ATTENDANCE OF THE 21ST MEETING OF THE BOARD OF STUDIES OF THE BOTANY DEPARTMENT HELD ON 24 June, 2023

The 21st Meeting of the Board of Studies (BoS) of the Botany Department was held on 24 June, 2023 in which the following members were present:

1. Dr. A.E. Dulip Daniels (Head) - Chairperson
2. Dr. M. Reginald
3. Dr. J. Lohidas
4. Dr. J. Irene Wilsy
5. Dr. B. Christudhas Williams
6. Dr. S. Thambi Raj
7. Dr. S. Jeeva
8. Dr. C.P. Ben
9. Dr. V.P. Shamal
10. Dr. Avvai M.S. Vijaya
11. Dr. Lini, J.J.
12. Dr. T.S. Shynin Brintha
13. Dr. V. Manimekalai (VC Nominee)
14. Dr. M. Johnson (Subject Expert)
15. Dr. A. Saravana Ganthi (Subject Expert)
16. Dr. A. Anami Augustus Arul (Illustrious Alumnus)
17. Mr. M. Ashok Macrin (Industrialist)

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D. 5.10.23
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Department of Botany & Research Centre
Minutes of the Board of Studies held on 24 June, 2023

The 21st board of studies of the Department of Botany and Research Centre was held on 24 June, 2023, chaired by Dr. A.E. Dulip Daniels, the Head of the Department. The University nominee Dr. V. Manimekalai, subject experts Dr. M. Johnson and Dr. A. Saravana Ganthi, industrialist Dr. Ashok Macrin and the entire faculty were present. The meeting started at 10.00 am in the Department. Dr. Daniels welcomed the members and the meeting proceeded as per the agenda.

Eighty percent of the syllabi was revised which includes introduction of new papers and change of topics in the Units of existing papers. Detailed discussions were made on the syllabi and suggestions were made by the participants which are recorded below.

Minute No.	Minutes
1.	**Confirmation of the Minutes of the 20th BoS meeting held on 15.6.2022** Chairperson Dr. A.E. Dulip Daniels read the minutes of the 20th BoS meeting held on 15.6.2022 and the minutes were confirmed.
2.	**Action Taken Report on the Minutes of the 20th BoS meeting.** The members of BoS carefully perused the "Action Taken Report (ATR)" presented by the Chairperson Dr. A.E. Dulip Daniels and expressed their satisfaction and appreciation.
3.	**Review of Academic and Administrative Audit (AAA) Report 2020-21.** Chairperson Dr. A.E. Dulip Daniels presented the AAA report criteria-wise and the members of BoS carefully reviewed the AAA report and proposed the following suggestions for improvement. a) To publish at least one research paper a year in any of the UGC care journals in order to increase the research output. b) Collaborative research should be enhanced. c) Institutional financial support should be enhanced for research.
4.	**Review of Feedback Report on curriculum obtained from 1) Students 2) Teachers 3) Employers 4) Alumni.** Dr. A.E. Dulip Daniels presented the Feedback Report obtained from 1) Students 2) Teachers 3) Employers and 4) Alumni on the curriculum of B.Sc. and M.Sc. Botany in the academic year 2022-'23. The members of BoS carefully reviewed the Feedback Report received from the stake holders and proposed the following actions to be taken in the curriculum. a) To edit the syllabi wherever necessary if the students find it difficult to cope with. b) Parent-Teachers meeting should be organized at least once a Semester in order to keep the parent(s) informed on the student's progress c) Mentor-mentee meetings should also be organized at least once after every CIA test to council the students to improve their performances in CIA tests etc. d) If needed, remedial coaching classes should be arranged for slow learners and students with inadequate facilities at their residence. e) To organize classes to train interested students for competitive examinations.

