and role in development; Interrelation and distinction between science and technology. **(3 Lectures)**

Module 4 Soft Skills for Effective Interpersonal Communication (11 lectures)

Part A (4 Lectures)

I) Effective Listening - Importance and Features.

II) Verbal and Non-Verbal Communication; Public-Speaking and Presentation Skills.

III) Barriers to Effective Communication; Importance of Self-Awareness and Body Language.

Part B (4 Lectures)

I) Formal and Informal Communication - Purpose and Types.

II) Writing Formal Applications, Statement of Purpose (SOP) and Resume.

III) Preparing for Group Discussions, Interviews and Presentations.

Part C (3 Lectures)

I) Leadership Skills and Self-Improvement - Characteristics of Effective Leadership.

II) Styles of Leadership and Team-Building.

Projects / Assignments (for Internal Assessment)

i. Projects/Assignments should be drawn for the component on Internal Assessment from the topics in **Module 1 to Module 4**.

ii. Students should be given a list of possible topics - at least 3 from each Module at the beginning of the semester.

iii. The Project/Assignment can take the form of Street-Plays / Power-Point Presentations / Poster Exhibitions and similar other modes of presentation appropriate to the topic.

iv. Students can work in groups of not more than 8 per topic.

v. Students must submit a hard / soft copy of the Project / Assignment before appearing for the semester end examination.

QUESTION PAPER PATTERN (Semester III)

The Question Paper Pattern for Semester End Examination shall be as follows:

TOTAL MARKS: 75 DURATION: 150 MINUTES

QUESTION NUMBER	DESCRIPTION	MARKS ASSIGNED
1	**i.** Question 1 A will be asked on the meaning / definition of concepts / terms from all	**a)** Total marks: 15

	Modules. **ii.** Question 1 B will be asked on the topic of the Project / Assignment done by the student during the Semester **iii.** In all 8 Questions will be asked out of which 5 have to be attempted.	**b)** For 1 A, there will be 3 marks for each sub-question. **c)** For 1 B there will be 15 marks without any break-up.
2	Descriptive Question with internal option (A or B) on Module 1	15
3	Descriptive Question with internal option (A or B) on Module 2	15
4	Descriptive Question with internal option (A or B) on Module 3	15
5	Descriptive Question with internal option (A or B) on Module 4	15

FOUNDATION COURSE

Semester IV

Internal marks: 25 **External marks: 75** **Total Marks: 100**

Lectures: 45

Module 1 Significant, contemporary Rights of Citizens (12 lectures)

A. **Rights of Consumers**-Violations of consumer rights and important provisions of the Consumer Protection Act, 2016; Other important laws to protect consumers; Consumer courts and consumer movements. **(3 Lectures)**

B. **Right to Information**- Genesis and relation with transparency and accountability; important provisions of the Right to Information Act, 2005; some success stories. **(3 Lectures)**

C. **Protection of Citizens'/Public Interest**-Public Interest Litigation, need and procedure to file a PIL; some landmark cases. **(3 Lectures)**

D. **Citizens' Charters, Public Service Guarantee Acts. (3 Lectures)**

Module 2 Approaches to understanding Ecology (11 lectures)

A. **Understanding approaches to ecology**- Anthropocentrism, Biocentrism and Eco centrism, Ecofeminism and Deep Ecology. **(3 Lectures)**

B. **Environmental Principles-1**: the sustainability principle; the polluter pays principle; the precautionary principle. **(4 Lectures)**

C. **Environmental Principles-2**: the equity principle; human rights principles; the participation principle. **(4 Lectures)**

Module 3 Science and Technology II (11 lectures)

Part A: Some Significant Modern Technologies, Features and Applications: **(7 Lectures)**

i. **Laser Technology**- Light Amplification by Stimulated Emission of Radiation; use of laser in remote sensing, GIS/GPS mapping, medical use.

ii. **Satellite Technology**- various uses in satellite navigation systems, GPS, and imprecise climate and weather analyses.

iii. **Information and Communication Technology**- convergence of various technologies like satellite, computer and digital in the information revolution of today's society.

iv. **Biotechnology and Genetic engineering**- applied biology and uses in medicine, pharmaceuticals and agriculture; genetically modified plant, animal and human life.

v. **Nanotechnology**- definition: the study, control and application of phenomena and materials at length scales below 100 nm; uses in medicine, military intelligence and consumer products.

Part B: Issues of Control, Access and Misuse of Technology. (4 Lectures)

Module 4 Introduction to Competitive Examinations (11 lectures)

Part A. Basic information on Competitive Examinations- the pattern, eligibility criteria and local centres: (4 Lectures)

i. Examinations conducted for entry into professional courses - Graduate Record Examinations (GRE), Graduate Management Admission Test GMAT), Common Admission Test (CAT) and Scholastic Aptitude Test (SAT).

ii. Examinations conducted for entry into jobs by Union Public Service Commission, Staff Selection Commission (SSC), State Public Service Commissions, Banking and Insurance sectors, and the National and State Eligibility Tests (NET / SET) for entry into teaching profession.

Part B. Soft skills required for competitive examinations- (7 Lectures)

i. Information on areas tested: Quantitative Ability, Data Interpretation, Verbal Ability and Logical Reasoning, Creativity and Lateral Thinking

ii. Motivation: Concept, Theories and Types of Motivation

iii. Goal-Setting: Types of Goals, SMART Goals, Stephen Covey's concept of human endowment

iv. Time Management: Effective Strategies for Time Management

v. Writing Skills: Paragraph Writing, Report Writing, Filing an application under the RTI Act, Consumer Grievance Letter.

Projects / Assignments (for Internal Assessment)

i. Projects/Assignments should be drawn for the component on Internal Assessment from the topics in **Module 1 to Module 4**.

ii. Students should be given a list of possible topics - at least 3 from each Module at the beginning of the semester.

iii. The Project/Assignment can take the form of Street-Plays / Power-Point Presentations / Poster Exhibitions and similar other modes of presentation appropriate to the topic.

iv. Students can work in groups of not more than 8 per topic.

v. Students must submit a hard / soft copy of the Project / Assignment before appearing for the semester end examination.

