

**PG AND RESEARCH DEPARTMENT OF BOTANY**  
**NALLAMUTHU GOUNDER MAHALINGAM COLLEGE**  
**POLLACHI - 642001**

7<sup>th</sup> Board of Studies Meeting in the PG and Research Department of Botany

Date & Time: 22 May 2021 & 10 .00 am

**Agenda**

|             |   |   |
|-------------|---|---|
| BoS / MB7.1 | : | Welcome address and Opening Remarks by Chairman, Board of studies in the PG and Research Department of Botany   |
| BoS / MB7.2 | : | Confirmation of the Minutes of the 6 <sup>th</sup> meeting of Board of studies in the PG and Research Department of Botany, 22-02-2020 and Action taken report of 6 <sup>th</sup> meeting of Board of studies |
| BoS / MB7.3 | : | 7.3.1 Syllabus of I M.Sc., Botany under Regulation 2021 -2023   |
|             | : | 7.3.2 Syllabus of II M.Sc., Botany under Regulation 2021 -2023  |
|             | : | Any other Discussions if any  |
| BoS / MB7.4 | : | Suggestion given by BOS Members   |
| BoS / MB7.5 | : | Any other items   |

NALLAMUTHU GOUNDER MAHALINGAM COLLEGE

POLLACHI

PG and Research Department of Botany

MINUTES OF BOS MEETING

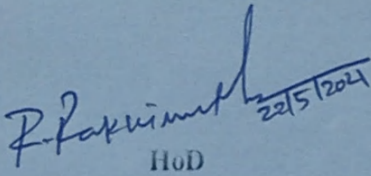
The 7<sup>th</sup> Meeting of the Board of studies of the PG and Research Department of Botany was held on 22<sup>th</sup> May 2021 at 10.00 a.m. on an online platform.

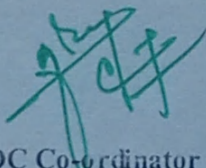
1. The following members were present:

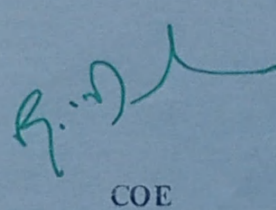
|   |  |                    |
|---|--|--------------------|
| 1 | Dr. R. Rakkimuthu<br>Assistant Professor and Head,<br>PG and Research Department of Botany<br>NGM College, Pollachi  | Chairman           |
| 2 | Dr. P. Sathish Kumar<br>Assistant Professor<br>PG and Research Department of Botany<br>NGM College, Pollachi.  | Internal Members   |
| 3 | Dr. A.M. Ananda Kumar<br>Assistant Professor<br>PG and Research Department of Botany<br>NGM College, Pollachi.   |                    |
| 4 | Mrs. D.Sowmiya<br>Assistant Professor<br>PG and Research Department of Botany<br>NGM College, Pollachi.  |                    |
| 5 | Dr. T. Parimelazhagan<br>Professor of Botany<br>School of Life Sciences<br>Bharathiar University, Coimbatore – 641 046   | University Nominee |
| 6 | Dr. R. Karthiyayini<br>Assistant Professor of Botany<br>School of Biosciences<br>Avinashilingam Institute for Home Science and<br>Higher Education for Women,<br>Coimbatore. | Subject expert     |
| 7 | Dr. V. Ramesh<br>Assistant Professor of Botany<br>Vivekananda College<br>Tiruvedakam West, Madurai,<br>Tamil Nadu -625214  | Academic auditor   |
| 8 | Dr. N. Loganayaki<br>Manager<br>Product innovation,<br>Ojas to Aura company Ltd. Muvattupuzha, Kerala  | Industrial Expert  |

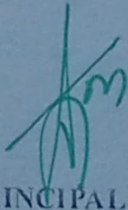


|    |  |   |
|----|--|---|
| 9  | Ms. M. Meenmbigai<br>Science Teacher<br>Adithya Vidhya Mandir Matric Higher Secondary<br>school,<br>Suleswarenpati, Pollachi | Alumnus nominated<br>by Principal / HoD |
| 10 | B. Mahalakshmi (19MB13)<br>PG and Research Department of Botany<br>Nallamuthu Gounder Mahalingam College, Pollachi           | Student Members                         |

  
HoD

  
CDC Co-ordinator  
**K. SRINIVASAN, M.C.A.,**  
Co-ordinator  
Curriculum Deveioption Cell (CDC)  
NGM College (Autonomous)  
Pollachi - 642 001.