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5.	**Introduction of new courses from the academic year 2023-'24.** Dr. A.E. Dulip Daniels proposed the introduction of the following NEW course(s) in the curriculum of B.Sc./M.Sc. Botany from the academic year 2023-'24. **1. Foundation Course with local/regional/national/global relevance**

Name of the Course	Course Code	Relevance to local, national, regional and global development needs
Basics of Botany	-	National

Suggestions and recommendations for changes in UG Botany syllabus 2023-24

Following are observations/suggestions/recommendations to be followed in Semester I:

S. No.	Semester	Name of the paper	Observations/Suggestions/recommendations	
1.	I	Core paper I - Algae	C2 To be modified as - To provide a basis for better understanding of the plant body. C3 To be modified as - To understand the reproductive biology of algae. C4 To be modified as - To learn mass production of algae. C5 To be modified as - To know the economic importance of algae Correspondingly the Cos were also modified. Unit I: General characters and distribution of algae have been added Unit III: *Chara* has been deleted Unit V: Title Algae as food and feed has been changed as Economic importance. Titles of relevant and available books are retained and similarly the web resources have also been reduced.	10% replaced 20% added 5% deleted
2.	I	Core paper II – Plant Diversity I: Algae Practical I	C4 – to be modified as: To study the economic importance of selected species of algae. Correspondingly the Co was also modified. The Title Experiments has been changed to Practicals. Under Practical 3. Freshwater has been added. Under Practical 5. Report to be recorded has been added.	50% replaced
3.	I	SEC I	To be modified as: C1 - To recognize the importance of growing plants (indoor and outdoor)	

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			C2 – To learn the methods of propagation. C3 - To study about the different types of gardens. C4 - To learn about the importance of plant growing structures. C5 - To understand the importance of organic and inorganic manures. Correspondingly the Cos were also modified. Titles of relevant and available books are retained and similarly the web resources have also been reduced.	No change
4.	I	Foundation Course	To be modified as: C1 - To learn the general concepts of biodiversity, two kingdom and five kingdom classification. C2 - To learn the structure of a cell and cell organelles. C3 - To understand the morphology of vegetative and reproductive parts of flowering plants. C4 - To understand the mechanism of absorption and loss of water in plants. C5 - Interpret the concept of heredity and laws of inheritance. Correspondingly the Cos were also modified. Plant Physiology to be shifted to fourth unit and Genetics from fourth to fifth. Titles of relevant and available books are retained and similarly the web resources have also been reduced.	New Course

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Suggestions and recommendations for changes in PG Botany syllabus 2023-24

Following are the observations/ suggestions/recommendations

S. No.	Semester	Name of the paper	Observations/suggestions/recommendations	% of content to be added/replaced
1.	I	Core paper I - Plant Diversity I	In Learning objective 4, microorganisms to be deleted. Unit: I Contributions of M.O.P. Iyengar to be added. Classification by de Silva to be deleted. Classes Chrysophyceae, Cryptophyceae, Dinophyceae, Chloromoadineae and Euglenophyceae to be deleted. Evolution of sex in algae to be deleted. Scytonema, Codeum and Gelidium to be deleted. Polysiphonia to be added. Unit: II Recent trends in the classification of fungi and sex hormones in fungi to be deleted. Phytophthora and Taphrina to be deleted. Unit: III Structure, reproduction and life history of *Usnea* to be added. Unit: IV Classification by Watson to be replaced by Rothmaler.Bryopsida, Anthocerotopsida and mosses to be replaced by Hepaticopsida, Anthoceropsida and Bryopsida. Funariales to be deleted. Vegetative and sexual, spore dispersal mechanisms, spore germination patterns in bryophytes to be deleted. *Lunularia* to be deleted. *Anthoceros* to be added. The Course Outcomes to be modified as follows: CO1 - Relate to the structural organizations of algae and compare the variations and life-cycle patterns in algae. CO2 - Demonstrate both the theoretical and practical knowledge in understanding the phylogeny and diversity of fungi and their importance. Co3 - Relate to the structural organizations of lichens and their uses.	50% replaced

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			CO4 - Compare and contrast structural variations of gametophytes and sporophytes in bryophytes. Titles of relevant and available books to be retained and similarly the web resources to be reduced.	
2.	I	Core Paper II – Plant Diversity II	Learning objectives to be modified as follows: 1. To study the classification, distribution, characteristic features, structure, reproduction and life history of the major types of Pteridophytes, their phylogeny and evolution and economic importance. 2. To study the structure, anatomy, reproduction and life-history of selected pteridophytes. 3. To study the classification, distribution, characteristic features, structure, reproduction and life history of the major types of Gymnosperms and their economic importance. 4. To study the structure, anatomy, reproduction and life-history of selected Gymnosperms. 5. To learn the process of fossilization, characteristic features of selected fossils of Pteridophytes and Gymnosperms. Unit: I Classification by Reimer to be replaced with Sporne. Range of structure of sporophytes to be added. Telome theory and morphogenesis to be deleted. *Equisetum, Angiopteris, Osmunda* and *Azolla* to be deleted. *Psilotum, Selaginella* and *Marsilea* to be added. Unit: IV *Thuja* and *Ephedra* to be deleted. Course Outcomes to be modified as follows: CO1 - Recall classification, recent trends in phylogenetic relationship, general characters of Pteridophytes. CO2 - Learn the morphological/anatomical organization, life-history of major types of Pteridophytes. CO3 - Learn the morphological/anatomical	30% replaced