QUESTION PAPER PATTERN (Semester IV)

The Question Paper Pattern for Semester End Examination shall be as follows:

TOTAL MARKS: 75 DURATION: 150 MINUTES

QUESTION NUMBER	DESCRIPTION	MARKS ASSIGNED
1	**i.** Question 1 A will be asked on the meaning / definition of concepts / terms from all Modules.	**a)** Total marks: 15 **b)** For 1 A, there will be 3 marks for each sub-question.

	ii. Question 1 B will be asked on the topic of the Project / Assignment done by the student during the Semester **iii.** In all 8 Questions will be asked out of which 5 have to be attempted.	**c)** For 1 B there will be 15 marks without any break-up.
2	Descriptive Question with internal option (A or B) on Module 1	15
3	Descriptive Question with internal option (A or B) on Module 2	15
4	Descriptive Question with internal option (A or B) on Module 3	15
5	Descriptive Question with internal option (A or B) on Module 4	15

References

1. Asthana, D. K., and Asthana, Meera, *Environmental Problems and Solutions*, S. Chand, New Delhi, 2012.
2. Bajpai, Asha, *Child Rights in India*, Oxford University Press, New Delhi, 2010.
3. Bhatnagar Mamta and Bhatnagar Nitin, *Effective Communication and Soft Skills*, Pearson India, New Delhi, 2011.
4. G Subba Rao, *Writing Skills for Civil Services Examination,* Access Publishing, New Delhi, 2014
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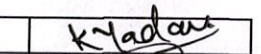
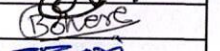
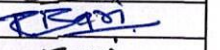
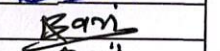
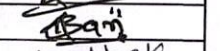
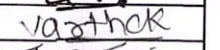
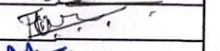
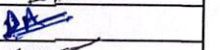
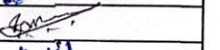
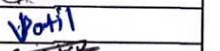
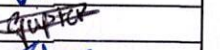
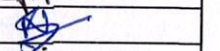
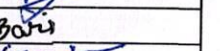
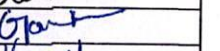
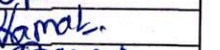
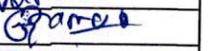
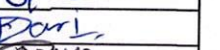
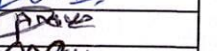
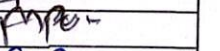
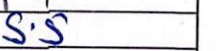
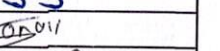
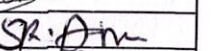
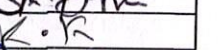
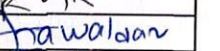
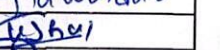
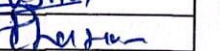
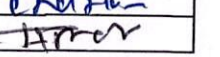
6. Mohapatra, Gaur Krishna Das, *Environmental Ecology*, Vikas, Noida, 2008.
7. Motilal, Shashi, and Nanda, Bijoy Lakshmi, *Human Rights: Gender and Environment*, Allied Publishers, New Delhi, 2007.

8. Murthy, D. B. N., *Disaster Management: Text and Case Studies*, Deep and Deep Publications, New Delhi, 2013.
9. Parsuraman, S., and Unnikrishnan, ed., *India Disasters Report II*, Oxford, New Delhi, 2013
10. Reza, B. K., *Disaster Management*, Global Publications, New Delhi, 2010.
11. Sathe, Satyaranjan P., *Judicial Activism in India*, Oxford University Press, New Delhi, 2003.
12. Singh, Ashok Kumar, *Science and Technology for Civil Service Examination*, Tata McGraw Hill, New Delhi, 2012.
13. Thorpe, Edgar, *General Studies Paper I Volume V*, Pearson, New Delhi, 2017.

SYBSc Sem III F.C. Project List

SR. NO	ROLL NO	NAME OF THE STUDENT	TITLE OF THE PROJECT	SIGNATURE
1	2301	RAUT JIDNYASA JITENDRA	Science and technology	
2	2302	PATIL DHRUVIKA DINESH	Time management	
3	2303	PATEL NIDHI RAJESH	Goal Setting	
4	2304	BHARWAD KINJAL BHARAT	Right to information	
5	2305	DEO CHAITANYA ARUN	Environmental principles	
6	2306	RAUT YASHVIKA HEMANT	Science and Technology	
7	2307	PATIL GAYATRI PITAMBAR	Goal setting	
8	2308	KINI MAYURI MINANATH	Consumer rights and violations of consumer rights	
9	2309	SOLANKI DIMPLE MAHESH	Approaches to understand Ecology	
10	2310	VARTHA BHAVANA PRATAP	Time Management	
11	2311	KADU SHRUTI BHARAT	Time Management	
12	2312	MARATHE UNNATI DINESH	Development project and there impact on Indian economy	
13	2313	SURVE MONALI HANMANT	Soft skill required for compitative exams	
14	2314	AMBHIRE SIMRAN KAMLESH	Time management	
15	2316	WADEKAR VEDIKA SADANAND	Science and technology 2	
16	2317	PATIL SAMRUDDHI VIJAY	Time management	
17	2318	KULAL PRAVIN TUKARAM	Developmental Projects and their impact on Indian Economy	
18	2319	PATIL KRUTIK PRAMOD	Developmental Projects and their impact on Indian Economy	
19	2320	PATIL SANI AMRUT	Science and technology	
20	2321	TIWARI SALVI OMPRAKASH	Biotechnology and Genetic engineering	
21	2322	KUNTAL MADHU RADHESHYAM	Time management	
22	2323	BORKAR RITESH PRAMOD	Science and technology	
23	2324	PATIL SAMRUDDHI ANAND	Biotechnology and genetic engineering	
24	2325	KUDU VAISHNAVI VILAS	Time Management	
25	2326	MHATRE DIYA HEMCHANDRA	Biotechnology	
26	2328	JADHAV CHIRAG RAJENDRA	Time Management	
27	2329	PATIL ATHARV VILAS	Science and technology	
28	2330	PANSANDE SHREYAS RAJENDRA	Time Management	
29	2331	CHAUDHARI SACHIN RAVIKANT	Developmental Projects and their impact on Indian Economy	
30	2332	PATIL SANSKAR SACHIN	Right to information	

31	2333	YADAV KAJAL SHESHMANI	Time management	
32	2334	PIMPLE YASH BHUSHAN	Science and technology	
33	2335	SANKHE DHAWAL SANTOSH	Biotechnology	
34	2336	MEHER DISHA UMESH	Science and technology	
35	2337	KINI ATHARVA VIJAY	Science and technology	
36	2338	TARE VANSH SUDHIR	Time management	
37	2341	VAITY SAMRUDDHI PRAKASH	Developmental Projects and their impact on Indian Economy	
38	2343	BOHERE LABHESH RAJARAM	Developmental Projects and their impact on Indian Economy	
39	2345	BARI TANVI MAHESH	Science and technology	
40	2346	BARI LACHI JAYESH	Science and technology	
41	2347	BARI ALPITA MAHESH	Developmental Projects and their impact on Indian Economy	
42	2348	VARTAK NIDHI MAHESH	Time management	
43	2349	TARE HARDIK ROHIDAS	Science and technology	
44	2350	DONGARE AVINASH JANKINATH	Science and technology	
45	2351	AMBHORE SANJANA DADARAO	Developmental Projects and their impact on Indian Economy	
46	2352	PATIL VEDANT UMESH	Goal Setting	
47	2353	GUPTA PAWAN SITARAM	Consumers rights and violence of consumer rights	
48	2354	SAVE JIDNYESH NITIN	Developmental Projects and their impact on Indian Economy	
49	2355	BARI AYUSH BHARAT	Goal setting	
50	2356	VARTAK GAURAV RAJENDRA	Time Management	
51	2357	GHATAL VAIBHAV RAMAL	Developmental Projects and their impact on Indian Economy	
52	2358	GANGODA PRAMOD JATRYA	Developmental Projects and their impact on Indian Economy	
53	2359	BARI VAISHNAV DHIRAJ	Science and technology	
54	2360	PANDEY JYOTIRMAY ACHYUTENDRA	Science and Technology	
55	2361	MHATRE HERAMB DILIP	Time Management	
56	2362	SAVE SAHIL SURENDRA	Biotechnology and genetic engineering	
57	2363	PACHALKAR SONALI VASUDEV	Goal setting	
58	2364	SHAIKH SHAFIN AKHLAQUE	Science and technology	
59	2365	BARI KRUTIK KIRAN	TIME MANAGEMENT	
60	2366	SAROJ AAJAD HAWALDAR	Right to information Act(RTI) , 2005	
61	2367	CHAUDHARI KUSHAL PRANAY	Developmental Projects and their impact on Indian Economy	
62	2368	PATIL CHAITANYA UMESH	Time management	
63	2369	TAMORE HARDIK KUNDAN	Science and technology	