  
COE

  
PRINCIPAL

**PRINCIPAL**  
**N. G. M. COLLEGE, POLLACHI**

**Dr. R. MANICKA CHEZIAN**  
Controller of Examinations  
NGM College (Autonomous)  
POLLACHI - 642 001.

**BoS/MB7.1 WELCOME ADDRESS AND OPENING REMARKS BY CHAIRMAN,  
BOARD OF STUDIES IN THE PG AND RESEARCH DEPARTMENT OF  
BOTANY**

The Chairman, BoS of the PG and Research Department of Botany welcomed and introduced the members of 7<sup>th</sup> Board of Studies and thanked each one of them for sparing their valuable time to attend the meeting.

**BoS/CS7.2 TO CONFIRM THE MINUTES OF 6<sup>th</sup> BOS MEETING HELD ON  
22.02.2020.** The minutes of the 6<sup>th</sup> Board of Studies meeting held on 22.02.2020 were communicated to the members. The comments received have been incorporated and placed for confirmation. The same was approved by the 6<sup>th</sup> Academic council.

~ Action Taken Report (Enclosed in Annexure 1)



## BoS/MB7.3

### BoS/MB7.3.1

I M.Sc., Botany I & II SEMESTER

- 21PBY101 - Plant Diversity I
- 21PBY104 -Laboratory course –I
- 21PBY1E1 -Ecology and Phytogeography
- 21PBY1E2-Economic Botany
- 21PBY 205- Plant anatomy and reproductive biology
- 21PBY 206- Plant physiology

The presented syllabus was accepted by the experts and a few suggestions were given as follows:

1. Plant Diversity I
  - Heterothallism topic was added in Unit III
  - Watson 1955 classification for Bryophytes was replaced with Proskauer 1957 classification in Unit V.
2. Core - 4 Laboratory course –I Micrometry was added in Microbiology part
3. Ecology and Phytogeography
  - The topic phytosociological studies was added in Unit II
4. Economic Botany elective paper
  - Banana, citrus, mango, jackfruit, potato, cassava and tomato were removed and Velvet bean, *Canavalia*, *Dioscorea*, *Litchi*, *Butter fruit*, *Dragon fruit*, *Elaeagnus* were added in unit II.
  - Sal was removed in unit IV.
  - Aconitum, jatamansi and neem were removed in unit V.
5. Plant anatomy and reproductive biology paper

- Rename the title accordingly, the topic Kranz's Anatomy was removed (since it was highly related with Physiology) and Pollen – stigma interaction was added in unit IV.

#### 6. Plant physiology

- The topics imbibition and Guttation were added in Unit I
- The topic cadmium and cellular signaling were replaced with calcium and protein signaling in Unit II
- Replacement of photorespiration after C3 cycle in Unit III

#### 7. Core – 8 Laboratory course –II

- Determination of Total Antioxidant activity by phosphomolybdenum reduction method and determination of Superoxide radical scavenging activity were added

The following papers from M.Sc., Botany were accepted by the experts fully without further suggestions

- 21PBY102 - Core – 2 Plant Diversity II
- 21PBY103 Core – 3 Applied Microbiology and Plant Pathology
- 21PBY207 Core – 7 Cytology, Genetics and Plant Breeding
- 1PBY2E4 - Elective 2-Horticulture and Landscaping
- 21PBY2E5 - Elective 2- IPR and Bioethics
- 21PBY2INT- Industrial Training / Internship

#### **New Course Added:**

The following papers from M.Sc., Botany were accepted by the experts fully without further suggestions

- **21PBY1E3- Elective 1-Seed technology**
- **21PBY2N1 Non- Major Elective 1Commercial Horticulture**
- **21PBY2E6- Elective 2-Organic forming**



### BoS/CS 7.3.2

II M.Sc., Botany III & IV SEMESTER

- 21PBY3E7 -Forestry and Wood science
- 21PBY4P1 Core - 16 Project Work and Viva –Voce

The presented syllabus was accepted by the experts and a few suggestions were given as follows:

1. Forestry and Wood science
  - The topic Seed dormancy was removed. Since the same topic was repeated in Plant physiology course.
2. Project Work and Viva –Voce
  - Project evaluation mark was changed as 100.

The following papers from M.Sc., Botany were accepted by the experts fully without further suggestions:

- 21PBY309 Core - 9 Taxonomy of Angiosperms
- 21PBY310 Core -10 Plant Biochemistry and Biophysics
- 21PBY311 Core -11 Plant Biotechnology and Nanobiology
- 21PBY3E8 Elective 3 Herbal Technology
- 21PBY413 Core - 13 Research Methodology
- 21PBY414 Core - 14 Bioinformatics and CyberSecurity
- 21PBY415 Core – 15 Laboratory course –IV

Research Methodology course was shifted to IV semester and Plant Biotechnology and Nanobiology course was shifted to III semester

### New Course Added:

The following papers from M.Sc., Botany were accepted by the experts fully without further suggestions

- 21PBY3E9 Elective 3 Pharmacognosy
- 21PBYFVI- Field / Industry / Institute visit

These changes have been made effect for the students admitted in 2021 with I Semesters accordingly.

