

2020-2021

DBT STAR COLLEGE SCHEME ANNUAL PROGRESS REPORT

(with corrected financial documents as per the instruction of DBT)

Participating Departments – Botany, Chemistry,
Mathematics, Physics & Zoology

Submitted to



**DEPARTMENT OF BIOTECHNOLOGY
Ministry of Science and Technology
New Delhi – 110 003.**

Submitted by



**JAMAL MOHAMED COLLEGE
(Autonomous)**

College with Potential for Excellence
Accredited (3rd Cycle) with 'A' Grade by NAAC
DBT Star College Scheme & DST – FIST Funded
(Affiliated to Bharathidasan University)
Tiruchirappalli – 620 020, Tamil Nadu.

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Department of Biotechnology
Proforma for submission of Annual Progress Report supported under Star College Scheme

Part: A

1. **Name of the College** : **Jamal Mohamed College (Autonomous)**
2. **Name of Coordinator** : **Dr. A. Shajahan**
 Designation Associate Professor of Botany
 Address Jamal Mohamed College(Autonomous)
 Tiruchirappalli - 620 020, Tamil Nadu.
 Email: shajahan.jmc@gmail.com
 Phone No +91-94438 74731& +91-8637672433
3. **Assessment duration** : 01/04/2020 to 31/03/2021 Duration in years: 1stYear

4. Details of Departments Supported:

S. No	Name of Department	Courses offered (B.Sc, M.Sc PG Diploma certificate)	Regular Faculty members	
			Total=68	
			With Ph.D.	Without Ph.D.
1.	Botany	B.Sc., M.Sc., M.Phil, Ph.D, Diploma in Horticulture (Under UGC – NSQF Scheme)	11	-
2.	Chemistry	B.Sc., M.Sc., M.Phil, Ph.D,	17	
3.	Mathematics	B.Sc., M.Sc., M.Phil, Ph.D, Diploma in Insurance and Actuarial Science (Under UGC – NSQF Scheme)	10	2
4.	Physics	B.Sc., M.Sc., M.Phil, Ph.D,	10	5
5.	Zoology	B.Sc., M.Sc., M.Phil, Ph.D, Diploma in Aqua Culture (Under UGC – NSQF Scheme)	11	2

5. Number & Date of Advisory committee meeting:

S.No	Nature	Date	Participants
1.	Internal Advisory committee meeting (online mode)	07/10/2020	External Subject Experts, Principal, HOD's, Coordinators and Faculties from participating departments
2.	External Advisory committee meeting (online mode)	09/12/2020.	DBT programme officer, External Subject Experts, Principal, HOD's ,Coordinators and Faculties from participating departments

6. Qualitative improvements due to DBT support. Please highlight 5 salient features (within 500 words)

The financial support under the Scheme facilitates

- ❖ To strengthen the existing curriculum by introduction of new practical courses. We have purchased of multiple units of each equipment under the DBT grant, allotment of instruments to each student has become possible, permitting them to perform experiments independently in the laboratory sessions.
- ❖ The undergraduate students were offered interdisciplinary based learning through hands-on-experience workshops, guest lectures, group projects and internship programmes and a limited number of visits (due to lockdown during the pandemic last year) to the industries and institutions in the nearby region. All of these have enabled the students to learn the applications of basic knowledge and advanced research in their respective subjects and to pursue a career in interdisciplinary areas.
- ❖ The conduct of many outreach programmes, webinars for popularization of science among college and school students and virtual training programmes, webinars for college and school faculty for improving their skill sets in digital learning and teaching were useful. Further training programmes for laboratory staff were arranged with the aim of educating them to understand good healthy laboratory practices (GLP).
- ❖ To create awareness among the students of life sciences on DBT activities, they were advised and encouraged to take the Biotechnology Eligibility test -JRF which is conducted exclusively for Biology (Botany, Zoology, Microbiology and Biotechnology) students for pursuing their higher education and research in Biotechnology.
- ❖ Group projects for the students were introduced in their curriculum. A description of the salient features of selected group projects from each department is listed below.
 1. An Interdisciplinary DBT group project on “Photochemical properties of medicinal plants used for immunomodulatory activities were carried out by the Department of Botany in collaboration with the departments of Physics and Chemistry and Mathematics. The students learnt the medicinal knowledge of herbs and the scientific parameters for evaluation of their chemical and immunological properties. Besides, cultivation of mushroom by utilizing agriculture waste has been carried out by a group of students. This has created awareness among the students to start their own enterprise in mushroom cultivation in their regions.
 2. The group projects by the students of Chemistry were focused on socially relevant studies such as the quality of milk samples, chemical additives in packaged foods, foaming capacity of soaps, presence of pesticides in locally available fruits, vegetables and greens and tolerance levels of various chemicals in drugs. These projects have helped them to correlate their theoretical knowledge to socially relevant existential problems and to address them through scientific approaches.

3. A group project by the students of Mathematics titled “Balancing Chemical Equations” using Gauss Elimination method for simple and complex chemical reactions. Another group project on “Application of Matrices in the Analysis of Red Blood Cell production”, to explore the relevant issues of Red Blood Cells, its life cycle, creation and its related diseases.
4. The group projects by the students of the Physics were focused mainly on the utilization of solar energy. Consequently, the theoretical details and design of many home appliances such as solar cookers, heaters, inverters, distillers, pumps and driers were taken up. In addition, taking cognizance of the importance of HAM Radios in times of calamities, construction of HAM Transceivers was studied. Further studies on the physical properties of materials such as the dielectric constants of solids and liquids and refractive indices of liquids were also taken up.
5. A group project by the students of Zoology titled “Reutilization of Fish Waste (Flesh, bone and scales)” initiated them to the concept of liquid fertilizer realized from fish waste.

7. Any novel aspect introduced or planning to introduce during the scheme duration.

- ❖ The departments of Botany and Chemistry by making use of the grants under the DBT Star College Scheme, pooled their knowledge resources to prepare hand sanitizers as per WHO standards for use during COVID-19 pandemic. They distributed the in-house prepared hand sanitizers to the Police Department and the Revenue Departments of the Government of Tamil Nadu. Further the department of Mathematics organized social awareness programmes on the COVID-19 protocols to be followed by the public and distributed pamphlets highlighting the same. These initiatives taken under the DBT Scheme came in for much appreciation by the officials, scientific community and the general public.
- ❖ The nationwide lockdown during the COVID-19 pandemic last year necessitated a switch to digital platforms for teaching and learning. Conscious of the difficulties and the efforts that this entails, the departments supported by the DBT Scheme organized many online training programmes for both students and the faculty to adapt themselves to the demands of online education.
- ❖ When the offline classes on shift basis were arranged by the college during the lockdown, the departments supported by the DBT Scheme were quick to make use of the opportunity and conducted practical sessions to cover the current and newly added experiments (under DBT grant). Further to the extent permitted by the relaxations during this period, a limited number of industrial visits to nearby industries and field-based projects were also arranged.