64	2370	CHURI CHIRAG JAYPRAKASH	Developmental Projects and their impact on Indian Economy	
65	2371	PANDIT NEHA PANKAJ	Developmental Projects and their impact on Indian Economy	
66	2372	PATIL HANISH SANJAY	Disaster Management	
67	2373	MHATRE TANAYA PRAVIN	Science and technology	
68	2374	RAUT JAY BHUPESH	Developmental Projects and their impact on Indian Economy	
69	2375	KINI TUSHAR RAJENDRA	Science and technology	
70	2376	PATIL SAMRUDDHI GANESH	Developmental Projects and their impact on Indian Economy	
71	2377	GHARAT DHRUVIK ANIL	Science and technology	
72	2378	GUHE NIKITA ANKUSH	Time management	
73	2380	SINGH SHIVAM KEDARNATH	To understand the ecology	
74	2381	DESALE KOMAL ANIL	Goal setting	
75	2382	THAKUR TANVI RATNAKAR	Science and technology	
76	2384	PRASAD RITIKA ROHIT	Science and Technology	
77	2385	KINI PRIYAL SUDHIR	Biotechnology and genetic engineering	
78	2386	KINI PURVA NAVNATH	Motivational	
79	2387	KHARAT PALLAVI AVINASH	Development projects and their impact on indian economy	
80	2388	KHARAD RACHITA RAMESH	Biotechnology and genetic engineering	
81	2390	TAMORE ARYAN PRAMOD	Developmental Projects and their impact on Indian Economy	
82	2391	MEHER VRUSHABH ANANT	Developmental Projects and their impact on Indian Economy	
83	2392	NIJAP KANAV BHUPESH	Developmental Projects and their impact on Indian Economy	
84	2393	MARATHE LEENA PRAMOD	Biotechnology and genetic engineering	
85	2394	PATIL VEDANT SANJAY	Biotechnology and genetic engineering	
86	2395	MACHHI SAHIL MANIRAM	Skills required for competitive exams	
87	2396	GUPTA NITISH KUMAR CHANDAN	Science and technology	
88	2397	MACHHI ROHIT BABU	Science and technology	
89	2398	PATIL VIDHI RAJU	Science and technology	
90	2399	SANKHE SAHIL RAJENDRA	Skills required for competitive exams	
91	2400	SHAIKH TASNEEM ISHAQ	Skills required for competitive exams	
92	2401	PAL RAHUL RAMPRAVESH	Science and technology	
93	2402	PIMPLE SHRADDHA MADHUKAR	Time Management	

SYBSC 2022-23

FOUNDATION COURSE - SEM IV

SR. NO	ROLL NO	NAME OF THE STUDENT	Title of the Project	Signature
1	25001	BOREKAR ATHARVA VINODRAO	Biotechnology and Genetic Engineering	
2	25002	SHENDE SHIVSHANT JAGDISH	Goal Setting	
3	25003	SURTI KAUSHAL PRASANN	Skill Required for competitive Exams	
4	25004	BHURKUD TEJASWI SUNIL	Skill Required for competitive Exams	
5	25005	PATEL MOKSHIKA AMRUT	Time Management	
6	25006	GAVALI RUTIK RAMESH	Biotechnology and Genetic Engineering	
7	25007	MATERA KRUTIKA SUDAM	Goal Setting	
8	25008	THOKE SUJATA KAILAS	Time Management	
9	25009	THANAGE AASHEFA RAUF	Goal Setting	
10	25010	DHODI AARTI RAKESH	Biotechnology and Genetic Engineering	
11	25011	KARBAT ROHITA MAHADU	Time Management	
12	25012	THAKARE VANDESH SUDHAKAR	Skill Required for competitive Exams	
13	25013	MORE MEGHANA VALMIK	Skill Required for competitive Exams	
14	25014	PAWAR ADITI DINESH	Goal Setting	
15	25015	DABI AISHWARYA MANOJ KUMAR	Biotechnology and Genetic Engineering	
16	25016	UPADHYAY KIRTI UMESH	Time Management	
17	25017	SINGH NIDHI JAYPRAKASH	Skill Required for competitive Exams	
18	25018	NAGRALE APARNA MANOHAR	Goal Setting	
19	25019	YADAV SHUBHAM PRAMOD	Biotechnology and Genetic Engineering	
20	25020	PANASKAR NIKHIL DHANAJI	Time Management	
21	25021	RAUT PRANAV HEMANT	Laser Technology	
22	25022	BASWAT KARISHMA NAVNATH	Goal Setting	
23	25023	BHAGWAT SHUBHAM SURYAKANT	Biotechnology and Genetic Engineering	
24	25024	MORE RUTVIK SUJAY	Time Management	
25	25025	RAUL SAIRAJ MANSING	Time Management	
26	25026	BHUTKADE UJWALA LAKHAMA	Time Management	
27	25027	GHARAT AYUSH DINESH	Laser Technology	
28	25028	PATIL AMAY DIPESH	Goal Setting	