#### BoS/CS7.4 SUGGESTIONS GIVEN BY THE BoS MEMBERS

- 7.4.1: Rewrite the Vision and mission in a better way
- 7.4.2: Make some corrections over Program educational objective
- 7.4.3: Use better sentence to start writing with POs and PSOs
- 7.4.4: Make some necessary changes in project guidelines
- 7.4.5: Add more points on course objective for all course
- 7.4.6: Include the period of internship and it may be permitted for the period of 7 – 15 days accordingly. The marks for internship were allotted as 25.
- 7.4.7: MOOC course was made compulsory
- 7.4.8: Specify the name of the phytochemical tests in Biochemistry practical
- 7.4.9: Give the no. of text books and reference books uniformly to all the subjects
- 7.4.10: Give the recent editions of textbooks and reference books as possible and available

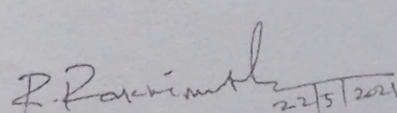
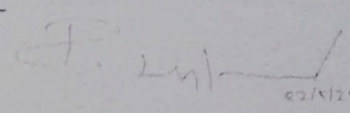
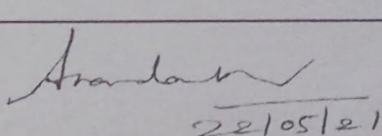
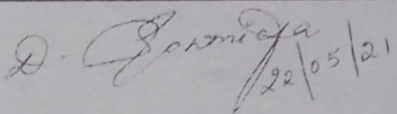
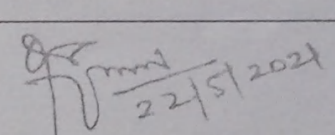
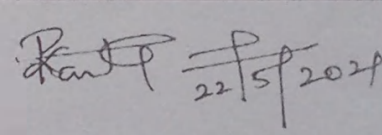
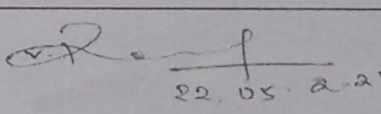
The members had a brainstorming discussion and interaction among themselves. After discussion, fruitful suggestions were incorporated appropriately in the Curriculum and Syllabi.

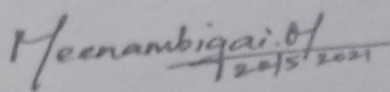
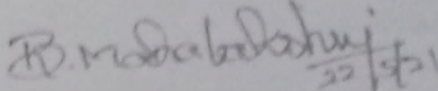
Based on the suggestions given by the members, BOS resolved to recommend the following to the Academic Council for further approval.

- a) The syllabus of First Year M.Sc., Botany under Regulation 2021.
- b) The syllabus of Second Year M.Sc., Botany under Regulation 2021
- c) Any other discussion



Members Present:

|   |   |
|---|---|
| <i>Chairman</i>   |   |
| Dr. R. Rakkimuthu<br>Assistant Professor and Head,<br>PG and Research Department of Botany<br>NGM College, Pollachi   | <br>22/5/2021   |
| <i>Internal Members</i>   |   |
| Dr. P. Sathish Kumar<br>Assistant Professor<br>PG and Research Department of Botany<br>NGM College, Pollachi.   | <br>22/5/21     |
| Dr. A.M. Ananda Kumar<br>Assistant Professor<br>PG and Research Department of Botany<br>NGM College, Pollachi.  | <br>22/05/21    |
| Mrs. D.Sowmiya<br>Assistant Professor<br>PG and Research Department of Botany<br>NGM College, Pollachi.   | <br>22/05/21   |
| <i>University Nominee</i>   |   |
| Dr. T. Parimelazhagan<br>Professor of Botany<br>School of Life Sciences<br>Bharathiar University,<br>Coimbatore - 641 046   | <br>22/5/2021 |
| <i>Subject expert</i>   |   |
| Dr. R. Karthiyayini<br>Assistant Professor of Botany<br>School of Biosciences<br>Avinashilingam Institute for Home Science<br>and Higher Education for Women,<br>Coimbatore | <br>22/5/2021 |
| <i>Academic auditor</i>   |   |
| Dr. V. Ramesh<br>Assistant Professor of Botany<br>Vivekananda College<br>Tiruvadakam West, Madurai,<br>Tamil Nadu -6252 14  | <br>22.05.21  |
| <i>Industrial expert</i>  |   |
| Dr. N. Loganayaki<br>Manager<br>Product innovation<br>Ojas to Aura company Ltd, Muvattupuzha,<br>Kerala.  | ABSENT  |

|   |  |
|---|--|
|   |  |
| <i>Alumni</i>   |  |
| Ms. M. Meenmbigai<br>Science Teacher<br>Adithya Vidhya Mandir Matric Higher<br>Secondary school,<br>Suleswarenatti , Pollachi |  |
| <i>Student Member</i>   |  |
| B. Mahalakshmi<br>II <sup>nd</sup> M.Sc., Botany<br>PG and Research Department of Botany.<br>NGM College, Pollachi            |  |