8. Lessons learnt/ difficulties faced/suggestions if any, in implementation of the program and utilization of DBT grant (Max 3 point within 300 words)

Lessons Learnt:

The DBT Star College Scheme has

- ❖ Created an awareness of the importance of practical sessions and hands-on experiments to bolster critical thinking among the student community. Students now carry out many of the newly introduced experiments individually. This has greatly expanded their knowledge, increased their self-confidence and interest in the subject.
- ❖ Strengthened to the realization of the importance of interdisciplinary and cross-disciplinary approaches in improving science education at the undergraduate level. As the students come to know the various theoretical tools and the practical methodologies of each subject, they learnt to appreciate the subject as well as to implement the ideas to their own fields of interest.
- ❖ Enriched cooperation and interaction among the staff and students cutting across disciplines because of the inclusion of group projects in the curriculum. Further they were motivated to look for research problems and ideas which are local to their areas and the need to address them through scientific study.
- ❖ Facilitated the adoption of online platforms for teaching and learning and make judicious use of the same.

Suggestions:

Taking the advantage of the online mode, many webinars on current topics of interest in the related disciplines by inviting specialists across the globe were arranged with minimal expenditure. DBT may encourage the conduct of online programs to reduce the expenditures and also utilizing the expertise of the expert across the globe.

9. Key performance indicators:

S. No	Indicator	Pre-support (2019-2020)				During/After Support(2020-2021)				Remarks
1	No. of students admitted	Department of Botany								DBT Star College Scheme supported departments are Govt. Aided Men's College Departments.
		Total = 44				Total = 44				
		M = 44				M = 44				
		SC	ST	OBC	G	SC	ST	OBC	G	
		9	-	-	35	9	-	-	35	
		Department of Chemistry								
		Total = 110				Total = 111				
		M = 110				M = 111				
		SC	ST	OBC	G	SC	ST	OBC	G	
		8	-	-	102	14	-	-	97	
		Department of Mathematics								
		Total = 73				Total = 73				
		M = 73				M = 73				
		SC	ST	OBC	G	SC	ST	OBC	G	
		7	-	-	66	9	-	-	64	
		Department of Physics								
		Total = 57				Total = 58				
M = 57				M = 58						
SC	ST	OBC	G	SC	ST	OBC	G			
1	-	-	56	4	-	-	54			
Department of Zoology										
Total = 43				Total = 43						
M = 43				M = 43						
SC	ST	OBC	G	SC	ST	OBC	G			
3	3	-	37	11	-	-	32			
2	No. of students passing out (%)Students Admitted/passing out (pass%)	Botany	:	96.43%	Awaiting Result for Final semester Examination.					
		Chemistry	:	98.92%						
		Mathematics	:	98.31%						
		Physics	:	100.00%						
		Zoology	:	97.06%						

S. No	Indicator	Pre-support (2019-2020)	During/After Support(2020-2021)	Remarks
3	Drop-out rates	Botany : 11%	14%	
		Chemistry : 5%	14%	
		Mathematics : 27%	0	
		Physics : 16%	8%	
		Zoology : 7%	9%	
4	No. of students Opting for M.Sc	Botany : 19	12	
		Chemistry : 46	51	
		Mathematics : 17	20	
		Physics : 19	17	
		Zoology : 12	11	
5	Average marks	Botany : 56%	57%	
		Chemistry : 65%	63%	
		Mathematics : 66%	66%	
		Physics : 65%	65%	
		Zoology : 61%	60%	
6	No. of hands-on experiments being conducted	Botany : 4	9	
		Chemistry : 5	8	
		Mathematics : -	5	
		Physics : -	3	
		Zoology : -	5	
7	No. of new Experiments introduced	Botany : -	10	For 2019 – 20, experiments were conducted as prescribed in the syllabus.
		Chemistry : -	3	
		Mathematics : -	16	
		Physics : -	7	
		Zoology : -	12	
8	Publications (Scopus indexed)/patents, if any.	Botany : 4	5	
		Chemistry : 5	8	
		Mathematics : 11	11	
		Physics : 6	6	
		Zoology : 10	11	

S. No	Indicator	Pre-support (2019-2020)	During/After Support(2020-2021)	Remarks
9	Training received by Faculty	Botany : 2	30	
		Chemistry : 6	32	
		Mathematics : 14	23	
		Physics : 0	34	
		Zoology : 1	25	
10	Exhibitions/seminars /training courses conducted	Botany : 1	7	
		Chemistry : 1	7	
		Mathematics : 3	10	
		Physics : 1	9	
		Zoology : 2	3	
11	Books/ Journals subscribed from grants	Botany : -	9	Books and Journals purchased from DBT grants only
		Chemistry : -	16	
		Mathematics : -	98	
		Physics : -	16	
		Zoology : -	25	
12	Outreach activities (Popular lectures)	Botany : -	4	
		Chemistry : -	2	
		Mathematics : -	4	
		Physics : -	4	
		Zoology : -	4	
13	Colleges mentored to apply for DBT Star College grants	Nil	Mentored to (i) Vivekanda college, Thiruvengadam, Madurai, & (ii) Marudhar Kesari Jain College for Women, Vaniyambadi, Tirupattur, for apply DBT Star college scheme.	
14	Invited lectures	Botany : 7	12	Webinars, offline and online training attended by faculty
		Chemistry : 2	3	
		Mathematics : 3	7	
		Physics : 5	9	
		Zoology : 4	5	

- Proofs (S.No. 6-14 not more than 5 pages, 1.5-line spacing 11 times roman font size) to be provided duly attested by Principal and Coordinator.

10. Self-evaluation:

Department	*Objective(as stated in proposal)	% achieved	Reasons for underachievement / If achieved, state in Quantitative metrics
Botany	To strengthen the existing curriculum, practical courses are enriched by introducing new application oriented practicals in the respective discipline.	100%	2
	To enhance the interdisciplinary skills that provides reservoirs of knowledge with maximum connectivity between the subjects.	100%	2
	To implementation of an interdisciplinary based learning experience in order to understand the application of Science and Technology and to select various carrier options in different scientific fields	100%	2
	To improve the faculty through Virtual learning process for efficient, effective and integrated interdisciplinary and applied aspects of respective subjects.	100%	2
	To improve technical support of laboratory staff for active participation in solving the problems in the related field and to improve laboratory conditions with the correct functioning of a management system in laboratory.	100%	2
Chemistry	To strengthen the existing curriculum, practical courses are enriched by introducing new application oriented practicals in the respective discipline.	100%	2
	To enhance the interdisciplinary skills that provides reservoirs of knowledge with maximum connectivity between the subjects.	100%	2
	To implementation of an interdisciplinary based learning experience in order to understand the application of Science and Technology and to select various carrier options in different scientific fields	100%	2
	To improve the faculty through Virtual learning process for efficient, effective and integrated interdisciplinary and applied aspects of respective subjects.	100%	2
	To improve technical support of laboratory staff for active participation in solving the problems in the related field and to improve laboratory conditions with the correct functioning of a management system in laboratory.	100%	2

