R. C. Patel Educational Trust's
R. C. Patel Arts, Commerce and Science College
Shirpur-425405, Karvand Naka, Dist.- Dhule (Maharashtra)
E-mail - principal@rcpasc.ac.in

Affiliated to: K. B. C. North Maharashtra University, Jalgaon-425001

Self Study Report (SSR): 2024 (4th Cycle)

Criteria - 1
Curricular Aspects

Key Indicator – 1.2
Academic Flexibility

Metric No. – 1.2.1 (QnM)

Number of Certificate/Value added courses offered and online courses of MOOCs, SWAYAM, NPTEL etc. where the students of the institution have enrolled and successfully completed during the last five years)

Submitted to
National Assessment and Accreditation Council, Bangalore

R. C. Patel Educational Trust's
R. C. Patel Arts, Commerce and Science College
Karvand Naka, Shirpur 425405, Dist - Dhule, Maharashtra
☎: (02563) 299328
E-mail: principal@rcpasc.ac.in

President
Hon. Bhupeshbhai Patel
Principal
Dr. D. R. Patil

Date: 15/06/2024

Declaration

This is to declare that, the information, reports, true copies of the supporting documents, numerical data etc. submitted in these files is verified by Internal Quality Assurance Cell (IQAC) and it is correct as per the office record.

This declaration is for the purpose of NAAC accreditation of the HEI for the 4th cycle assessment period 2018-19 to 2022-23.

Place: Shirpur

Date: 15/06/2024

Dr. Sandip P. Patil
IQAC Co-ordinator
IQAC Coordinator
R. C. Patel Educational Trust's
R. C. Patel Arts, Commerce and Science College
Shirpur, Dist.-Dhule (M.S.) 425405

R. C. Patel Arts Commerce and Science College Shirpur ★ R. C. Patel Educational Trust's

Dr. D. R. Patil
IQAC Chairman & Principal
PRINCIPAL
R. C. Patel Educational Trust's
R. C. Patel Arts, Commerce and Science College
Shirpur, Dist.-Dhule (M.S.) 425405

R.C. Patel Arts, Commerce and Science College, Shirpur

Certificate Course Syllabus, Attendance, Mark sheet and Sample Certificate

A.Y-2019-20

INDEX

K.B.C. North Maharashtra University, Jalgoan
Ordinance 181

R. C. Patel Arts, Commerce and Science College, Shirpur

Name of career oriented course

Certificate Course in Plant Tissue Culture

Faculty

SCIENCE

Academic year
(2019-20)

College name	:	**R. C. Patel Arts, Science and Commerce College, Shirpur**
Title of the course	:	**Certificate Course in plant tissue culture**
Aims/Objective of the course	:	**To make students acquaint about methods in plant tissue culture and their applications.**
Duration of the course	:	**1 Year**
Fees structure	:	**Rs. 1000/-**
Course structure	:	**Paper I: Fundamentals in Plant Physiology** **Paper II: Basics in Plant Tissue Culture** **Paper III: Lab Course**
Eligibility for admission	:	**12th Science**

Skeleton of course:

Sr No	Paper	Name of subject	Theory / Practical	Teaching hours	Maximum marks allotted			Passing			Credit
					External	Internal	Total	External	Internal	Total	
1.	Paper I	Fundamentals in Plant Physiology	Theory	90	60	40	100	24	16	40	6
2.	Paper II	Basics in Plant Tissue Culture	Theory	90	60	40	100	24	16	40	6
3.	Paper III	Lab course	Practical	120	60	40	100	24	16	40	8

Minimum staff : 03

Mode of examination : Internal and external

(Theory and Practical)

Detail syllabus : Syllabus copy attached

CCPTC 101: Fundamentals in Plant Physiology

Topics	Lectures Allotted
1. Plant Cell:	
1.1 Plant cell organelles: structure and function Cell wall, plasma membrane, Endoplasmic reticulum, Vacuole, Golgi apparatus, Plastid & Nucleus 1.2 Storage granules 1.3 Osmosis: Role in turgidity 1.4 Homeostasis: concept and significance	12
2. Plant water relation and transport:	
2.1 Absorption and movement of water: Theories of water translocation, Transpiration, Stomatal physiology. 2.2 Nutrient Transport: Passive transport, Active transport, Permeability. 2.3 Conservation of water	10
3. Photosynthesis:	
3.1 Photosynthesis: Concept, History, 3.2 Photosynthetic apparatus: Chloroplast, Pigments 3.3 Photosystem-I and Photosystem-II 3.4 Light reaction: Photophosphorylation (cyclic and non-cyclic) 3.5 Dark reaction; C3 pathway or Blackmans' reaction or Calvin Cycle 3.6 Significance of photosynthesis growth and development in Plants:	12
3.7 Plant growth: Cell cycle: Mitosis 3.8 Growth kinetics: Whole organs (S-shaped growth curve) 3.9 Growth of plant organs: roots, stems, leaves, flowers, seeds and fruits 3.10Morphogenesis, Juvenility, Totipotency 3.11Media nutrients and requirements of growth	12
4. Plant Hormones:	
Concept of hormones and their role in Plant tissue culture 4.1 Auxins: introduction, Mechanism of action, use as herbicides 4.2 Cytokines: Introduction, Mechanism of Action, 4.3 Gibberellins: Introduction, Mechanism of action, commercial uses of Gibberellins 4.4 Ethylene: Introduction, Action, Role in flowering. 4.5 Abscisic acid (ABA): Introduction, Action, Role.	10
5. Plant diseases	
5.1 Citrus Canker Powdery mildew in apple 5.2 Whip Smuts of Sugarcane 5.3 Leaf spots in Tikka disease of groundnut 5.4 Rots in cucurbits	12

CCPTC 102: Basics in Plant Tissue Culture

Topics	Lectures allotted
1. Introduction to PTC Laboratory:	
1.1 Introduction & Organization of PTC lab: 1.2 Development of Tissue culture media **1.3** Media constituents: Inorganic and organic nutrients, growth Hormones, gelling agents 1.4 Media preparation and methods of sterilization	**14**
2. Totipotency and Cytodifferentiation:	
2.1 Totipotency: Introduction, Expression, significance 2.2 Cytodiffertiation: Introduction, Process, Factors affecting cytodifferentiation	**12**
3. Organ culture:	
Different types of organ culture (principle, protocol, and Importance) 3.1 Root culture 3.2 Leaf culture 3.3 Meristem; shoot tip culture, flower culture 3.4 Ovary culture 3.5 Anther and pollen culture	**14**
4. Callus culture:	
4.1 Callus culture: Introduction and principle 4.2 Characteristics of callus 4.3 Process of callus formation 4.4 Methods and significance of callus	**12**
5. Somatic embryogenesis:	
5.1 Somatic embryogenesis: Introduction and principle and Significance 5.2 Methods in somatic embryogenesis 5.3 Factors affecting on somatic embryogenesis 5.4 Artificial seeds: development and uses	**14**
6. Application of plant tissue culture:	
6.1 Micro propagation 6.2 Clonal propagation 6.3 Production of genetically variable plants 6.4 Plant pathology and plant tissue culture 6.5 Plant breeding 6.6 Production of useful biochemical	**12**

CCPTC 103: Lab Course

Sr. No.	Lab course	Lectures allotted
1.	Overview to plant tissue culture laboratory.	08
2.	Preparation of stock solutions	08
3.	Preparation of growth media.	10
4.	Preparation and sterilization of explants	08
5.	Production of callus by using carrot/Clitoral ternetia/ Hibiscus Rosa sinensis.	10
6.	shoot tip culture	08
7.	Study of somatic embryogenesis by using groundnut/ Wheat	08
8.	Initiation of cell suspension culture	12
9.	Study of micro propagation	08
10.	Study of transpiration	08
11.	Study of embryo culture	10
12.	Estimation of chlorophyll content from different plant leafs.	06
13.	Study of stomatal physiology.	08
14.	Study of cell cycle: various mitotic stages	08

References:

1. Kalyan Kumar De, Plant tissue culture.
2. Plant tissue culture, S. S. Bhojwani and M.K. Rajdhan.
3. Plant biotechnology and its application in tissue culture; Ashwini Kumar, Shikha Roy, IK International publication.
4. Plant physiology ; Fourth edition, Salisburry Ross, Thomson, Wadsworth publication
5. Plant physiology; C. P. Malik, Kalyani publication ,New Delhi – Ludhiana
6. Plant physiology; Second edition, G. Ray Noggle, George J. Fritz, Prentice Hall of India private limited.
7. Plant physiology; R.S.Mehrotra, Ashok aggrawal, Tata McGraw Hill.
8. Kalyan Kumar De, Plant tissue culture.
9. Plant tissue culture, S.S.Bhojwani and M.K. Rajdhan.
10. Plant biotechnology and its application in tissue culture; Ashwini Kumar, Shikha Roy, IK International publication.
11. Plant tissue culture, S.S. Purohit.

R. C. Patel Educational Trust's

R. C. Patel Arts, Commerce & Science College, Shirpur

(Affiliated to the K.B.C. North Maharashtra University, Jalgaon)

STATEMENT OF MARKS

Certificate in Plant Tissue Culture (CGPA Pattern)

Examination held in May 2020

Student Name : Dhamne Ruchita Dilip

College Name : R. C. Patel Arts Commerce and Science College, Shirpur

Seat Number : 202101

Exam Centre : Shirpur (240051)

Paper Code	Paper Name	AM	Credits (Max.)	Marks Obtained
CCPTC 101	Plant Physiology	TH	6.0	90
CCPTC 102	Plant tissue culture	TH	6.0	87
CCPTC 103	Lab Course	PR	8.0	92

Result: **Pass**

CGPA: **5.95**

Grade: **A**

R.C.PATEL ARTS,COMM.AND SCI.COLLEGE * SHIRPUR *

Co-ordinator

Abbreviations:

AM: Assessment Methods, **P:** Pass, **F:** Fail, **AB:** Absent, **RR:** Result Reserved, **TH:** Theory, **PR:** Practical, **O:** Outstanding Grade

॥ अंतरी पेटवू ज्ञानज्योत ॥

Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

1990
'A' Grade
NAAC Re-Accredited
(3rd Cycle)

Jalgaon (M.S.), INDIA

We, the Board of Deans, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

&

The Principal

R. C. Patel Arts, commerce and science college, shirpur

do, hereby, certify that,

Mr./Ms. Joshi Manasi Rajendra

has pursued a course of study approved by the Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon and has passed the requisite examination held in Dec 2020 *with* A *grade and found duly qualified for the award of*

Certificate in

Plant tissue culture

Which is conferred on ~~him~~ / her on ~~October~~ Feb *1st, 2021*

In testimony whereof is set the seal and signatures of authorities.

~~Principal~~

R. C. Patel Arts, Comm. & Sci. College

Dean

A - 05703

College Name : R.C.Patel Arts, Commerce & Science College, Shirpur

Title of the Course : Certificate Course in textile Chemistry

Aims/objectives of the Course : To aware the students about Textile chemistry, their applications & career in textile industries.

Duration of Course : 1 Year

Fees structure : 1000/

Course structure : Paper-I- Applied Chemistry for Textile Industries

Paper-II- Applied Chemistry of dyes & Auxiliaries

Paper-III- Lab Course

Eligibility for admission : Diploma course in Textile chemistry

Skeleton of Course :

Sr. No.	Paper	Name of the subject	Theory/ Practical Course	Teaching Hrs	Max. Marks Allotted			Passing			Credit
					External	Internal	Total	External	Internal	Total	
1	Paper-I	Applied Chemistry for Textile Industries	Theory	90	60	40	100	24	16	40	6
2	Paper-II	Applied Chemistry of dyes & Auxiliaries	Theory	90	60	40	100	24	16	40	6
3	Paper-III	Lab course	Practical	120	60	40	100	24	16	40	6

Minimum Staff : 03

Mode of examination : Internal & External (Theory & Practical)

Details of Syllabus : Enclose the syllabus copy

R.C.Patel Art's, Commerce & science College, Shirpur

CTC- 101- Applied Chemistry for Textile Industries

Paper- I THEORY Contact Hrs- 90

1. **Elementary Chemistry:** **(10 Hrs)**

   Concept of atom, atomic number, isotopes & isobars, molecular weight & equivalent weight, compounds & mixtures.

2. **Concepts in volumetric analysis:** **(20 Hrs)**

   Oxidizing & reducing agents, units of concentration, molarity, normality, formality, numerical, standard solutions, types.

3. **Acids & bases:** **(20 Hrs)**

   Arrhenius theory, Lewis theory & Lowry-Bronsted theory, properties & uses of acids & bases.

4. **Water:** **(10 Hrs)**

   Sources of water, impurities in water, hardness of water, temporary hardness, permanent hardness & effects.

5. **pH & pOH:** **(10 Hrs)**

   Introduction, concept, definition, calculation of pH value of acid, bases. Determination of pH by colorimetric method.

6. Industrial visit. **(20 Hrs)**

REFERENCE BOOKS:

1. Analytical chemistry by G. D. Chritian
2. Physical chemistry by Atkins.
3. Vogel's Textbook of Quantitative chemical analysis- Jeffry, Basset.

R. C. Patel. A. C. S. College, Shirpur

Certificate Course in Textile Chemistry 2019-2020

Attendance shit

		3/8/19	4/8/19	10/8/19	11/8/19	17/8/19	18/8/19	24/8/19	25/8/19	31/8/19	1/9/19	7/9/19	8/9/19	14/9/19	15/9/19	21/9/19	22/9/19	28/9/19	29/9/19	5/10/19	6/10/19	12/10/19	20/10/19	21/10/19
1.	PATEL LABHODAY VIJAY																							
2.	PATIL VAIBHAV SUNESH																							
3.	LAMBOLE PINAL MAHENDRA																							
4.	PATIL TEJAS UDDHAV																							
5.	PATIL DIPRAJ VISHWAS																							
6.	CHAUDHARI SUNAINA RAMKRUSHNA																							
7.	PATIL MANOHAR TARACHAND																							
8.	SHIRSATH AKSHAY SUPDU																							
9.	PATEL BHUPESH CHANDRAKANT																							
10.	PAWAR SHUBHAM KAILAS																							
11.	RAJPUT PRIYANKA KOMALSING																							
12.	PATIL PRAMOD RAJARAM																							
13.	PATIL GAURAV DILIP																							
14.	MANIYAR FIROZKHAN S.																							

R. C. Patel Arts, Comm. & Sci. College

Mrs. Rajashi B. Khadse

For office use only

Application for the course – ETC Acad. Year: 2019-20

R. C. Patel Educational Trust's

R.C. Patel Arts, Commerce and Science College

Shirpur, Dist – Dhule, M.S. 425 405
(NAAC Accredited Institute)

R.C.P.E.T.

To,
The Principal
R. C. Patel Arts, Commerce and Science College,
Shirpur

Sir,

I wish to get admitted to as a student for the certificit course of textile che
(Rajput Priyanka komalsing)

Rajput
(Name and Signature of Candidate)

PARTICULARS OF CANDIDATE

1. Name in full (Surname first) : Rajput (Surname) Priyanka (Name) komalsing (Father's/Husband's Name)
2. Address for correspondence : At-kuve Post-Balkuve Tal-shirpur, Dist-Dhule
3. Email Id : PriyankaRajput2990441@.gmail.com
4. Ph.No./Mobile No. : 9309182903
5. Father's/Husband's name with address : Rajput komalsing kalu At-kuve Post-Balkuve tal-shirpur Dist-Dhule
6. Sex (~~Male~~/Female) : Female
7. Nationality : Indian
8. Date of birth (dd/mm/yyyy) : 08/06/2001
9. Put the tick (✓) mark(s) in the appropriate box(es) applicable in your case.

SC	ST	DT	NT-1	NT-2	NT-3	SBC	OBC	OPEN	P.H.	D.S.P
								✓		

P.H. : Physically handicapped ; D.S.P. : Ward of Defense Service Person

॥ अंतरी पेटवू ज्ञानज्योत ॥

Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

'A' Grade
NAAC Re-Accredited
(3rd Cycle)

Jalgaon (M.S.), INDIA

We, the Board of Deans, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

&

The Principal

R. C. Patel Arts, Commerce & science College, shirpur

do, hereby, certify that,

~~Mr.~~/*Ms.* Lambole Pinal Mahendra

has pursued a course of study approved by the Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon and has passed the requisite examination held in Dec 2020 *with* 'A' *grade and found duly qualified for the award of*

Certificate in

Textile Chemistry

Which is conferred on him / her on ~~October~~ Feb *1st, 2021*

In testimony whereof is set the seal and signatures of authorities.

Principal

Dean

R. C. Patel Educational Trust's

R. C. Patel Arts, Commerce & Science College, Shirpur

(Affiliated to the K.B.C. North Maharashtra University, Jalgaon)

STATEMENT OF MARKS

Certificate course in Textile Chemistry

Examination Held in May-2020

Student Name: **Lambole Pinal Mahendra**

College Name: **R.C.Patel Arts Commerce and Science College, Shirpur**

Seat Number: **CTC -03**

Paper Code	Paper Name	AM	Credit (Max.)	Marks Obtained
CTC- 101	Applied chemistry for textile industries	TH	6	78
CTC -102	Applied chemistry of dyes and Auxiliaries	TH	6	85
CTC-103	Lab Course	PR	8	92

Result: **Pass**

CGPA: **5.5**

Grade: **A**

R.C.PATEL ARTS,COMM.AND SCI.COLLEGE * SHIRPUR *

Co-ordinator

Abbreviations:

AM: Assessment Methods, **P:** Pass, **F:** Fail, **AB:** Absent, **RR:** Result Reserved, **TH:** Theory, **PR:** Practical, **O:** Outstanding Grade

College Name : R.C.Patel Arts, Commerce & Science College, Shirpur

Title of the Course : Diploma Course in textile Chemistry

Aims/objectives of the Course : To aware the students about Textile chemistry, their applications & career in textile industries.

