



RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY  
Established by Government of Central Provinces Education Department by Notification No. 513 dated the 1<sup>st</sup> of August, 1923 &  
presently a State University governed by Maharashtra Public Universities Act, 2016 (Mah. Act No. VI of 2017)

## DEPARTMENT OF LIFELONG LEARNING AND EXTENSION

Gurunanak Bhavan, University Campus, Amravati Road, Nagpur - 440 033. Phone : 2530860  
E-mail : doll\_rtmnu@gmail.com

To,  
The Principal  
Nabira College,  
Katol.

No.DOLLE/147/21

Dated : 17.02. 2021

**Subject :** Sanction for Conducting Online Short Term Courses under  
Jeevan Shikshan Abhiyan on No Grant Basis.

Sir/Madam,

With reference to your proposal for conducting Online Short Term courses indicated below under Jeevan Shikshan Abhiyan of this Department, I am to inform you that your proposal have been accepted by the Department and your College has been granted permission to conduct the online course on the following conditions:

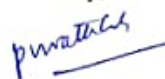
### Details of the Course

Sr. No.	Name of the Course	Duration	No. of Candidates to be admitted	Fees to be Charged per Student	Fees to be Deposited With the Deptt.
1	Certificate Course in Plant Tissue Culture Techniques	8 Weeks	75	500/-	10%

**Rules & Regulations of this Department regarding these courses should be strictly followed.**

1. Owing to Covid-19 situations all the norms of Central & State Government and instructions by R.T.M. Nagpur University, Nagpur should be strictly followed.
2. This sanction is valid for this particular Batch only.
3. Fees for the course should be charged as per the norms prescribed.
4. Expenditure on the course should be incurred as per norms.
5. Course should be started within a Month from the date of sanction.  
Please communicate your acceptance within a month and submit the Initial Report
6. Submit the List of Students admitted in the excel format attached herewith.  
Also send a soft copy in CD/Pen drive.

