CENTRAL UNIVERSITY OF KERALA
केरल केन्द्रीय विश्वविद्यालय

Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in>

Requesting the approval of the revised M.Sc Botany syllabus of CUK plant Science-reg.

7 messages

Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in> Thu, Feb 18, 2021 at 1:07 PM
To: profkrchandrashekar@gmail.com
Cc: Parimelazhagan Thangaraj <drparimel@gmail.com>, Janardhana GR <grjbelur@gmail.com>, Sivaram V <sivaram900@gmail.com>, "Dr Dennis Thuruthiyil T." <den_thuruthiyil@cukerala.ac.in>, Ramachandran Kotharambath <ram@cukerala.ac.in>, Ginny Antony <ginnyantony@cukerala.ac.in>

Dear Sir/Madam

Greetings from Dept of Plant science, Central University of Kerala.

I am thankful to all the members for your continuous support and contribution for the successful conduct of BOS meeting held online on **12th Feb 2021.**
Here I attached the M.Sc Botany revised syllabus by incorporating the suggestions of the experts in the following points.

1) Revision carried out by incorporating the Programme objectives and outcome and all courses objectives and outcome.

2) Revision carried out by incorporating a list of practicals for newly introduced two skill based elective courses listed at the end as

i. BTY 5007 Hands on training on Plant metabolites and Drug discovery
ii. BTY 5008 Organic Farming

3) List of suggested 14 MOOCs for choice for elective courses

As our Academic council meeting is scheduled on 23-02-2021, I request all the experts to approve the attached syllabus through by mail on or before 21-02-2021.

Thanks once again.

Regards

Dr.K.Arunkumar, Ph.D
Professor & Head
Department of Plant Science
School of Biological Sciences
Central University of Kerala
Periye-671 320
Kasaragod,Kerala, India
Mobile: 91-9865051016
http://www.cukerala.ac.in/index.php?option=com_content&view=article&id=601&Itemid=410&lang=en

2 attachments

MOOC list .docx
18K

Syllabus M.Sc PLS -2020-21-GA.docx
222K

Ramachandran Kotharambath <ram@cukerala.ac.in> Thu, Feb 18, 2021 at 1:24 PM
To: Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in>
Cc: profkrchandrashekar@gmail.com, Parimelazhagan Thangaraj <drparimel@gmail.com>, Janardhana GR <grjbelur@gmail.com>, Sivaram V <sivaram900@gmail.com>, "Dr Dennis Thuruthiyil T." <den_thuruthiyil@cukerala.ac.in>, Ginny Antony <ginnyantony@cukerala.ac.in>

Dear Sir

I approve the syllabus.

Sincerely
Ram

[Quoted text hidden]
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Ramachandran Kotharambath | Assistant Professor | Department of Animal Science | Central University of Kerala | Tejaswini Hills, Periya | Kasaragod, Kerala | India

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Sivaram V <sivaram900@gmail.com> Thu, Feb 18, 2021 at 1:31 PM
To: Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in>
Cc: profkrchandrashekar@gmail.com, Parimelazhagan Thangaraj <drparimel@gmail.com>, Janardhana GR <grjbelur@gmail.com>, "Dr Dennis Thuruthiyil T." <den_thuruthiyil@cukerala.ac.in>, Ramachandran Kotharambath <ram@cukerala.ac.in>, Ginny Antony <ginnyantony@cukerala.ac.in>

Dear Dr Arun Kumar

I am herewith accepting the M Sc Botany Syllabus of CKU.

regards,

Sivaram
[Quoted text hidden]

Chandrashekar K R <profkrchandrashekar@gmail.com> Thu, Feb 18, 2021 at 2:00 PM
To: Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in>

Dear Dr Arun Kumar,
The M. Sc. Syllabus of Plant Science of CUK is here by approved.
Chandrashekar K R

On Thu, 18 Feb 2021, 12:54 pm Arun Kumar K Faculty Plant Science, <arunkumark@cukerala.ac.in> wrote:
[Quoted text hidden]

Ginny Antony <ginnyantony@cukerala.ac.in> Fri, Feb 19, 2021 at 3:57 AM
To: Sivaram V <sivaram900@gmail.com>
Cc: Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in>, profkrchandrashekar@gmail.com, Parimelazhagan Thangaraj <drparimel@gmail.com>, Janardhana GR <grjbelur@gmail.com>, "Dr Dennis Thuruthiyil T." <den_thuruthiyil@cukerala.ac.in>, Ramachandran Kotharambath <ram@cukerala.ac.in>

Syllabus approved. Thank You for the efforts from all.
[Quoted text hidden]

Dr Dennis Thuruthiyil T. <den_thuruthiyil@cukerala.ac.in> Thu, Feb 18, 2021 at 3:34 PM
To: Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in>

Syllabus approved.
Dennis
[Quoted text hidden]

Parimelazhagan Thangaraj <drparimel@gmail.com> Thu, Feb 18, 2021 at 4:22 PM
To: Ginny Antony <ginnyantony@cukerala.ac.in>
Cc: Sivaram V <sivaram900@gmail.com>, Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in>, profkrchandrashekar@gmail.com, Janardhana GR <grjbelur@gmail.com>, "Dr Dennis Thuruthiyil T." <den_thuruthiyil@cukerala.ac.in>, Ramachandran Kotharambath <ram@cukerala.ac.in>

Dear Prof,

I am accepting and approving the syllabus.

Thank you

Parimel.