Duration of Course : 1 Year

Fees structure : 1000/

Course structure : Paper-I- Chemistry of Polymers in Textile Industries

Paper-II- Chemistry of Fibres in Textile Industries

Paper-III- Lab Course

Eligibility for admission : Certificate course in Textile chemistry

Skeleton of Course :

Sr. No.	Paper	Name of the subject	Theory/ Practical Course	Teaching Hrs	Max. Marks Allotted			Passing			Credit
					External	Internal	Total	External	Internal	Total	
1	Paper-I	Chemistry of Polymers in Textile Industries	Theory	90	60	40	100	24	16	40	6
2	Paper-II	Chemistry of Fibres in Textile Industries	Theory	90	60	40	100	24	16	40	6
3	Paper-III	Lab course	Practical	120	60	40	100	24	16	40	6

Minimum Staff : 03

Mode of examination : Internal & External (Theory & Practical)

Details of Syllabus : Enclose the syllabus copy

R.C.Patel Art's, Commerce & science College, Shirpur

DTC- 101- Chemistry of Polymers in Textile Industries

Paper- I THEORY Contact Hrs- 90

1. **Basic Determinants of Fibre Forming Polymers:** **(20 Hrs)**

   Importance of polymer science. Various applications of polymers. Classification of polymers. Definition of monomer, oligomer, high polymer, mesomer, cohesive energy density, solubility parameter, glass transition temperature, functionality and degree of polymerization.

2. **Condensation Polymerization:** **(15 Hrs)**

   Mechanism, types, featness, essential requirements and importance of condensation polymerization.

3. **Mechanism of Polymers:** **(20 Hrs)**

   Nomenclature, Dyestuff chemistry, Types of dyes & pigments, Manufacturing of dyes.

1. **Technology of Textile Polymers:** **(20 Hrs)**

   Characterization of polymers by different physical techniques such as DTA, DSC, TGA, IR, X-Ray diffraction

2. **Developments in polymers for textiles:** **(15 Hrs)**

   Synthetic polymers, Polymer waste and techniques of utilisation.

REFERENCE BOOKS:

1. Polymer science- V. R. Gowarikar
2. Natural Polymer man-made Fibres, Carrol and Porczynski C.Z., National Trade Press Ltd., London, 1965.
3. Visco-Elastic Properties of Polymers, Ferry, J.D., John Wiley and Sons, New York, 3rd edition, 1980.
4. Textbook of Polymer Science, Bill Meyer F.W., John Wiley and Sons, New York, 3rd Edition, 1984.
5. Vogel's Textbook of Quantitative chemical analysis- Jeffry, Basset.

R. C. Patel Art's, Commerce & science College, Shirpur

DTC- 102- Chemistry of Fibres in Textile Industries

Paper- II THEORY Contact Hrs- 90

1. **Fibres:** **(15 Hrs)**
   Introduction, Classification, Characteristics of Fibres
2. **Fundamentals of Fibre Spinning-** **(20 Hrs)**
   General principles of the spinning process, Theory of solidification of polymer in various spinning techniques. Concept of melt spinning, general features and essential requirements of melt spinning.
3. **Polyester fibres:** **(20 Hrs)**
   Raw materials, manufacturing process, physical and chemical properties and end uses of polyester.
4. **Ployamide fibre:** **(20 Hrs)**
   Raw materials, manufacturing process, physical and chemical properties and end uses of Nylon-6 and Nylon-66.
5. **Commercial and rural importance of Natural fibres:** **(15 Hrs)**
   Cotton, wool, silk, ramie, jute, linen, pineapple, Natural Bamboo fibers, their occurrence, properties and uses.

TEXT/REFERENCE BOOKS:

1. Textile Fibres, Shenai V.A., Vol-1, Sevak Publications, Bombay, 3rd edition, 1991.
2. Textbook of chemistry for PUC (Vol- I & II)
3. Dyeing & chemical technology of Textile fibres- E. R. Trotman
4. Microscopy of Textile Fibres, Greaves, P.H., Saville B.P.Oxford: BIOS Scientific Publishers Ltd., 1995.
5. Handbook of Fibre Chemistry, Lewin Menachem, Eli M. Pearce, Marcel Dekker Inc., New York, 2nd edition, 1998.
6. Analysis of Chemicals- N. F. Desai.

For office use only

Application for the course – DTC Acad. Year: 2019-20

R. C. Patel Educational Trust's

R.C. Patel Arts, Commerce and Science College

Shirpur, Dist – Dhule, M.S. 425 405
(NAAC Accredited Institute)

To,
The Principal
R. C. Patel Arts, Commerce and Science College,
Shirpur

Sir,

I wish to get admitted to as a student for the Diploma Course in Textile chemistry

Gpatil
(Name and Signature of Candidate)

PARTICULARS OF CANDIDATE

1. Name in full (Surname first) : Patil (Surname) Gaurav (Name) Vijay (Father's/Husband's Name)
2. Address for correspondence : Alp Tel Shahada, dist. Nandurbar
3. Email Id : Gvpatil51500@gmail.com
4. Ph.No./Mobile No. : 9075859605
5. Father's/Husband's name with address : Vijay Tukaram Patil
6. Sex (Male/Female) : Male
7. Nationality : Indian
8. Date of birth (dd/mm/yyyy) : 04103l2000
9. Put the tick (✓) mark(s) in the appropriate box(es) applicable in your case.

SC	ST	DT	NT-1	NT-2	NT-3	SBC	OBC	OPEN	P.H.	D.S.P
							✓			

P.H. : Physically handicapped ; D.S.P. : Ward of Defense Service Person

DTC - 101

R. C. Patel. A. C. S. College, Shirpur
Diploma Course in Textile Chemistry 2019-20
Attendance shit

No.	NAME \ DATE	5/8/19	5/8/19	6/8/19	11/8/19	12/8/19	18/8/19	25/8/19	1/9/19	1/9/19	8/9/19	8/9/19	15/9/19	22/9/19	29/9/19	6/10/19	7/10/19	13/10/19	20/10/19	27/10/19	17/11/19	15/12/19	22/12/19	23/12/19	23/12/19	12/1/20	19/1/20	26/1/20
1.	CHAUDHARI ADITYA ARUN	CAA	CAA	CAA	CAA	CAA	CAA	A	CAA	A	CAA	A	CAA	A	CAA	CAA	CAA	CAA	CAA	A	CAA	CAA	CAA	CAA	CAA	CAA	CAA	CAA
2.	CHAUDHARI ROHIT PRAMOD	RCP	RCP	RCP	RCP	RCP	A	RCP	RCP	RCP	A	RCP	RCP	RCP	RCP	RCP	RCP	A	RCP	RCP	RCP	RCP	RCP	A	RCP	RCP		RCP
3.	GIRASE KALPESH VIJAYSING	Girase	Girase	Girase	A	Girase	Girase	Girase	Girase	Girase	A	Girase	Girase	Girase	Girase	Girase	Girase	Girase	A	Girase	Girase	Girase	Girase	Girase	Girase	Girase	Girase	Girase
4.	GIRASE NEHA GAJENDRA	N	N	N	N	A	N	N	N	N	N	N	A	N		N	A	N	N	N	A	N	N	N	A	N	N	N
5.	GIRNAR MAHESH PRAKASH	GMR	GMR	GMR	A	GMR	GMR	A	GMR	GMR	GMR	A	GMR	GMR	GMR	GMR	GMR	GMR	A	GMR	GMR	A	GMR	A	GMR	A	GMR	A
6.	PATIL MAYUR AMOL	MPatil	MPatil	MPatil	MPatil	A	MPatil	A	MPatil	MPatil	A	MPatil	MPatil	MPatil	A	MPatil	A	MPatil	MPatil	MPatil	A	MPatil	MPatil	MPatil	MPatil	MPatil	A	MPatil
7.	KALAL CHANDRESH DEVKRISHNA	Kalal	Kalal	Kalal	Kalal	Kalal	Kalal	Kalal	Kalal	Kalal	A	Kalal	Kalal	Kalal	Kalal	Kalal	A	Kalal	Kalal	Kalal	A	Kalal	Kalal	Kalal	Kalal	Kalal	A	Kalal
8.	KHATIK REHANSHEKH MEHMUD	KRM	KRM	KRM	KRM	KRM	KRM	A	KRM	KRM	KRM	KRM	A	A	KRM	KRM	KRM	A	KRM	A	KRM	A	KRM	KRM	KRM	KRM	KRM	KRM
9.	MAHAJAN SRUSHTI ASHOK	MA	MA	MA	MA	MA	MA	MA	MA	MA	A	MA	MA	MA	MA	A	MA	MA	MA	MA	MA	A	MA	MA	MA	MA	MA	MA
10.	PATEL RINALKUMAR KASHINATHABHAI	Patel	A	Patel	Patel	A	Patel	Patel	Patel	Patel	Patel	Patel	Patel	Patel	Patel	Patel	Patel	A	Patel	Patel	Patel	Patel	Patel	Patel	Patel	A	Patel	A
11.	PATIL ASHWINI KAILAS	PAK	PAK	PAK	PAK	A	PAK	PAK	PAK	PAK	A	PAK	PAK	A	PAK	PAK	PAK	A	PAK	A	PAK	PAK	PAK	A	PAK	PAK	A	PAK
12.	PATIL DHANANJAY DNYANESHWAR	Dhananjay	Dhananjay	A	Dhananjay	Dhananjay	Dhananjay	A	Dhananjay	Dhananjay	A	Dhananjay	Dhananjay	Dhananjay	Dhananjay	Dhananjay	Dhananjay	Dhananjay	Dhananjay	A	Dhananjay	Dhananjay	Dhananjay	Dhananjay	Dhananjay	Dhananjay	A	Dhananjay
13.	PATIL HARSHADA MADHUKAR	Patil	Patil	Patil	Patil	A	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	A	Patil	A	Patil	Patil	Patil	Patil	A	Patil

DTC - 101

No.	NAME \ DATE	5/8/19	5/8/19	6/8/19	11/8/19	12/8/19	18/8/19	25/8/19	1/9/19	1/9/19	8/9/19	8/9/19	15/9/19	22/9/19	29/9/19	6/10/19	7/10/19	13/10/19	20/10/19	27/10/19	17/11/19	15/12/19	22/12/19	23/12/19	23/12/19	12/1/20	19/1/20	26/1/20
14.	PATIL JITENDRA PRALHADRAO	A	Patil J	Patil J	Patil J	Patil J	Patil J	Patil J	Patil J	A	Patil J	Patil J	Patil J	Patil J	Patil J	Patil J	Patil J	Patil J	Patil J	A	Patil J	Patil J	Patil J	Patil J	Patil J	Patil J	A	Patil J
15.	PATIL PIYUSH SANJAY	PPS	P.P.S	P.P.S	A	P.P.S	P.P.S	P.P.S	P.P.S	P.P.S	P.P.S	P.P.S	P.P.S	P.P.S	P.P.S	P.P.S	P.P.S	P.P.S	A	P.P.S	P.P.S	P.P.S	P.P.S	P.P.S	P.P.S	P.P.S	A	P.P.S
16.	PATIL PRASHANT KRISHNA	RPatil	A	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	A	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	A
17.	PATIL SAGAR KANTILAL	SPatil	A	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	A	SPatil	SPatil	SPatil	SPatil
18.	ROKADE SAGARKUMAR RAJUBHAI	RS	RS	RS	RS	RS	RS	RS	A	RS	A	RS	A	A	RS	RS	RS	RS	RS	RS	RS	RS	A	RS	RS	RS	RS	RS
19.	SANKE SHITAL BANSILAL	A	Bansal	A	Bansal	Bansal	Bansal	Bansal	A	Bansal	Bansal	Bansal	Bansal	Bansal	Bansal	Bansal	A	Bansal	Bansal	Bansal	Bansal	Bansal	Bansal	A	Bansal	Bansal	A	Bansal
20.	SURYAWANSHI DEVENDRA SURESH	SDS	SDS	SDS	SDS	SDS	SDS	SDS	SDS	SDS	SDS	A	SDS	SDS	SDS	SDS	SDS	SDS	SDS	SDS	SDS	A	SDS	SDS	SDS	SDS	SDS	SDS
21.	WANI YASHODWIP SUNIL	Wani	Wani	A	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani	Wani
22.	WARULE SWAPNIL DADAJI	Warule	Warule	Warule	Warule	Warule	Warule	Warule	A	Warule	Warule	Warule	Warule	Warule	Warule	A	Warule	Warule	Warule	Warule	Warule	Warule	Warule	Warule	Warule	A	Warule	Warule
23.	PATIL PREM SHARAD	Patil	Patil	A	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	A	Patil	Patil	Patil	Patil	Patil	Patil
24.	PATIL GAURAV VIJAY	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	A	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	Gaurav	A

R.C. Patel Arts, Commerce & Science College

Patil Vijay sunil

R. C. Patel Educational Trust's

R. C. Patel Arts, Commerce & Science College, Shirpur

(Affiliated to the K.B.C. North Maharashtra University, Jalgaon)

STATEMENT OF MARKS

Diploma in Textile Chemistry

Examination Held in May-2020

Student Name: **Mahajan Srushti Ashok**

College Name: **R.C.Patel Arts Commerce and Science College, Shirpur**

Seat Number: **DTC -09**

Paper Code	Paper Name	AM	Credit (Max.)	Marks Obtained
DTC-101	Chemistry of Polymer in Textile Industries	TH	6	77
DTC-102	Chemistry of Fibres in Textile Industries	TH	6	83
DTC-103	Lab Course	PR	8	90

Result: **Pass** CGPA: **5.35** Grade: **A**

R.C.PATEL ARTS,COMM.AND SCI.COLLEGE * SHIRPUR *

Co-ordinator

Abbreviations:

AM: Assessment Methods, **P:** Pass, **F:** Fail, **AB:** Absent, **RR:** Result Reserved, **TH:** Theory, **PR:** Practical, **O:** Outstanding Grade

॥ अंतरी पेटवू ज्ञानज्योत ॥

Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

'A' Grade
NAAC Re-Accredited
(3rd Cycle)

Jalgaon (M.S.), INDIA

We, the Board of Deans, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

&

The Principal

R.C. Patel A.C.S. college, Shirpur

do, hereby, certify that,

~~Mr.~~/Ms. Girase Neha Gajendra

has pursued a course of study approved by the Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon and has passed the requisite examination held in Dec 2020 *with* 'O' *grade and found duly qualified for the award of*

Diploma in

Textile Chemistry

Which is conferred on him / her on ~~October~~ Feb *1st, 2021*

In testimony whereof is set the seal and signatures of authorities.

Principal

Dean

KBCNMU

B № 000301

North Maharashtra University, Jalgoan

Ordinance 181

College

R. C. Patel Arts, Commerce and Science College, Shirpur

Certificate course in

Commerce for Textile Industry

Faculty

SCIENCE

Academic year

(2019-20)

Syllabus

Level of diploma	Graduate diploma
Eligibility	As per ordinance 181
Duration	1 Year
Total Credits	20 Credits

Course Structure

Paper No.	Old Subject Name	New Subject Name	Credits
CT 101	**Fundamental of Computer**	**Basics of Computer**	6 Credits
CT 102	**Communicative English**	**Business Communication**	6 Credits
CT 103	**Industrial visit Project viva**	**Project**	8 Credits

CT101 – Basic Computing

Topics	Lectures Allotted (in hrs.)
1.Introduction to computer system Definition of computer, History of computers Block Diagram of Computer, Types of computer, Neumann machine Input Devices: Keyboard, Mouse, Scanner 1.4 Output Devices: Monitor, Printer, Plotter Memory: Primary Memory, RAM, ROM, EPROM, PROM, Secondary Memory, Hard Disk, Pen Drive Definition: Data, Information, Algorithm, Flowchart, Program, Hardware, And Software: System Software, Application, Software, Firmware, Interpreter, compiler Programming Languages: High level, Middle Level, Low Level	**22**
2.Introduction CPU parts Motherboard, SMPS,USB device	**10**
3.Operating system WINDOWS 7, Ubuntu, Linux	**8**
4.Internet and networking LAN, WAN, MAN, WWW and MODEM	**10**
5.Applications Word Processor, spreadsheets, database management software, Multimedia development software (Internet)	**10**
6.Introduction to flow chart, Define symbols of flowchart, Examples	**10**
7. Computer Virus Computer Virus: Indication of virus infection Types of Viruses: Boot Sector Virus, Programs Virus, Macro Virus, Multipartite Virus, Polymorphic Virus, Worms, Malware: Spyware, Adware, Anti-Virus Computer Ethics: Hacking, Software Piracy, Spamming, Phishing	**10**
8.Windows Operating Environment Features of MS – Windows, Control Panel, Taskbar, Desktop, Windows Application, Icons, Windows Accessories, Notepad, Paintbrush.	**10**
Total	**90**

CT 103: Project

(Total lecture allotted 120)

Visit and Study any corporate office/department (textile industry) and Preparestudy report on it. Group size is maximum 2 students

Note-The student has to write a report based on the actual work undertaken during the industrial visit at the specific selected enterprise/ organization or sub system and get it certified by the concerned teacher that the Project report has been satisfactorily completed and submit TWO typed copies of the same to the co-coordinator of the certificate course.