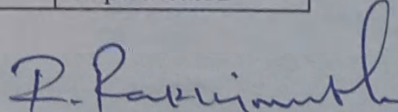


ANNEXURE I

Minutes of the 6<sup>th</sup> Meeting – Action Taken Report

| S.No | Suggestion given by expert members   | Action taken             |
|------|--|--------------------------|
| 1.   | Phycology, Mycology, Lichenology and Bryology was changed as Plant Diversity I   | Reviewed and Implemented |
| 2.   | Pteridophytes, Gymnosperms and Palaeobotany was changed as Plant Diversity II  | Implemented              |
| 3.   | Microbiology and Plant Pathology was changed as Applied Microbiology and Plant Pathology   | Implemented              |
| 4.   | Practical I, II, III, IV and V were changed as Laboratory course –I, II, III, IV and V   | Implemented              |
| 5.   | Anatomy and Embryology was changed as Plant Anatomy and Reproductive Biology   | Implemented              |
| 6.   | Plant systematics was changed as Taxonomy of Angiosperms   | Implemented              |
| 7.   | Horticulture was changed as Horticulture and landscaping   | Implemented              |
| 8.   | Forestry was changed as Forestry and Wood science  | Implemented              |
| 9.   | Molecular Biology and Plant Biotechnology was changed as Plant Biotechnology and Nanobiology   | Implemented              |
| 10.  | Plant ecology, tissue culture and Phytochemical techniques – for Advanced Learners (Extra credit course) has been incorporated in Semester III | Reviewed and Implemented |
| 11.  | Online comprehensive examination(Extra credit course) has been incorporated in Semester IV   | Reviewed and Implemented |
| 12.  | Two value added courses has been introduced for every semester<br>1. Medicinal plants for Human Welfare<br>2. Biological entrepreneurship      | Reviewed and Implemented |
| 13.  | Internship has been incorporated in Semester III   | Reviewed and Implemented |
| 14.  | The scheme, COs, methodology and evaluation pattern has been changed for final semester Project Viva -voce.                                    | Reviewed and Implemented |
| 15.  | <i>Phytophthora</i> and <i>Rhizopus</i> type study, fossil fungi,  | Reviewed and             |

|     |  |                          |
|-----|--|--------------------------|
|     | alternation of generations in the life-cycle of bryophytes, fossil bryophytes has been included and <i>Neurospora</i> and <i>Fusarium</i> has been removed in Plant diversity paper I  | Implemented              |
| 16. | Cordiales and taxales has been included in the unit III of the paper Plant diversity II and Unit V -Paleobotany has been entirely restructured   | Reviewed and Implemented |
| 17. | Isolation of microbes from industrial waste, concept of prebiotics and probiotics, biotechnology in relation to plant pathology and Agriculture terrorism has been included in the paper of Applied Microbiology and Plant Pathology   | Reviewed and Implemented |
| 18. | In Ecology and Phyto geography paper, subject experts suggested to incorporate few topics like types of ecosystem, cause for loss of biodiversity, theories of succession, Environment Act, Disaster management and application remote sensing in ecological studies, types of ecosystem, altitudinal and longitudinal variation in vegetation and also suggested to remove the topic like adaptation of plants. | Reviewed and Implemented |
| 19. | In Laboratory course I, <i>Ginkgo biloba</i> , fossils like Amber, Impression and Petrification has been incorporated.   | Reviewed and Implemented |
| 20. | Krant's anatomy has been included in the paper of Plant anatomy and Reproductive Biology   | Reviewed and Implemented |
| 21. | Radical scavenging activity has been included in plant physiology paper  | Reviewed and Implemented |
| 22. | Cytoplasm male sterility in plants and Double Haploid has been included in cytology, Genetics and Plant breeding paper   | Reviewed and Implemented |
| 23. | Removed Effect of varying concentrations of CO <sub>2</sub> on the rate of photosynthesis in Laboratory course II  | Reviewed and Implemented |
| 24. | Fruit and vegetable carving techniques has been included in Unit V of Horticulture and Landscaping paper   | Reviewed and Implemented |
| 25. | Plumbaginaceae, Orchidaceae family and Software's, mobile APPS for plant identification has been included in Unit IV and V of Taxonomy of Angiosperms respectively.  | Reviewed and Implemented |
| 26. | Scanning electron microscopy and Gas chromatography with mass spectrum has been included in Research methodology paper   | Reviewed and Implemented |
| 27. | Herbal technology paper Unit IV fully replaced   | Reviewed and Implemented |
| 28. | Silver Nanoparticle synthesis has been added in Plant biotechnology and Nanobiology paper  | Reviewed and Implemented |