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			organization, life-history of major types of Gymnosperms including economic importance. CO4 - Understanding the morphology and anatomy of selected Gymnosperms, CO5 - Awareness on fossil types, fossilization and fossil records of Pteridophytes and Gymnosperms. Titles of relevant and available books to be retained and similarly the web resources to be reduced.	
3.	I	Core Paper III – Laboratory Course I covering Plant Diversity I & II	Unit: I *Codeum* and *Gelidium* to be deleted, *Polysiphonia* to be added. To record the local algal flora–Study of their morphology and structure, identification of algae to species level (at least One), preparation of culture media and culture of green algae and blue green algae in the laboratory (Demonstration) to be deleted. Unit: II *Phytophthora* and *Taphrina* to be deleted. Isolation and identification of fungi from soil, air, and Baiting method. Preparation of culture media. Cultivation of mushroom in the laboratory (Demonstration) to be deleted. *Parmelia* to be replaced with *Usnea*. Unit: III *Lunularia* and *Polytrichum* to be deleted. *Riccia*, *Plagiochasma* and *Pogonatum* to be added. Unit: IV *Equisetum*, *Angiopteris, Osmunda* and *Azolla* to be deleted, *Selaginella* and *Marsilea* to be added. Fossil *Lepidodendron* to be added. Unit: V *Thuja* and *Ephedra* to be deleted. Course Outcomes to be modified as follows: CO1 - Recall and apply the basic keys to distinguish algae at genus level based on its structural organization. CO2 - Demonstrate practical skills in describing morphological and reproductive structures of fungi and lichens.	40% replaced

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			CO3 - Demonstrate practical skills in describing morphological and reproductive structures of Bryophytes. CO4 - Demonstrate practical skills in describing morphological and reproductive structures of Pteridophytes. CO5 - Demonstrate practical skills in describing morphological and reproductive structures of Gymnosperms. Titles of relevant and available books to be retained and similarly the web resources to be reduced.	
4.	I	Elective I (EG1) - Microbiology, Immun -ology and Plant Path -ology	Unit: I Types of micro-organisms, nutritional types, isolation and cultivation of bacteria and maintenance of bacterial culture to be deleted. Unit: II Classification and multiplication of Virus to be deleted. Animal virus to be deleted. Cultivation of viruses in embryonated egg and in plants, control of viral infections and classification of Mycoplasma to be deleted. Unit: III Food microbiology to be changed to Environmental microbiology. Beneficial role of microbes – yoghurt, Olives, Cheese, Bread, Wine, Tempeh, Miso & Fermented green tea. Spoilage of fruits, vegetables, meats, poultry, eggs, bakery products, dairy products and canned foods. Microbial toxins - Exotoxin, Endotoxin & Mycotoxin. Action of Enterotoxin, Cytotoxin& Neurotoxin. Food Preservation – temperature, drying, radiation and chemicals to be deleted. Water borne diseases - diphtheria, chicken pox. Air borne diseases - Swine flu and Measles. Microbial degradation of chemical pesticides and hydrocarbon to be deleted. Water quality and waste water treatment to be added. Unit: IV Maturation, NK cells. Introduction to inflammation, Adaptive immune system, Innate Immune system to be deleted. Unit: V History and significance of Plant pathology to	60% replaced