Suggested Reading

1. Fundamentals of computers :V. Raja Raman
2. Computer Fundaments: P.K. Sinha
3. Computer Fundamentals (Architecture and Organization) -B. Ram
4. Microsoft Office 2000 – Vipra Computers
5. Digital Fundamentals - Floyd
6. Digital Principles and Applications - A. P. Malvina & D.P.Leach (TMH)
7. Communication skills : C. B. Gupta
8. Business English :Department of English University of Delhi

R. C. Patel. A. C. S. College, Shirpur

Certificate Course in Commerce for Textile Industry 2019-2020

Attendance sheet

Sr. No.	Name of Students	06/09/19	09/09/19	17/09/19	23/09/19	28/09/19	05/10/19	09/10/19	07/11/19	08/11/19	18/11/19	22/11/19	28/11/19	05/01/20	12/01/20	19/01/20	26/01/20	02/02/20	09/02/20	16/02/20	23/02/20	01/03/20	08/03/20	15/03/20	22/03/20
1.	Deore Chetan Shashikant	CSD	CSD	CSD	CSD	CSD	CSD	CSD	CSD	CSD	CSD	CSD	CSD	Ab	CSD	CSD	CSD	CSD	CSD	CSD	CSD	CSD	CSD	CSD	CSD
2.	Deshmukh Shreya Prakash	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD
3.	Jadhav Vaishnavi Darbarsing	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ	VJ
4.	Kavishwar Aniruddh Girish	GAK	GAK	GAK	GAK	GAK	GAK	GAK	GAK	GAK	GAK	GAK	GAK	GAK	Ab	GAK	GAK	GAK	GAK	GAK	GAK	GAK	GAK	GAK	GAK
5.	Koli Vaishnavi Pannalal	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Ab	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi	Vaishnavi
6.	Kumbhar Nitin Manohar	NMK	NMK	NMK	NMK	NMK	NMK	NMK	NMK	NMK	NMK	NMK	NMK	NMK	NMK	Ab	NMK	NMK	NMK	NMK	NMK	NMK	NMK	NMK	NMK
7.	Lohar Mayur Radhesham	Mayur	Mayur	Mayur	Mayur	Mayur	Mayur	Mayur	Mayur	Mayur	Mayur	Mayur	Mayur	Mayur	Mayur	Mayur	Ab	Mayur	Mayur	Mayur	Mayur	Mayur	Mayur	Mayur	Mayur
8.	Patil Bhushan Arun	BAP	BAP	BAP	BAP	BAP	BAP	BAP	BAP	BAP	BAP	BAP	BAP	Ab	BAP	BAP	BAP	BAP	BAP	BAP	BAP	BAP	BAP	BAP	BAP
9.	Rajput Kuldip Ishwar	KTP	KTP	KTP	KTP	KTP	KTP	KTP	KTP	KTP	KTP	KTP	KTP	KTP	KTP	KTP	KTP	KTP	KTP	Ab	KTP	KTP	KTP	KTP	KTP
10.	Saindane Puja Hari	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	Ab	PS	PS	PS	PS	PS
11.	Rajput Sujit Mahendra	SMR	SMR	SMR	SMR	SMR	SMR	SMR	SMR	SMR	SMR	SMR	SMR	Ab	SMR	SMR	SMR	SMR	SMR	SMR	SMR	SMR	SMR	SMR	SMR
12.	Tavade Jayshri Dhanraj	Tavade	Tavade	Tavade	Tavade	Tavade	Tavade	Tavade	Tavade	Tavade	Tavade	Tavade	Tavade	Ab	Tavade	Tavade	Tavade	Tavade	Tavade	Tavade	Tavade	Tavade	Tavade	Tavade	Tavade

R. C. Patel Educational Trust's

R. C. Patel Arts, Commerce & Science College, Shirpur

(Affiliated to the K.B.C. North Maharashtra University, Jalgaon)

STATEMENT OF MARKS

Certificate in Commerce for Textile Industry (CGPA Pattern)

Examination held in May 2020

Student Name : Deore Chetan Shashikant

College Name : R. C. Patel Arts Commerce and Science College, Shirpur

Seat Number : 901111

Exam Centre : Shirpur (240051)

Paper Code	Paper Name	AM	Credits (Max.)	Marks Obtained
CCCTI101	Basics of Computer	TH	6.0	91
CCCTI102	Communication English	TH	6.0	87
CCTI103	Lab Course	PR	8.0	92

Result: **Pass** CGPA: 5.95 Grade: **A**

R.C.PATEL ARTS,COMM.AND SCI.COLLEGE

Co-ordinator

Abbreviations:

AM: Assessment Methods, **P:** Pass, **F:** Fail, **AB:** Absent, **RR:** Result Reserved, **TH:** Theory, **PR:** Practical, **O:** Outstanding Grade

R.C.Patel Art's, Commerce & science College, Shirpur

ADC- 101- Polymers in Textile Industries

Paper- I THEORY

Contact Hrs- 90

1. Fiber: (10Hrs)

Fiber forming polymers and their requirement, chemistry of natural & synthetic fibrous polymer classification, requirements for fiber forming polymers, essential & desirable properties of textile fibers, essential properties, classification of fibers .

2. Measurement of physical characteristics of cotton : (20 Hrs)

viz. length, fineness, maturity, bundle strength, colour and foreign matter including principle, construction, operation, and calibration of the equipment in common use.

3. Mechanical properties of fibres (20 Hrs)

relation between structure and mechanical properties of fibres, Measurement of physical properties of man-made fibres i.e. length, denier, strength, elongation, modulus, work of rupture, crimp, spin finish, fibre quality index etc.

4.Non-fibrous Polymers: (20 Hrs)

Introduction, chemistry of Gum, Starch, Proteins, enzymes.

5.Green chemistry: (10 Hrs)

Introduction, importance & need, environmentally benign approaches in chemistry.

6.Preparation of Textile Industrial visit report. (10 Hrs)

REFERENCE BOOKS:

1. Polymer science- V. R. Gowarikar
2. Physical chemistry by Atkins.
3. Technology & Dyeing by Shenai.
4. Textbook of Polymer Science, Bill Meyer F.W., John Wiley and Sons, New York, 3rd Edition, 1984.
5. Analysis of Chemicals- N. F. Desai.

For office use only Application for the course – ADc Acad. Year: 2019-2020 ~~2021-2022~~

R. C. Patel Educational Trust's

R.C. Patel Arts, Commerce and Science College

Shirpur, Dist – Dhule, M.S. 425 405
(NAAC Accredited Institute)

To,
The Principal
R. C. Patel Arts, Commerce and Science College,
Shirpur

Sir,

I wish to get admitted to as a student for the Advanced Diploma Course in Textile Chemistry.

Chudhari Aditya Arun
(Name and Signature of Candidate)
~~A Chudhari~~

PARTICULARS OF CANDIDATE

1. Name in full (Surname first) : Chaudhari (Surname) Aditya (Name) Arun. (Father's/Husband's Name)
2. Address for correspondence : Tekwade BK.
3. Email Id : adityachaudhari20@gmail.com.
4. Ph.No./Mobile No. : 8007622161
5. Father's/Husband's name with address : Chaudhari Arun Bharat.
6. Sex (Male/Female) : Male.
7. Nationality : Indian.
8. Date of birth (dd/mm/yyyy) : 04/06/1999
9. Put the tick (✓) mark(s) in the appropriate box(es) applicable in your case.

SC	ST	DT	NT-1	NT-2	NT-3	SBC	OBC	OPEN	P.H.	D.S.P
							✓			

P.H. : Physically handicapped ; D.S.P. : Ward of Defense Service Person

R. C. Patel. A. C. S. College, Shirpur

Advanced Diploma Course in Textile Chemistry 2019-2020

Attendance shit

ADC-101 (Sem I & II)

Sr.No.	Name of Students	2/9/19	5/9/19	12/9/19	20/9/19	21/9/19	22/9/19	23/9/19	24/9/19	25/9/19	26/9/19	30/9/19	1/10/19	21/12/19	31/12/19	4/1/20
1.	BHAMARE NILESH PRAKASH	BNP	BNP	BNP	BNP	BNP	BNP	A	BNP	BNP	BNP	A	BNP	BNP	BNP	BNP
2.	CHAUDHARI KRISHNA PRAVIN	CKP	CKP	CKP	CKP	A	CKP	CKP	CKP	CKP	CKP	CKP	CKP	CKP	CKP	CKP
3.	CHAUDHARI PARESH SHARAD	CPS	CPS	CPS	CPS	CPS	CPS	CPS	CPS	CPS	CPS	CPS	CPS	A	A	CPS
4.	DESALE VISHAL KANHYALAL	DVK	DVK	DVK	DVK	DVK	DVK	DVK	DVK	DVK	DVK	DVK	DVK	DVK	DVK	A
5.	GUJAR SAURABH JAGDISH	GSJ	GSJ	GSJ	GSJ	GSJ	GSJ	A	A	GSJ	GSJ	GSJ	GSJ	GSJ	A	A
6.	MAHAJAN PREM SUNIL	MPS	MPS	MPS	MPS	MPS	A	MPS	MPS	MPS	A	MPS	A	MPS	A	MPS
7.	MALI KAILAS BABAN	MKB	MKB	MKB	MKB	MKB	MKB	A	MKB	MKB	MKB	A	MKB	MKB	MKB	
8.	PATEL RIYAJ FARUK	PRF	PRF	PRF	PRF	PRF	PRF	PRF	PRF	PRF	PRF	PRF	PRF	PRF	PRF	PRF
9.	PATEL VASUDEO BHARAT	PVB	PVB	PVB	PVB	PVB	PVB	PVB	PVB	PVB	PVB	PVB	PVB	PVB	PVB	A
10	PATIL AMOL ASHOK	PAA	PAA	PAA	PAA	PAA	PAA	PAA	PAA	A	A	PAA	PAA	A	PAA	A
11	PATIL RAVINDRA ASHOK	PRA	PRA	PRA	PRA	PRA	PRA	PRA	PRA	PRA	PRA	A	A	PRA	PRA	A
12	PATIL SAGAR PRABHAKAR	PSP	PSP	PSP	PSP	PSP	PSP	A	A	PSP	PSP	A	PSP	PSP		PSP
13	PATIL SANDIP VINOD	PSV	PSV	PSV	PSV	PSV	A	PSV	A	PSV	A	PSV		PSV	PSV	PSV
14	PATIL SAURABH RAVINDRA	PSR	PSR	PSR	PSR	PSR	PSR	PSR	PSR	PSR	PSR	PSR	PSR	A		PSR
15	PATIL YOGITA RAJENDRA	PYR	PYR	PYR	PYR	PYR	PYR	PYR	PYR	PYR	PYR	PYR	A	PYR	PYR	PYR
16	PAWAR YOGITA DEVIDAS	PYD	PYD	A	PYD	PYD	PYD	PYD	PYD	PYD	PYD	PYD	PYD	PYD	PYD	PYD
17	SONAWANE NISHA DHANRAJ	SND	SND	SND	SND	SND	SND	SND	SND	SND	SND	SND	SND	A	A	SND

॥ अंतरी पेटवू ज्ञानज्योत ॥

Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

'A' Grade
NAAC Re-Accredited
(3rd Cycle)

Jalgaon (M.S.), INDIA

We, the Board of Deans, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

&

The Principal

R. C. Patel A.C.S. College, Shirpur

do, hereby, certify that,

Mr./~~Ms.~~ Mahajan Prem Sunil

has pursued a course of study approved by the Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon and has passed the requisite examination held in Dec 2020 *with* 'O' *grade and found duly qualified for the award of*

Advanced Diploma in

Textile Chemistry

Which is conferred on him / her on ~~October~~ Feb 1st, 2021

In testimony whereof is set the seal and signatures of authorities.

Principal

Dean

C Nº 000092

R. C. Patel Educational Trust's

R. C. Patel Arts, Commerce & Science College, Shirpur

(Affiliated to the K.B.C. North Maharashtra University, Jalgaon)

STATEMENT OF MARKS

Advance Diploma in Textile Chemistry

Examination Held in May-2020

Student Name: **Patil Sandip Vinod**

College Name: **R.C.Patel Arts Commerce and Science College, Shirpur**

Seat Number: **ADC -13**

Paper Code	Paper Name	AM	Credit (Max.)	Marks Obtained
ADC-101	Polymers in Textile industries	TH	6	76
ADC-102	Chemistry in Textile industries	TH	6	82
ADC-103	Lab Course	PR	8	89

Result: **Pass**

CGPA: **5.35**

Grade: **A**

R.C.PATEL ARTS,COMM AND SCI COLL SHIRPUR

Co-ordinator

Abbreviations:

AM: Assessment Methods, **P:** Pass, **F:** Fail, **AB:** Absent, **RR:** Result Reserved, **TH:** Theory, **PR:** Practical, **O:** Outstanding Grade

K.B.C. North Maharashtra University, Jalgoan

Certificate course in

BIOINFORMATICS

Run by

R. C. Patel A. C. S. College, Shirpur

Under ordinance 181

Syllabus

w. e. f. 2019-20

Level of diploma	Graduate diploma
Eligibility	As per ordinance 181
Duration	1 Year
Total Credits	20 Credits

Course Structure

CCBI 101	Fundamentals of Biology	6 Credits
CCBI 102	Introduction to Bioinformatics	6 Credits
CCBI 103	Lab course	8 Credits

Topics	Lectures allotted *(in hrs)*
Vital aspects of life • Basic properties of life, Basic chemistry, pH, concept of acids, bases • Prokaryotic and eukaryotic cells- Structure and functions of various cell organelles	**15**
Concepts of chemistry • Elements and atoms • Molecules and compounds, types of bonds • Water and its properties • Bioenergetics: Laws of Thermodynamics and its Applications; Concept of free energy, Gibbs free energy.	**15**
Introduction to living forms • Characteristics of life, the tree of life • Animal kingdom – General properties • Plant kingdom– General properties • Microorganisms (bacteria, algae, fungi, protozoa and viruses) • Morphology and ultra-structure of bacteria • Concept of growth and different growth phases of bacteria • Microbial growth • Kinetics of growth	**25**
Concept of biomolecules • **Carbohydrates:** definition, properties of monosaccharide, disaccharide and polysaccharides • **Lipids:** biological significance, classification (simple, compound and derived lipids) • **Amino acids:** definition, physical and chemical properties of amino acids, classification, structure • **Proteins:** Biological significance, peptide bond, classification of proteins. • **Nucleic acids:** components of nucleic acids, sugars, purines and pyrimidines, nucleosides and nucleotides • **DNA:** structure and properties • **RNA:** structure, types and properties	**33**
Genetic code and its properties	*2*
Total	**90**

Topics	Lectures Allotted *(in hrs)*
Basics in computer science • Definition, characteristics, limitations and concept • Classification based on size and purpose • Concept of System Software Hardware storage device, Character User Interface, Graphical User Interface, Operating System- types, multitasking	**15**
Computer tools and internet • Block diagram and functions of units Computer peripherals and memory: Input units and output units, theirfunctions • Primary storage (RAM) and secondary storage devices (ROM Pendrive, DVD, CD) • Operating systems: windows, Linux, Server **Internet and networking:** Current status, applications • LAN, WAN, MAN, WWW and MODEM	**25**
Introduction to bioinformatics: • Definition, history and concept of bioinformatics • Aims and tasks of bioinformatics • Areas of bioinformatics	**6**
Programming in bioinformatics • Computers and programs, • Concept of programming languages • Operating systems: Windows, LINUX, UNIX, MAC • Internet: Access, connectivity, world wide web	**20**
Biological databases and searching • Types of database: Classification; Primary, secondary databases • Nucleic acid databases: GenBank, EMBL, DDBJ • Protein databases: Swiss-Prot, PDB • Sequence retrieval system: SRS	**24**
Total	**90**

- **Lab Work**

1. Computer basics; hardware, connection cables, typing, Windows 7/8.	**12**
2. Working with MS-Office software Creating new documents, typing, deleting, selecting text, undo, redo, Formatting text – auto format, formatting, insertion of table characters, Paragraphs, line spacing, margins, page setup, headers and footers,spelling checker, auto format, auto correct, find & replace, Mail merge	**6**
3. Assignments in MS-PowerPoint Creating slides, insertion of text, picture, table, charts etc., custom Animation, slide transaction	**6**
4. Assignments in MS-Excel Creating worksheet, Graphs, resizing graphs, formulas, if statement, Types of functions, frequently used mathematical and statistical Functions	*6*
5. Assignments in MS-Access – creating database, forms and reports	**8**
6. Creating and editing files notepad and notepad++	**4**
7. Basic commands in MS-DOS program (CUI)	**4**
8. Learning the intranet system in the laboratory and getting its Characteristics	***4***
9. Understanding the structure of Networking, LAN, WAN, MAN	**6**
10. Introduction to internet, WWW and web browsers and their Applications	***4***
11. Internet surfing and searching information, downloading and installing **Software accessing google scholar**	***16***
12. Searching scientific information using NCBI using ENTERZ engine	**10**
13. Retrieval of data from SwissProt Data Bank	**10**
14. Introduction to literature database – PubMed	**10**
15. Exploring protein sequence database and downloading protein sequence	

	6
16. Exploring nucleic acid sequence database and downloading in FASTA Format	**8**

References:

1. Dubey R.C. and Maheshwari D.K. 2004, Practical Microbiology, S.Chand and Co.Delhi.
2. Aneja K.R. (1996) Experiments in Microbiology, 3rd Edition Wishwa Prakashan,New Delhi.
3. Deshmukh A.M. (1997) 1st Edition, Handbook of Media, Stains and reagents in Microbiology Pama Publications.
4. Gaud R.S. and Gupta G.D. Practical Microbiology, Nirali Prakashan, Pune
5. Parija S.C., Text Book of Practical Microbiology Ahuja Publishing House, NewDelhi.
6. Fundamentals of computers -V. Rajaraman
7. Computer Fundaments - P.K. Sinha
8. Computer Fundamentals (Architecture and Organization) -B. Ram
9. Microsoft Office 2000 – Vipra Computers
10. Digital Fundamentals - Floyd
11. Digital Principles and Applications - A. P. Malvino & D.P.Leach (TMH)
12. Modern digital Electronics (2nd Edn.) R. P. Jain
13. Bioinformatics - Computational Molecular Biology by Zvia Agur.
14. Basic bioinformatics by Ignacimuthu.
15. An introduction to bioinformatics by Vikramsingh, Narosa.

R. C. Patel Educational Trust's

R. C. Patel Arts, Commerce & Science College, Shirpur

(Affiliated to the K.B.C. North Maharashtra University, Jalgaon)

STATEMENT OF MARKS

Certificate in Bioinformatics (CGPA Pattern)

Examination held in May 2020

Student Name : Pawar Bhumeshwari Dnyandev

College Name : R. C. Patel Arts Commerce and Science College, Shirpur

Seat Number : 201115

Exam Centre : Shirpur (240051)

Paper Code	Paper Name	AM	Credits (Max.)	Marks Obtained
CCBI 101	Fundamentals of Biology	TH	6.0	70
CCBI 102	Introduction to Bioinformatics	TH	6.0	66
CCBI 103	Lab Course	PR	8.0	72

Result: **Pass**

CGPA: **3.75**

Grade: **B**

R.C.PATEL ARTS,COMM.AND SCI.COLLEGE SHIRPUR

Co-ordinator

Abbreviations:

AM: Assessment Methods, **P:** Pass, **F:** Fail, **AB:** Absent, **RR:** Result Reserved, **TH:** Theory, **PR:** Practical, **O:** Outstanding Grade

॥ अंतरी पेटवू ज्ञानज्योत ॥

Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

1990
'A' Grade
NAAC Re-Accredited
(3rd Cycle)

Jalgaon (M.S.), INDIA

We, the Board of Deans, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

&

The Principal

R.C. Patel Arts, Commerce and Science College, Shirpur

do, hereby, certify that,

Mr./Ms. Agrawal Saloni Ravindra

has pursued a course of study approved by the Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon and has passed the requisite examination held in Dec 2020 *with* A *grade and found duly qualified for the award of*

Certificate in

Bioinformatics

Which is conferred on ~~him~~ / her on ~~October~~ Feb *1st, 2021*

In testimony whereof is set the seal and signatures of authorities.