FOUNDATION COURSE - SEM IV				
SR. NO	ROLL NO	NAME OF THE STUDENT	Title of the Project	Signature
29	25029	VISHWAKARMA ROLI RAMNAYAN	Biotechnology and Genetic Engineering	
30	25030	KANNOJIA ANJALI RADHESHYAM	Time Management	
31	25031	PAWADE EKTA ANIL	Skill Required for competitive Exams	
32	25032	VARMA PRIYANKA HARISHANKAR	Time Management	
33	25033	NAGARKOTI DISHA JAGDISH	Laser Technology	
34	25034	PAWADE RUTVI NAYAN	Goal Setting	
35	25035	DEV SHREYAS SANTOSH	Biotechnology and Genetic Engineering	
36	25036	TAMORE NISHAD SHYAM	Skill Required for competitive Exams	
37	25037	MER SAHIL SUBHASH	Skill Required for competitive Exams	
38	25038	CHAUDHARI PRATHMESH MANOJ	Time Management	
39	25039	SHAIKH SANNAN NURANI	Laser Technology	
40	25040	SHUKLA KHUSHI DILIP	Biotechnology and Genetic Engineering	
41	25041	JHA VIVEK RAJKUMAR	Goal Setting	
42	25042	YADAV SAURAV TRIBHUVAN	Skill Required for competitive Exams	
43	25043	SINGH NAMRATA NARENDRA	Time Management	
44	25044	YADAV PRIYA UMAPATI	Laser Technology	
45	25045	MISHRA ADITYA SANTOSH	Biotechnology and Genetic Engineering	
46	25046	CHAUHAN VANDANA MUNNALAL	Skill Required for competitive Exams	
47	25047	DESALE KRUTIK JAGDISH	Skill Required for competitive Exams	
48	25048	THAKARE EGNESH DATTATRAYA	Time Management	
49	25049	TARE TANMAY ANIL	Laser Technology	
50	25050	PATRO SNEHALATA RAVINARAYAN	Goal Setting	
51	25051	PATIL KANISHKA SANTOSH	Biotechnology and Genetic Engineering	
52	25052	SUTHAR DIPAK DEVILAL	Skill Required for competitive Exams	
53	25053	DUKALE NAMITA SUBHASH	Skill Required for competitive Exams	
54	25054	YADAV VIVEK RAMAKANT	Time Management	
55	25055	RAUT RITESH SANTOSH	Laser Technology	
56	25056	PATIL YASH SANTOSH	Biotechnology and Genetic Engineering	
57	25057	BHALEKAR JANHAVI ASHOK	Goal Setting	

FOUNDATION COURSE - SEM IV				
SR. NO	ROLL NO	NAME OF THE STUDENT	Title of the Project	Signature
58	25058	GHUTE ROSHANI ANKUSH	Skill Required for competitive Exams	
59	25059	BHOIR KAMINI JAGDISH	Time Management	
60	25060	MACHHI PRANJALI MAHADEV	Laser Technology	
61	25061	MACHHI BHANUDAS SHASHIKANT	Biotechnology and Genetic Engineering	
62	25062	JADHAV MAYANK SHIRISHKUMAR	Goal Setting	
63	25063	GAWALI MAYUR RAMESH		AB
64	25064	SINGH AMENDRA SURESH	Time Management	
65	25065	KUMAR RAHUL SHIVSHANKER YADAV	Skill Required for competitive Exams	
66	25066	SINGH SHUBHAM MITHILESH	Laser Technology	
67	25067	MACHHI SUJATA KALPESH	Biotechnology and Genetic Engineering	
68	25068	TIWARI SAKSHIKUMARI RAJESHKUMAR	Goal Setting	
69	25069	DUBEY PRIYA RAKESH	Skill Required for competitive Exams	
70	25070	SALKAR KIRAN SADYA	Time Management	
71	25071	JHA RAKESH SANJAY	Laser Technology	
72	25072	SHARMA ADITYA SANTOSH	Biotechnology and Genetic Engineering	
73	25073	YADAV HARIOM KAILASH	Skill Required for competitive Exams	
74	25074	CHAUBEY SHRAVAN RAVI SHANKER	Skill Required for competitive Exams	
75	25075	SHARMA VISHAL HARISHANKAR	Laser Technology	
76	25076	CHAUHAN SUDHIR SUBACHAN	Biotechnology and Genetic Engineering	
77	25077	MISHRA ANKITA SHASHIBHUSHAN	Goal Setting	
78	25078	VAIDYA VAIBHAVI MOHAN	Skill Required for competitive Exams	
79	25079	JHA NANDANI AMLINDRA	Laser Technology	
80	25080	YADAV RANJIT PRAMOD	Biotechnology and Genetic Engineering	
81	25081	SHARMA VISHAL PAWAN	Goal Setting	
82	25082	GAVALI SAKSHI VILAS	Laser Technology	
83	25083	BIRARI GAURAV LAXMAN		AB
84	25084	BIRARI ROHAN RAMA		AB
85	25085	PAWAR PRITI TUKARAM	Goal Setting	
86	25086	CHAUGULE AKSHADA BABAJI	Biotechnology and Genetic Engineering	

FOUNDATION COURSE - SEM IV				
SR. NO	ROLL NO	NAME OF THE STUDENT	Title of the Project	Signature
87	25087	KOKATE YASH SHIVAJI		AB
88	25088	THAKUR DIPALI DILIP	Skill Required for competitive Exams	
89	25089	VEKHANDE AVISHKAR RAJU	Time Management	
90	25090	RABADE RUTESH KASHINATH	Laser Technology	
91	25091	SHAIKH MUHIT MUBARK	Goal Setting	
92	25092	SINGH VIVEK RAVINDER	Biotechnology and Genetic Engineering	
93	25093	SIDDIQUEI FARHAN UMER AHMAD		AB
94	25094	SAINI ASHOK NARESH	Time Management	
95	25095	YADAV ARTI MAHENDRA	Laser Technology	
96	25096	RAM POOJA NARESH	Goal Setting	
97	25097	SHARMA SUDHA SHIVSHANKAR	Biotechnology and Genetic Engineering	
98	25098	GAUTAM GITESH JAIPRAKASH	Goal Setting	
99	25099	TAMORE CHINMAY SANDIP	Time Management	
100	25100	BHUYAL VIRENDRA VILAS	Laser Technology	
101	25101	TAMORE UDDHARI SANTOSH	Time Management	
102	25102	BARGA AKSHAY RAMA	Skill Required for competitive Exams	
103	25103	PATIL PRATHAMESH PRADIP	Skill Required for competitive Exams	
104	25104	BADADALKAR AAYUSHA SHIVANAND	Goal Setting	
105	25105	SINGH SAKSHI SHRIPRAKASH	Laser Technology	
106	25106	RAVTE AMRITA VISHNU	Skill Required for competitive Exams	
107	25107	SATPUTE SIDDHESH BHASKAR	Skill Required for competitive Exams	
108	25108	YAMGAR ANIL RAJARAM	Time Management	
109	25109	KAMADE SUSHIL RAJESH	Goal Setting	
110	25110	PRADHAN AALISHA SARPANCH	Laser Technology	
111	25111	CHAURE SANJANA VIJAY	Science And Technology	
112	25112	RAVATE ARVIND VISHNU	Laser Technology	
113	25113	SHARMA KHUSHBOO BANSILAL	Skill Required for competitive Exams	
114	25114	MISHRA VEDPRAKASH HEMANT	Skill Required for competitive Exams	
115	25115	BARI AAYUSH PRAKASH	Goal Setting	

FOUNDATION COURSE - SEM IV				
SR. NO	**ROLL NO**	**NAME OF THE STUDENT**	**Title of the Project**	**Signature**
116	25116	BANG PRATHAMESH SUNIL	Laser Technology	
117	25117	KUSHWAHA ARYAN HARENDRA	Biotechnology and Genetic Engineering	
118	25118	SINGH DIPIKA HARENDRA	Skill Required for competitive Exams	
119	25119	GHADVAJI JITESH RAMAN	Skill Required for competitive Exams	
120	25120	ATPADAKAR LOVE RAMCHANDRA	Laser Technology	