Department	*Objective(as stated in proposal)	% achieved	Reasons for underachievement / If achieved, state in Quantitative metrics
Mathematics	To strengthen the existing curriculum, practical courses are enriched by introducing new application oriented practicals in the respective discipline.	100%	2
	To enhance the interdisciplinary skills that provides reservoirs of knowledge with maximum connectivity between the subjects.	100%	2
	To implementation of an interdisciplinary based learning experience in order to understand the application of Science and Technology and to select various carrier options in different scientific fields	100%	2
	To improve the faculty through Virtual learning process for efficient, effective and integrated interdisciplinary and applied aspects of respective subjects.	100%	2
	To improve technical support of laboratory staff for active participation in solving the problems in the related field and to improve laboratory conditions with the correct functioning of a management system in laboratory.	100%	2
Physics	To strengthen the existing curriculum, practical courses are enriched by introducing new application oriented practicals in the respective discipline.	100%	2
	To enhance the interdisciplinary skills that provides reservoirs of knowledge with maximum connectivity between the subjects.	100%	2
	To implementation of an interdisciplinary based learning experience in order to understand the application of Science and Technology and to select various carrier options in different scientific fields	100%	2
	To improve the faculty through Virtual learning process for efficient, effective and integrated interdisciplinary and applied aspects of respective subjects.	100%	2
	To improve technical support of laboratory staff for active participation in solving the problems in the related field and to improve laboratory conditions with the correct functioning of a management system in laboratory.	100%	2

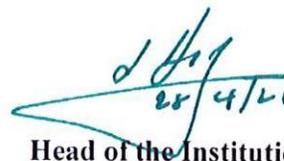
Department	*Objective(as stated in proposal)	% achieved	Reasons for underachievement / If achieved, state in Quantitative metrics
Zoology	To strengthen the existing curriculum, practical courses are enriched by introducing new application oriented practicals in the respective discipline.	100%	2
	To enhance the interdisciplinary skills that provides reservoirs of knowledge with maximum connectivity between the subjects.	100%	2
	To implementation of an interdisciplinary based learning experience in order to understand the application of Science and Technology and to select various carrier options in different scientific fields	100%	2
	To improve the faculty through Virtual learning process for efficient, effective and integrated interdisciplinary and applied aspects of respective subjects.	100%	2
	To improve technical support of laboratory staff for active participation in solving the problems in the related field and to improve laboratory conditions with the correct functioning of a management system in laboratory.	100%	2

* For quantitative analysis you may fix five objective (max) each having 2 marks and accordingly can calculate the matrix.



Course Coordinator
(With Seal)

Dr. A. SHAJAHAN, M.Sc., M.Phil., Ph.D.
Dean of Research and Consultancy
Coordinator of DBT Star College Scheme &
Associate Professor of Botany,
Jamal Mohamed College (Autonomous),
Tiruchirappalli - 620 020.



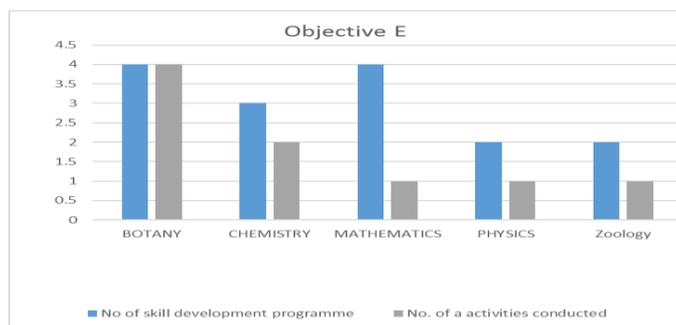
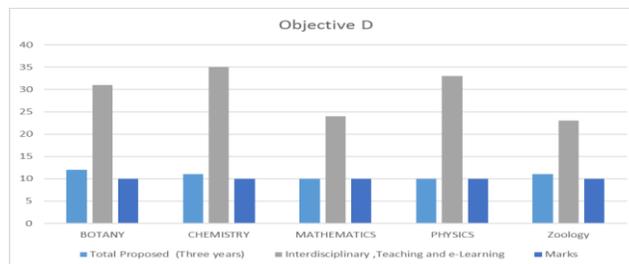
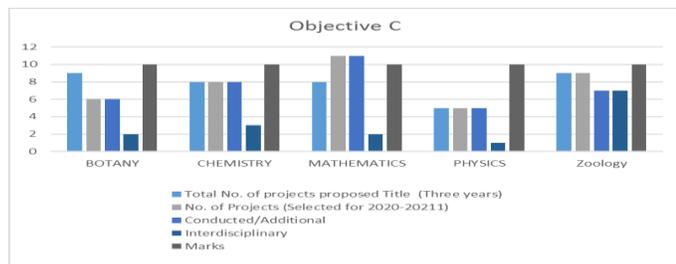
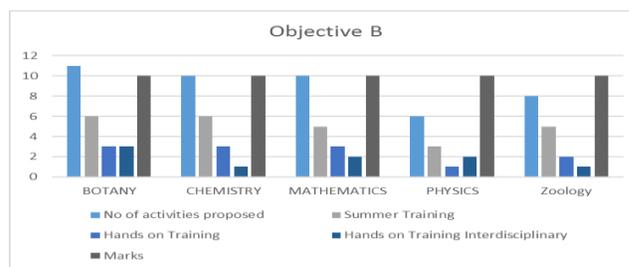
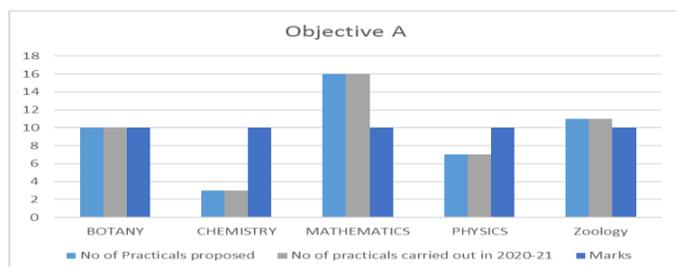
Head of the Institution
(With Seal)
Dr. S. ISMAIL MOHIDEEN
Principal

Jamal Mohamed College
Tiruchirappalli-620 020

Enclosure – 1 : Self evaluation parameters for the year 2020-2021

Objectives stated in DBT Star College Scheme Proposal

- A. To strengthen the existing curriculum, practical courses are enriched by introducing new application oriented practicals in the respective discipline.
- B. To enhance the interdisciplinary skills that provides reservoirs of knowledge with maximum connectivity between the subjects.
- C. To implementation of an interdisciplinary based learning experience in order to understand the application of Science and Technology and to select various carrier options in different scientific fields
- D. To improve the faculty through Virtual learning process for efficient, effective and integrated interdisciplinary and applied aspects of respective subjects.
- E. To improve technical support of laboratory staff for active participation in solving the problems in the related field and to improve laboratory conditions with the correct functioning of a management system in laboratory.