Principal

R.C. Patel Arts, Comm. & Sci. College, Shirpur, Dist. Dhule

Dean

A - 5662

Lecture attendance
Certificate course in Bioinformatics
2019-20

Sr. No.	Name of Student	Date and Sign of Students																							
		18-7-19	19-7-19	20-7-19	21-7-19	22-7-19	25-7-19	28-7-19	1-8-19	2-8-19	5-8-19	6-8-19	9-8-19	11-8-19	13-8-19	17-8-19	20/08/19	22/08/19	24/08/19	25/08/19	06/09/19	08/10/19	12/12/19	13/12/19	18/12/19	05/01/20	08/01/20	25/01/20	10/02/20
1.	Ahire Sachin Gulab	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'	Bou'
2.	Bhamare Shubham Vedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu	Bsvedu
3.	Bodani Simran Omprakash	Bo	Bo	Bo	Bo	Bo	Bo	Bo	Bo	Bo	Bo	Bo	Bo	Bo	Bo	Bo	Bo	Bo	Bo	Bo	Bo			Bo	Bo	Bo	Bo			
4.	Chaudhari Asmita Hiralal	CAP	CAP	CAP	CAP	CAP	CAP	CAP	CAP		CAP	CAP	CAP	CAP	CAP	CAP	CAP	CAP	CAP	CAP				CAP	CAP		CAP	CAP	CAP	CAP
5.	Deore Deepak Ishwar	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn	DDIwn
6.	Jadhav Manish Satish	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh	Dsjdh
7.	Joshi Girija Pravin	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi	GPJoshi			GPJoshi	GPJoshi	GPJoshi

9.	Patil Janhavi Jagdish				J.J.patil
10.	Patil Jayashree Gulabrao				
11.	Patil Vaibhavi Vijay				J.J.patil
12.	Sonawane Sneha Dilip				J.J.patil
13.	Wagh Mayuri Prakash				J.J.patil
14.	Deore Darshana Raju				J.J.patil

Head,
Department of Microbiology
R.C.Patel Arts & Sci.College
Shirpur,Dist-Dhule.

K.B.C. North Maharashtra University, Jalgaon

Ordinance 181

College

R. C. Patel Arts, Commerce and Science College, Shirpur

Name of career oriented course

Diploma in Bioinformatics

Faculty

SCIENCE

Academic year

(2019-20)

K.B.C. North Maharashtra University, Jalgaon
Ordinance 181

College name	**:**	**R. C. Patel Arts, Science and Commerce College, Shirpur**
Title of the course	**:**	**Diploma In Bioinformatics**
Aims/Objective of the course	**:**	**To make students acquaint about methods in bioinformatics and their applications in life sciences**
Duration of the course	**:**	**1 Year**
Fees structure	**:**	**Rs. 1000/-**
Course structure	**:**	**Paper I: Basics in cell Sciences** **Paper II: Fundamentals of Bioinformatics** **Paper III: Lab Course**
Eligibility for admission	**:**	**Certificate Course in Bioinformatics**

Skeleton of course:

Sr No	**Paper**	**Name of subject**	**Theory / Practical**	**Teaching hours**	**Maximum marks allotted**			**Passing**			**Credit**
					External	Internal	Total	External	Internal	Total	
1.	Paper I	Basics in Cell Science	Theory	90	60	40	100	24	16	40	6
2.	Paper II	Fundamentals of Bioinformatics	Theory	90	60	40	100	24	16	40	6
3.	Paper III	Lab course	Practical	120	60	40	100	24	16	40	8

DBI 101: Basics in Cell sciences

.

Topics	Lectures allotted (in hrs)
Cell Organization: Prokaryotic cell: Structure & Organelles Plant cell: Structure & Organelles Animal cell: Structure & Organelles Golgi apparatus RER and SER Mitochondria Plastids, vacuole Nucleus Endoplasmic reticulum	15
Basics in Genetics: Concept of genes and genome Chromosome: Structure and composition (Histones & Nucleosome) Mutation: Concept and types (Point, nonsense, frame shift, transitions, trans versions)	15
Cell Cycle: Mitosis: Introduction, Steps, significance Meiosis: Introduction, Steps, significance Differences Mitosis & Meosis	15
Central Dogma of Molecular Biology : DNA réplication : Détails of réplication : Initiation, Elongation, Termination Transcription : Détails of transcription : Initiation, Elongation, Termination Translation: Détails of translation: Initiation, Elongation, Termination	15
Basics in Immunology: Background of Immune system, Concept of immunity Cells and organs of immune system Concept of antigen: Types of antigen, antigenic determinants Concept of Hap ten; antigen and Immunogen Concept of Antibody: Structure, types and functions (IgA, IgG, IgM. IgD and IgE) Overview of immune responses: CMI and humoral immune response	30
Total	**90**

DBI 102: Fundamentals of Bioinformatics

Topics	Lectures allotted (in hrs)
Alignment and Comparisons of Sequence Study of single sequence Outline of Single sequence alignments: Pair wise alignments, Scoring matrix, PAM, BLOSUM, Gap penalty; Alignment types: Global and local alignment Alignment algorithms: Dynamic methods: Needleman-Wunsch algorithm, Smith-Waterman algorithm; Heuristic methods: FASTA, BLAST; Multiple sequence alignments: ClustalW, ClustalX; PSI-BLAST: BLAST searches	30
Gene studies Introduction to Gene prediction strategies Basics in Exon prediction Background in Protein prediction strategies Basics in Coding sequence prediction Tools available for prediction of gene	15
Proteins alignments Background of Protein structure alignments Secondary structure prediction strategies Three-dimensional structure determination Comparison of protein structures Different structure alignment algorithms	20
Data mining NCBI resources SRS OMIM tool ENTREZ search engine Advanced search UniProt	10
Outline to tools ClustalOmega ClustalW MEGA5 Phylip package JMol SPDBV Mol-Mol	15
Total	**90**

DBI 103: Lab Course

Lab work	Periods allotted (in hrs)
Study of Sequence alignment using ClustalOmega	**6**
Study of Retrieving DNA/RNA sequence in FASTA file format from NCBI.	**4**
Searching and downloading pdb files from protein data bank.	**4**
Protein structure visualization using SPDBV	**6**
Search and retrieve protein data from UniProtKB/Swiss-Prot and UniProtKB/TrEMBL	**4**
Similarity searching using BLAST for DNA / protein sequence.	**4**
Sequence alignment using Needle / Water program	**6**
Exploring database at NCBI and querying the PUBMED database using the ENTREZ search engine	**8**
Sequence alignment using Needleman-Wunsch algorithm	**6**
Sequence alignment using Smith-Waterman algorithm	**8**
Multiple sequence alignment using BLAST	**7**
Searching for protein sequence alignments using pBLAST	**5**
Designing primers for given DNA sequence using online tools	**8**
Predicting protein properties from ExPASy server using 'ProtParam'	**8**
Protein sequence similarity search using FASTA at EBI	**8**
Practical based on DAMBE software	
Alignment of nucleic acid sequence to aligned amino acid sequence	**4**
Calculating amino acid frequency from given sequence	**4**
Determination of tRNA loop of given sequence	**4**
Extract secondary structure from a pdb file	**4**
Secondary structure prediction using CFSSP	**4**
Study of ProtParam	**8**
Total	**120**

References:

1. Singh Bharat, “Immunology”, Pointer Pub, Jaipur.
2. Yadav .P.R,”Immunology”, Dicovery Pub House, New Delhi.
3. Coleman.R.M, Lombard.M.F, Sicard.R.E, Rencocca.N.J , “Fundamentals of
4. Immunology” by W.C.Brown Pub,1989
5. S.C. Rastogi, Namita Mendirata, Parag Rastogi Bioinformatics concepts Skills and application, CBS publisher
6. D. Baxevanis and F. Oulette, (2002), "Bioinformatics: A practical guide to the analysis of genes and proteins", Wiley
7. Arthur M. Lesk, (2002), "Introduction to Bioinformatics" Oxford University
8. Alexis Leon and Mathews Leon Introduction to computers with MS –Office 2000 Tata Mcgrow Hill.
9. Bioinformatics - Computational Molecular Biology by Zvia Agur.
10. “Basic Bioinformatics” by Ignacimuthu.
11. An introduction to bioinformatics by vikramsingh, Narosa Publications.

.

R. C. Patel Educational Trust's

R. C. Patel Arts, Commerce & Science College, Shirpur

(Affiliated to the K.B.C. North Maharashtra University, Jalgaon)

STATEMENT OF MARKS

Diploma in Bioinformatics (CGPA Pattern)

Examination held in May 2020

Student Name : Patil Jayashree Gulabrao

College Name : R. C. Patel Arts Commerce and Science College, Shirpur

Seat Number : 201210

Exam Centre : Shirpur (240051)

Paper Code	Paper Name	AM	Credits (Max.)	Marks Obtained
DBI 101	Cell Biology, Genetics and Immunology	TH	6.0	86
DBI 102	Essentials of Bioinformatics	TH	6.0	82
DBI 103	Lab Course	PR	8.0	82

Result: **Pass**

CGPA: **5.25**

Grade: **A**

R.C.PATEL ARTS,COMM.AND SCI.COLLEGE SHIRPUR

Co-ordinator

Abbreviations:

AM: Assessment Methods, **P:** Pass, **F:** Fail, **AB:** Absent, **RR:** Result Reserved, **TH:** Theory, **PR:** Practical, **O:** Outstanding Grade

॥ अंतरी पेटवू ज्ञानज्योत ॥

Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

1990
'A' Grade
NAAC Re-Accredited
(3rd Cycle)

Jalgaon (M.S.), INDIA

We, the Board of Deans, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

&

The Principal

R.C. Patel Arts, commerce and science college, Shirpur

do, hereby, certify that,

~~Mr.~~/Ms. Deore Darshana Raju

has pursued a course of study approved by the Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon and has passed the requisite examination held in ~~Dec~~ Feb 2020 *with* A *grade and found duly qualified for the award of*

Diploma in

Bioinformatics

Which is conferred on ~~him~~ */ her on* ~~October~~ *1st, 2021*

In testimony whereof is set the seal and signatures of authorities.

Principal

Dean

B Nº 000333

Lecture attendance
Diploma in Bioinformatics
2019-20

Sr. No.	Name of Student	Date and Sign of Students																											
		19/7/19	19/7/19	20/7/19	21/7/19	23/7/19	24/7/19	25/7/19	27/7/19	29/7/19	1/8/19	3/8/19	4/8/19	5/8/19	8/8/19	10/8/19	12/8/19	20/09/19	25/09/19	09/09/19	11/12/19	18/12/19	05/12/20	06/12/20	08/02/20	10/02/20	15/02/20	16/02/20	17/02/20
1.	Bhamare komal Dattatray	[signature]	[signature]	[signature]	[signature]	[signature]	K.D	K.D	K.D	K.D	K.D	K.D	K.D	K.D	K.D	K.D	K.D	K.D	K.D	K.D	K.D	AB	K.D	K.D	AB	K.D	K.D	K.D	AB
2.	Bhoge Tejal Santosh	TBhoge	TBhoge	TBhoge	TBhoge	TBhoge	TBhoge	TBhoge	TBhoge	TBhoge	TBhoge	TBhoge	TBhoge	TBhoge	TBhoge	TBhoge	TBhoge	AB	TBhoge	TBhoge	AB	TBhoge	TBhoge	TBhoge	TBhoge	AB	TBhoge	TBhoge	TBhoge
3.	Jadhav Mayuri Dilip	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd	Jmd
4.	Jadhav Yogesh Babulal	[signature]			[signature]	[signature]		[signature]		[signature]		[signature]	[signature]	[signature]			[signature]		[signature]	[signature]	[signature]		[signature]	[signature]	[signature]	[signature]		[signature]	
5.	Marathe Saurabh Eknath	[signature]	[signature]	[signature]		[signature]	[signature]	[signature]		[signature]		[signature]	[signature]	[signature]	[signature]	[signature]		[signature]	[signature]		[signature]	[signature]	[signature]	[signature]		[signature]	[signature]	[signature]	[signature]
6.	More Gaurav Ramesh	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore	GRmore
7.	Patil Durgesh Dilip	PDD	PDD	-	PDD	PDD	PDD	-	PDD	PDD	-	PDD	PDD	PDD	PDD	PDD	PDD	PDD	PDD	PDD	PDD	PDD	PDD	PDD	PDD	PDD	PDD	PDD	PDD
8.	Patil Harshada Ravindra	HRPatil	HPatil	HPatil	HPatil	HPatil	HPatil	HPatil	HPatil	HPatil	HPatil	HPatil	HPatil	HPatil	HPatil	HPatil	HPatil	HPatil	HPatil	HPatil		HPatil	HPatil	HPatil	HPatil	HPatil	HPatil	HPatil	HPatil

9.	Patil Janhavi Jagdish
10.	Patil Jayashree Gulabrao
11.	Patil Vaibhavi Vijay
12.	Sonawane Sneha Dilip
13.	Wagh Mayuri Prakash
14.	Deore Darshana Raju

R.C.Patel A.S.C. College, Shirpur
Microbiology Department

Head,
Department of Microbiology
R.C.Patel Art,s & Sci.College
Shirpur,Dist-Dhule.

K.B.C. North Maharashtra University, Jalgaon

Ordinance 181

College

R. C. Patel Arts, Commerce and Science College, Shirpur

Name of career oriented course

Advance Diploma in Bioinformatics

Faculty

SCIENCE

Academic year

(2020-21)

K.B.C. North Maharashtra University, Jalgaon

Ordinance 181

College name : **R. C. Patel Arts, Commerce and Science College, Shirpur**

Title of the course : **Advance Diploma in Bioinformatics**

Aims/Objective of the course : **To make students acquainted about methods in Bioinformatics and their applications in life sciences**

Duration of the course : **1 Year**

Fees structure : **Rs. 1000/-**

Course structure : **Paper I: Genetic Engineering & Molecular Biology**

Paper II: Advances of Bioinformatics

Paper III: Lab Course

Eligibility for admission : **Diploma in Bioinformatics**

Skeleton of course:

Sr No	Paper	Name of subject	Theory / Practical	Teaching hours	Maximum marks allotted			Passing			Credit
					External	Internal	Total	External	Internal	Total	
4.	ADBI-101	Molecular Genetics & Bio-Engineering	Theory	90	60	40	100	24	16	40	6
5.	ADBI-102	Advances in Structural Bioinformatics	Theory	90	60	40	100	24	16	40	6
6.	ADBI-101	Lab course	Practical	120	60	40	100	24	16	40	8

Minimum staff : 03

Mode of examination : Internal and external

(Theory and Practical)

Detail syllabus : Syllabus copy attached

ADBI 101: Molecular Genetics and Bio-Engineering

Topics	Lectures allotted (in hrs)
Unit I: Nucleic acid Chemistry 1.1 Structural aspects – Components of DNA and RNA, 1.2 Nucleosides & Nucleotides (introduction, structure & bonding), 1.3 Double helical structure of DNA (Watson-Crick model), various forms of DNA 1.4 Structure of RNA (Primary, Secondary & Tertiary) 1.5 Central dogma of molecular biology	15
Unit II: Molecular apparatuses 2.1 DNA polymerase 2.2 RNA polymerase and its types 2.3 DNA topology 2.4 Topoisomerase (Types and Mechanism) 2.5 Vectors	20
Unit III: Basics in genetic engineering 3.1 Basic principles of genetic engineering 3.2 Open reading frames 3.3 Restriction enzymes and its types	15
Unit IV:Advances in genetic engineering 4.1 DNA Sequencing Methods (Dideoxynucleotide sequencing 4.2 Chemical degradation method) 4.3 Protein sequencing 4.4 DNA microarrays 4.5 Human genome project 4.6 PCR (Principle and basic protocol variations and applications) 4.7 Genomic and cDNA libraries construction and their applications	15

Unit V: Analysis of sequence data		
5.1 Identification of gene functions and their products 5.2 Expression signals, SNP and EST 5.3 Protein motifs and domains		15
Unit VI: Analysis of gene expression:		
6.1 Analysing transcriptions (Northern blots, RT-PCR), 6.2 Translational analysis (western blots, 2D-electrophoresis)		10
	Total	**90**

ADBI 102: Advances in Structural Bioinformatics

Topic	Lectures allotted (in hrs)
Unit 1: Genomics 1.1 Genomics, Concept, approaches and methods 1.2 Genome mapping, determining sequence of a clone 1.3 Human genome project 1.4 Automated DNA sequencing.	12
Unit 2: Proteomics 2.1 Technology for protein expression analysis 2.2 Posttranslational modification 2.3 Protein sorting 2.4 Protein-protein interactions	08
Unit 3: Sequence alignment and algorithms a. Study of similarities b. Sequence alignment methods c. Pairwise sequence alignment d. Needleman-Wunsch algorithm and Smith-Waterman algorithm **e.** Multiple sequence alignment and programs for sequence alignment	14
Unit 4: Protein motifs and domain prediction 4.1 Identification of motifs and domains in multiple sequence alignment 4.2 motif and domain databases using regular expressions 4.3 Protein family databases.	12
Unit 5: Phylogenetic analysis 5.1 Terminologies 5.2 Molecular evolution and Molecular phylogenetic 5.4 Gene phylogeny and species phylogeny 5.6 Forms of phylogenetic tree.	12
Unit 6: Phylogenetic tree construction 6.1 Distance based methods and character based methods 6.3 Phylogenetic tree evaluation 6.4 Phylogenetic programs – PHYLIP and DAMBE	12
Unit 7: Online Map repositories 7.1 NCBI – Entrez Human genome map viewer 7.2 OMIM – Online Mendelian Inheritance in Man	10
Unit 8: Drug discovery and pharm informatics 8.1 Discovering a drug 8.2 Target identification and validation 8.3 Identifying the lead compound	10

8.4 Optimization, pharm informatics	
Total	**90**

.