  
 HoD 22/5/22



List of Courses having focus on local, national, regional and global developmental needs  
offered by the PG and Research Department of Botany

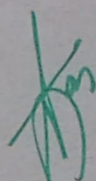
| PG and Research Department of Botany |  |       |          |          |        |  |
|--------------------------------------|--|-------|----------|----------|--------|--|
| Programme: M.Sc, Botany              |  |       |          |          |        | Year: 2021 -2023   |
| Course Code                          | Course Title                             | Need  |          |          |        | Rationale  |
|                                      |  | Local | National | Regional | Global |  |
| 21PBY101                             | Plant Diversity I                        | ✓     | ✓        | -        | -      | Utilizing the algae and fungi as food, medicine, fertilizer and algae as indicators of pollution.                        |
| 21PBY102                             | Plant Diversity II                       | ✓     | ✓        | -        | -      | Identifying the ecology and evolutionary significances of Pteridophytes and Gymnosperms in environmental sustainability. |
| 21PBY103                             | Applied Microbiology and Plant Pathology | ✓     | ✓        | ✓        | -      | Knowledge about microbes.<br>Knowledge about plant infectious microbes and their diagnostic methods                      |
| 21PBY1E1                             | Ecology and Phytogeography               | -     | -        | -        | ✓      | To understand the mechanism of environmental and biodiversity management   |
| 21PBY1E2                             | Economic Botany                          | ✓     | -        | -        | -      | To study the local herbs and their medicinal properties to treat diseases  |
| 21PBY1E3                             | Seed technology                          | ✓     | ✓        | -        | -      | Awareness on storage reserves in seeds, seed longevity and seed viability to quality yield of crops.                     |

|          |                                       |   |   |   |   |  |
|----------|---------------------------------------|---|---|---|---|--|
| 21PBYIN1 | Commercial Horticulture               | ✓ | - | - | - | To understand the principle and techniques of improving horticultural plants   |
| 21PBY207 | Cytology, Genetics and Plant Breeding | - | - | - | ✓ | To study genes and their mode of expression<br>Awareness on the conventional methods of plant breeding to producing new variety.   |
| 21PBY2E4 | Horticulture and Landscaping          | ✓ | - | - | - | To understand the principle and techniques of improving horticultural plants   |
| 21PBY2E5 | IPR and Bioethics                     | - | ✓ | - | - | Fundamentals of patenting, copyright and trademark   |
| 21PBY2E6 | Organic farming                       | ✓ | - | - | - | The preparation and application of organic manures locally   |
| 21PBY2N2 | Entrepreneurship Botany               | ✓ | ✓ | ✓ | ✓ | Production of various value added products from plants   |
| 21PBY309 | Taxonomy of Angiosperms               | ✓ | ✓ | - | - | To learn the method of identifying plants to arrive at local and national flora  |
| 21PBY310 | Plant Biochemistry and Biophysics     | - | - | - | ✓ | Knowledge in the synthesis of biomolecules and their role in metabolic pathways along with their regulation.   |
| 21PBY311 | Plant Biotechnology and Nanobiology   | - | - | - | ✓ | Demonstrates the role of transgenic plants and bionano particles in the fields of medicine, agriculture and environment.<br>To incubate the techniques of plant tissue culture, so that students can get placed in plant tissue culture industries |
| 21PBY312 | Laboratory course - III               | ✓ | ✓ | ✓ |   | Knowledge on the preparation of solutions, to carry out the experiments on biochemistry and plant tissue culture.  |



|          |                                   |   |   |   |   |   |
|----------|-----------------------------------|---|---|---|---|---|
| 21PBY3E8 | Herbal Technology                 | - | - | ✓ | - | To learn the medicinal value of plants and the students will study the medicinally used traditional herbs |
| 21PBY3E9 | Pharmacognosy                     | - | ✓ | - | - | To study the medicinal plants and their utilization in the preparation of herbal pharmaceuticals          |
| 21PBY3N3 | Economic Botany                   | ✓ | - | - | - | To study the local herbs and their medicinal properties to treat diseases                                 |
| 21PBY4I3 | Research Methodology              | - | - | - | ✓ | Scientific understanding of analytical techniques and detail interpretation of results.                   |
| 21PBY4I4 | Bioinformatics and Cyber Security | - | - | - | ✓ | Modern competences in the handling of bioinformatics tools.   |