2. Specific objectives (not more than one page)

- ❖ To strengthen the existing curriculum, practical courses are enriched by introducing new application oriented practicals in the respective discipline.
- ❖ To enhance the interdisciplinary skills that provides reservoirs of knowledge with maximum connectivity between the subjects.
- ❖ To implementation of an interdisciplinary based learning experience in order to understand the application of Science and Technology and to select various carrier options in different scientific fields.
- ❖ To improve the faculty through Virtual learning process for efficient, effective and integrated interdisciplinary and applied aspects of respective subjects.
- ❖ To improve technical support of laboratory staff for active participation in solving the problems in the related field and to improve laboratory conditions with the correct functioning of a management system in laboratory.
- ❖ To impart advanced knowledge to the teachers of Government schools of rural area in their discipline to manage the academic and societal issues for the betterment of the region.

3. Measures to be adopted to enhance bench skills of students, project work, summer training & industrial training (department wise); No. of beneficiaries in each.

Group Projects

5th Semester of UG programme, students will be grouped (4-5 students) and given a project on applied aspects of respective UG discipline. Through these project students are encouraged to become active and developing team work, communication and decision making and generated novel issues with pertaining to their project work. The project work will be coordinated by a faculty member and report will be analysed and submitted by group members.

(Signature)
 Dr. A. SHAJAHAN, M.Sc., M.Phil., Ph.D.
 Dean of Research and Consultancy
 Coordinator of DBT Star College Scheme &
 Associate Professor of Botany,
 Jamal Mohamed College (Autonomous),
 Tiruchirappalli - 620 020.

(Signature)
PRINCIPAL
 JAMAL MOHAMED COLLEGE (AUTONOMOUS)
 TIRUCHIRAPPALLI-620 020.

(Signature)
Dr. A. SHAJAHAN, M.Sc., M.Phil., Ph.D.
 Dean of Research and Consultancy
 Coordinator of DBT Star College Scheme &
 Associate Professor of Botany,
 Jamal Mohamed College (Autonomous),
 Tiruchirappalli - 620 020.

(Signature)
Dr. S. ISMAIL MOHIDEEN
 Principal
 Jamal Mohamed College
 Tiruchirappalli-620 020

Part-B

Proofs for Key Performance Indicator

Enclosure – 2 : 9.6. Hands on experiments being conducted

(i) Department of Botany

- 1. Plant Genomic DNA Isolation, PCR Amplification and Agarose Gel Electrophoresis. (Online Mode)**
Conducted by Dr. N. Ahamed Sherif, Assistant Professor of Botany, Jamal Mohamed College, Tiruchirappalli, on 08-06-2020&09-06-2020(Two Days), No. of Students benefited – 48.
- 2. Methods of Field Sample Collection Using Mobile GPS, (Online Mode),** Conducted by Dr. B. Balaguru, Assistant Professor of Botany, Jamal Mohamed College Tiruchirappalli, on 23-06-2020, No. of Students benefited – 26.
- 3. An overview of Poly-house, Green-house and Net-house & Cultivation and Commercialization of Flower and Vegetable Crops (Online Mode),** on 20-07-2020 to 23-07-2020(Four Days), Conducted by Mr. D. Bala Shiva Prasath, Shiva Shakthi Floristic & Exports, Hosur. No. of Students benefited -35.
- 4. Microalgal Biodiversity, Biomass Productions and Applications (Online Mode),** on 24-07-2020 to 25-07-2020 (Two Days), Conducted by Dr. N. Thajuddin, Professor, Department of Microbiology, Bharathidasan University, Tiruchirappalli, No. of Students benefited - 35.
- 5. Plants Collection, Processing and Herbarium Preparation, (Online Mode),** on 27-08-2020, Conducted by Dr. B. Balaguru, Assistant Professor of Botany, Jamal Mohamed College Tiruchirappalli. No. of Students benefited – 33.
- 6. Agarose Gel Electrophoresis Techniques (Online Mode),** on 25-08-2020, Conducted by Dr. K. Mohamed Rafi, Assistant Professor of Botany, Jamal Mohamed College, Tiruchirappalli, Training on Agarose gel electrophoresis. No. of Students benefited – 30
- 7. Interdisciplinary Training Programme on “Fundamental of R Software in Data Analysis” (Online Mode),** on 27-10-2020, Conducted by Dr. B. Balaguru, Assistant Professor of Botany, Jamal Mohamed College, Tiruchirappalli, No. of Students benefited – 19. (Interdisciplinary- Botany, Chemistry and Zoology)



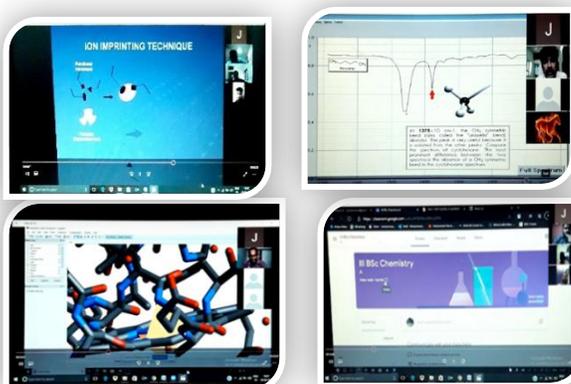
Dr. A. SHAJAHAN, M.Sc., M.Phil., Ph.D.
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8. **Virtual Lecture and Training Programme on “Plant Taxonomy: Current Challenges and Perspectives”** on 31-10-2020, Conducted by Dr. Ramasubbu Raju, Assistant Professor, Department of Biology, Gandhigram Rural Institute Gandhigram, Tamil Nadu, No. of Students benefited – 16.
9. **Automated plant species identification”,** on 02-11-2020, Conducted by Dr. D. Kandavel, Associate Professor, Department of Botany, Periyar EVR College, Tiruchirappalli, No. of Students benefited – 31.

(ii) Department of Chemistry

1. **Online Training Programme Methods of Expressing Concentration,** on 15-05-2020, Conducted by Dr. M. Syed Ali Padusha, Associate Professor, PG and Research Department of Chemistry, Jamal Mohamed College, Tiruchirappalli-20, No. of Students benefited – 56.
2. **Analytical Separation Techniques (Online Mode),** on 28-05-2020, Conducted by Dr. V. M. BIJU, Associate Professor, Department of Chemistry, National Institute of Technology, Tiruchirappalli, No. of Students benefited – 512, (Interdisciplinary- Botany, Chemistry and Zoology)
3. **Live Session on Soil nutrients - Its need and Importance. (Online Mode),** Conducted by Mr. C. Elangovan, Regional Sales Manager, Cropex Private limited, Bangalore, on 22-06-2020 (One Day) No. of Students benefited – 35,
4. **A Virtual internship programme on Principle and Instrumentation of IR spectroscopy.** on 24-06-2020 to 26-06-2020 (Three Days), Conducted by Dr. P. Kalimuthu, Assistant Professor, Department of Chemistry, Gandhigram Rural Institute- Deemed to be University, Dindigul. No. of Students benefited – 74,
5. **A Virtual internship programme on the applications of Avagadro software,** Conducted by Dr. M. Arunachalam, Assistant Professor, Department of Chemistry, Gandhigram Rural Institute- Deemed to be University, Dindigul. No. of Students benefited – 62,
6. **A Virtual internship programme on the applications of Chemdraw software,** conducted by Dr. M. Seenivasa PerumaL, Assistant Professor, Department of Chemistry, Gandhigram Rural Institute- Deemed to be University, Dindigul. No. of Students benefited – 68,