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			be deleted. Abiotic causes (Physiological, deficiency of nutrients & minerals and pollution).Mechanism of penetration- Disease development of pathogen (colonization) and dissemination of pathogens to be deleted. Red rust of tea; Cultural practices, disease controlled by immunization, Biocontrol - merits and demerits and Diagnostic technique to detect pest/pathogen infection - Immunofluorescence (IF) to be deleted.	
5.	I	Elective ED1 - Ethnobotany, Naturo- pathy and Traditional, Healthcare	Learning objectives to be modified as follows: 1. To be aware of the importance of the History of ethnobotany, its scope, concept and, sociological and anthropological aspects. 2. Understand the concept of ethnobotany and the life style and plants used by Indian tribals in their traditional practices. 3. Evaluate the various research techniques used to gather information on the knowledge of the tribal community. 4. To transform ethno botanical knowledge to health-care systems. 5. Use strategies to transform ethno botanical knowledge into goods with value additions. Unit: I Important landmarks in the development, a brief history of ethnobotany in the world and India to be modified as History of ethnobotany. Unit: II Plants used by Tribals of Tamil Nadu to be deleted. Unit: III Secondary data-official records, non-timber forest products (NTFP) and livelihood-sustainable harvest and value addition to be deleted. Unit: IV Indian Systems of medicine (Ayurveda, Siddha, Allopathy, Homeopathy, Unani, Tibetan, Yoga and Naturopathy), Environmental Assessment, Health-care-applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being to be deleted.	60% replaced

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			Unit: V Bioprospecting and value addition to be changed to value addition. Bioprospecting of drug molecules derived from Indian Traditional Plants: methods for bioprospecting of natural resources to be deleted. Course Outcomes to be modified accordingly.	

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Members present

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3. Dr. J. Lohidas
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DEPARTMENT OF BOTANY & RESEARCH CENTRE
ACTION TAKEN REPORT OF THE MINUTES OF THE 21ST BOARD OF STUDIES HELD ON 24 JUNE, 2023

The 21st meeting of the board of studies of the Department of Botany and Research Centre was held on 24 June, 2023, chaired by Dr. A.E. Dulip Daniels, the Head of the Department. The University nominee Dr. V. Manimekalai, subject experts Dr. M. Johnson and Dr. A. Saravana Ganthi, industrialist Dr. Ashok Macrin and the entire faculty were present. The meeting started at 10.00 am in the Department. Dr. Daniels welcomed the members and the meeting proceeded as per the agenda. The minutes of the previous Board of Studies meeting was read and passed. Subsequently, the action taken report was also analysed and ratified. Review of the Academic and Administrative Audit (AAA) Report 2020-2021 was made and the faculty was encouraged to publish at least one research paper a year in any of the UGC care journals so that the research area is strengthened.

Eighty percent of the syllabi for the first Semester was revised which includes introduction of new papers and change of topics in the Units of existing papers. Detailed discussions were made on the syllabi and suggestions were made by the participants which are recorded below.

Suggestions and recommendations for changes in UG Botany syllabus 2023-24

Following are observations/suggestions/recommendations to be followed in the first semester

S. No.	Sem-ester	Name of the paper	Observations/Suggestions/recommendations	% of content to be added/replaced
1.	I	Core paper I - Algae	C2 To be modified as - To provide a basis for better understanding of the plant body. C3 To be modified as - To understand the reproductive biology of algae. C4 To be modified as - To learn mass production of algae. C5 To be modified as - To know the economic importance of algae Correspondingly the Cos were also modified. Unit I: General characters and distribution of algae have been added Unit III: *Chara* has been deleted Unit V: Title Algae as food and feed has been changed as Economic importance. Titles of relevant and available books are retained and similarly the web resources have also been	10% replaced 20% added 5% deleted

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			reduced.	
2.	I	Core paper II – Plant Diversity I: Algae Practical I	C4 – to be modified as: To study the economic importance of selected species of algae. Correspondingly the Co was modified. The Title Experiments has been changed to Practicals. Under Practical 3. Freshwater has been added. Under Practical 5. Report to be recorded has been added.	50% replaced
3.	I	SEC I	To be modified as: C1 - To recognize the importance of growing plants (indoor and outdoor) C2 – To learn the methods of propagation. C3 - To study about the different types of gardens. C4 - To learn about the importance of plant growing structures. C5 - To understand the importance of organic and inorganic manures. Correspondingly the Cos were also modified. Titles of relevant and available books are retained and similarly the web resources have also been reduced.	No change
4.	I	Foundation Course	To be modified as: C1 - To learn the general concepts of biodiversity, two kingdom and five kingdom classification. C2 - To learn the structure of a cell and cell organelles. C3 - To understand the morphology of vegetative and reproductive parts of flowering plants. C4 - To understand the mechanism of absorption and loss of water in plants. C5 - Interpret the concept of heredity and laws of inheritance. Correspondingly the Cos were also modified. Plant Physiology to be shifted to fourth unit and Genetics from fourth to fifth. Titles of relevant and available books are retained and similarly the web resources have been reduced.	New course No change