ADBI 103: Lab course

Lab work	Periods allotted (in hrs.)
Study SPDBV and Rasmol	8
Study of Molecular phylogeny (PHYLIP)	6
Study of ENTREZ search engine	6
Prediction of ORF using OR finder	5
Determination of protein properties using NCBI	6
Study of human genome map viewer of NCBI	4
Analysis of protein and nucleic acids sequences	6
Accessing PubMed and PubMed Central	4
Study of Online Mendelian Inheritance in Man	10
Comparing and analyzing sequences using DAMBE.	8
Homology comparing using HomoloGene	10
Design PCR primers using online tools	4
Protein multiple sequence analysis using NCBI-COBALT	8
Studying phylogeny analysis	10
Determine sequence relationship using Needleman-Wunsch algorithm	7

Sequence similarity searching (NCBI BLAST)		12
	Total	**94**

References:

1. Cell biology, genetics, molecular biology, evolution and ecology by P. S. Verma and V. K. Agrawal, S. Chand Publ.
2. Friefielder D, (1993) Microbial Genetics, Jones & Bartlett Publishers, Inc.
3. Arora M. P. Sandhu G.S. "Genetics"
4. Arora M. P. "Biotechnology"
5. Claverie J. M. & Notredame C. "Bioinformatics: A beginner's guide"
6. Bioinformatics - Concepts, Skills, Applications". S.C. Rastogi, Namita Mendiratta, Parag Rastogi.
7. Bioinformatics: A Practical Guide to the Analysis of Genes and Proteins. Andrea's D. Baxevanis, B.F. Francis Ouellette.
8. Biological Sequence Analysis: Probabilistic Models of Proteins and Nucleic Acids. Richard Durbin et al.
9. Computer Methods for Macromolecular Sequence Analysis. Doolittle R.F. (Ed.) (Methods in Enzymology, VOl. 266).
10. Shanmughavel, P. 2005. Principles of Bioinformatics, Pointer Publishers, Jaipur, India.
11. DNA and Protein Sequence Analysis. A Practical approach. Bishop M.J. Rawlings C.J. (Eds.).
12. Introduction to Bioinformatics. Teresa. K. Atwood and David J. Parry-Smith.
13. An introduction to Bioinformatics by vikramsingh, Narosa Publ.
14. Bioinformatics - Computational Molecular Biology by Zvia Agur.
15. Basic Bioinformatics by Ignacimuthu.

Lecture attendance
Advanced Diploma in Bioinformatics
2019-20

Sr. No.	Name of Student	Date and Sign of Students																								
		11-July-19	18-July-19	20-July-19	23-July-19	2-8-19	09-8-19	13-8-19	19-8-19	04-Sep-19	14-Sep-19	25-Sep-19	28-Sep-19	03-Oct-19	09-Oct-19	17-Oct-19	23-Oct-19	11/12/19	17/12/19	18/12/19	25/12/19	28/12/19	7-Jan-20	22-Jan-20	25-Jan-20	27-Jan-20	8-Feb-20	11-Feb-20	17-Feb-20
1.	Bhamare komal Dattatray																												
2.	Bhoge Tejal Santosh																												
3.	Jadhav Mayuri Dilip																												
4.	Jadhav Yogesh Babulal																												
5.	Marathe Saurabh Eknath																												
6.	More Gaurav Ramesh																												
7.	Patil Durgesh Dilip																												

8	Patil Harshada Ravindra	

Head,
Department of Microbiology
R.C.Patel Art,s & Sci.College
Shirpur,Dist-Dhule.

R. C. Patel Educational Trust's

R. C. Patel Arts, Commerce & Science College, Shirpur

(Affiliated to the K.B.C. North Maharashtra University, Jalgaon)

STATEMENT OF MARKS

Advanced Diploma in Bioinformatics (CGPA Pattern)

Examination held in May 2020

Student Name : Patil Urvashi Gajanan

College Name : R. C. Patel Arts Commerce and Science College, Shirpur

Seat Number : 201305

Exam Centre : Shirpur (240051)

Paper Code	Paper Name	AM	Credits (Max.)	Marks Obtained
ADBI 101	Genetic Engineering and Molecular Biology	TH	6.0	86
ADBI 102	Advances of Bioinformatics	TH	6.0	83
ADBI 103	Lab Course	PR	8.0	82

Result: **Pass**

CGPA: **5.25**

Grade: **A**

R.C.PATEL ARTS,COMM.AND SCI.COLLEGE SHIRPUR

Co-ordinator

Abbreviations:

AM: Assessment Methods, **P:** Pass, **F:** Fail, **AB:** Absent, **RR:** Result Reserved, **TH:** Theory, **PR:** Practical, **O:** Outstanding Grade

॥ अंतरी पेटवू ज्ञानज्योत ॥

Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

1990
'A' Grade
NAAC Re-Accredited
(3rd Cycle)

Jalgaon (M.S.), INDIA

We, the Board of Deans, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

&

The Principal

R.C. Patel Arts, Commerce and Science College, Shirpur

do, hereby, certify that,

Mr./Ms. More Kalyani Bhagwantrao

has pursued a course of study approved by the Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon and has passed the requisite examination held in Dec 2020 *with* A *grade and found duly qualified for the award of*

Advanced Diploma in

Bioinformatics

Which is conferred on ~~him~~ / her on ~~October~~ Feb 1st, 2021

In testimony whereof is set the seal and signatures of authorities.

Principal

R.C. Patel Arts, Comm. & Sci. College

Dean

C Nº 000084

K.B.C. North Maharashtra University, Jalgaon

Ordinance 181

College

R. C. Patel Arts, Commerce and Science College, Shirpur

Name of career oriented course

Diploma in Plant Tissue Culture

Faculty

SCIENCE

Academic year

(2019-20)

K.B.C. North Maharashtra University, Jalgaon

Ordinance 181

College name : **R. C. Patel Arts, Commerce and Science College, Shirpur**

Title of the course : **Diploma in Plant Tissue Culture**

Aims/Objective of the course : **To make students acquaint about methods in plant tissue culture and their applications.**

Duration of the course : **1 Year**

Fees structure : **Rs. 1000/-**

Course structure : **Paper I: Plant Biotechnology**

Paper II: Plant Tissue Culture

Paper III: Lab Course

Eligibility for admission : **Certificate Course in Plant Tissue Culture**

Skeleton of course:

Sr No	Paper	Name of subject	Theory / Practical	Teaching hours	Maximum marks allotted			Passing			Credit
					External	Internal	Total	External	Internal	Total	
7.	DPTC-101	Plant Biotechnology	Theory	90	60	40	100	24	16	40	6
8.	DPTC-102	Plant Tissue Culture	Theory	90	60	40	100	24	16	40	6
9.	DPTC-103	Lab course	Practical	120	60	40	100	24	16	40	8

Minimum staff : 03

Mode of examination : Internal and external

(Theory and Practical)

Detail syllabus : Syllabus copy attached

DPTC 101: Plant Biology

Topics	Lectures allotted
1. Plant tissue culture and some related aspects	
1.1 Bio village concept: Qualifications required to join the training course, Employment for rural youth 1.3 Efforts of public research institutes 1.4 Production criteria and economics: Selection of crops for micro propagation, Selection of location 1.5 Planning for production: Multirate, Passage, Operator efficiency	**15**
2. Germplasm Conservation and Storage	
2.1 Introduction 2.2 Approaches for germplasm conservation: *In-situ* Conservation and *Ex-situ* Conservation 2.3 Germplasm conservation in the form of seeds 2.4 In-vitro methods for germplasm conservation 2.5 Applications of germplasm storage 2.6 Limitations of germplasm storage	**15**
3. Plant tissue culture and Cryopreservation	
3.1 Introduction 3.2 Technique used in cryopreservation 3.3 Development of sterile tissue cultures 3.4 Addition of cry protectants and pre-treatment 3.5 Freezing, Storage, Thawing 3.6 Reculture, Measurement of viability and Plant regeneration	**15**
4. Eco-Social Impact of Genetically Modified Crops	
4.1 Legal rights in the new biotechnology: Patent 4.2 Impacts on Farmers and Consumers, Ethical and Practical Problems 4.3 Transgenic plants: Risk, Benefits and Impact on Society and Environment	**15**

4.4 Transgenics and Human wealth	
5. Agro biotechnology and its Applications	
5.1 Improvement of crop yield and quality: Green revolution	**15**
5.2 Genetic manipulations of fruit ripening,	
5.3 Prevention of discolouration, flower pigmentation	
5.4 Male sterility	
5.5 Genetic Engineering for increasing vitamins, amino acids & minerals	
5.6 Commercial transgenic crop plants	
6. Plant tissue culture and forestry	
6.1 Introduction and History 6.2 Scope of tissue culture in forestry. 6.3 Applications of PTC in forestry.	**15**

References:

1. Introduction to biotechnology: S. S. Purohit.
2. Biotechnology: U. Satyanarayana
3. Kalyan Kumar De, Plant tissue culture.

DPTC 102: Advances in Plant Tissue Culture

Topics	Lectures allotted
1. Preparation of Media	
1.1 Media components 1.2 Preparation of Stock solutions 1.3 Preparation of Media 1.4 Media mixing	**15**
2. Aseptic Techniques and preparation of Explants	
2.1 Sterilization of Plant Tissues 2.2 Control of Bacterial and Fungal Contaminants by antibiotics 2.3 Pretreatment to explant 2.4 Age of explant 2.5 Size of explant	**15**
3. Methods of sterilization and Disinfectation	
a. Effectiveness of antimicrobial agent activity: Population size, population composition, Concentration of antimicrobial agent, exposure time, Temperature b. Sterilization: Moist Heat, Dry Heat, Filtration, Radiation c. Disinfection: Chemical disinfectants, Classification of Chemical Disinfectants	**15**
4. Organogenesis:	
4.1 Introduction 4.2 What is embryo culture? 4.3 Different categories of embryo culture and their objectives. 4.4 Principle and protocol. 4.5 Applications.	**15**
5. Cell – Suspension culture:	
5.1 Definition 5.2 Principle 5.3 Protocol 5.4 Importance of cell suspension culture.	**15**
6. Embryo culture Organogenesis:	
6.1 Introduction 6.2 Principle and Protocol. 6.3 Factors affecting organogenesis. 6.4 Applications of organogenesis	**15**

References:

1. Kalyan Kumar De, Plant tissue culture.
2. Plant tissue culture, S.S.Bhojwani and M.K. Rajdhan.
3. Plant tissue culture, S.S. Purohit.

DPTC 103: Lab Course

Sr. No.	Lab course	Lectures allotted
1.	Sterile methods in plant tissue culture.	12
2.	Isolation of *Agrobacterium*	12
3.	Isolation of chloroplast from spinach leaves.	12
4.	Isolation of plant DNA	12
5.	Estimation of Plant DNA	12
6.	Estimation of carotenoids.	12
7.	Cell suspension culture	12
8.	Study of Leaf Culture	12
9.	Study of Ovary Culture	12
10.	Study of embryo culture.	12
	Total	**120**

References:

1) Kalyan Kumar De, Plant tissue culture.
2) Biotechnology books and experiment handbooks. Harisha

Lecture attendance
PG Diploma in Bioinformatics
2019-20

Sr. No.	Name of Student	Date and Sign of Students																												
		15-7-19	16-7-19	21-7-19	22-7-19	24/7/19	29/7/19	5/8/19	7/8/19	13/8/19	14/8/19	20/8/19	21/8/19	10/9/19	11/9/19	17/9/19	18/9/19	25/9/19	15/10/19	16/10/19	23/10/19	8/11/20	13/11/20	14/11/20	21/11/20	22/11/20	27/11/20	28/11/20	29/11/20		
1.	Mahajan Ankita Vinod	Mahajan		Mahajan	Mahajan	Mahajan		Mahajan	Mahajan	Mahajan	Mahajan	Mahajan	Mahajan	Mahajan	Mahajan	Mahajan		Mahajan	Mahajan	Mahajan	Mahajan	Mahajan	Mahajan	Mahajan	Mahajan		Mahajan	Mahajan	Mahajan		
2.	Patil Laxmi Prabhakar	Laxmi		Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi	Laxmi		Laxmi	Laxmi	Laxmi		
3.	Patil Nikita Jagdish	NPatil		NPatil	NPatil	NPatil		NPatil	NPatil	NPatil	NPatil	NPatil	NPatil	NPatil	NPatil	NPatil	NPatil	NPatil	NPatil	NPatil	NPatil	NPatil	NPatil	NPatil			NPatil	NPatil	NPatil		
4.	Sonawane Ashwini Sanjay	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	-	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini	Ashwini		Ashwini	Ashwini	Ashwini		
5.	Sonawane Nikita Ravindra		NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane	NRSonawane		

Head,
Department of Microbiology
R.C.Patel Arts & Sci College
Shirpur,Dist-Dhule.

R. C. Patel Educational Trust's

R. C. Patel Arts, Commerce & Science College, Shirpur

(Affiliated to the K.B.C. North Maharashtra University, Jalgaon)

STATEMENT OF MARKS

Diploma in Plant Tissue Culture (CGPA Pattern)

Examination held in May 2020

Student Name : Chaudhari Yogesh Sahebrao

College Name : R. C. Patel Arts Commerce and Science College, Shirpur

Seat Number : 202201

Exam Centre : Shirpur (240051)

Paper Code	Paper Name	AM	Credits (Max.)	Marks Obtained
DPTC 101	Plant Biology	TH	6.0	91
DPTC 102	Plant tissue Culture	TH	6.0	91
DPTC 103	Lab Course	PR	8.0	95

Result: **Pass** CGPA: **6.30** Grade: **O**

R.C.PATEL ARTS,COMM.AND SCI.COLLEGE * SHIRPUR *

Co-ordinator

Abbreviations:

AM: Assessment Methods, **P:** Pass, **F:** Fail, **AB:** Absent, **RR:** Result Reserved, **TH:** Theory, **PR:** Practical, **O:** Outstanding Grade

R.C.Patel Arts, Commerce & Science College, Shirpur

Department of History

Certificate Course on Cultural Heritage of India

2019-2020

Aim

- ✓ Cultural Heritage is a concept which offers a bridge between the past and the future with the application of particular approaches in the present. Due to its attached values for these groups or societies, cultural heritage is maintained in the present and bestowed for the benefit of future generations.

Course Objective

- ✓ To introduce the Cultural heritage of India
- ✓ Aware the importance and legacy of caves, forts, Fairs and festivals.
- ✓ To develop the interest and skill of tourism among the Student.

Course Outcomes

- ✓ Understand the Concept of Cultural Heritage of India.
- ✓ Study the various Cultural factors which influence the rich flow of Indian Culture.
- ✓ Appreciate & Adequate the rich Cultural heritage of India.

Duration of the course

- ✓ One week

Timing of the course

- ✓ Two Houses a day.

Eligibility Criteria

- ✓ For BA/B.Sc./B.Com Student.

Criteria for completion

- ✓ The student must have attended at least 80% of the lectures and completed all assignment

Syllabus

Cultural Heritage of India

Total period: - 15 **Credits:-02**

---

1 Culture Heritage: An Introduction

a Definition and meaning of culture and heritage

b Geographical features of India

c Social Consequences of Saint of India

d Characteristics of Indian Culture -

Continuity and Change, Variety and Unity, Secular Outlook. Universalism, Materialistic and Spiritualistic

2 Cultural Heritage of India

a Caves and forts in India –

Karle Caves, Bhaje Caves, Pandava Caves, Pitalkhore Caves, Kanheri Caves

Raigad, Pratapgad, Sinhagad, Shivneri, Daulatabad, Janjira

b India – Festivals and Pilgrimages

Gudi Padwa, Pola, Dussehra, Diwali, Holi, Rath Festival, Navratri Festival, Bhaldev, Gulabai Festival, Kanbai Festival, Shiv Jayanti Festival, Ganesh Festival, Jyotirlinga, Ashtavinayak, Shaktipeetha, Pandharpur

c World Heritage Sites in India

Ellora Caves, Elephanta Caves, Ajanta Caves, Victorian and Art Deco Ensemble of Mumbai, Chhatrapati Shivaji Maharaj Terminus

d Tour Report

Reference Book

- Pathak, A.S. (Edi 2009) Maharashtra: Land and its People, Gazetteers Department, Government of Maharashtra, Mumbai
- Karve Iravati (1951) Marathi Lokanchi Sanskrit, Deshmukh & Company, Pune
- The Cultural Heritage of India, Ramkrishana Mission Institute of Culture (9 Vol)

Admission Form

R.C.Patel Educational Trust's

R.C.Patel Arts Commerce and Science College Shirpur, Dist-Dhule,M.S. 425405

To,
The Principal
R.C.Patel Arts, Commerce and Science College, Shirpur

Sir,

I wish to get admitted to as Students for the -

Certificate Course on Cultural Heritage of India

PERTICULAR OF CANDIDATE

1	Name in Full (Surname First)	: Pawara Matilal Ravindra
2	Father/Husband Name	: Pawara Ravindra Dahasya
3	Mother Name	: Pawara Babibai Ravindra
4	Address for Correspondence	: Malkatar Tal Shirpur
5	Mob. No.	: 9622869048
6	Email Id	: mpp9018@gmail.com
7	Date of Birth	: 1/6/1997
8	Place of Birth	: Malkatar
9	Category	: S.T.
10	Family Annual Income	: 80,000/-
11	Last qualified examination	: 12th Arts
12	Marks obtained (out of total marks)	: 74%

I hereby declare that all statements made in this application to the best of my knowledge and beliefs are true, complete and correct. I understand that in the event of any information being found fouls of incorrect, my admission is able to be cancelled.