(Prof. Akshay Patil)
Assistant Professor

SONOPANT DANDEKAR ARTS, V.S. APTE COMMERCE AND M.H. MEHTA SCIENCE COLLEGE, PALGHAR

Class : SYBSC - C **Academic Year :** 2022-2023

Subject : Foundation Course - IV **Sem. :** IV

Sr. No.	Roll No.	Name of the Student	Title of the Project	Signature
1	25121	MISHRA PRITIKA VINOD	Writing skills	
2	25122	SHINDE VISHAKHA VILAS	Time management	
3	25123	PATIL KOMAL SADANAND	Goal Setting	
4	25124	DOKE MILIND SUBHASH	Soft skills required for competitive exams	
5	25125	GUPTA SANDEEP ACHCHELAL	Nano technology	
6	25126	PATIL KUNAL PRAMOD	Bio-technology and genetic engineering	
7	25127	PATRE RISHABH AVINASH	Laser Technology	
8	25128	TIWARI SANGYA SURYA NARAYAN	Science and technology	
9	25129	KENGAR DHANSHREE DINESH	Approaches to understanding ecology	
10	25130	KHADKE UDESH SUBHASH	IT and Satellite Technology	
11	25131	DALVI NAYAN NARESH	Right to Information	
12	25132	GHUTE KUNAL PRAVIN	Public Interest Litigation	
13	25133	GOTMUKLE VISHAL SAKHARAM	Competitive Examination its pattern, eligibility	
14	25134	THALKAR HEMANGI DINESH	Goal Setting	
15	25135	KATKAR KRUTIKA RAMDAS	Soft skills required for competitive exams	
16	25136	SINGH SHALINI ANIL	Nano technology	
17	25137	SHRIVASTAV MUSKAN ANILKUMAR	Bio-technology and genetic engineering	
18	25138	TARE NITESH CHANDRU	Laser Technology	
19	25139	GHARAT SANKET SANTOSH	Approaches to understanding ecology	
20	25140	PATIL POOJA GANESH	IT and Satellite Technology	
21	25141	PAWADE JATISH MAHENDRA	Right to Information	
22	25142	THAKUR SAKSHI BABAN	Laser Technology	
23	25143	JADHAV NISHANT NAVNATH	Science and technology	
24	25144	KADU ASMITA GOVIND	Time management	
25	25145	MEDHA NANDINI PRAKASH	Goal Setting	
26	25146	DHODI ANKITA ASHOK	Bio-technology and genetic engineering	
27	25147	DABAKE SNEHA RAMU	Developmental projects and its impact on economy of India	
28	25148	CHURI DEEP MILAN	Developmental projects and its impact on economy of India	
29	25149	BHUSARA ANJALI KRUSHNA	Goal Setting	
30	25150	PADVALE SANKET PRALHAD	Bio-technology and genetic engineering	
31	25151	SURYAWANSHI SHREYA SANDEEP	Nano technology	
32	25152	WAGHAT JITESH KRISHNA	Consumer rights and violation of CR	
33	25153	MORE MANASVI BHUPENDRA	Enviromental Principles	
34	25154	BHASARE SIDDHESH CHANDU	Nano technology	
35	25155	MORE MANASVI JAYCHAND	Public Interest Litigation	
36	25156	PATIL SAHIL BALWANT	Writing skills	
37	25157	SURVE ROHIT PRAKASH	Time management	
38	25158	GORAKHANA TUSHAR CHINTAMAN	Goal Setting	
39	25159	RAVTE POOJA SADANAND	Soft skills required for competitive exams	
40	25160	DHAPSHI VIRAJ KANU	Bio-technology and genetic engineering	
41	25161	KHIRARI NAVNEET JAYRAM	Right to Information	
42	25162	SURUM SHRADDHA SANTOSH	Consumer rights and violation of CR	
43	25163	TARE JUHI RUPESH	Enviromental Principles	
44	25164	JADHAV PRATIK MANOJ	Developmental projects and its impact on economy of India	
45	25165	SAHANI SHIVKUMAR SUBHASH	Writing skills	
46	25166	SINGH HIMANSHOO GHURPHEKAN	Time management	
47	25167	BARANWAL SARIKA DILIP	Goal Setting	
48	25168	SHRIVASTAV SONALI BAJRANGILAL	Consumer rights and violation of CR	
49	25169	HATKAR KAMINI RAJENDRA	Enviromental Principles	
50	25170	SHUKLA PRANSHU SUNIL	Issues of control, access and misuse of technology	
51	25171	MANIAR AACHAL SANJIV	Competitive Examination its pattern, eligibility	

Teacher Signature

HOD

ROLL No.: 230

FOUNDATION COURSE

SYBSC SEM-IV

NAME: Jidnyasa J. Raut

DIV.: A (CZ)

COLLEGE NAME :- S.D.S.M College, Palghar

TOPIC NAME: Science & Technology

Name of the Guide: Tejas N. Chaudhari
(Asst. Professor F.C)

REMARK Good

INDEX

ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to my professor Mr. Tejas. N. Chaudhari who gave me the golden opportunity to do this wonderful project on the topic Science And Technology which also helped me in doing a lot of Research and I came to know about so many new things I am really thankful to them.

Secondly I would also like to thank my parents and friends who helped me a lot in finalizing this project within the limited time frame.

INTRODUCTION

The evolution of science is like a boon to the world, as human beings come to know a lot about the world they are living including the activities they indulge into. Furthermore the development of technology along with the advancement in science helps to bring in a revolution in various fields such as medicine, agriculture, education, information & technology and many more.

In the present world, if we think of any sort of development then the presence of science & technology cannot be ignored.

What is Science?

Science fundamentally is the systematic study of the structure and behavior of the natural and physical world through observations and experiments.
Study of science evolved with the civilization of human beings.

What is Technology?

Technology (which is basically derived from the Greek word 'technologia') is an art, skill or ability, which is used to create and develop products and acquire knowledge.
Scientists used their knowledge to develop technology and then used technology to develop science; so because of this reason science and technology are an integrated term in today's world.

Consider the following points to understand the relationship between Science & Technology -

- Contribution of Science to Technology
- Contribution of Technology to Science

CHARACTERSTICS

The methods of science & technology have to be put into operation in a systematic way. The method of science includes observations, measurement, recording, classification comparing with earlier experiences making hypotheis and testing the hypotheis through new innovative experiences.

The culture of technology includes making note of specifications for material, product and process, performance indices, planning for future and consideration of how to effectively make use of resources, materials, energy and finances. The new developments in Biotechnology, Space Research, Microelectronics, computers and Hi-tech will be immense benefit to the rural areas.

The field of science and technology possess the following characterstics: plans, operations and maintenance, more frequent maintenance is required in the case of technologies, locally available skills tools and materials are made use of to sustain the technology factors. In the case of rural development only those kinds of technologies should be used that can be easily managed and repaired. Technologies should be economically sustainable, beneficial and contribute towards a healthy lifestyle. Low cost, minimal usage, making the most benefits out of minimal usage should be implemented.