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Suggestions and recommendations for changes in PG Botany syllabus 2023-24

Following are the observations/ suggestions/recommendations

S. No.	Semester	Name of the paper	Observations/suggestions/recommendations	% of content to be added/replaced
1.	I	Core paper I - Plant Diversity I	In Learning objective 4, microorganisms to be deleted. Unit: I Contributions of M.O.P. Iyengar to be added. Classification by de Silva has been deleted. Classes Chrysophyceae, Cryptophyceae, Dinophyceae, Chloromoadineae and Euglenophyceae to be deleted. Evolution of sex in algae has been deleted. *Scytonema, Codeum* and *Gelidium* has been deleted. Polysiphonia has been added. Unit: II Recent trends in the classification of fungi and sex hormones in fungi have been deleted. *Phytophthora* and *Taphrina* have been deleted. Unit: III Structure, reproduction and life history of *Usnea* have been added. Unit: IV Classification by Watson to be replaced by Rothmaler. Bryopsida, Anthocerotopsida and mosses have been replaced by Hepaticopsida, Anthoceropsida and Bryopsida. Funariales have been deleted. Vegetative and sexual, spore dispersal mechanisms, spore germination patterns in bryophytes have been deleted. *Lunularia* has been deleted. *Anthoceros* has been added. The Course Outcomes to be modified as follows: CO1 - Relate to the structural organizations of algae and compare the variations and life-cycle patterns in algae. CO2 - Demonstrate both the theoretical and practical knowledge in understanding the phylogeny and diversity of fungi and their importance.	50% replaced

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			Co3 - Relate to the structural organizations of lichens and their uses. CO4 - Compare and contrast structural variations of gametophytes and sporophytes in bryophytes. Titles of relevant and available books have been retained and similarly the web resources have been reduced.	
2.	I	Core Paper II – Plant Diversity II	Learning objectives have been modified as follows: 1. To study the classification, distribution, characteristic features, structure, reproduction and life history of the major types of Pteridophytes, their phylogeny and evolution and economic importance. 2. To study the structure, anatomy, reproduction and life-history of selected pteridophytes. 3. To study the classification, distribution, characteristic features, structure, reproduction and life history of the major types of Gymnosperms and their economic importance. 4. To study the structure, anatomy, reproduction and life-history of selected Gymnosperms. 5. To learn the process of fossilization, characteristic features of selected fossils of Pteridophytes and Gymnosperms. Unit: I Classification by Reimer to be replaced with Sporne. Range of structure of sporophytes have been added. Telome theory and morphogenesis have been deleted. *Equisetum, Angiopteris, Osmunda* and *Azolla* have been deleted. *Psilotum, Selaginella* and *Marsilea* have been added. Unit: IV *Thuja* and *Ephedra* have been deleted. Course Outcomes have been modified as follows: CO1 - Recall classification, recent trends in phylogenetic relationship, general characters	30% replaced

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			of Pteridophytes. CO2 - Learn the morphological/anatomical organization, life-history of major types of Pteridophytes. CO3 - Learn the morphological/anatomical organization, life-history of major types of Gymnosperms including economic importance. CO4 - Understanding the morphology and anatomy of selected Gymnosperms. CO5 - Awareness on fossil types, fossilization and fossil records of Pteridophytes and Gymnosperms. Titles of relevant and available books have been retained and similarly the web resources have been reduced.	
3.	I	Core Paper III – Laboratory Course I covering Plant Diversity I & II	Unit: I *Codeum* and *Gelidium* have been deleted, *Polysiphonia* has been added. To record the local algal flora–Study of their morphology and structure, identification of algae to species level (at least One), preparation of culture media and culture of green algae and blue green algae in the laboratory (Demonstration) have been deleted. Unit: II *Phytophthora* and *Taphrina* have been deleted. Isolation and identification of fungi from soil, air, and Baiting method. Preparation of culture media. Cultivation of mushroom in the laboratory (Demonstration) have been deleted. *Parmelia* has been replaced with *Usnea*. Unit: III *Lunularia* and *Polytrichum* have been deleted. *Riccia*, *Plagiochasma* and *Pogonatum* have been added. Unit: IV *Equisetum*, *Angiopteris*, *Osmunda* and *Azolla* have been deleted, *Selaginella* and *Marsilea* have been added. Fossil *Lepidodendron* has been added. Unit: V *Thuja* and *Ephedra* have been deleted.	40% replaced