On Thu, Feb 18, 2021 at 3:27 PM Ginny Antony <ginnyantony@cukerala.ac.in> wrote:
[Quoted text hidden]

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Dr. Parimelazhagan Thangaraj, Ph.D.
Professor
Department of Botany
Bharathiar University
Coimbatore - 641046

Mobile: 8903001973
E-mail: drparimel@gmail.com; drparimel@buc.edu.in

பாரதியார் பல்கலைக்கழகம்
Bharathiar University
Re-accredited at the "A" Grade Level by NAAC
Coimbatore, Tamilnadu, INDIA.

BTY 5313	**METHODS IN PLANT BIOLOGY** (Credits4;Theory4hrs;Practical3 hrs)
AIM	This course aims to make the learners understand the important methods and innovative research used in plant biology and rules in scientific writing. The specific purpose of this course is to develop skill in carrying out their dissertation work and preparing their thesis.
Objectives	• To study the important methods applied in different research areas and their technological advances. • To expose graduate students to scientific writing and make them understand how the research findings can be documented and communicated in a scientific way.
Learning outcome	On the completion, the students will be able, ➢ To apply different methods for identifying the microbes, plants and their molecules ➢ To understand the statistical tools for analyzing the experimental data. ➢ To understand the research topic, research problem, review of literature, conducting experiments, analyzing the data, reaching valid conclusions and communicating the outcome to scientific Journals.
	Theory
1.	**Microscopy**: Sectioning-Microtomy, Light microscope- Bright-field microscope,Dark-field,Phase-contrast,Differentialinterferencecontrast,Fluorescence, Laser dissection microscope, confocal microscopy

	Stereomicroscope,Transmissionandscanningelectronmicroscopy.
2	**Spectroscopy,** Principles and application: Beer and Lambert law, Colorimetryandspectrophotometry,FlamephotometryandAtomicabsorptionspectrophotometry; Infrared spectroscopy- FTIR, NIR; Raman Spectroscopy;NuclearMagneticResonance(NMR). Mass spectrometry**:** Basic principle and application; ESI-MS; MALDI-TOF;LC-MS;GC-MS; MS-MS
3	**Chromatography**, Principles and application: Paper chromatography, Thinlayerchromatography(TLC);Columnchromatography:gelfiltration,adsorption,partition,affinity,ionexchange;HPLC;HPTLC;Gas chromatography.
4	**Anatomicalandgeneralplantbiotechnologicalmethods:**Stainandstaining procedures, double staining, localization of pectin, suberin, phenolsetc.;Regenerationprotocolsemployingdirectandindirectorganogenesis/somaticembryogenesis;Centrifugation-Principlesand application:typesofcentrifuges;Tracertechniques;Bioreactors,Fermenter.
5	**FlowcytometryMethods:**PrinciplesofflowCytometry,NuclearDNAcontentmeasurement,FlowCytometryandPloidy:ApplicationsinPlantSystematics,EcologyandEvolutionaryBiology,GenomeSizeestimation, Analysisofendopolyploi**dy.**
6	**Structural biology and protein interactions:** Cryo electron microscopy, X-raycrystallography,ProteinNMR,andXrayscattering;yeasttwohybridassay,split proteinassays,co-immunoprecipitationandaffinitypurification. ProteinLocalization:Reportergenes,florescentproteintagging,immunostaining.
7	**Biostatistics:**Hypothesistesting(t-test,Chi-squaretest),Analysisofvariance(ANOVA)-Onewayandtwoway,correlation,regression.Introductionto variousstatisticalsoftwares.
8	**Scientificwriting:**Reviewofliterature;Contentwriting;preparingjournalmanuscripts;referencecitingandcopyrightissues;impactfactorandcitation index.
S.No	**Laboratory/Practicals**
1	Preparationofsamplesformicrotomesectioning
2	Preparationofsamplesformicrotomesectioning
3	Chromatographicseparationofbiomolecules(Proteins,oligosaccharides,neutralsugars etc.)
4	Chromatographicseparationofbiomolecules(Proteins,oligosaccharides,neutralsugars etc.)
5	Localizationoflignin/Phenols
6	Quantitativeestimationofproteinusingspectrophotometer
7	HPTLC:Separationofplantmetabolites/pigments
8	HPTLC:Separationofplantmetabolites/pigments
9	Autofluorescencedetectionofplantphenolics
10	Reviewwritingonselectedtopic

TextBooks:

1. StevenERuzin.1999.Plantmicrotechniqueandmicroscopy:OxfordUniversityPress
2. WalterF.1980.TheMicrotomeManualoftheTechniqueofPreparationandofSectionCutting. Germany;Ernst LeitzWetzlar GMBH
3. BanwellCN,McGraw-Hill:1966,Fundamentalsofmolecularspectroscopy:Vol1,Science

4. Snyder LR, KirklandJJ, DolanJW.2009.IntroductiontoModer nLiquidChromatography:ThirdEdition
5. Kirakosyan A,.Kaufman PB. 2009 Recent Advances in Plant Biotechnology:Springer,Boston,MA
6. ChawlaHS. 2009,IntroductiontoPlantbiotechnology,thirdedition,Science Publishers
7. HarrisRK,RoderickE.Wasylishen,DuerMJ.2009NMRCrystallography ,Wiley,,firstedition,
8. DanielM.Bollag,MichaelD.RozyckiandStuartJ.Edelstein,ProteinMeth odsby2ed.WileyPublishers
9. BaileyNTJ.1969.StatisticalMethodsinBiologyPublishedbyTheEnglish Universitiespress L
10. DolezelJ,GreilhuberJandSudaJ.2005.FlowCytometrywithPlantCells: AnalysisofGenes,Chromosomes and Genomes.Wiley-VCH Publishers
11. Latestresearcharticles/reviewarticlesrelevanttotherespectivetopicswill beprovidedtothestudents by theconcerned faculty