Date 9/12/2019 Signature - Pawara

Place Shirpur Name of Student - Pawara Matilal Ravindra

Year of Course 2019-2020

Course Name: - Certificate Course on Cultural Heritage of India

Student Attendance with Signature

Sr. No	Student Name	Signature of Beneficial Student						
		6/1/2020	7/1/2020	8/1/2020	9/1/2020	10/1/2020	11/1/2020	13/1/2020
1	Girase Samiksha Jitendra							
2	Patil Bhagawati Bharat							
3	Pawara Sunil Anaji							
4	Pawara Shalikram Jaysing							
5	Pawara Vinod Ramesh							
6	Pawara Pratik Jagdish							
7	Pawara Sachin Kamilal							
8	Vasave Sandip Bhimsing							
9	Valvi Sunil Shanka							
10	Pawara Shivram Gan.							
11	Lakesh Kailas Baci	LkBaci	LkBaci	LkBaci	LkBaci	LkBaci	LkBaci	LkBaci
12	Pawara Diwansing Jaya							
13	Karan Abhiman Bhil							
14	Rohit Dayaram Bhil							
15	Bhadane Jayesh Dashrath							
16	Girase Swapnil Devidas							
17	Patil Rahul P							
18	Patil Shital Madukar							
19	Pawara Suresh Ikra	Spal	Spal	Spal	Spal	Spal	Spal	Spal
20	Saluke Jayesh	SJP	SJP	SJP	SJP	SJP	SJP	SJP
21	Thakare Poonam Sanjay	PST	PST	PST	PST	PST	PST	PST
22	Pawara Hatilal Ramdas							
23	Pawara Shital Ramesh							
24	Girase Geeta Prahlad							
25	Chaudhari Manish Ajay							

Dr. R.A.Chaudhari
(Co-ordinator)

Dr. D.R.Patil
(Principal)

ARTS, COMM. AND SCI. COLLEGE * R.C.PATEL * SHIRPUR

R.C.Patel Educational Trust's

R.C.Patel Arts Commerce and Science College Shirpur, Dist-Dhule,M.S. 425405

Cultural Heritage of India

Tour Report - Maheshwar

Visits are always beautiful and fill a person's mind with joy and enthusiasm. But if that visit is educational, learning based, that provides us invaluable knowledge as well. On 27 January 2020, the History Department organized such an education tour. Maheshwar (M.P.) is a historical place 150 km from Shirpur city. Seeing the magnificent historical buildings and monuments here, we felt like we were in the historical times.

Maheshwar tells a lucid story that is intricately woven by its traditional weaver community around the pious river Narmada and the glory of its most famous rulers, the Maratha-Holkar dynasty. With a great architectural heritage, one of India's finest weaving traditions, and a serene Narmada flowing by, Maheshwar is a cultural hotspot in central India.

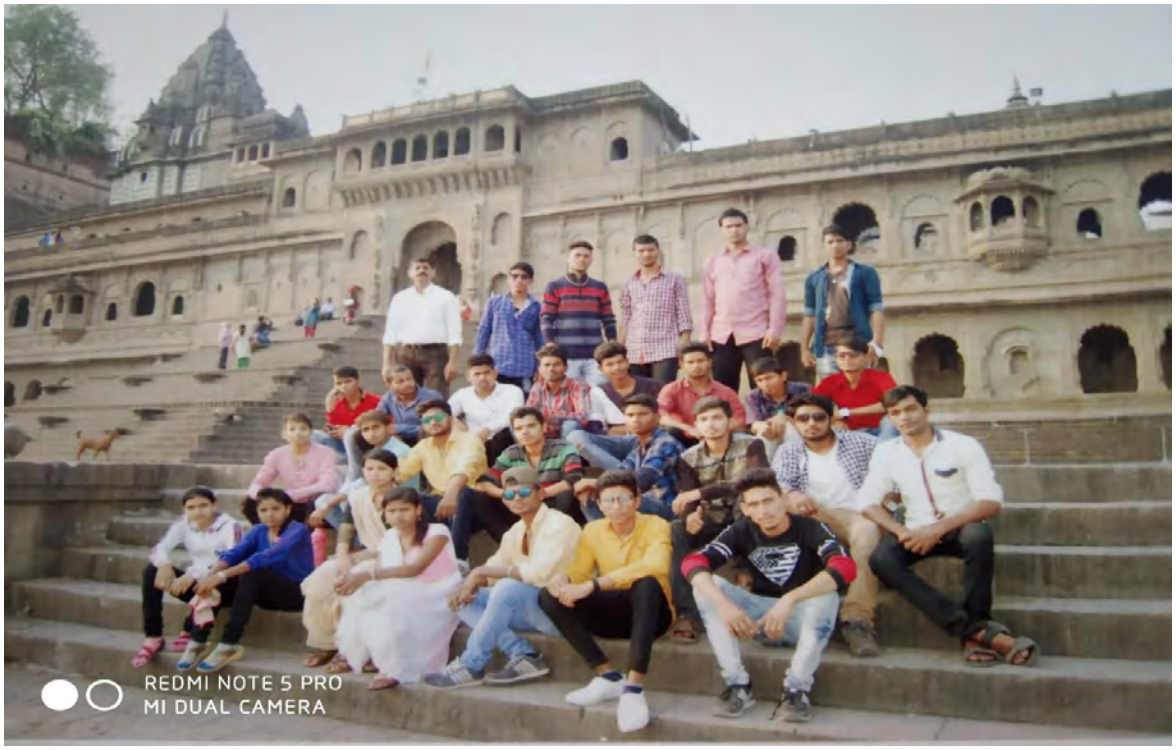
Except for the fort side, Maheshwar doesn't seem too ancient. It looks like any other small town in India, with small houses, unplanned neighbourhoods, and crowded market places. But the fort side is distinctly different with a lot of heritage monuments and the vibes that you get from the antiquity. In fact, Maheshwar is so ancient that it has mentions in Hindu epics of Ramayana and Mahabharata as 'Mahismati' . Through the ages, it came under all the greatest rulers of India, like the Mauryas, Guptas, Harshavardhana, Delhi sultanate, Mughals, Marathas and lastly, under the British. Of course, in the modern era, it falls within the boundary of newly created state of Madhya Pradesh. In the late eighteenth century, Maheshwar rose to eminence when Queen Ahilya Bai of the Maratha-Holkar dynasty chose to make it the capital of Malwa. She ruled from here between 1767 and 1795, and built the grand fort. She made it as much a centre of power, as of culture and literature. She was not only a brave ruler, but also a benevolent one and had very progressive policies for her time. Against the royal norms, she married off her daughter to a common man. She built several temples, religious institutions and public facilities all over India, irrespective of whether they came under her kingdom. Widows were allowed to inherit the properties of their deceased husbands. Art, craft, architecture, music and literature flourished in her reign. Indeed, it was a golden period in Indian history. Quite appropriately, British historian John Keyas called her the 'philosopher queen'.

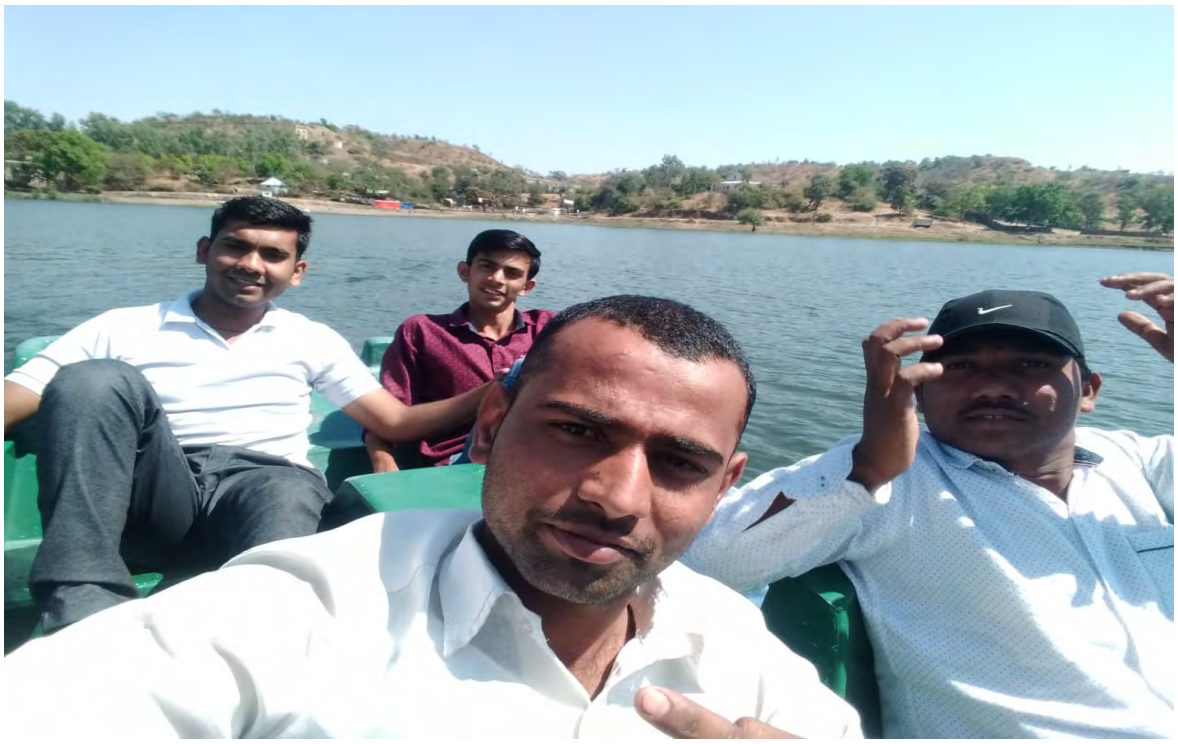
Throughout the day, various historical structures and monuments of Maheshwar were visited and photos were also taken. This historic visit gave us the knowledge of the history and culture of Maheshwar.

Signature - Pawar

Name of Student - Pawar Mahital Ravindra.

Maheshwar - M.P.





सा विद्या या विमुक्तये

R. C. Patel Arts, Commerce and Science College

Shirpur, 425405

Affiliated to KBC North Maharashtra University, Jalgaon (M.S.), India

R.C.PATEL EDUCATIONAL TRUST

CERTIFICATE

The Principal of R. C. Patel Arts, Commerce and Science College, Shirpur (M.S.) do hereby certify that, Mr. /Ms. Pawara Motilal Ravindra has pursued a Certificate course and passed the requisite examination held in May - 2020 with A grade and found duly qualified. This certificate is awarded for successful completion of

Certificate Course

Cultural Heritage in India

Seal

Course Co-ordinator | Co-ordinator | Principal

Certificate No.: CC-01/201922/2020/A

R. C. Patel Educational Trust's

R. C. Patel Arts, Commerce & Science College, Shirpur

(Affiliated to the K.B.C. North Maharashtra University, Jalgaon)

STATEMENT OF MARKS

Certificate Course Name - Cultural Heritage in India

Examination held in - May 2020

Student Name : Pawara Motilal Ravindra

College Name : R. C. Patel Arts Commerce and Science College, Shirpur

Seat Number : 201922

Exam Centre : Shirpur (240051)

Paper Code	Paper Name	AM	Marks (Max.)	Total Marks
CCCHI 101	Cultural Heritage in India	TH	50	40
CCCHI 102	Field Work	FW	50	48

Result: **Pass**

Marks:: **88**

Grade: **A**

R.C.PATEL ARTS,COMM.AND SCI.COLLEGE SHIRPUR

Co-ordinator

AM: Assessment Methods, **P:** Pass, **F:** Fail, **AB:** Absent, **RR:** Result Reserved, **TH:** Theory, **PR:** Practical, **O:** Outstanding Grade

Kaviyatri Bahinabai Chaudhari North Maharashtra University, Jalgaon

Ordinance 181

College

R. C. Patel Arts, Commerce and Science College, Shirpur

Name of career oriented course

Certificate Course in Women Studies

Faculty

Arts, Commerce and Science

Academic year

(2019-20)

K.B.C. North Maharashtra University, Jalgaon
Ordinance 181

College name	**:**	**R. C. Patel Arts, Science and Commerce College, Shirpur**
Title of the course	**:**	**Certificate Course in Women Studies**
Aims/Objective of the course	**:**	**To empower women in field of education, health, women laws, gender sensitization**
Duration of the course	**:**	**1 Year**
Fees structure	**:**	**Rs. 500/-**
Course structure	**:**	**Paper I: Gender and Education** **Paper II: Women Work and Employment** **Paper III: Field Work**
Eligibility for admission	**:**	**XIIth**

Skeleton of course:

Sr No	Paper	Name of subject	Theory / Practical	Teaching hours	Maximum marks allotted			Passing			Credit
					External	Internal	Total	External	Internal	Total	
10.	Paper I	Gender and Education	Theory	90	60	40	100	24	16	40	6
11.	Paper II	Women Work and Employment	Theory	90	60	40	100	24	16	40	6
12.	Paper III	Field Work	Practical	120	60	40	100	24	16	40	8

CCWS 101: Gender and Education

.

Topics	Lectures allotted (in hrs)
Unit – I Introduction to Gender Sensitization • Key concepts in Gender studies. • Need, Scope and challenges of Women's Studies – Women's Studies as an academic discipline. Women's Studies to Gender Studies, Need for Gender Sensitization. • National Committees and Commissions for Women.	22
Unit – II Gender and Education • Women's Education – Gender diversities and disparities in enrolment, Curriculum content, Dropouts, profession and Gender. • Gendered Education- Family, Culture, Gender roles, Gender Identities. • Education for the Marginalized Women. • Recent Trends in Women's Education – Committees and Commissions on Education. • Vocational education and skill Development for women.	22
Unit – III Gender and Media • Discourse on Women and Media Studies- Mainstream Media, Feminist Media. • Coverage of Women's issues and issues of women in Mass Media and Media Organizations (Audio-Visual and Print media). • Digital Media and legal protection. • Alternative Media – Folk Art, Street Play and Theatre. • Indecent Representation of Women (Prohibition) Act, 1986, Impact of media on women.	24
Unit – IV Gender and Entrepreneurship • Concept and meaning, Importance of Entrepreneurship, Entrepreneurial traits, Factors contributing to Entrepreneurship, enabling environment, small Enterprises, women in agri-business. • Gender and emerging Technology – Impact. • Self-help Groups and Micro Credit. • Gender mainstreaming, Gender budgeting, planning and Analysis.	22

	Total	90

CCWS 102: Women Work and Employment

Topics	Lectures allotted (in hrs)
Unit – I Introduction to Women's Education • Women's Education – Gender bias in enrolment – Curriculum content – Dropouts. • Negative capability in Education – Values in Education – Vocational Education. • Recent Trends in Women's Education – Committees and Commissions on Education. • Adult Literacy and Non – formal education for women's development.	20
Unit – II Concept of Work • Concept of Work – Productive and non – productive work – Use • value and market value. • Gender Division of Labor – Mode of Production – Women in organized and unorganized sector. • Training, skills and income generation. • New Economic Policy and its impact on Women's Employment – Globalization – Structural Adjustment Programs	22
Unit – III Women and Health • Gender in Health – Health status of women in India – Mortality and Morbidity factors influencing health – Nutrition and health – HIV and AIDS control programme. • National Health and Population Policies and Programmes – Maternal and Child Health (MCH) to Reproductive and Child health approaches, Issues of old age. • Women and Environment – Nature as feminine principle – Basic needs in Rural and Urban Environments – Care and management of natural resources – Depletion of natural resources – Sustainable environment and impact on women.	24
Unit – IV Women and Media • Role of women in media – Development of Communication Skills – Alternative Media – Folk Art, Street Play and Theatre – Women as change agents. • Indecent Representation of Women (Prohibition) act, 1986 – Impact of	24

media on women. • Indian Constitution and provisions relating to women. • Personal laws – Labour Laws – Violence against, women – Legal protection – Family Courts – Enforcement machinery – Police and Judiciary. • Human Rights as Women's Rights	
Total	**90**

CCWS 103: Field Work

➢ Field work specially related to women's problem, report submission and oral presentation

References:

- Domestic Women Workers in India, Seepana Prakasham, Shipra Publication, 2012,202P
- Women's Studies in India by Maithreyi Krishna Raj
- Indian Women in History and Culture, Prof. Geraldine Forbes
- Women's Work in Globalizing India, Never Done and Poorly Paid Ghosh J.,New Delhi, Women Unlimited, 2009
- Journal of Gender Social Policy and Law
- Susan S. Wadly, "Women and the Hindu Tradition", Signs, 3:1 (August 1977)
- Butalia, U. and T Sarkar, (eds.), Women and the Hindu Right, New Delhi, Kali for women, 1996
- Sunder Rajan, R., The Scandal of the State: Women, Law and Citizenship in Postcolonial India, New Delhi, Permanent Black, 2004.
- Domestic Violence Against Women: Legal Protection Legislative and Judicial Aspects, Nitu Nawal and R.K.Sharma, Regal Publications, 2013 XVI, 462P

List of Admitted Students for **"Certificate Course in Women Studies"**

For the Academic Year 2019-20

Name of College: R. C. P. A.C. S. College, Shirpur

Name of Career Oriented Course: Certificate Course in Women Studies

Academic Year: 2019-20

Intake Capacity: 60

Sr. No.	Name of Student	Gender	Category	Education Qualification	Year of passing	Presently admitted	Remark (if any)
1.	Deshmukh Swati Nandusing	Female	Open	XII Science	2019	F. Y. B. Sc.	
2.	Jadhav Priyanka Rajendra	Female	Open	XII Science	2019	F. Y. B. Sc.	
3.	Jagdale Payal Sunil	Female	OBC	XII Science	2019	F. Y. B. Sc.	
4.	Kesharwani Jyoti Dayashankar	Female	Open	XII Science	2019	F. Y. B. Sc.	
5.	Koli Mayuri Shantaram	Female	SBC	XII Science	2019	F. Y. B. Sc.	
6.	Mali Dhanashri Anamd	Female	OBC	XII Science	2019	F. Y. B. Sc.	
7.	Mali Mohini Bhaskar	Female	OBC	XII Science	2019	F. Y. B. Sc.	
8.	Patil Divya Rajaram	Female	OBC	XII Science	2019	F. Y. B. Sc.	
9.	Patil Nikita Kiran	Female	OBC	XII Science	2019	F. Y. B. Sc.	
10.	Saner Varsha Pradip	Female	OBC	XII Science	2019	F. Y. B. Sc.	
11.	Sonawane Ashwini Gokul	Female	OBC	XII Science	2019	F. Y. B. Sc.	
12.	Thakare Ujjwala Pradip	Female	OBC	XII Science	2019	F. Y. B. Sc.	