*P. Rakhi Mishra*  
HoD 22/5/21

  
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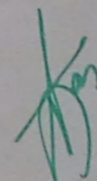
**List of Courses having focus on employability/ entrepreneurship/ skill development offered  
by the PG and Research Department of Botany**

| PG and Research Department of Botany |   |   |    |    |  |                      |
|--------------------------------------|---|---|----|----|--|----------------------|
| Programme: M.Sc., Botany             |   |   |    |    | Year: 2021-2023  |                      |
| Course Code                          | Course Title  | Employability (EM) / Entrepreneurship (EN) / Skill Development (SD) |    |    | Focus  | Year of Introduction |
|                                      |   | EM  | EN | SD |  |                      |
| 21PBY101                             | Plant Diversity I<br>(Phycology,<br>Mycology,<br>Lichenology and<br>Bryology) | -   | -  | ✓  | Understanding characters of lower diversity for cultivation sustainable growth of species          | 2015                 |
| 21PBY102                             | Plant Diversity II<br>(Pteridophytes,<br>Gymnosperms<br>and<br>Palaeobotany)  | -   | -  | ✓  | To be clear with evolutionary trends for better understanding of biodiversity                      | 2015                 |
| 21PBY103                             | Applied Microbiology and Plant Pathology                                      | ✓   | ✓  | ✓  | Etiology of the plant diseases and control measures. Job opportunities in microbiology lab         | 2019                 |
| 21PBY104                             | Core 4 Laboratory course  | ✓   | ✓  | ✓  | Cultivation practice of phytoplanktons, macroalgae, Microbes and morphological anatomical features | 2015                 |
| 21PBY1E1                             | Ecology and Phytogeography  | ✓   | ✓  | ✓  | The paper deals with distribution, energy transfer,  | 2017                 |



|          |                                   |   |   |   |   |   |
|----------|-----------------------------------|---|---|---|---|---|
| 21PBY3E8 | Herbal Technology                 | - | - | ✓ | - | To learn the medicinal value of plants and the students will study the medicinally used traditional herbs |
| 21PBY3E9 | Pharmacognosy                     | - | ✓ | - | - | To study the medicinal plants and their utilization in the preparation of herbal pharmaceuticals          |
| 21PBY3N3 | Economic Botany                   | ✓ | - | - | - | To study the local herbs and their medicinal properties to treat diseases                                 |
| 21PBY4I3 | Research Methodology              | - | - | - | ✓ | Scientific understanding of analytical techniques and detail interpretation of results.                   |
| 21PBY4I4 | Bioinformatics and Cyber Security | - | - | - | ✓ | Modern competences in the handling of bioinformatics tools.   |

*P. Lakshminath*  
HoD 22/5/21



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N. G. M. COLLEGE, POLLACHI

|          |  |   |   |   |   |      |
|----------|--|---|---|---|---|------|
|          |  |   |   |   | assessing the environment using plant communities, importance of plants towards ecological balance.   |      |
| 21PBY1E2 | Economic Botany                        | ✓ | ✓ | ✓ | Importance of various crops, mode of cultivation practice of various important crop species   | 2020 |
| 21PBY1E3 | Seed technology                        | ✓ | ✓ | ✓ | Seed characters and features, processing, storage and seed certification  | 2021 |
| 21PBYIN1 | Commercial Horticulture                | ✓ | ✓ | ✓ | Deals with some important crops mode of cultivation, maintenance harvesting and process on crops. They also provide idea over commercial products made of plant | 2021 |
| 21PBY205 | Plant Anatomy and Reproductive Biology | - | - | ✓ | Anatomical features of angiosperms their architecture, evolution and process of reproduction  | 2017 |
| 21PBY206 | Plant physiology                       | - | - | ✓ | Behaviour and response of plant on various stimuli internal   | 2015 |



|          |                                       |   |   |   |  |      |
|----------|---------------------------------------|---|---|---|--|------|
|          |                                       |   |   |   | and external plant level physiology  |      |
| 21PBY207 | Cytology, Genetics and Plant Breeding | ✓ | ✓ | ✓ | Mainly the course deals with cell features, crop improvement, process of production of new varieties with good qualities               | 2017 |
| 21PBY208 | Laboratory course-II                  | ✓ | ✓ | ✓ | The paper deals with anatomical features cytological details and genetical influence towards crop improvement                          | 2015 |
| 21PBY2E4 | Horticulture and Landscaping          | ✓ | ✓ | ✓ | Deals with economically important crops and landscaping methods  | 2020 |
| 21PBY2E5 | IPR and Bioethics                     | ✓ | ✓ | ✓ | The course deals with importance of IPR and its various features, traditional knowledge, legal issues regarding materials and products | 2020 |
| 21PBY2E6 | Organic farming                       | ✓ | ✓ | ✓ | The course focus on organic farming practices and methods to grow crops organically,   | 2021 |