SIGNIFICANCE

Before understanding the importance of science & technology it is important for us to understand that science and technology are closely associated with our lives. They are closely linked aspects of society and the studies and developments in both these fields are essential for the overall progress of mankind. Why is technology so important? How does scientific development affect society? Let us find out.

Natural sciences deal with the study of nature and human life. The studies of natural and artifical sciences reveal the relationship between nature and human life. Research in science has paved a path to many brilliant inventions and discoveries.

When it comes to technological advancement we cannot forget the automobile and transport industries that have grown tremendously on account of the developments in science and engineering.

Technological advancements have driven the development in the different modes of transport. Bicycles have transformed into scooters and sports bikes. The developments in air transport have winged the common man to soar high.

The importance of technology lies in its manifold benefits to society. The positive effects of technology are many. The advancement in this field has revolutionized human life. It has provided an impetus to the computer and tele-communication industry. The developments in communication technology have made the world a smaller place. The Internet serving as an excellent communication platform has made the world flat.

The World Wide Web has proved to be enormous information base from which information can be retrieved by the means of search engines. Information from all around the world is housed on the web.

The most important benefit of science has been the luxury it has brought to daily life. The mechanization of industrial processes has reduced human effort. Household appliances that are in daily use of the common man are a result of developments in science. Machines have replaced human beings in monotonous and risk-bearing tasks. Scientific discoveries have made life easy.

Science and technology have indeed proved to be a boon to human life.

ROLE

In today's world the role of science & technology is indispensable. We need science & technology in every sphere of our life like to treat diseases such as cancer or even to book a cab or train / flight ticket.

In fact without technology (integrated with science) we cannot imagine our life.

One of the most important aspects of Science & Technology is that it has solution to the difficult of the difficult problem the potential to become major bottlenecks to the overall growth of the country. Some of these problems could be -

- Health aspects
- Standard of education
- Infrastructure

On the other hand once mitigating solutions are found for these problems then the second major issue is the under development in the field of scientific research and technology that directly affects the development of the country economy, infrastructure, higher education and few other fields listed below :-

- Nanotechnology
- Space technology
- Defense technology
- Biotechnology
- Wireless communication etc.

All these technologies in turn provide favorable condition for the country's growth and increase healthy competition nationally and also internationally.

In today's world more often we get to read or listen that developed countries, developing countries, underdeveloped countries all these designate the level of development of Science & Technology in other countries they have the influence on.

Goverenment has also created an exclusive department to emphasize on the development of Science & Technology and a separate budget is also allocated for the same.

Connection between science & Technology

Science is the study of the natural world by scientific method i.e. collecting data through a systematic process. And technology is where we apply science to create devices that can solve problems and perform different tasks. Technology is literally the application of science. So it is really impossible to separate the two.

Science, innovation and technology each represent a successive larger category of activities that are highly interdependent from each other but distinct. Science contributes to technology generally in six ways:-

- New knowledge which serves as a direct source of ideas for new technological innovations.

- Source of tools and techniques for more efficient engineering designs and a knowledge base for evaluation of the feasibili of different new designs.

- Research instrumentation and laboratory techniques used in research eventually find their way into the design or industrial practices through different methods in different areas.

- The practice of research as a source for the development and assimilation of new human skills and capabilities useful for different innovative technologies.

- Creating a knowledge that becomes increasingly important in the assessment of technology in terms of its wider social and environmental impacts.

- Develops knowledge that enables more efficient strategies of applied research, development and refinement of new technologies.

The confer impact of technology on science is of equal importance as a source of unavailable instrumentation & techniques needed to address difficult scientific questions more efficiently.

APPLICATIONS

In present global scenario application of science & technology is increasing at great pace. Global populace depend on technology and they use various technologies to accomplish specific tasks in their lives. Today people have various emerging technologies which impact their lives in different ways. Technology is being implemented in almost every section of lives and business structures. Therefore it is important to embrace it and learn how to use technology. Due to high speed development and rapid changes in world, technology will be changed. So it is better to go with latest trends and new emerging technologies and learn how to embrace and use them in daily life.

Numerous application of technology is mentioned below :-

1. Use of Technology in Business -

Technology has imperative role in enhancing business and escalate profit. Today bussinesses can save money by using technology to perform certain tasks. When people compare the amount of money spent on hiring an individual to perform a certain task and to guarantee delivery on time, it is totally expensive. When it comes to technology a small business can scale out and deliver more with less human resource.

2. The Use of Technology in communication -

Previously communication was limited to letter writing and waiting for those postal services to deliver your message. In current situation due to onset of advanced technology communications process is simple. Now people can draft a business message and email it or fax in a second without any delays the recipient will get the message and they will reply instantly. Also technology has made business metting so simple with the introduction of video conferencing company can well organize business meeting and take quick decision. Now with this video conferencing technology managers can be in the meeting in a virtual form and engage with their partner directly. Also technology has made it simple to get feedback from clients instantly. This will save money or direct mail surveys and other mean of getting information from consumers.

3. Use of technology in education -

Modern technology has made major change in the education field. With the invention of technological gadgets and mobil apps which helps students to learn easily. Now a days students can access a full library via a mobile app on an smart phone or ipad. Before inventing this technology students had to go to physical libraries to get the information they need. Teachers can also use modern technology to teach their students.

VISIT

The first destination on my kid list was the Nehru Science Centre in Worli.

This is a very cool place it is situated in a nice little campus of its own with some small gardens and a building full of very cool scientific exhibits.

I looked it up and found that the Nehru Science Centre was inaugurated in 1977 with a 'Light and sight' section. Fascinating!

The Nehru Science Centre comes under the ageis of the National Council of Science Museums an autonomous organisation under the Indian Ministry of Culture. It is the largest chain of science centres or museums under a single administrative umbrella in the world. There are 24 own science centres or museums and one R&D laboratory and training centre of NCSM located in different states in India.

The Nehru Science Centre in Worli was inaugurated in 1977 as a sound and light exhibition then expanded to a Science Centre in 1985 and in fact there are 4 other big Science centres in India.

The idea of science centre is to make learning fun and experimental show the kids (and adults) the practical and fun side rather than bore them with lectures and stuff.

It was indeed a lovely place to go to and hopefully impressed the brat with the power of science and even more hopefully became a memory of an outing. The NSC is extremely popular with over 750000 visitors per year.

I had seen it when I was a kid in other words the place has not changed substantially for 30 years. I think that it is very important that a place like this evolve continually to keep it relevant and attractive to the new generations who are brought up in a much more technologically advanced world than we were.

Especially in today's environment of giant statues and giant temples it is essential that we go back to this era when our priorities were to modernise and establish a scientific temper.