Your's faithfully,

  
Director



## **NABIRA MAHAVIDYALAYA, KATOL**

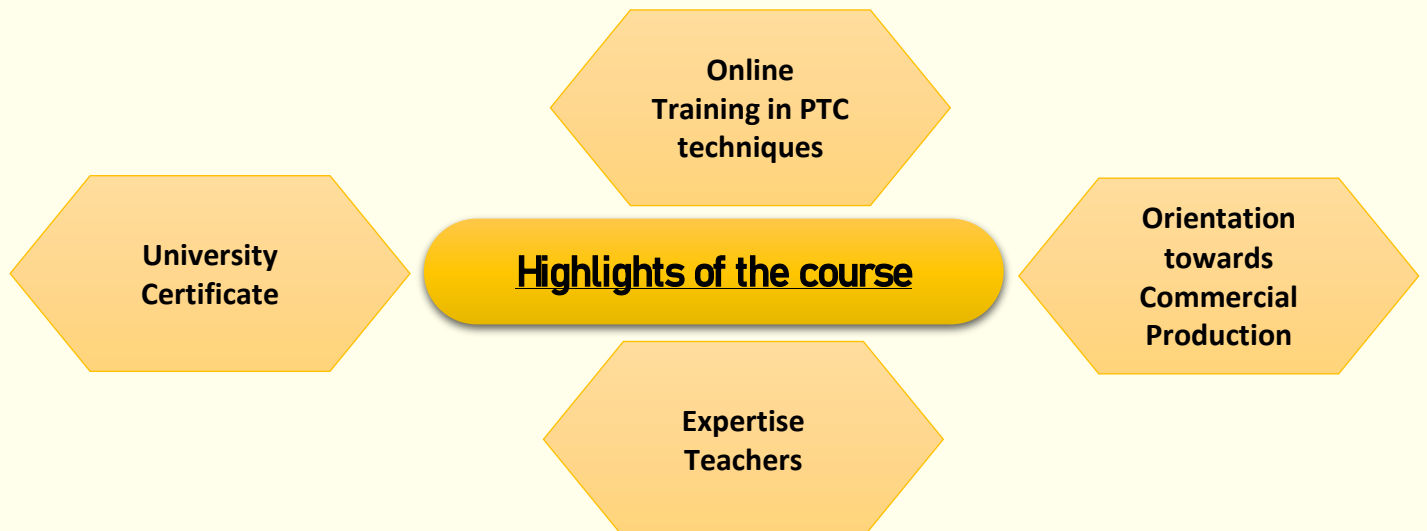
Department of Botany

Department of Life Long Learning & Extension

Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur

Session 2020-21

# **"Certificate Course in Plant Tissue Culture Techniques"**



Department of Botany, Nabira Mahavidyalaya Katol conducting “*Certificate Course in Plant Tissue Culture Techniques*” with the approval of Department of Life Long Learning & Extension, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur. Under the course, department offers theory lectures with expertise teachers having in-depth experience in plant tissue culture techniques and also provide hands-on training to the students on PTC techniques. Department of Botany has well-furnished plant tissue culture lab which provide experiential exposure for the students. The curriculum designed by keeping in the mind that students should become skilled in the techniques of plant tissue culture and should be able to work in commercial PTC labs or should be able to start their own venture in the field. (Theory and practical are arranged in online mode).

### Details about the course:

- **Eligibility:** Candidates for admission to certificate course in Plant Tissue Culture Techniques should have passed Higher Secondary level with Biology/Botany as one of the subject.
- **Duration:** Eight Weeks.
- **Course Fees:** Rs 500/-
- **Selection Procedure:** Based on merit and initial interview of the candidate.
- **Course Structure:** Theory - 15 hrs; Practical - 45 hrs.

### Course Co-coordinator

**Dr. Bipinchandra B. Kalbande**

Assistant Professor & Head,

Department of Botany,

Mobile: 9881713241

Email- vipinkalbande@gmail.com



## NABIRA MAHAVIDYALAYA, KATOL



### Online Certificate Course In Plant Tissue Culture Techniques

**A. Course Code:** NMV-Course 1/2020-21 BOT

**B. Title:** Online Certificate Course In Plant Tissue Culture Techniques

**C. Objective:**

Being one of the most important technique of 20<sup>th</sup> Century, Plant Tissue culture has its application in both basic and applied aspects of plant biotechnology as well as its commercial applications. As a technique broadly known for the creation of huge numbers of genetically identical plantlets, this technology shows several rewards over conventional propagation techniques. All techniques are skill based and upon systematic learning, can equip a person to effectively utilize the techniques in various areas like basic research, environmental issues and commercial applications. This technique is an important tool for research on morphogenesis, cell signalling, physiology, and molecular biology, as well as crop improvement by biotechnology and transgenic plant development. This course offers a comprehensive hands-on training for learning the basics with an insight to laboratory practices along with exposure to “lab-to-land” transfers.

Primary aim of this course is to deliver basic and applied training in the subject for skill development to start career in entrepreneurship, generate technically trained human resource for tissue culture industries and as instructors in schools and junior colleges.

Benefits of Course:

- The course will be a value-added course for High School and Jr. College Science teachers.
- Entrepreneurs who wish to establish their own labs will be benefited with the lab to land training.
- Researchers in plant tissue culture who have a focus on commercial applications such as crop improvement, secondary metabolite production, and various strategies for inducing genetic interference.
- Persons who want to understand basic laboratory setup, handling of explant tissue, nutrient medium and establishing the culture, and incubation of cultures.

**D. Eligibility:** Candidates for admission to certificate course in Plant Tissue Culture Techniques should have passed Higher Secondary level with Biology/Botany as one of the subjects.

**E. Duration:** Eight Weeks.

**F. Course Fees:** Rs. 500/-

**G. Selection Procedure:** Based on merit and initial interview of the candidate.

**H. Course Structure:** Theory - 15 hrs; Practical – 45 hrs.

**I. Detailed Syllabus:**

*Theory:*

- I. Fundamentals of Plant Tissue Culture (PTC):** Introduction & History; Scope, Advantages, Applications & Limitations.
- II. Sterilization techniques:** Physical and Chemical.
- III. Nutrient Media:** Concept, Types and Importance. Macro and micro nutrients, phytohormones, growth factors.
- IV. Phytohormones:** Types and Application.
- V. Steps involved in PTC:** From lab to field.
- VI. Techniques used in PTC:** Organogenesis – Direct & Indirect; Multiple shoot induction & Micropropagation; Callus induction; Somatic Embryogenesis and Synthetic Seeds; Somaclonal Variation; Culture of Reproductive Organs (Anther and Ovary).
- VII. PTC Laboratory Designing:** For establishing academic and commercial laboratory.

*Practical:*

- I.** Sterilization Techniques – Autoclave, Hot Air Oven and Chemical treatments.
- II.** Preparation of nutrient media.
- III.** Seed sterilization and inoculation.
- IV.** Explant sterilization and inoculation.
- V.** Establishment of callus culture.
- VI.** Organogenesis in callus cultures
- VII.** Establishment of Shoot tip culture.
- VIII.** Micro propagation.