13.	Bagul Bhagyashri Jayvantrao	Female	OBC	XII Science	2019	F. Y. B. Sc.	
14.	Bodani Simran Omprakash	Female	Open	XII Science	2019	F. Y. B. Sc.	
15.	Borase Shraddha Pramod	Female	OBC	XII Science	2019	F. Y. B. Sc.	
16.	Chaudhari Dhanashri Jagdish	Female	OBC	XII Science	2019	F. Y. B. Sc.	
17.	Chaudhari Dimpal Sanjay	Female	OBC	XII Science	2019	F. Y. B. Sc.	
18.	Chaudhari Sunayna Ramkrishna	Female	OBC	XII Science	2019	F. Y. B. Sc.	
19.	Chavan Yogita Shamkant	Female	OBC	XII Science	2019	F. Y. B. Sc.	
20.	Desale Harshada Lotan	Female	OBC	XII Science	2019	F. Y. B. Sc.	
21.	Deshmukh Swati Nandusing	Female	Open	XII Science	2019	F. Y. B. Sc.	
22.	Jadhav Prajakta Hematrao	Female	OBC	XII Science	2019	F. Y. B. Sc.	
23.	Jadhav Priyanka Rajendra	Female	Open	XII Science	2019	F. Y. B. Sc.	
24.	Jagdale Payal Sunil	Female	OBC	XII Science	2019	F. Y. B. Sc.	
25.	Kesharwani Jyoti Dayashankar	Female	Open	XII Science	2019	F. Y. B. Sc.	
26.	Koli Dipali Diwakar	Female	SBC	XII Science	2019	F. Y. B. Sc.	
27.	Koli Mayuri Shantaram	Female	SBC	XII Science	2019	F. Y. B. Sc.	
28.	Lambole Pinal Mahendra	Female	Open	XII Science	2019	F. Y. B. Sc.	
29.	Lohar Rohini Narayan	Female	NT	XII Science	2019	F. Y. B. Sc.	
30.	Magare Sonal Bhagwan	Female	OBC	XII Science	2019	F. Y. B. Sc.	

36.	Pawar Manjusha Dinesh	Female	OBC	XII Science	2018	F. Y. B. Sc.	
37.	Chaudhari Anushri Rajendra	Female	OBC	XII Science	2018	F. Y. B. Sc.	
38.	Patil Rohini Shivaji	Female	VJNT-A	XII Science	2018	F. Y. B. Sc.	
39.	Ishi Neha Sudam	Female	SBC	XII Science	2018	F. Y. B. Sc.	
40.	Patel Miral Rajesh	Female	Open	XII Science	2018	F. Y. B. Sc.	
41.	Nhavi Rajashri Changdev	Female	OBC	XII Science	2018	F. Y. B. Sc.	
42.	Pawar Bhumeshwari Dnyandev	Female	OBC	XII Science	2018	F. Y. B. Sc.	
43.	More Harshali Nagonath	Female	NT	XII Science	2018	F. Y. B. Sc.	
44.	Mali Kanchan Vilas	Female	OBC	XII Science	2018	F. Y. B. Sc.	
45.	Kanade Rutuja Arun	Female	OBC	XII Science	2018	F. Y. B. Sc.	
46.	Bhadane Nisha Prabhakar	Female	Open	XII Science	2018	S. Y. B. Sc.	
47.	Patil Jidnyasa Anil	Female	OBC	XII Science	2018	S. Y. B. Sc.	
48.	Syyad Aarzu Sayyad Zakir	Female	OBC	XII Science	2018	S. Y. B. Sc.	
49.	Kolapkar Swati Rajendra	Female	OBC	XII Science	2018	S. Y. B. Sc.	
50.	Mahajan Sakshi Anil	Female	OBC	XII Science	2018	S. Y. B. Sc.	
51.	Koli Yogita Jitendra	Female	OBC	XII Science	2018	S. Y. B. Sc.	

Certificate

This is to certify that the document regarding educational qualifications of the above students have been verified and found correct. The students mentioned in the list are eligible for the admission to the above mentioned course as per University Ordinance-181.

Co-ordinator

Mrs. Vandana M. Patil

Principal

Dr. D. R. Patil

R.C.Patel Art's Commerce and Science College Shirpur

Year: 2019-20

Certificate Course in Women Studies

Students Attendance

Sr. No.	Students Name	Students Signature											
		6/8/19	7/8/19	9/8/19	19/8/19	20/8/19	21/8/19	3/9/19	4/9/19	5/9/19	12/9/19	13/9/19	14/9/19
1	desmuk swati nady	Sd nady	Sd nady	Sd nady	Sd nudy	Sd nudy	Sd nudy	Sd nudy	Sd nudy	Sd nudy	Sd nudy	Sd nay	Sdnyd
2	Kesharwani Jyoti D.	JDK	JDK	JDK	JDK	JDK	JDK	JDK	JDK	JDK	JDK	JDK	JDK
3	Jadhav Priyanka R.	Priya	Priya	Priya	Priya	Priya	Priya	Priya	Priya	Priya	Priya	Priya	Priya
4	Koli mayur shantaram	MKoli	MKoli	MKoli	MKoli	MKoli	MKoli	MKoli	MKoli	MKoli	MKoli	MKoli	MKoli
5.	Mali Dhanashri Anand	DB	DB	DB	DB	DB	DB	DB	DB	DB	DB	DB	DB
6.	Patil Nikita kiran.	PNK	PNK	PNK	PNK	PNK	PNK	PNK	PNK	PNK	PNK	PNK	PNK
7.	Sonervansha Pradip	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8.	Bohdani Simran Omprakash	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	Takur Ujwala Pradip	UPTakur	UPTakur	UPTakur	UPTakur	UPTakur	UPTakur	UPTakur	UPTakur	UPTakur	UPTakur	UPTakur	UPTakur
10	Chudhari dimpal sanjay	Dimpal	Dimpal	Dimpal	Dimpal	Dimpal	Dimpal	Dimpal	Dimpal	Dimpal	Dimpal	Dimpal	Dimpal
11	Borase shradha Pramod	SPborse	SPborse	SPborse	SPborse	SPborse	SPborse	SPborse	SPborse	SPborse	SPborse	SPborse	SPborse
12	Chavan jagita shamkant	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan	Chavan
13	Bagul Bhagyashri jay	Baul	Baul	Baul	Baul	Baul	Baul	Baul	Baul	Baul	Baul	Baul	Baul
14)	Lambole Pinal mahen	LPmahe	LPmahe	LPmahe	LPmane	LPmane	LPmane	LPmane	LPmane	LPmane	LPmane	LPmane	LPmane
15)	Jagdale Payal sunil	PSJagdale	PSJagdale	PSJagdale	PSJagdale	PSJagdale	PSJagdale	PSJagdale	PSJagdale	PSJagdale	PSJagdale	PSJagdale	PSJagdale
16)	Keshan Jokin Sonare	Kesa	Kesa	Kesa	Kesa	Kesa	Kesa	Kesa	Kesa	Kesa	Kesa	Kesa	Kesa

Patil

Dr. Vandana Patil

Co-ordinator

R. C. Patel Educational Trust's

R. C. Patel Arts, Commerce & Science College, Shirpur

(Affiliated to the K.B.C. North Maharashtra University, Jalgaon)

STATEMENT OF MARKS

Certificate Course in Women Studies (CGPA Pattern)

Examination held in May 2020

Student Name : Lohar Rohini Narayan

College Name : R. C. Patel Arts Commerce and Science College, Shirpur

Seat Number : 202101

Exam Centre : Shirpur (240051)

Paper Code	Paper Name	AM	Credits (Max.)	Marks Obtained
CCWS 101	Gender and Education	TH	6.0	77
CCWS 102	Women Work and Employment	TH	6.0	79
CCWS103	Field Work	FW	8.0	78

Result: **Pass**

CGPA: **4.60**

Grade: **A**

R.C.PATEL ARTS,COMM.AND SCIENCE COLLEGE

Co-ordinator

AM: Assessment Methods, **P:** Pass, **F:** Fail, **AB:** Absent, **RR:** Result Reserved, **TH:** Theory, **PR:** Practical, **O:** Outstanding Grade

K.B.C. North Maharashtra University, Jalgoan

Advance Diploma in

PLANT TISSUE CULTURE

Run by

R. C. Patel A. C. S. College, Shirpur

Under ordinance 181

Syllabus

A.Y-2018-19

Level of diploma	Graduate diploma
Eligibility	As per ordinance 181
Duration	1 Year
Total Credits	20 Credits

ADPTC 101: Plant Tissue Culture and rDNA Technology

1. Mitochondrial and Chloroplast Engineering **15**

1.1 Chloroplast engineering: Brief account

1.2 Design of vectors for chloroplast transformation

1.3 Mitochondrial transformation

1.4 Applications and limitations of chloroplast and mitochondrial engineering

2. Plant transformation and marker genes **15**

2.1 Antibiotic resistance genes- Neomycin phosphotransferase II (npt-II gene), Hygromycinpho sphotransferase (hpt-gene)

2.2 Antimetabolite marker gene- Dihydrofolate reductase gene

2.3 Herbicide resistance markers- Phosphinotricin acetyltransferase

3. Marker free transgenic Plants **15**

3.1Reporter gene- Opine synthase, β- glucouronidase, green fluroscent protein, bacterialluciferase gene

3.2 Production of marker free transgenic plant

3.3 Clean gene technology

4. RDNA technology **15**

4.1 Benefits of transgenic crops

4.2 Insect resistance plants through transgenic approach

4.3 Herbicides resistance plants through transgenic approach

5. Recombinant DNA technology in plants improvement **15**

5.1 Resistance genes from microorganisms- Bt- toxins

5.2 Resistance gene from higher plant- Proteinase inhibitors

5.3 Virus resistance- coat protein mediated cross protection

6. Transgenic plants as bioreactor **15**

6.1 Carbohydrates

6.2 Lipids

6.3 Protein quality improvement

References:

1. Introduction to plant biotechnology - H. S. Chawla, III Edn, Oxford and IBH Publ.
2. Biotechnology, U Satyanarayana, Books and allied (P) Ltd
3. Plant tissue culture, Sunil Kumar and M P Singh, APH Publ.
4. Biotechnology-Tissue culture to proteomics, P C Trivedi, Pointer Publ.
5. Purohit S.S.(2002),Agricultural Biotechnology,Agrobios India, Jodhpur
6. De K.K.,(1998) An introduction to Plant Tissue Culture, New central book agencyPvt.Ltd,Calcutta
7. Bhojwani S. S. and Razdan M.K. (1983) Plant tissue culture theory and practice, Elsevier SciencePub., Amsterdam.

ADPTC 102: Applied Plant Tissue Culture

1. Tissue Culture and Crop Improvement **15**

1.1 Micro propagation

1.2 Virus irradiation

1.3 Germplasm exchange

2. Cost Cuttings in Tissue Culture **15**

2.1 Low cost option for culture media

2.2 Low cost option for bioreactor

2.3 Low cost option for energy

3. Horticulture and Floriculture Biotechnology **15**

3.1 Concept of horticulture

3.2 Techniques in horticulture

3.3 Floriculture production through genetic modification

4.Edible vaccines **15**

4.1 Introduction and history

4.2 Criteria for selection of plants as a vaccine

4.3 Designing genes for insertion

5. Food Safety **15**

5.1 Transformed tissue culture and food safety

5.2 Quarantine checking

5.3 Challenges and issues

5.4 Food security

6. Intellectual Property Rights **15**

6.1 Forms of protection: Copyright, Trademarks

6.2 Patent: Patent application

6.3 Patenting of biological material: Microorganisms, plant, animal

References:

1. Introduction to plant biotechnology - H. S. Chawla, III Edn, Oxford and IBH Publ.
2. Plant tissue culture, Sunil Kumar and M P Singh, APH Publ.
3. Biotechnology-Tissue culture to proteomics, P C Trivedi, Pointer Publ.
4. Plant tissue culture, Rajender Singh, ALP Books.
5. Tissure culture, Rajendra Reddy, J P Abhay Shankar, CommonWealth Publ.
6. Ramawat K.G. (2004), Plant Biotechnology,S.Chand and Company Ltd.,New Delhi.

ADPTC 103: Practical Course

Sr. No.	Practical name	Lecture Allotted
1.	Safety aspects in PTC lab	15
2.	Production of synthetic seeds from somatic embryo	18
3.	Isolation of chloroplast DNA	15
4.	Isolation of mitochondrial DNA	15
5.	Extraction of RNA from leaf tissue	15
6.	Study of root culture	15
7.	Study of another culture	15
8.	Study of mitosis in onion root tip	12
	Total	**120**

References:

1. Biotechnology procedures and experiments handbook, S.Harisha
2. Plant tissue culture, Kaylan Kumar De, New central book agency Pvt.Ltd., Calcutta
3. Aneja K.R. (1998), Experiments in Microbiology, Plant pathology, Tissue culture and Mushroomcultivation, Vishwa Prakashan, New age international (p) Ltd., New Delhi
4. Schmauder Hans Peter (1997), Methods in Biotechnology, Taylor and Francis, London.
5. Schuler M. A. and Zielinski R. E. (1989), Methods in Plant Molecular Biology.
6. Vyas S.P. and Kohli D.V. (2002), Methods in Biotechnology and Bioengineering, CBS Publishers and Distributors, New Delhi.

॥ अंतरी पेटवू ज्ञानज्योत ॥

Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

1990
'A' Grade
NAAC Re-Accredited
(3rd Cycle)

Jalgaon (M.S.), INDIA

We, the Board of Deans, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

&

The Principal

R.C. Patel Arts, Commerce and Science College, Shirpur

do, hereby, certify that,

Mr./~~Ms.~~ Nabeel Ahesan Ejazoddin

has pursued a course of study approved by the Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon and has passed the requisite examination held in ~~Dec~~ Feb 2020 *with* B *grade and found duly qualified for the award of*

Advanced Diploma in

Plant tissue culture

Which is conferred on him / her on ~~October~~ *1st, 2021*

In testimony whereof is set the seal and signatures of authorities.

Patil
~~Principal~~.

Dean

C Nº 000109

R. C. Patel Educational Trust's

R. C. Patel Arts, Commerce & Science College, Shirpur

(Affiliated to the K.B.C. North Maharashtra University, Jalgaon)

STATEMENT OF MARKS

Advanced Diploma in Plant Tissue Culture (CGPA Pattern)

Examination held in May 2020

Student Name : Sonar Purushottam Somnath

College Name : R. C. Patel Arts Commerce and Science College, Shirpur

Seat Number : 203105

Exam Centre : Shirpur (240051)

Paper Code	Paper Name	AM	Credits (Max.)	Marks Obtained
ADPTC 101	Plant tissue culture and rDNA technology	TH	6.0	84
ADPTC 102	Applied Plant tissue culture	TH	6.0	80
ADPTC 103	Lab course	PR	8.0	84

Result: **Pass** CGPA: **5.10** Grade: **A**

R.C.PATEL ARTS,COMM.AND SCI.COLLEGE * SHIRPUR *

Co-ordinator

Abbreviations:

AM: Assessment Methods, **P:** Pass, **F:** Fail, **AB:** Absent, **RR:** Result Reserved, **TH:** Theory, **PR:** Practical, **O:** Outstanding Grade

Lecture attendance
Advanced Diploma in Plant tissue culture
2019-20

Sr. No.	Name of Student	Date and Sign of Students																								
		18-8-19	19-8-19	20-8-19	27-8-19	28-8-19	29-8-19	1-9-19	7-9-19	8-9-19	10-9-19	20-9-19	25-9-19	1-10-19	3-10-19	10-10-19	15-10-19	18-10-19	19-10-19	23/10/19	02/11/19	15/11/19	05/01/20	07/01/20	01/02/20	01/02/20	05/02/20	09/02/20
1.	Kadhare Tejaswini Vijay											AB			AB								AB					
2.	Mahajan Sakshi Anil																											
3.	Mirza Beg Saima Parveen Muquaddar Beg																											
4.	Pathan Bushra Aqueel Khan																											
5.	Sonar Purushottam Somnath																											
6.	Sonawane Nandini Ravindra																											
7.	Nabeel Ahesan Ijazoddin																											

Head,
Department of Microbiology

8.	Koli Rhushikesh Sanjay									
9.	Kumbhar Saloni Anil									
10.	Magare Sonal Bhagwan									
11.	Marathe Mohit Ganesh									
12.	Padmor Nitin Tryambak									
13.	Patel Miral Rajesh									
14.	Patil Jayesh Devidas									
15.	Patil Neha Bhagvat									
16.	Patil Neha Dinkar									
17.	Patil Sayali Prashant									
18.	Pawar Bhumeshwari Dnyandev									

K.B.C. North Maharashtra University, Jalgaon
Ordinance 181

College
R. C. Patel Arts, Commerce and Science College, Shirpur

Name of career oriented course
Post Graduate Diploma in Microbial Biotechnology

Faculty
SCIENCE

Academic year
(2019-20)

K.B.C. North Maharashtra University, Jalgaon

Ordinance 181

College name	:	**R. C. Patel Arts, Science and Commerce College, Shirpur**
Title of the course	:	**Post graduate diploma in Microbial Biotechnology**
Aims/Objective of the course	:	**To make students acquaint about methods and techniques of industrial biotechnology and their applications**
Duration of the course	:	**1 Year**
Fees structure	:	**Rs. 1500/-**
Course structure	:	**Paper I: Essentials in Life Sciences** **Paper II: Advances in Industrial technology** **Paper III: Lab course**
Eligibility for admission	:	**B.Sc. (Science) as per ordinance 181**

Skeleton of course:

Sr. No	Paper	Name of subject	Theory / Practical	Teaching hours	Maximum marks allotted			Passing			Credit
					External	Internal	Total	External	Internal	Total	
13.	Paper I	Essentials in Life Sciences	Theory	90	60	40	100	24	16	40	6
14.	Paper II	Advances in Industrial Technology	Theory	90	60	40	100	24	16	40	6
15.	Paper III	Lab course	Practical	120	60	40	100	24	16	40	8

Minimum staff : 03

Mode of examination : Internal and external

(Theory and Practical)