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Dr. S. ISMAIL MOHIDEEN
Principal
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Tiruchirappalli-620 020

7. **A Virtual internship programme on Principle and Instrumentation of UV Visible spectroscopy**, conducted by Dr. P. Kalimuthu, Assistant Professor, Department of Chemistry, Gandhigram Rural Institute- Deemed to be University, Dindigul. No. of Students benefited – 72.
8. **An Online Training Programme on Water Treatment Using Polymer Based Materials**, conducted by Dr. N. Viswanathan, Assistant Professor, Department of Chemistry, University College of Engineering, Anna University, Dindigul on 25-07-2020 (One Day), No. of Students benefited – 39

(iii) Department of Mathematics

1. **SPSS (Offline Mode)**, conducted by Dr. M. Balasubramanian, Assistant Professor of Statistics, Periyar E.V.R College, Tiruchirappalli, on 17-02-2021 & 18-02-2021 (Two Days) No. of Students benefited – 44.
2. **Basic Mathematics (Offline Mode)**, conducted by Dr. A. Prasanna, Assistant Professor of Mathematics, Jamal Mohamed College (Autonomous), Tiruchirappalli, on 02-02-2021 to 11-02-2021 (Ten Days), No. of Students benefited – 23.
3. **Hands on Training Programme on R (Online Mode)**, conducted by Dr. B. Balaguru, Assistant Professor of Botany, Jamal Mohamed College, Tiruchirappalli, on 11-07-2020 to 12-07-2020 (Two Days), No. of Students benefited – 65,
4. **Hands on Training Programme on Maple Software (Offline Mode)**, conducted by Mr. Mohamed Aslam Ameer Hamja, Data Science Enthusiast, Mindcube, Bangalore & Dr. S. Mohamed Yusuff Ansari, Assistant Professor of Mathematics, Jamal Mohamed College, Tiruchirappalli, on 11-01-2021, No. of Students benefited – 42.



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5. **Hands on Training Programme on Mathematica Software (Offline Mode)**, conducted by Mr. Mohamed Aslam Ameer Hamja, Data Science Enthusiast, Mindcube, Bangalore & Dr. A. Mohamed Ismayil, Assistant Professor of Mathematics, Jamal Mohamed College, Tiruchirappalli, on 12-01-2021, No. of Students benefited – 33.

(iv) Department of Physics

1. **An Interdisciplinary Programme on Origami and Wealth from Waste (Offline Mode)**, conducted by Ms. T. Santhi, State Coordinator, Arogya Iyyakkam, on 04-03-2020 (One Day), No. of Students benefited – 33.

(Interdisciplinary- Botany, Chemistry, Physics and Zoology)



2. **Remote Sensing and GIS Data Analysis (Online Mode)**, conducted by Dr. B. Balaguru, Assistant Professor of Botany, Jamal Mohamed College, Tiruchirappalli, on 20-07-2020 to 24-07-2020 (Five Days), No. of Students benefited – 224.

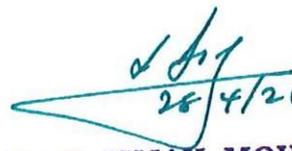
(Interdisciplinary- Botany, Chemistry, Physics and Zoology).



3. **A Hands on Training Programme on Servicing of Electronic Gadgets and Home Appliances (Offline Mode)**, conducted by Mr. T. Ramachandran, Guest Lecturer, Department of Physics, Periyar E.V.R College, Tiruchirappalli, on 06-01-2021 to 08-01-2021 (Three Days). (Interdisciplinary- Botany, Chemistry, Physics and Zoology)



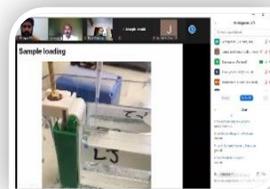
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(v) Department of Zoology

1. **Hands on Training on Microtechniques - Histological studies in Animal Cells(Online Mode)**, conducted by Dr. A. Sadiq Bukhari, Assistant Professor of Zoology, Jamal Mohamed College, Tiruchirappalli, on 08-07-2020 to 11-07-2020 (Four Days), No. of Students benefited – 55.
2. **Online Training On Electrophoresis**, conducted by Dr. S. Mohamed Hussain, Assistant Professor of Zoology, Jamal Mohamed College (Autonomous), Tiruchirappalli, on 09-07 -2020 (One Day), No. of Students benefited – 56.
3. **Online Training Programme on Student Projects in Life Sciences**, on **23-08-2020**, conducted by Dr. L. Rajasekaran, Assistant Professor of Physics, Arignar Anna Government Arts College, Cheyyar, No. of Students benefited – 44.
4. **Online Training Programme on Poultry Farm Management**, conducted by Dr. P. Sekar, Assistant Professor, Dept. of Zoology, Hans Rover College, Perambalur. on 29-10-2020, No. of Students benefited -41.
5. **Online Training Programme on Biostatistical application in Biological Science**, conducted by Dr. A. Balasundaram, Assistant Professor, Department of Zoology, Periyar E.V.R College (Autonomous), Tiruchirappalli, on 27-11-2020, No. of Students benefited – 35.



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Enclosure – 3 : 9.7. New Experiments Introduced

(i) Department of Botany

- 1. Cytology, Genetics and Evolution (IIIrd Semester):** 1. Study of polyploidy in onion root tips after treatment with colchicine.
- 2. Plant Molecular Biology (IVth Semester):** 2. Isolation of genomic DNA from plant cell using CTAB method (Group practical). 3. Quantification of DNA using Spectrophotometer (Group practical). 4. Separation of DNA using horizontal Agarose gel electrophoresis (Group practical).
- 3. Biochemistry, Biophysics, Plant Systematic (Vth Semester):** 5. Economic Botany and Plant Physiology, Preparation of buffer solutions at different molarities and to check their pH using pH meter. 6. Quantitative estimation of plant pigments using Spectrophotometer. 7. Separation and estimation of protein by vertical SDS-PAGE gel electrophoresis (Group practical).
- 4. Microbiology, Plant pathology, Plant Biotechnology, Plant ecology and Phytogeography (VIth Semester)**
8. Growth curve of bacteria by Turbid metric method. 9. Cultivation and sub-culturing of microbial cultures. (Group. practical) 10. Organogenesis of medicinal plant (Group practical).



(ii) Department of Chemistry

- 1. Gravimetric Estimation and Physical Constant Determination (Vth Semester):** 1. Synthesis of metal complexes and to study the geometry of the complexes.
- 2. Volumetric analysis (Ist Semester):** 2. Quantitative analysis by Photometric method.
- 3. Physical Chemistry -Non Electrical (VIth Semester):** 3. Determination of molecular weight of polymer by Ostwald Viscometer.