Objectives of Nehru Science Centre

- To portray the growth of science & technology and their applications in industry and human welfare with a view to develop scientific attitude and temper and to create inculcal and sustain a general awarness amongst the people.
- To collect, restore and preserve important historical objects which represent landmarks in the development of science, technology and industry.
- To design, develop and fabricate science museum exhibits, demonstration equipment and scientific teaching aids for science education and popularization of science.
- To popularize science & technology in cities, urban and rural areas for the benefit of students and for the common man by organizing exhibitions, seminars, popular lectures, science camps and various other programs.
- To supplement science education given in schools and colleges and to organize various out of school educational activities to foster a spirit of scientific enquiry and creativity among the students.

CONCLUSION

Science and technology play an increasing role in our lives, and progress in modern science and technology occur very quickly Science and technology cannot give an answer to everything but they lead to civic and economic evolutions improving the quality of our lives.

It is generally agreed that education and awarness in science have to be strengthened. Scientific outreach, improvements in teaching, proper scientific information are very important issues. Outreach should also be addressed to politicians and decision makers.

While for many researchers the main motivation for doing basic research remains scientific curosity for most of people the motivation involve also scientific progress, technological improvements, well being and the quality of everyday life without spoiling the environment.

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FOUNDATION COURSE SEMESTE
IV PROJECT

NAME -: RITIKA PRASAD

STD -: SY-BSC DIV -: A

ROLL NO -: 2384

SUBJECT -: FOUNDATION COURSE

PROJECT NAME -: SCIENCE AND TECHNO

GUIDE -: TEJAS. N. CHAUDHARI

EXPERIMENT : No.

Page No.
Date

SCIENCE AND TECHNOLOGY

(BRANCHES OF SCIENCE AND TECHNOLOGY AND THEIR ADVANTAGES AND DISADVANTAGE, PRINCIPLE OF TECHNOLOGY, USE AND MISUSE OF SCIENCE AND TECHNOLOGY.)

Sundaram

Teacher's Sign. : _____

EXPERIMENT : No.

Page No.
Date

INDEX

Sundaram

Teacher's Sign. : _____

* ACKNOWLEDGEMENT *

I would like to express my special thanks to my teacher Mr. Tejas. N. Chaudhari who gave me the golden opportunity to do this wonderful project of a foundation course.

Secondly I would also like to thank my parents and friends who helped me a lot in finalizing this project within the limited time frame.

Lastly I like to thank all my supporters who have motivated me to fulfil their project before the timeline.

Ritika Prasad
S.Y.B.S.C (P.C)
Div : A
Roll no : 2384

DATE:

* Interview with a Textile Engineer?

1) What do you love most about your work as a Textile designer?

- I can express myself with my prints and my colours, and I can create what I want and when people like it I feel rewarded.

2) When are struggling in your creativity, who do you do?

- As a designer I always listen to my creativity and never force it as you can't control it.

3) What was the earliest discovered fabric?

- The earliest discovered fabric was flax fibres.

4) What are the fibres used in Textile Industry?

- Three basic types of fibres used in Textile industries are

- Synthetic fibres
- Natural fibres
- Cotton fibres.

DATE:

5) What are the different types of cotton available?

- Different types of cotton available are -
  - Grey cotton fabric
  - Bleached cotton fabric
  - Color or dyed cotton fabric.

6) Can I Dye My Cotton Dress?

- Possibly, but keep in mind.
  - The thread & zipper will remain the original color
  - The trim used
  - The stress of the warm-water-and-agitation process.

7) Which things encourage you to join this field?

- The textile industry offers Opportunities for people who enjoy meeting & interacting with different kinds of people.

DATE:

8) What is the role of Textile Engeenising in Science and Technology?

- The branch of engineering helps to create garments, dyes, textures, pattern and fabric used in the apparel industry.

9) How Textile Engineering helps in Technology?

- By determining the best ways to develop fibres, process raw materials.

This information is enough for me.

Thank you, Sir.

* INTRODUCTION *

Science is the study of the natural world and its phenomena, while technology is the practical application of scientific knowledge for scientific specific purposes. Together, science and technology drive human progress by advancing our understanding of the world and developing new tools and techniques to improve our lives.

Science is the study of the natural world, while technology applies scientific knowledge for practical purposes. They work together to drive human progress by advancing our understanding of the world and developing new tools and techniques to improve our lives.

* What is Science and Technology.

Science is the systematic study of the natural world through observation, experimentation and analysis. It seeks to understand the principles and laws that govern the behaviour of the universe. from the tiniest subatomic particles to the largest structures in the cosmos. Science and based on empirical evidence and relies on the scientific method to the hypothesis and theories.

Technology on the other hand, is the practical applications of scientific knowledge for practical purposes. It involves the use of tools, techniques, and processes to design, create and improve products systems and services. Technology can range from simple hand tools to complex system like the internet and it plays a critical role in many aspects of Modern life, from Communication and transportation to healthcare and energy production.

* Some types of Science and technology:

- Nanotechnology
- Biotechnology
- Robotics
- Artificial Intelligence
- Materials Science
- Neuro Science

* Types of science and technology and their advantages and disadvantages.

* **NANOTECHNOLOGY:** Nanotechnology is the study and maniputation of materials at the nanoscale which is 1 and 100 nanometers in size. It involves creating and using materials devices, and systems with unique properties and potential applications in fields such as electronics, medicine, energy and materials science.

- **ADVANTAGES OF NANOTECHNOLOGY:**

1) Improved materials : Nanotechnology can lead to the development of new materials with enhanced properties such as increased strength, durability and conductivity.

2) Improved medical treatments : Nanotechnology can be used to created targeted drug delivery system and more precise imagine tools, leading to more effective medical treatments with fewer side effects.

3) Improve energy efficiency : Nanotechnology can be efficient solar cells, batteries and other energy storage devices, leading to a reduction in energy consumption and greenhouse gas emissions.

4) Improved water treatment : Nanotechnology can be used to create more effective water filtration systems, leading to improved acces to clean water.

5) Improved electronics : Nanotechnology can lead to the development of smaller, faster and more efficient electronics, such as computer chips and sensors.

- **DISADVANTAGES OF NANOTECHNOLOGY -**

1) Health and safety concerns : These are concerns about the potential health and environmental risk of nanomaterials, particularly in term of their toxicity and potential for bioaccumetalic.

2) Cost : The cost of developing and producing nano-technology products can be high, which may limit their accessibility.

3) Regulatory challenges : The regulation of nanotechnology product is complex and may pose challenges for governments and regulatory agencies.

4) Social Impacts : The social impacts of nanotechnology are skill uncertain and may lead to changes in the economy, job market and social norms.

* **BIOTECHNOLOGY :** Biotechnology is the use of living organisms, cells and biological processes to develop useful products and technologies for various applications.

- **ADVANTAGES OF BIOTECHNOLOGY -**

1) **Improved Agriculture :** Biotechnology can be used to develop crops with improved yield, disease resistance, and nutrient content, leading to increased food production and better nutrition.

2) **Improved Medical Treatments :** Biotechnology can be used to develop new drugs and therapies, such as gene therapy and immunotherapy, leading to improved medical treatments for a wide range of diseases.

3) **Improved industrial purpose processes :** Biotechnology can be used to develop more efficient and sustainable industrial processes, such as the production of biofuels and bioplastic, leading to reduced environmental impact.