Detail syllabus : Syllabus copy attached

PGDMBT 101: Essentials in Life Sciences

Topics	Periods allotted
Unit 1: Foundation in Microbiology:	
Microbial cells: Structure and organization, Microbial diversity with representative examples. Microbiology in the environment: water, sewage and air, environmental pollution and biodegradation.	**15**
Unit 2: Microbial physiology and biochemistry:	
Microbial nutrition, Aerobic and anaerobic growth, Factors affecting on growth, growth kinetics, Biomolecules (Carbohydrates, Nucleic acids, Lipids), Glycolysis, Gluconeogenesis.	**10**
Unit 3: Medical microbiology and immunology:	
Introduction to Medical Microbiology, Microbiology in human diseases, Introduction to immune system, Immunity, basic immunological techniques, immunodiagnostic methods with examples of applications, monoclonal antibodies.	**15**
Unit 4: Fundamental of Molecular Biology:	
Structure and properties of DNA/RNA, replication, DNA mutations and repair, transcription, mRNA processing, translation, gene regulation: lac operon.	**15**
Unit 5: Techniques in Molecular Biology:	
Hybridization techniques, DNA Microarray, Nucleic acid blotting techniques (Southern, Northern, Western), Electrophoresis: gel and SDS-PAGE	**15**
Unit 6: Techniques in genetic Engineering:	
Concept & Methods in microbial genetics: mutagenesis and screening, strain improvement, transgenic plants and animals. Principles of cloning, Introduction to cloning vectors, Construction of genomic and cDNA libraries, PCR and DNA-based diagnostic techniques, DNA sequencing, Site directed mutagenesis, Protein structure - function relationship.	**20**
Total	**90**

PGDMBT 102: Advances in Industrial Technology

Topics	Periods Allotted
Unit 1: Bioprocess technology:	
Fundamentals in Bioprocessing, Raw materials for bioprocessing, comparison of chemical and biochemical processing based on energetics and environmental issues. Development of inocula, kinetics of enzymatic and microbial processes, Optimization studies, sterilization of media, air and equipment, modes of cell cultivation, general principles of bioreactor design and their operation.	**15**
Unit 2: Downstream processing:	
Introduction to Downstream processing. Separation and purification techniques, quality assurance testing, representative examples of microbial products, vaccines and vaccine development, immobilization of cells and enzymes: principles, methodology and applications, disintegration of cells, separation of solid and liquid phases, isolation and purification techniques for proteins and other products. eg. precipitation, adsorption, chromatographic separations, bio-affinity based methods.	**30**
Unit 3: Biosafety and environmental monitoring:	
Biosafety: Introduction, Concept, Significance & Technology Environmental monitoring: Introduction, Concept, Significance & Technology Intellectual Property Rights in Biotechnology.	**10**
Unit 4: Quality Control:	
Antimicrobial effectiveness Testing, Pyrogen Test, Sterility Test, Ames test, Microbial Assay (Antibiotic and Vitamins), Phenol Coefficient: (RW Test and Chick Martin Test), Minimum Inhibitory Concentration (MIC) (Tube Dilution and Gradient Plate Method), Kirby-Bauer Antibiotic Sensitivity Test and Synergistic effect of antibiotics, Microbial Limit Test (analysis of water, raw material, finished product, packaging material and Excipients) Environmental monitoring and area monitoring	**25**
Unit 5: Quality Assurance:	
Calibration and Validation, Pharmaceutical audits, GMP and CGMP, FDA, WHO and other agencies Principles of QA, Reporting and documentation, Market surveillance and monitoring.	**10**
Total periods	**90**

PGDMBT 103: Lab course

Lab course	Periods Allotted
1. Microbial Limit Test (analysis of water, raw material, finished product, packaging material, Excipients)	**8**
2. Sterility Test of Pharmaceutical Products	**8**
3. Growth Promotion test of Media	**8**
4. Antibiotic Assay (Turbid metric)	**8**
5. Vitamin Bioassay (Diffusion method)	**8**
6. Kirby-Bauer Antibiotic Sensitivity Test	**6**
7. Phenol Coefficient tests	**4**
8. Environmental monitoring, area monitoring	**12**
9. Minimum Inhibitory Concentration (Tube dilution Method)	**10**
10. Calibration and Validation	**6**
11. Pharmaceutical audits, GMP and CGMP, FDA, WHO and other agencies	**8**
12. Principles of QA	**4**
13. Reporting and documentation	**4**
14. Market surveillance and monitoring.	**6**
15. Project/Industrial training/Field work	**20**
Total	**120**

References:

1. Indian Pharmacoepia, 2010.
2. British Pharmacoepia, 2009.
3. United state Pharmacoepia, 2007.
4. Industrial Microbiology: Whitaker and Hall.
5. Microbial Biotechnology: Moorey Mu Young.
6. Biotechnology: Expanding Horizons: B.D. Singh.
7. Quality assurance in Microbiiology: Ramkaran. M.
8. Biochemistry: Lubert Stryer.
9. Recombinant DNA: J.D. Watson.
10. Gene Biotechnology, S. N. Jogdand
11. Biochemistry, Lodish, IVth Edn.
12. Process Biotechnology fundamentals, IInd Edn, Mukhopadhyay S N (2004)
13. Intellectual property rights on biotechnology, Singh K C. BCIL, New Delhi
14. Biotechnology and genomics, Gupta P K, Rastogi publications, India.

Lecture attendance
PG diploma in Microbial Biotechnology
2019-20

Sr. No.	Name of Student	Date and Sign of Students
1.	Bhavsar Uttkarsha Ninad	
2.	Chaudhari Pornima Mohan	
3.	Dhamne Ruchita Dilip	
4.	Joshi Yogita Ishwar	
5.	Kuwar Kalyani Narendra	
6.	Maule Juber Harun	
7	Pandit Aishwarya Tushar	
8.	Patil Dinesh Vishnu	

9.	Patil Laxmi Prabhakar	
10.	Patil Mangesh Ravindra	
11.	Patil Pradip Bhila	
12.	Patil Renuka Prakash	
13.	Patil Shubham Manohar	

Head,
Department of Biotechnology
R.C.Patel Arts & Sci.Coll...
Shirpur,Dist...

R. C. Patel Educational Trust's

R. C. Patel Arts, Commerce & Science College, Shirpur

(Affiliated to the K.B.C. North Maharashtra University, Jalgaon)

STATEMENT OF MARKS

Post Graduate Diploma in Microbial Biotechnology (CGPA Pattern)

Examination held in May 2020

Student Name : Patil Laxmi Prabhakar

College Name : R. C. Patel Arts Commerce and Science College, Shirpur

Seat Number : 203206

Exam Centre : Shirpur (240051)

Paper Code	Paper Name	AM	Credits (Max.)	Marks Obtained
PGDMBT 101	Fundamentals in Microbiology, Immunology and Molecular Biology	TH	6.0	93
PGDMBT 102	Industrial Technology	TH	6.0	92
PGDMBT 103	Lab Course	PR	8.0	95

Result: **Pass** CGPA: **6.30** Grade: **O**

R.C.PATEL ARTS,COMM.AND SCI.COLLEGE SHIRPUR

Co-ordinator

Abbreviations:

AM: Assessment Methods, **P:** Pass, **F:** Fail, **AB:** Absent, **RR:** Result Reserved, **TH:** Theory, **PR:** Practical, **O:** Outstanding Grade

॥ अंतरी पेटवू ज्ञानज्योत ॥

Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

1990
'A' Grade
NAAC Re-Accredited
(3rd Cycle)

Jalgaon (M.S.), INDIA

We, the Board of Deans, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

&

The Principal

R.C. Patel Arts, Commerce and science college, shirpur

do, hereby, certify that,

~~Mr.~~/Ms. Joshi Yogita Ishwar

has pursued a course of study approved by the Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon and has passed the requisite examination held in Dec 2020 *with* A *grade and found duly qualified for the award of*

P. G. Diploma in

Microbial Biotechndogy

Which is conferred on ~~him~~ / her on Feb ~~October~~ 1st, 2021

In testimony whereof is set the seal and signatures of authorities.

Principal

R.C. Patel Arts, Comm. & Sci. College

Dean

D № 000391

K.B.C. North Maharashtra University, Jalgoan

Ordinance 181

R. C. Patel Arts, Commerce and Science College, Shirpur

Name of Career Oriented Course

PG Diploma in Bioinformatics

Faculty

SCIENCE

Academic year

(2019-20)

K.B.C. North Maharashtra University, Jalgaon

Ordinance 181

College name	**:**	R. C. Patel Arts, Science and Commerce College,Shirpur
Title of the course	**:**	Post graduate diploma in Bioinformatics
Aims/Objective of the course	**:**	To make students acquaint about current trends in the field of bioinformatics and its application in lifesciences.
Duration of the course	**:**	1 Year
Fees structure	**:**	Rs. 1500/-
Course structure	**:**	Paper I: Foundations in Life Sciences Paper II: Advances in Bioinformatics Paper III: Lab Course
Eligibility for admission	**:**	B.Sc. (Science) as per ordinance 181

Skeleton of course:

Sr.No	**Paper**	**Name of subject**	**Theory / Practi.**	**Teaching hours**	**Maximum marks allotted**			**Passing**			**Credit**
					External	Internal	Total	External	Internal	Total	
1.	Paper I	Foundations in Life Sciences	Theory	90	60	40	100	24	16	40	6
2.	Paper II	Advances in Bioinformatics	Theory	90	60	40	100	24	16	40	6
3.	Paper III	Lab course	Practical	120	60	40	100	24	16	40	8

PGDBI 101: Foundations in Life Sciences

Topics	Lectures allotted (in hrs.)

Chemistry of Life
• Chemistry of living organisms, atoms, elements, chemical bonds,comparison of enzymatic and non-enzymatic reactions.
• **Study of biomolecules:**
  • **Carbohydrates:** Structure, classification
  • **Proteins:** properties of amino acids and peptides; structural levelsof proteins; phi- and psi- angles in protein conformation.
  • **Enzymes:** EC number, enzyme nomenclature and classification;units of enzyme activity; allosteric enzymes.
	15

Genetics • **Basics concepts of genetics:** Bases, nucleotides, nucleosome,histones, genes, genomes. • **RNA:** Structure, function and types, mRNA splicing • **DNA:** structure of B form of DNA; denaturation, renaturation kinetics,hybridization of DNA, circular and linear DNA. • **Genome mapping and genome sequencing:** Basics and significance	**15**
Immuno-informatics • **Immune system:** Overview, Types: (innate and acquired) • **Antibody:** Structure and function • **MHC**: MHC Peptide interaction, MHC I & II, Polymorphism • **B Cell and T Cell antigens:** Characteristics and Importance • **Immune response:** CMI and humoral immune response • **Bioinformatics in immunology:** Background and significance invaccine development	**15**

Topics	Lectures allotted (in hrs.)
Central Dogma of Molecular biology • Nucleic Acid: Types and Structure • 16S RNA • DNA topology • DNA modifying enzymes • RNA polymerase and its types • Transcription: Mechanism • Translation: Mechanism	**15**
Genomics & Proteomics • Study of organization of genomes, Genome sequencing techniques • The Human Genome Project, Applications of genomics studies • Introduction to proteomics, Metabolic pathways • Post-translational Modification • Protein–Protein Interactions • Applications of proteomics studies	**15**
Molecular Biology techniques • Centrifugation and ultra-centrifugation • Gel electrophoresis • SEM and TEM • TLC, HPTLC • HPLC • pH and pOH	**15**
Total	**90**

PGDBI 102: Advances in Bioinformatics

Topics	Lectures allotted (in hrs.)
Bioinformatics Software • Study of Nucleic acid tools: Crustal W, ORF Finder, tools at NCBI,CFSSP • Study of Protein tools: ExPaSy, tools at EBI, ProtParam, Crustal -Omega	**08**
Biological databases Concept and classification of biological databases • Nucleic acid sequence databases: GenBank, EMBL, DDBJ • Protein sequence databases: SwissProt, PIR, PDB • EXPASY, SRS, ENTREZ	**12**

Sequence alignments
• Concept of single and multiple sequence alignment
• Sequence alignment methods
  • Global and Local Alignment
  • Multiple Sequence Alignment
• Sequence alignment algorithms
  • Smith-Waterman algorithm
  • Needelman-Wunsch Algorithm
• Web-based sequence alignment tools
	15

Homology, phylogeny and evolutionary relationships • Concept of homology, similarity and identity • Phylogeny and evolutionary relationships • Methods of phylogenetic analysis • Phylogenetic trees • Tree-building methods • Use of Phylip and DAMBE in phylogenetic analysis	**10**

Topics	Lectures allotted(in hrs.)
Pharma informatics • Drug discovery process • Target identification and validation • Identifying and optimization of lead compound	**12**
Analytical methods of nucleic acid and proteins • Gene prediction strategies • ORF finding methods • Protein function prediction strategies • Secondary structure prediction • 3D structure prediction of proteins	**6**
Genome maps • Types of Genome maps and their uses, • Map elements, • Types of maps: Cytogenetic, Linkage map, Transcript map, Physicalmap, Comparative map, integrated map.	**12**
Map repositories • NCBI – Entrez Human genome map viewer • NCBI – Taxonomy browser • Human genome resources at ornl.gov • OMIM – Online Mendelian Inheritance in Man	**8**
Applications in Genomics and proteomics • Genome mapping and Genome annotation • Protein expression analysis - SAGE • 2D gel electrophoresis	**7**
Total	**90**

PGDBI 103: Lab course

Sr. No.	Lab work	Periods allotted (In hrs.)
1.	Study of online resources using Sequence Retrieval System: ENTREZ	**6**
2.	Study of online protein resources: PDB and PIR.	**4**
3.	Multiple sequence alignment using Clustal Omega.	**8**
4.	Protein sequence download and visualization using RsMol and SPDBV	**4**
5.	Prediction of possible ORF using NCBI ORF finder.	**4**
6.	Calculate physical, chemical parameters for proteins using ProtParam.	**8**
7.	Study of Global and local sequence alignments	**4**
8.	Study of Blast Tool At Ncbi i. Use Blast in to identify the gene, the source organism and analysisof BLAST result. ii. Identification of protein sequence by BLAST p. iii. Finding PCR primers specific for template DNA using NCBI's Primer BLAST.	**8** **8** **6**
9.	Study of services at EBI i. Ensemble ii. EBI metagenomics iii. Gene Wise	**6** **6** **8**
10.	Study of UniProt tool of EBI	**8**
11.	Studying resources for molecular phylogeny. i. Study of MEGA5 software. ii. Study of sequence editor software: Bio Edit. iii. Visualizing phylogenetic tree using Fig Tree / Tree View.	**6** **4** **4**
12.	Studying molecular phylogeny using tool DAMBE.	**8**
13.	Explore study and use proteomics resources available at ExPaSy.	**6**
14.	Predicting possible genes in DNA sequence using NCBI-GLIMMER.	**4**
	Total	**120**

References:

1. Arora M. P. Sandhu G.S. “Genetics”
2. Claverie J. M. & Notredame C. “Bioinformatics: A beginner’s guide”
3. Bioinformatics – Concepts, Skills, Applications”. S.C. Rastogi, Namita Mendiratta,Parag Rastogi.
4. Cell Biology, Genetics, Molecular Biology, Evolution and Ecology by P. S. Verma and V. K. Agrawal, S. Chand Publ.
5. Bioinformatics: A Practical Guide to the Analysis of Genes and Proteins. Andréa’s D. Baxevanis, B.F. Francis Ouellette.
6. Biological Sequence Analysis: Probabilistic Models of Proteins and NucleicAcids. Richard Durbin et al.
7. Computer Methods for Macromolecular Sequence Analysis. Doolittle R.F. (Ed.)(Methods in Enzymology, VOl. 266).
8. Shanmughavel, P. 2005. Principles of Bioinformatics, Pointer Publishers, Jaipur,India.
9. DNA and Protein Sequence Analysis. A Practical approach. Bishop M.J.Rawlings C.J. (Eds.).
10. Introduction to Bioinformatics. Teresa. K. Atwood and David J. Parry-Smith.
11. An introduction to bioinformatics by Vikramsingh, Narosa Publ.
12. Bioinformatics - Computational Molecular Biology by Zvia Agur.
13. Basic bioinformatics by Ignacimuthu.

Lecture attendance
PG diploma in Bioinformatics
2019-20

Sr. No.	Name of Student	Date and Sign of Students																			
		2/07/19	04/07/19	06/07/19	18/07/19	19/07	22/07/19	03/08/19	09/08/19	12/08/19	21/08/19	29/08/19	06/09/19	09/09/19	14/09/19	21/09/19	29/09/19	3/10/19	8/10/19	15/10/19	19/10/19
1.	Chaudhari Pornima Mohan	P	P	AB	AB	P	P	AB	P	P	P	P	AB	P	AB	AB	AB	P	P	P	P
2.	Chaudhari Yogesh Sahebrao	AB			AB			AB		AB											
3.	Jadhav Manjusha Sanjay																				
4.	Jadhav Manjusha Sanjay																				
5.	Mahajan Ankita Vinod																				
6.	Panchbhai Pratik Sanjay																				
7.	Patil Laxmi Prabhakar																				

Sr. No.	Name of Student	Date and Sign of Students																			
		22/10/19	29/10/19	31/10/19	5/11/19	19/11/19	26/11/19	29/11/19	4/12/19	11/12/19	18/12/19	21/12/19	11/1/20	7/1/20							
1.	Chaudhari Pornima Mohan	P	P	P	P	P	AB	P	AB	P	P	AB	P	AB							
2.	Chaudhari Yogesh Sahebrao						AB														
3.	Jadhav Manjusha Sanjay																				
4.	Jadhav Manjusha Sanjay																				
5.	Mahajan Ankita Vinod																				
6.	Panchbhai Pratik Sanjay																				
7.	Patil Laxmi Prabhakar																				

R. C. Patel Educational Trust's

R. C. Patel Arts, Commerce & Science College, Shirpur

(Affiliated to the K.B.C. North Maharashtra University, Jalgaon)

STATEMENT OF MARKS

Post Graduate Diploma in Bioinformatics (CGPA Pattern)

Examination held in May 2020

Student Name : Patil Nikita Jagadish

College Name : R. C. Patel Arts Commerce and Science College, Shirpur

Seat Number : 193104

Exam Centre : Shirpur (240051)

Paper Code	Paper Name	AM	Credits (Max.)	Marks Obtained
PGDBI 101	Adnances in Life Sciences	TH	6.0	88
PGDBI 102	Bioinformatics	TH	6.0	87
PGDBI 103	Lab Course	PR	8.0	93

Result: **Pass** CGPA: **6.00** Grade: **O**

R.C.PATEL ARTS,COMM.AND SCI.COLLEGE SHIRPUR

Co-ordinator

Abbreviations:

AM: Assessment Methods, **P:** Pass, **F:** Fail, **AB:** Absent, **RR:** Result Reserved, **TH:** Theory, **PR:** Practical, **O:** Outstanding Grade