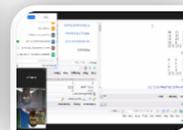
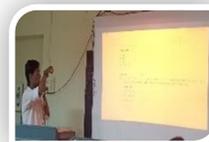


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(iii) Department of Mathematics

- Statistical Lab using R: R-Programming** (IIIrd Semester): 1. Creating Vectors, Matrices, Factors and plotting graphs, 2. Import data, 3. Working with variables and Data, 4. Logical statements, 5. Graphing with R, 6. Summary statistics: Mean, standard deviation, Chi-square test, t-Test & ANOVA.
- Maple and Mathematica** (Vth Semester): **Maple:** 7. Mathematical Constants, 8. Complex Numbers, 9. Arithmetic, Numerical, Elementary, Special Function, 10. Generalized and Number Theoretic Functions, 11. Statistical Distributions. **Mathematica:** 12. Linear Programming problems, 13. Eigen values and Eigen vectors of a matrix of order 4 X 4 or higher order, 14. Non-linear equations, 15. Differentiation and Integration, 16. System of ordinary differential equations.



(iv) Department of Physics

- Heat and optics** (IInd Semester): 1. Measurement of Dielectric Constant of solids and liquids using LCR meter.
- Thermal and electricity** (IIIrd Semester): 2. Measurement of the charge of an electron by Milikan's oil drop method. 3. Measurement of specific charge of an electron (e/m ratio) by Thomson's method. 4. Determination of magneto-resistance of semiconductors.
- Measurement and Calibration** (IVth Semester): 5. Measurement of wavelength of monochromatic light using Fresnel biprism and Michelson Interferometer. 6. Determination of the specific rotatory power of solution using polarimetry by monochromatic light.
- Optics and Numerical Programming** (Vth Semester): 7. Determination of Rydberg's constant using grating.



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(v) Department of Zoology

1. Biology of Invertebrates & Chordates(Ist Semester):

1. Collection and Identification of mosquitos; Culture of insect associated microbes – (Group practical). 2. Culture of Zooplankton – (Group practical).



2. Biostatistics, Bioinformatics, Computer Application, Genetics Microbiology and Developmental biology (IIIrd Semester):

3. Analytical chemistry of water and screening of radioactive properties. 4. Preparation of herbal extract and studies on antimicrobial activities.



3. Cell and Molecular Biology (IVth Semester):

5. Squash preparation of Salivary Gland of *Drosophila* larva for Polytene Chromosome. 6. Isolation of DNA from blood samples – (Group practical). 7. Separation of DNA using Agarose gel electrophoresis –(Demo).

4. Animal Physiology(Vth Semester): 7. Fractionation and characterization of human salivary proteins by Column chromatography – (Demo). 8. Study of blood and epithelial cells. 9. Enzyme Kinetics of Acid phosphatase activity in relation temperature & pH.

5. Biochemistry, Biophysics, Immunology, Economic Entomology, Evolution and Environmental Biology(VIth Semester): 10. Paper Chromatography. 11. Rocky shore, muddy shore and sandy shore field visit and tracking. 12. Collection and quality analysis of water samples from pond and Aquaculture pond.

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Enclosure – 4 : 9.8. Publications (Scopus indexed/ patents, if any Experiments) Introduced

(i) Department of Botany

1. M. Ghouse Basha, 2021, Biocidal chitosan-magnesium oxide nanoparticles via a green precipitation process, Journal of Hazardous Materials. Volume 411, 5 June 2021, 124884, <https://doi.org/10.1016/j.jhazmat.2020.124884>.
2. H. Syed Jahangir, 2020, Green Synthesis, Characterization and Antibacterial Studies of Silver (Ag) and Zinc Oxide (Zno) Nanoparticles, Journal of pure and applied microbiology, J Pure Appl Microbiol. 2020;14(3):1999-2008 | Article Number: 6199 <https://doi.org/10.22207/JPAM.14.3.39>.
3. H. Syed Jahangir, 2021, Biodegradation and Characterization of Streptomyces sp. (JMCACA3) from Acid Corroded Iron Plate, Current Microbiology, DOI: [10.1007/s00284-021-02374-3](https://doi.org/10.1007/s00284-021-02374-3)
4. N. Ahamed Sherif, 2020, DNA barcoding and genetic fidelity assessment of micro propagated *Aenhenrya rotundifolia* (Blatt.) C.S. Kumar and F.N. Rasm.: a critically endangered jewel orchid, Physiology and Molecular Biology of Plants, December 2020, Physiology and Molecular Biology of Plants 26(12) DOI:[10.1007/s12298-020-00917-9](https://doi.org/10.1007/s12298-020-00917-9).
5. 5.R. Radhakrishnan, 2020, Combined *in vitro* and *in silico* approach to evaluate the inhibitory potential of an underutilized allium vegetable and its pharmacologically active compounds on multidrug resistant Candida species, Saudi Journal of Biological Sciences, <https://doi.org/10.1016/j.sjbs.2020.11.082>

(ii) Department of Chemistry

1. M. Syed Ali Padusha, 2020, Synthesis, quantum chemical calculations and molecular docking studies of 2-ethoxy-4-[(2-trifluoromethyl-phenylimino) methyl] phenol, Molecular Physics, <https://doi.org/10.1080/00268976.2020.1781945>.
2. R. Abdul Vahith, 2021, Spilanthes acmella leaves extract for corrosion inhibition in acid medium, Coatings – MDPI, <https://doi.org/10.3390/coatings11010106>.
3. M. Syed Ali Padusha, (2020). Synthesis, Characterization and Antimicrobial Studies Of some Azomethine Compounds Derived Via Schiff Base Condensation Chemistry . *Journal of Natural Remedies*, 21(7(S2), 84-100.



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4. R. Mohamed Abdul Vahith, 2021, *Spilanthus acmella* Leaves Extract for Corrosion Inhibition in Acid Medium, Coatings – MDPI, Coatings 11, 106. <https://doi.org/10.3390/coatings11010106>
5. M. Mohamed Sihabudeen., 2020, Influence of physico chemical parameters on potability of ground water in ariyalur area of Tamil Nadu, India, Materials Today: Proceedings, <http://dx.doi.org/10.1016/j.matpr.2020.07.033>.
6. S.K. Periyasamy, 2020. Cooxidation of Dibenzalacetone with Oxalic Acid by Pyrazinium Chlorochromate, International Letters of Chemistry, Physics and Astronomy, 2020. Vol. 85, pp. 1-14, <https://doi.org/10.18052/www.scipress.com/ILCPA.85.1>
7. M. Mohamed Sihabudeen. (2020). Interpretation of groundwater quality using piper diagram in and around ariyalur district Tamilnadu, India . *Journal of Natural Remedies*, 21(8(1), 193-198.
8. M. Syed Ali Padusha, Fabrication of Sustained Release System of Electrospun Poly(acrylic acid)/Dextran Nanofibers Using Emulsion Electrospinning as Wound Dressing Applications, Journal of Nanoscience and Nanotechnology, 2021. J Nanosci Nanotechnol. 2021 Mar 1;21(3):1613-1622. doi: [10.1166/jnn.2021.18987](https://doi.org/10.1166/jnn.2021.18987).