4) Industrial environmental remadiations : Biotechnology can be used to clean up contaminated environments by using microorganism to breakdown pollutions.

5) Improved diagnostic tools : Biotechnology can be used to develop more sensitive and specific diagnostic tools, such as genetic testing and biosensors, leading to easlier and more accurate diagnosis of disease.

- DISADVANTAGE OF BIOTECHNOLOGY -

1) Ethical concerns : Biotechnology raises ethical concerns, particularly with regard to the genetic modification of organisms, the cloning of animals and the use of stem cells.

2) Health and safety Concerns : These are concerns about the potential health and environmental risk associated with genetically modified organisms and the use of genetically modified crops.

3) Regulatory challenges: The regulation of biotechnology products is complex and may pose challenges for governments and regulatory agencies.

4) Economic impacts: Biotechnology may lead to changes in the economy and job market, particularly in industries such as agricultural and pharmaceuticals.

* **ROBOTICS :** This is a field of science and technology that involves the design, construction and operation of robots, which are machines that can perform task autonomously or with minimal human input. Robotics has application in manufacturing, healthcare, transportation and many other industries.

- **ADVANTAGES OF ROBOTICS :**

1) **Improved productivity :** Robot can perform repetitive and dangerous task with greater speed and accuracy, leading to increased productivity and efficiency in manufacturing and other industries.

2) **Improved quality :** Robots can perform task with consistent precision and accuracy leading to improved product quality.

3) **Increased safety :** Robots can perform task in dangerous or hazardous environments such as in nuclear power plants or deep sea evaporation, protecting human workers from harm.

4) **Reduced Costs :** Robots can help to reduce labor costs and increase efficiency, leading to

lower production costs.

5) Improved precision and Speed : Robots can perform tasks with greater precision and speed that humans particularly in areas such as assemble and inspection.

- **DISADVANTAGE OF ROBOTICS:**

1) High initial investment : The initial cost of purchasing & implementing robotics system can be high, particularly for small and medium-sized business.

2) Limited Flexibility : Robots are designed to perform specific task and may not be easily adaptable to changes in production needs or process changes.

3) Maintenance costs : Robotic systems require regular maintenance & repair which can be costly.

4) Job displacement : The use of robots may result in Job displacement or retaining needs for human workers.

5) Technical complexity : The design, programming, and maintenance of robotic system require specialized knowledge and technical expertise, which may not be readily available.

* **ARTIFICIAL INTELLIGENCE**: This is a branch of computer science that focuses on creating intelligent machines that can perform task that typically require human intelligence, such as visual perception, speech recognition, decision-making and language translate. AI has applications in healthcare, finance, transportation and many other areas.

- **ADVANTAGES OF ARTIFICIAL INTELLIGENCE** -

1) Increased efficiency: AI can analyze large amounts of data and automate repetitive tasks, leading to increased efficiency & productivity in industries such as healthcare, finance and manufacturing.

2) Improved accuracy: AI can perform tasks with a high degree of accuracy, particularly in areas such as image and speech recognition, natural language processing & predictive analytics.

3) Enhanced decion making: AI can analyze complex data sets and provide insights to aid in decision making processes.

4) Improved customer experience: AI can personalize customer experiments and provide 24/7 support through chatbots & virtual assistants.

5) Improved Safety: AI can be used to monitor and analyze data to identify potential safety hazards in industries such as transportation & manufacturing.

- DISADVANTAGES OF ARTIFICIAL INTELLIGENCE:

1) Job displacement: AI can automate tasks previously performed by humans, leading to Job displacement and retraining needs for workers.

2) Ethical concers: AI raises ethical concerns particularly with regard to the use of personal data and the potential for bias in decision-making algorithms.

3) Dependence on data: AI system relay on large amounts of data to function properly, which may be difficult or costly to obtain in certain industries.

4) Security risks : AI systems may be valunerable to cyber attacks and data serches potentially expassing sensitive information.

* **MATERIAL SCIENCE** : This is a field of science that studies the properties, structure and processing of materials, including metals, ceramics, polymers and composites materials science has applications in manufacturing, electronics energy, and many other industries.

- **ADVANTAGES OF MATERIAL SCIENCE** -

1) **Improve properties** - Material science can be used to develop new materials with improved properties, such as strength, durability, & flexibility, leading to improved product performance.

2) **Improve Sustainibility** - Material science can be used to develop more sustainable materials and production processes, reducing environmental impact & promoting circular economics.

3) **Improve Safety** - Material science can be used to develop materials with improved safety properties, such as flame retardancy & resistance to corrosion.

4) Improve energy efficiency: Material science can be used to develop materials with improved energy efficience, such as light weight materials for transformation and insulation materials for buildings.

5) Improved healthcare: Materials science can be used to develop new materials for medical devices and implants, loading to improved patient outomes.

- DISADVANTAGE OF MATERIAL SCIENCE -

1) Cost - Developing new materials can be costly and time-consuming particularly for industries with high research and development (R&D) costs.

2) Environmental impact - The production and disposal of materials can have a significant environmental impact, particularly for materials that are non-biodegradable or difficult to recycle.

3) Health risk - Certain materials may pose health risks to workers during production or use, such

as exposure to chemicals & nanoparticles.

4) Regulatory challenges: The regulation of materials & their use can be complex & may pose challenges for governments & regulatory agencies.

5) Public perception: The use of certain materials, such as nanoparticles, can be a controversial topic, & public perception & acceptance may impact their development & adoptation.

* **NEUROSCIENCE:** This is a field of science that studies the structure and function of the nervous system including the brain and spinal cord. Neuroscience has applications in medicine, psychology and many other fields.

- **ADVANTAGES OF NEUROSCIENCE -**

1) **Improved understanding of the brain:** Neuroscience can help to improve your understanding of the brain and how it functions, leading to the development of new treatments for neurological disorders.

2) **Improved treatment options:** Neuroscience can help to develop raw treatments for neurological & psychiatric disorder, such as depression and schizophrenia.

3) **Improved diagnosis:** Neuroscience can provide better diagnostic tools for neurological disorders leading to earlier & more accurate diagnostic.

4) Improved public health: Neuroscience research can help to identify and mitigate health risk associated with brain injuries, degenerative disorders and other neurological conditions.

5) Improved education: Neuroscience can provide insights into the brain processes information leading to improvide educational pasticles and techniques.

- **DISADVANTAGE OF NEUROSCIENCE** -

1) Ethical Concerns - Neuroscience raises ethical concerns, particularly with regard to the use of human subject in research and the potential for invasive procedures.

2) Technical Complexity - Neuroscience research may require specialized knowledge and technical expertise which may not be readily available in all countries or regions.

3) Limited funding - Neuroscience research may face limited funding, particularly in countries with competing in countries with economic priorities.

4) Data limitations: Neuroscience research may face limitations in data availability and quality, particularly in cases where access to brain tissue or other materials is restricted.

5) Public perception: Neuroscience research may face challenges in public perceptions acceptance may impact their development and adoptation.