IX. Rooting and Hardening of *in-vitro* grown plants.

**J. Requirements of the laboratory support and library resources:** Plant Tissue Culture Lab.

**K. Financial Assistance:** At present no financial assistance is provided.


**L. Conduct and Scheme of Examination:** *Considering this COVID-19 Pandemic situation, all the lectures will be conducted online using appropriate online teaching application. Practicals will be demonstrated in details so that physical contact should be avoided in this pandemic era.* The certificate course will be conducted for the applicant specially for B.Sc. Sem-VI students and theory and practical exam will be conducted after the course completion. Certificates are issued according to the exam results.

Theory : 50 marks

Practical/Online Assignments: 80 marks

Viva : 20 marks

**M. Medium of Instruction:** It will be English, Marathi and Hindi.

  
Dr. B. B. Kalbande  
Asst. Prof. & Head  
Department of Botany,  
Nabira Mahavidyalaya, Katol.



  
Principal  
Nabira Mahavidyalaya,  
Katol, Dist. Nagpur,

**NAME OF THE COLLEGE/INSTITUTE: NABIRA MAHAVIDYALAYA, KATOL**

**NAME OF THE COURSE: CERTIFICAT COURSE IN PLANT TISSUE CULTURE**

**YEAR : 2020-2021; DURATION: 8 WEEKS**

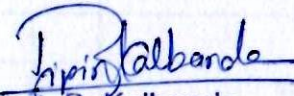
**STUDENT DETAILS**

Sr. No.	Student Name	Gender	Date of Birth	Educational Qualification	Contact No.	Email Address
1	Aakanksha Chandrashekar Pawar	F	1/11/2001	HSSC	8530370953	aakankshapawar811@gmail.com
2	Aishwarya Ashok Samarth	F	7/26/2000	HSSC	8010762134	aishwaryasamarth26@gmail.com
3	Arti Dashrath Bode	F	7/7/2021	HSSC	9834762205	artibode19@gmail.com
4	Ashana Sudhakar Bagde	F	4/24/2001	HSSC	8999577776	ashanabagde12@gmail.com
5	Ashwini Prakash Khandekar	F	2/28/2001	HSSC	7887470188	ashwinikhandekar111@gmail.com
6	Avanti Anant Bhojar	F	6/17/2000	HSSC	8380822076	avanti.gavkus@gmail.com
7	Bhagyashri Keshavrao Ingale	F	12/26/2000	HSSC	7558475534	dingale755@gmail.com
8	Bharti Gajanan Malode	F	4/25/2000	HSSC	9307865162	bhartimalode333@gmail.com
9	Divyani Suresh Tawale	F	5/5/1999	HSSC	9822463647	divyanitawale4@gmail.com
10	Gauri Diliprao Pohakar.	F	12/30/2000	HSSC	8378821931	gauripohakar00@gmail.com
11	Gauri Hariom Pawde	F	12/30/2000	HSSC	8379982095	gauripawde29@gmail.com
12	Harshala Sadashio Vasu	F	2/24/1999	HSSC	7744961512	harshalawasu@gmail.com
13	Hina Rasid Shah	F	9/22/2000	HSSC	7264967949	shahahina3@gmail.com
14	Jayshri Hiraji Dhurve	F	6/14/2000	HSSC	7448251592	dhurvejayashri14@gmail.com
15	Kanchan Kumar Sangole	F	4/10/2000	HSSC	8600141913	kanchansangole5@gmail.com
16	Kiran Ganpati Maske	F	10/14/2000	HSSC	9322316841	kiranmaske2018@gmail.com
17	Krutika Laxman Kshirsagar	F	8/23/2000	HSSC	8381008455	krutikakshirsagar78@gmail.com
18	Mayuri Gulabrao Madankar	F	9/24/2000	HSSC	9579459180	mayurimadankar0@gmail.com