|           |  |   |   |   |  |      |
|-----------|--|---|---|---|--|------|
|           |  |   |   |   | their beneficial effects on health   |      |
| 21PBY2N2  | Entrepreneurship<br>Botany                   | ✓ | ✓ | ✓ | The course focuses on botanical products having market value and converting the botanicals to value added products.  | 2020 |
| 21PBY2INT | Industrial Training /<br>Internship          | ✓ | - | ✓ | It involves industrial exposure methods, knowledge on prerequisite qualities for fetching jobs   | 2020 |
| 21PBY309  | Taxonomy of<br>Angiosperms                   | - | - | ✓ | To identify the plants perfectly using classical and recent methods. The main focus for the pharma industry where the identification of the plants is most important thing | 2015 |
| 21PBY310  | Plant<br>Biochemistry<br>and<br>Biophysics   |   |   | ✓ | The paper focuses on biochemical cycles and its kinetics, details on biochemical products and its importance   | 2015 |
| 21PBY311  | Plant<br>Biotechnology<br>and<br>Nanobiology | ✓ | ✓ | ✓ | The paper focus on applied aspects of biological science which gives wide  | 2015 |

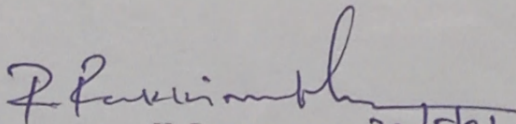


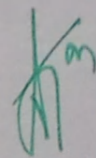
|           |                           |   |   |   |   |      |
|-----------|---------------------------|---|---|---|---|------|
|           |                           |   |   |   | knowledge on various tools used in the biological sciences and its applications in industry.  |      |
| 21PBY312  | Laboratory course - III   | ✓ | ✓ | ✓ | The paper deals with identification of plant specimens, plant components and estimation of various important plant components   | 2015 |
| 21PBY3E7  | Forestry and Wood science | ✓ | ✓ | ✓ | The course which deals with importance, types, silviculture, timber values, methods to conserve the forest, importance of value added products, laws and commercial forest products | 2020 |
| 21PBY3E8/ | Herbal Technology         | ✓ | ✓ | ✓ | The course focuses the importance of herbs and isolation of various drugs without disturbing the natural population. The course gives aspects on cultivation and propagation of     | 2020 |

|          |                                   |   |   |   |  |      |
|----------|-----------------------------------|---|---|---|--|------|
|          |                                   |   |   |   | drugs.   |      |
| 21PBY3E9 | Pharmacognosy                     | ✓ | ✓ | ✓ | The course deals with production of plant based quality drugs, adulteration for the welfare of human   | 2021 |
| 21PBY3N3 | Economic Botany                   | ✓ | ✓ | ✓ | Courses focuses on economically important species and its values both commercially and in day to day life  | 2019 |
| 21PBY413 | Research Methodology              | ✓ | - | ✓ | The course focus on statistical aspects, interpreting the data and analyzing the data while preparing thesis   | 2015 |
| 21PBY414 | Bioinformatics and Cyber Security | ✓ | - | ✓ | Students are being taught with basic computational biology tools and their applications. Hence, the students will enrich their ICT skill to suit themselves in the job market. | 2015 |
| 21PBY415 | Laboratory course -IV             | ✓ | ✓ | ✓ | The course deals with applied aspects on bioinformatics protein modeling using   | 2015 |



|          |                                    |   |   |   |  |      |
|----------|------------------------------------|---|---|---|--|------|
|          |                                    |   |   |   | drug online softwares  |      |
| 21PBYFVI | Field / Industry / Institute visit | ✓ | ✓ | ✓ | To visit reputed Institute / Industry. It will help for students career.                             | 2021 |
| 21PBY4P1 | Project Work and Viva - Voce       | - | - | ✓ | Students will choose the problem based the society needs and apply their skills to solve the problem | 2015 |

  
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Percentage of Revision of M.Sc., Botany Syllabus under Regulation 2021

