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
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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 5105	**CELL AND MOLECULAR BIOLOGY** (Credits4; Theory4hrs; Practical3 hrs)
Aim	To study about the organization of cell and the molecules of heredity and acquire skill in molecular techniques
Objectives	• To study about cell and its components • To underst and the metabolism of various nucleic acids • To understand how genes are expressed and regulated • To study the basic techniques involved in cell and molecular biology
Learning outcome	After the completion of this course, the learner will ➢ Understand structural components of cell and molecular basis for the transmission of hereditary traits ➢ Knowhow genes are expressed and regulated in organisms ➢ Will have the practical skills in basic cell and molecular biology techniques.
	Theory
1.	**Cell Biology:** Cell structure in eukaryotes and prokaryotes, cell organelles andtheir ultra-structure, functions, cytoskeleton, cytoplasmic streaming and celladhesion,Cellcommunication:junctionsbetweencellsandcellsignaling,Cell membranes:membranedynamicsandsolutetransportacrossmembranes.
2.	**Structuralorganizationofchromosomes:**Structuralorganizationof chromosomes in Prokaryotes and Eukaryotes. Structural hierarchy ofchromosomes.Centromeres and telomeres.
3.	**CellDivision:**CellcycleandRegulation.
4.	**Nucleic acids:** Structural organization of genetic material in Prokaryotes andEukaryotes.Structure, composition and function of DNA and RNA.Differenttypesof RNA- mRNA, tRNA, rRNA, snRNA, snoRNA, miRNA, XistRNA, siRNA,
5.	**Mechanism of DNA replication:** Mechanism of DNA replication, DNApolymeraseI,II,III,DNAgyrases,topoisomerases,ligases,initiationof replication,rolesofRNApolymerase(primase)andreplisomecomplex,current
	conceptofDNAreplicationinprokaryotesandeukaryotes.
6.	**Gene expression:** The genetic code, one gene one enzyme, one gene-onepolypeptide, Mutations and recombination within a gene, Experimentsconductedtodecipherthegeneticcode,salientfeatures,exceptio ns. **Transcription -** General features of transcription, transcription unit, Currentconcepts of transcription in prokaryotes and eukaryotes, Regulatory sequencesandtranscriptionfactorsinvolved,Post-transcriptionalmodifications. **Translation -** Basic structure of proteins, ribosomes, tRNA. Wobble-hypothesis, Mechanism of translation and factors involved in prokaryotes andeukaryotes,factorsaffectingtranslationaccuracy,non-ribosomalpeptide synthesis.

7.	**Regulation of gene expression:** Regulation in prokaryotes - Constitutive,InducibleandRepressibleexpression,positiveandnegativecontrol.In ductionand catabolite repression in *lac* operon, repression and attenuation in *trp*operon,Translational and posttranslational regulation. Lysogenicandlyticswitchesinlambdaphage. Regulation in Eukaryotes - Regulation at chromatin level, Epigenetic changes atchromosome level, genome imprinting, transcriptional gene regulation,epigenetic mechanisms of transcriptional gene regulation, regulation by *cis*-acting control elements, alternative promoters, trans-acting factors,transcriptionalactivatorproteins,enhancers,silencers,post-transcriptionalgene regulation including alternative splicing, RNA editing, RNA interference,Riboswitches,RNAstability,roleofRNA-decayingfactorsingeneregulation, translational regulation, post-translational control, protein processing,proteosomecomplex and proteindegradation.
S. No.	**Laboratory/Practical**
1.	Mediapreparationforplasmidisolation.
2.	Raising*E.coli*withaplasmid,bystreakingonantibiotic-containingmedia.
3.	Raising*E.coli*liquidcultureforplasmidisolation.
4.	PlasmidDNAisolationusing thealkalinelysismethod.
5.	Gel electrophoresis to see the isolated plasmid, study the DNA stainingprocedureandalternativeformsofplasmidobtainedafterextraction .
6.	MediapreparationforplantDNAisolation.
7.	PlantgenomicDNAisolationfromplanttissuesbyCTABmethod.
8.	Gelelectrophoresistoseetheisolatedplant DNA.
9.	PlantRNAisolation
10.	Gelelectrophoresistoseetheisolatedplant RNA.
11.	QuantificationofDNA/RNA
12.	Exercisesrelevanttotopicssuchas*lac*operon,*trp*operon,etc.

TextBooks:

1. WatsonJD,TaniaAB,StephenPB,AlexanderG,MichaelL,RichardL.2017.MolecularBiologyof theGene, 7th edition. PearsonEducation.
2. KrebsJE,GoldsteinES,KilpatrickST.2017.Lewin'sGENESXII.JonesandBartlettPublishers,Inc.
3. Lodish H, Berk A, Kaiser CA, Krieger M, Bretscher A. 2016. Molecular Cell Biology, 8th edition.WH Freeman & Co.
4. AlbertsB.2014.MolecularBiologyoftheCell,6thedition.GarlandScience.
5. HartlDL,CochraneB.2017.Genetics:AnalysisofGenesandGenomes9thedition.Jones&BartlettLearning.
6. GriffithsAJF,WesslerSR,CarrollSB,DoebleyJ.2015.IntroductiontoGeneticAnalysis,11thedition.W. H. Freeman & Worth Publishers.

7. GriffithsAJF,GelbartWM,LewontinRC,MillerJH.2002.ModernGeneticAnalysis :IntegratingGenes and Genomes2nd edition. W. H.Freeman.
8. StryerL,BergJM,TymoczkoJL,GattoGJJr.2019.Biochemistry9thedition.W.H.Freeman.
9. KarpG,IwasaJ,MarshallW.2015.Karp'sCellandMolecularBiology:Conceptsand Experiments,8th edition. Wiley.
10. RobertisDe.2010.CellandMolecularBiology,8thedition.LippincottWilliams&Wilkins.
11. KarpG.2013.CellBiology,7thedition.Wiley.
12. RussellPJ.2011.iGenetics:AMolecularApproach,3rdedition.Pearson.