19	Neha Banduji Pohakar	F	12/23/2000	HSSC	8767899197	pohakarneha118@gmail.com
20	Nishita Ramesh Bagde	F	10/3/2000	HSSC	7756807684	nishitabagde13@gmail.com
21	Payal Ashok Rathod	F	10/17/1999	HSSC	8080124561	pr694144@gmail.com
22	Pratiksha Bhimrao Wasade	F	2/23/2000	HSSC	7499014482	pratikshawasade111@gmail.com
23	Pratiksha Ravindra Nimje	F	4/5/2001	HSSC	7038953223	nimjepratiksha2001@gmail.com
24	Prema Arunrao Dhote	F	12/19/2000	HSSC	9579294594	dhoteprema90@gmail.com
25	Priyanka Dattuji Bansod	F	10/30/2000	HSSC	7823091908	priyankabansod103@gmail.com
26	Rasika Vaikuntharao Irpate	F	2/8/2000	HSSC	7796062086	rasikairpate4@gmail.com
27	Rhutuja Dipakji Game	F	12/18/2000	HSSC	7447389429	rutujagame399@gmail.com
28	Rhutuja Haridasji Dongare	F	8/6/2000	HSSC	7499480463	rutujadongare78@gmail.com
29	Rina Lalchand Nishad	F	7/27/1998	HSSC	7666548319	rinanishad8@gmail.com
30	Roshani. Shantaramji. Dabriya	F	9/11/2021	HSSC	9021726094	roshanidabriya@gmail.com
31	Rozina Mannan Sheikh	F	3/13/2001	HSSC	9588414033	rozinasheikh13@gmail.com
32	Sakshi Kishor Bidkar	F	11/16/2000	HSSC	9175180351	sakshibidkar0@gmail.com
33	Sayali Ishwar Rewatkar	F	2/19/2000	HSSC	7020408960	sayalirewatkar31@gmail.com
34	Shraddha Arjunsingh Narete	F	9/24/1997	HSSC	8319126962	shraddhanarete9@gmail.com
35	Sona Damodhr Parkhi	F	3/9/2000	HSSC	9346786645	sonaparkhi786@gmail.com
36	Sweta Diliprao Bannagare	F	9/24/2000	HSSC	8830645941	swetabannagare24@gmail.com
37	Vaishnavi Dattaraji Bondre	F	7/28/2000	HSSC	9373137808	vbondre13@gmail.com
38	Vaishnavi Raju Bhange	F	8/25/2000	HSSC	9370518028	vaishnavibhange61@gmail.com
39	Rajeshri Anandrao Wadhive	F	11/30/2000	HSSC	8999948661	vadhiverajeshri@gmail.com

  
Principal  
Nabira Mahavidyalaya,  
Katol



  
Dr. D. B. Kalbande  
Asst. Prof. & Head  
Department of Botany,  
Nabira Mahavidyalaya, Katol.





## NABIRA MAHAVIDYALAYA, KATOL

### Online Certificate Course In Plant Tissue Culture Techniques

Session: 2020-21

**A. Course Code:** NMV-Course 1/2020-21 BOT

**B. Title:** Online Certificate Course In Plant Tissue Culture Techniques

**C. Assessment Process:**

Considering this COVID-19 Pandemic situation, theory & practical examinations were done through online exam & viva. Assignments were collected online on Google classroom created for the course specially. Certificates were issued according to the exam results.

<b>Theory</b>	<b>:</b>	<b>50 marks</b>
<b>Practical/Online Assignments</b>	<b>:</b>	<b>80 marks</b>
<b>Viva</b>	<b>:</b>	<b>20 marks</b>



**Rashtrasant Tukadoji Maharaj Nagpur University**

**BOARD OF LIFELONG LEARNING  
AND EXTENSION**

## **Certificate**

*Award this certificate to*

Shri/Smt./Ku. Arti Dashrath Bode *On satisfactory completion of the "Certificate Course in Plant Tissue Culture Techniques", Certificate Course under Jeevan Shikshan Abhiyan run by Department of Lifelong Learning and Extension in collaboration with Department of Botany, Nabira Mahavidyalaya, Katol, from 1<sup>st</sup> March 2021 to 30<sup>th</sup> June 2021.*

*He/She passed at the examination in Grade A+.*

**Dr B. B. Kalbande**  
Course Co-Ordinator

**Dr. S. K. Navin**  
Principal  
Nabira Mahavidyalaya Katol

**Director**  
Dept. of Lifelong Learning  
& Extension,  
R. T. M. Nagpur University



## NABIRA MAHAVIDYALAYA, KATOL


### Certificate Course In Plant Tissue Culture Techniques

*Course Code:* NMV-Course 1/2020-21 BOT

*Title:* Certificate Course In Plant Tissue Culture Techniques

### *Summary Report*

This was a hard year for all specially for academicians. 39 students took admission for this second batch. Due to lockdown all the classes were conducted online and practicals also demonstrated in online classes. Examination was also online. Students were happy with the teacher's efforts. All the students passed in flying colours and were very satisfied with the certificate course conducted.

  
Dr. B. B. Kalbande  
Asst. Prof. & Head  
Department of Botany,  
Nabira Mahavidyalaya, Katol.