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			Course Outcomes have been modified as follows: CO1 - Recall and apply the basic keys to distinguish algae at genus level based on its structural organization. CO2 - Demonstrate practical skills in describing morphological and reproductive structures of fungi and lichens. CO3 - Demonstrate practical skills in describing morphological and reproductive structures of Bryophytes. CO4 - Demonstrate practical skills in describing morphological and reproductive structures of Pteridophytes. CO5 - Demonstrate practical skills in describing morphological and reproductive structures of Gymnosperms. Titles of relevant and available books have been retained and similarly the web resources have been reduced.	
4.	I	Elective 1 (EG1) - Microbiology, Immun -ology and Plant Path - ology	Unit: I Types of micro-organisms, nutritional types, isolation and cultivation of bacteria and maintenance of bacterial culture have been deleted. Unit: II Classification and multiplication of Virus have been deleted. Animal virus have been deleted. Cultivation of viruses in embryonated egg and in plants, control of viral infections and classification of Mycoplasma have been deleted. Unit: III Food microbiology has been changed to Environmental microbiology. Beneficial role of microbes – yoghurt, Olives, Cheese, Bread, Wine, Tempeh, Miso & Fermented green tea. Spoilage of fruits, vegetables, meats, poultry, eggs, bakery products, dairy products and canned foods. Microbial toxins - Exotoxin, Endotoxin & Mycotoxin. Action of Enterotoxin, Cytotoxin & Neurotoxin. Food Preservation – temperature, drying, radiation and chemicals have been deleted. Water borne diseases - diphtheria, chicken pox. Air borne diseases - Swine flu and	60% replaced

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			Measles. Microbial degradation of chemical pesticides and hydrocarbon have been deleted. Water quality and waste water treatment have been added. Unit: IV Maturation, NK cells. Introduction to inflammation, Adaptive immune system, Innate Immune system have been deleted. Unit: V History and significance of Plant pathology have been deleted. Abiotic causes (Physiological, deficiency of nutrients & minerals and pollution). Mechanism of penetration- Disease development of pathogen (colonization) and dissemination of pathogens have been deleted. Red rust of tea, Cultural practices, disease controlled by immunization, Biocontrol - merits and demerits and Diagnostic technique to detect pest/pathogen infection - Immunofluorescence (IF) have been deleted.	
5.	I	Elective ED1 - Ethnobotany, Naturo- pathy and Traditional, Healthcare	Learning objectives have been modified as follows: 1. To be aware of the importance of the History of ethnobotany, its scope, concept and, sociological and anthropological aspects. 2. Understand the concept of ethnobotany and the life style and plants used by Indian tribals in their traditional practices. 3. Evaluate the various research techniques used to gather information on the knowledge of the tribal community. 4. To transform ethno botanical knowledge to health-care systems. 5. Use strategies to transform ethno botanical knowledge into goods with value additions. Unit: I Important landmarks in the development, a brief history of ethnobotany in the world and India have been modified as History of ethnobotany. Unit: II Plants used by Tribals of Tamil Nadu have been deleted.	60% replaced

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			Unit: III Secondary data-official records, non-timber forest products (NTFP) and livelihood-sustainable harvest and value addition have been deleted. Unit: IV Indian Systems of medicine (Ayurveda, Siddha, Allopathy, Homeopathy, Unani, Tibetan, Yoga and Naturopathy), Environmental Assessment, Health-care-applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being have been deleted. Unit: V Bioprospecting and value addition have been changed to value addition. Bioprospecting of drug molecules derived from Indian Traditional Plants: methods for bioprospecting of natural resources have been deleted. Course Outcomes have been modified accordingly.	

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