(iii) Department of Mathematics

1. R. Jahir Hussain, (2020). Neutrosophic Vague Line Graphs. *Neutrosophic Sets and Systems*, 36, 121-130.
2. A. Nagoor Gani, Compactness and Fuzzy Pairwise a, b, g Compactness in Fuzzy Bitopology, Advances in Mathematics: Scientific Journal. <https://doi.org/10.37418/amsj.9.12.10>
3. A. Mohamed Ismayil, 2020, Complementary Nil G-Eccentric Domination in Fuzzy Graphs, Advances in Mathematics: Scientific Journal. <https://doi.org/10.37418/amsj.9.4.28>
4. A. Mohamed Ismayil, 2020, Eccentric Domination Polynomial of Graphs, Advances in Mathematics: Scientific Journal. Advances in Mathematics: Scientific Journal 9 (2020), no.4, 1729–1739 ISSN: 1857-8365 (printed); 1857-8438 (electronic) <https://doi.org/10.37418/amsj.9.4.29>
5. N Mohamed Thoiyab, 2020, Global Stability Analysis of Neural Networks with Constant Time Delay via Fresenius Norm, Mathematical Problems in Engineering. <https://doi.org/10.1155/2020/4321312>.
6. N Mohamed Thoiyab, 2020, Global robust stability analysis for hybrid BAM neural networks, IEEE



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7. N Mohamed Thoiyab, 2020, Novel results on global robust stability analysis for dynamical delayed neural networks under parameter uncertainties, IEEE
8. A.Prasanna, 2020, Algebraic Structures on Product of $\psi - \bar{Q}$ –Fuzzy Subgroup and Normal Subgroup, Materials Today: Proceedings.<https://doi.org/10.1155/2016/4918948>
9. A.Prasanna, 2020, Algebraic Properties on $\omega -$ Fuzzy Translation and Multiplication in BH– Algebras, AIP Conference Proceedings.<https://doi.org/10.1063/5.0017626>.
10. A.Prasanna, 2020, $\kappa - Q$ –Fuzzy Orders Relative to $\kappa - Q$ –Fuzzy Subgroups and Cyclic group Fundamental Various Aspect, Materials Today: Proceedings.
11. U.Abuthahir, 2020, Estimation of Error Using Various Measures of Averages in Forecasting Problems, Advances in Mathematics: Scientific Journal.<http://dx.doi.org/10.5829/idosi.wasj.2013.24.itmies.80032>.

(iv) Department of Physics

1. A. Mohamed Saleem, 2020, Preparation and characterization studies of TiO₂ doped ZrO₂ on ITO nanocomposites for optoelectronic applications, Materials Today: Proceedings.<https://doi.org/10.1016/j.matpr.2020.04.748>
2. A. Ishaq Ahamed, 2020, State feedback control and observer-based adaptive synchronisation of chaos in a memristive Murali–Lakshmanan–Chua circuit, A Springer Link Journal published by the Indian Academy of Sciences in association with the Indian National Science Academy and Indian Physics Association. Pramana – J. Phys. (2020) 94:152 © Indian Academy of Sciences <https://doi.org/10.1007/s12043-020-02017-5>.
3. A. Ishaq Ahamed, 2020, Sliding Bifurcations in the Memristive Murali–Lakshmanan–Chua Circuit and the Memristive Driven Chua Oscillator, International Journal of Bifurcation and Chaos.<https://doi.org/10.1142/S0218127420502144>.
4. R. Raj Muhamed, 2020, Synthesis, Spectroscopic elucidation (FT-IR, FT-Raman, UV-Vis), electronic properties and biological activities (antimicrobial, docking) of semicarbazide derivative, Synthesis, Spectroscopic elucidation (FT-IR, FT-Raman, UV-Vis), electronic properties and biological activities (antimicrobial, docking) of semicarbazide derivative.<https://doi.org/10.1016/j.matpr.2020.09.569>.
5. A. S. Haja Hameed, 2020, Biomolecule chitosan, curcumin and ZnO-based antibacterial nanomaterial, via a one-pot process, Carbohydrate Polymers.<https://doi.org/10.1016/j.carbpol.2020.116825>.
6. C. Hariharan, 2020, Influence of Nickel oxide nanoparticles on the absorption enhancement of solar radiation for effective distillation by single slope wick-type solar still, Materials Today: Proceedings. December 2020 Materials Today: Proceedings , [DOI:10.1016/j.matpr.2020.10.704](https://doi.org/10.1016/j.matpr.2020.10.704).



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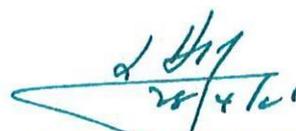
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(v) Department of Zoology

1. S. Mohamed Hussain, 2021, Exploration of acute toxicity, analgesic, anti-inflammatory, and anti-pyretic activities of the black tunicate, *Phallusia nigra* (Savigny, 1816) using mice model, Environmental Science and Pollution Research. <https://doi.org/10.1007/s11356-020-10938-2>
2. S. Mohamed Hussain, 2021, Assessment of Potential human health risk due to heavy metal contamination in edible finfish and shellfish collected around Ennore coast, India, Environmental Science and Pollution Research. <https://doi.org/10.1007/s11356-020-10764-6>.
3. K. Prabakar, 2020, Extracellular DNA (eDNA): Neglected and Potential Sources of Antibiotic Resistant Genes (ARGs) in the Aquatic Environments, Pathogens. PMID: 33114079 PMID: PMC7690795, <http://dx.doi.org/10.3390/pathogens9110874>.
4. Sadiq Bukhari, 2020, Hepatic toxicological responses of SiO₂ nanoparticle on *Oreochromis mossambicus*, Environmental Toxicology and Pharmacology. <http://dx.doi.org/10.1016/j.etap.2020.103398>.
5. A. Sadiq Bukhari, 2020, Activity concentration of polonium-210 and lead-210 in tobacco products and annual committed effective dose to tobacco users in Tiruchirappalli District (Tamil Nadu, India), Journal of Radioanalytical and Nuclear Chemistry. <http://dx.doi.org/10.1007/s10967-019-06879-x>.
6. R. Krishnamoorthy, 2021, A Study On The Naturally Occurring Radionuclides In The Soil Samples Of Kozhikode District, Kerala , Journal of Natural Remedies Vol. 21, No. 9(2): 6-10.
7. R. Krishnamoorthy 2021, Analysis of gross alpha radioactivity in sediment of Pulicat lagoon, south East coast of India, Uttar Pradesh Journal of Zoology 42(6): 90-97. <https://mbimph.com/index.php/UPJOZ/article/view/2025>
8. R. Krishnamoorthy, 2021, Environmental radio activity in the Malappuram district, Kerala, india - using bioindicator species, Uttar Pradesh Journal of Zoology 42(4): 1-5. <https://mbimph.com/index.php/UPJOZ/article/view/1956>
9. R. Krishnamoorthy 2021, Primordial Radionuclides Activity and External Radiation Hazard Index Evaluation in Pulicat Lake Sediments, South East Coast of India, Uttar Pradesh Journal of Zoology, 42(4): 37-43. <https://mbimph.com/index.php/UPJOZ/article/view/1967>
10. A. Sadiq Bukhari., Diversity, Dominance and Evenness of Butterflies in Southern Part of Western Ghats (Palani Hills) Indian Journal of Natural Sciences , IJONS - ISSUE 65 APRIL 2021/ISSN – 0976-0997. Page – 29589-29597(2021) <http://s-o-i.org/1.15/ijarbs-2016-3-5-23>
11. A. Sadiq Bukhari., The Role Of Butterflies Towards Creating Ecological Balance And Biodiversity Conservation In Southern Part Of Western Ghats (Palani Hills), Uttar Pradesh Journal Of Zoology, 41(23): 95-112, 2020 ISSN: 0256-971X (P), 2020 <https://mbimph.com/index.php/UPJOZ/article/view/1796>