Total Percentage of Revision=23%

PG and Research Department of Botany

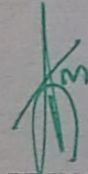
| S.No | Course Code | Course Title   | Change Details | % of Changes | Content Deleted   | Content Updated   | Reason for Change |
|------|-------------|--|----------------|--------------|---|---|-------------------|
| 1.   | 21PBY101    | Plant Diversity I<br>(Phycology,<br>Mycology,<br>Lichenology and<br>Bryology)        | Yes            | 10           | Watson 1955<br>classification in<br>Unit V.   | Heterothallism- Unit<br>III<br><br>Proskauer 1957<br>classification in Unit<br>V.   | Subject<br>Expert |
| 2.   | 21PBY102    | Core – 2Plant<br>Diversity II<br>(Pteridophytes,<br>Gymnosperms and<br>Palaeobotany) | No             | 0            | -   | -   | -                 |
| 3.   | 21PBY103    | Applied<br>Microbiology and<br>Plant Pathology                                       | No             | 0            | -   | -   | -                 |
| 4.   | 21PBY104    | Laboratory course I  | Yes            | 5            | -   | Micrometry  | Subject<br>Expert |
| 5.   | 21PBY1E1    | Ecology and<br>Phytogeography  | Yes            | 5            | -   | phytosociological<br>studies  | Course<br>Teacher |
| 6.   | 21PBY1E2    | Economic Botany  | Yes            | 20           | Banana, citrus,<br>mango, jackfruit,<br>potato, cassava<br>and tomato in unit<br>II.<br><br>Sal in unit IV.<br><br>Aconitum,<br>jatamansi and<br>neem in unit V | Velvet bean,<br>Canavalia, <i>Dioscorea</i> ,<br><i>Litchi</i> , <i>Butter fruit</i> ,<br><i>Dragon fruit</i> ,<br><i>Elaeagnus</i> in unit II. | Course<br>Teacher |
| 7.   | 21PBY1E3    | Seed technology  | New<br>course  | 100          | -   | -   | Course<br>Teacher |
| 8.   | 21PBY1N1    | Commercial<br>Horticulture   | New<br>course  | 100          | -   | -   | Course<br>Teacher |
| 9.   | 21PBY205    | Plant Anatomy and  | Yes            | 10           | Krant'z Anatomy   | Pollen – stigma   | Course            |



|     |           |                                       |            |     |   |  |                |
|-----|-----------|---------------------------------------|------------|-----|---|--|----------------|
|     |           | Reproductive Biology                  |            |     |   | interaction in unit IV   | Teacher        |
| 10. | 21PBY206  | Plant physiology                      | Yes        | 10  | cadmium and cellular signaling in Unit II | Inhibition and Guttation in Unit I<br>calcium and protein signaling in Unit II   | Course Teacher |
| 11. | 21PBY207  | Cytology, Genetics and Plant Breeding | No         | 0   | -   | -  | -              |
| 12. | 21PBY208  | Laboratory course-II                  | Yes        | 10  | -   | Total Antioxidant activity by phosphomolybdenum reduction method and Determination of Superoxide radical scavenging activity | Subject Expert |
| 13. | 21PBY2E4/ | Horticulture and Landscaping          | No         | 0   | -   | -  | -              |
| 14. | 21PBY2E5/ | IPR and Bioethics                     | No         | 0   | -   | -  | -              |
| 15. | 21PBY2E6  | Organic farming                       | New course | 100 | -   | -  | Course Teacher |
| 16. | 21PBY2N2  | Entrepreneurship Botany               | No         | 0   | -   | -  | -              |
| 17. | 21PBY2INT | Industrial Training / Internship      | No         | 0   | -   | -  | -              |
| 18. | 21PBY309  | Taxonomy of Angiosperms               | No         | 0   | -   | -  | -              |
| 19. | 21PBY310  | Plant Biochemistry and Biophysics     | No         | 0   | -   | -  | -              |
| 20. | 21PBY311  | Plant Biotechnology and Nanobiology   | No         | 0   | -   | -  | -              |
| 21. | 21PBY312  | Laboratory course - III               | Yes        | 20  | -   | Taxonomy of Angiosperms practicals   | Course Teacher |
| 22. | 21PBY3E7  | Forestry and Wood science             | Yes        | 5   | Seed dormancy                             | -  | Course Teacher |
| 23. | 21PBY3E8  | Herbal Technology                     | No         | 0   | -   | -  | -              |
| 24. | 21PBY3E9  | Pharmacognosy                         | New course | 100 | -   | -  | Course Teacher |
| 25. | 21PBY3N3  | Economic Botany                       | No         | 100 | -   | -  | Course Teacher |
| 26. | 21PBY4I3  | Research Methodology                  | No         | 0   | -   | -  | -              |
| 27. | 21PBY4I4  | Bioinformatics and Cyber Security     | No         | 0   | -   | -  | -              |
| 28. | 21PBY4I5  | Laboratory course - IV                | No         | 0   | -   | -  | -              |

|       |          |                                       |               |                   |   |   |                   |
|-------|----------|---------------------------------------|---------------|-------------------|---|---|-------------------|
| 29.   | 21PBYFVI | Field / Industry /<br>Institute visit | New<br>course | 100               | - | - | Course<br>Teacher |
| 30.   | 21PBY4P1 | Project Work and<br>Viva - Voce       | No            | 0                 | - | - | -                 |
| TOTAL |          |                                       |               | 695/3000<br>=23.1 |   |   |                   |

*P. Lakshminarayana*  
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