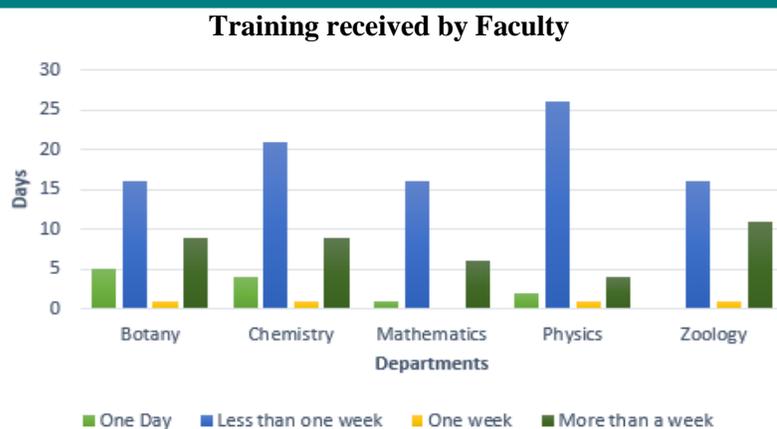


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Enclosure – 5 : 9.9. Training Received by Faculty



9.9.a. Total No of Training Received by Faculty

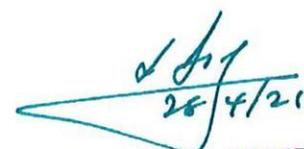
Departments	One Day	Less than one week	One week	More than a week
Botany	5	16	1	8
Chemistry	4	21	1	6
Mathematics	1	16	0	6
Physics	2	26	1	5
Zoology	0	16	1	8

9.9.b Training Received more than one week

(i) Department of Botany

- Dr. B. Balaguru** attended the FDP on Integrated Pest Management (Moocs) organized by Department of Entomology UAS-Raichur, Karnataka, Centre for Continuing Education Indian Institute of Technology Kanpur and Commonwealth of Learning, Canada 21.4.2020 - 16.6.2020. (56 days)
- Dr. B. Balaguru** attended the FDP on Online Induction Training / Orientation Programme organized by PMMMNMTT, Teaching Learning Centre (TLC), Ramanujan College, New Delhi 04.06.2020 - 01.07.2020. (27 days)
- Dr. B. Balaguru** attended the FDP on Remote Sensing & GIS Technology and Applications for University Teachers & Government Officials organized by Indian Institute of Remote Sensing, ISRO, Dehradun 13.6.2020 - 01.07.2020. (18 days)


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4. **Dr. B. Balaguru** attended the FDP on Innovation, IPR, Entrepreneurship, and Start-ups among HEIs. organized by MHRD's Innovation Cell, Government of India, New Delhi, 28.04.2020- 22.05.2020. (26 days)
5. **Dr. B. Balaguru** attended the FDP on “Application of Geoinformatics in Ecological Studies” organized by Indian Institute of Remote Sensing, ISRO, Dehradun 13-07-2020 to 24-07-2020. (42 days)
6. **Dr. N. Ahamed Sherif** attended the FDP on Online induction/Training/orientation programme organized by Ramanujan College, New Delhi India 04.06.2020 to 01.07.2020. (27 days)
7. **Dr. R. Radhakrishnan** attended the FDP on Online Induction Training/Orientation Programme. organized by Ramanujan College, University of Delhi 04.06.2020-01.07.2020. (27 days)
8. **Dr. R. Sathish Kumar** attended the FDP on Online Induction Training/Orientation Programme. organized by Ramanujan College, University of Delhi 04.06.2020-01.07.2020. (27 days)

(ii) Department of Chemistry

1. **M. Syed Ali Padusha** attended the FDP on Managing online classes and co-creating MOOCs:2.0 conducted by Ramanujan College, University of Delhi, New Delhi from 18-05-2020 to 03-06-2020. (15 days)
2. **J. Sirajudeen** attended the UGC Sponsored Online Refresher Course in Teacher Education conducted by Human Resource Development Centre, Bharathidasan University, Tiruchirappalli from 24-02-2021 to 09-03-2021. (14 days)
3. **M. Anwar Sathiq** attended the Two-week Online FDP on Materials Science and nanotechnology conducted by B. S. Abdur Rahman Crescent Institute of Science and Technology, Chennai from 03-08-2020 to 17-08-2020. (15 days)
4. **S. S. Syed Abuthahir** attended the Two week FDP on Managing Online Classes and Co-Creating MOOCs conducted by Ramanujan College, University of Delhi, New Delhi from 20-04-2020 to 06-05-2020. (16 days)
5. **S. S. Syed Abuthahir** attended the Two-week MOOC Workshop for College Teachers on Management of Environment and its Resources conducted by Department of Chemistry, Nesamony Memorial Christian College, Marthandam, Kanniyakumari from 28-04-2020 to 11-05-2020. (14 days)
6. **S. Farook Basha** attended the Two week attended the FDP on Managing Online Classes and Co-Creating MOOCs conducted by Ramanujan College, University of Delhi, New Delhi from 20-04-2020 to 06-05-2020. (16 days).



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(iii) Department of Mathematics

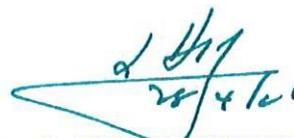
1. **M. Mohammed Jabarulla** attended the Online Multi-Disciplinary Refresher Course in Disaster Management conducted by Human Resource Development Cell, Maulana Azad National Urdu University, Hyderabad 17-09-2020 to 30-09-2020. (14 days)
2. **P. Muruganatham** attended the UGC Sponsored Online Refresher course in Mathematics & Statistics conducted by Human Resource Development Cell, Bharathidasan University, Tiruchirappalli from 25-11-2020 to 08-12-2020. (14 days)
3. **N. Mohamed Thoiyab** attended the FDP on “Introduction to abstract and linear algebra conducted by NPTEL-AICTE, Ministry of Human Resource Development, Government of India from 14-09-2020 to 06-11-2020. (22 days)
4. **A. Prasanna** attended Two-weeks FDP on Managing Online Classes and Co-Creating MOCCS conducted by Ramanujan College, New Delhi from 18-05-2020 to 03-06-2020. (16 days)
5. **A. Prasanna** attended the UGC Sponsored Online Refresher Course in Mathematics & Statistics conducted by Human Resource Development Cell, Bharathidasan University, Tiruchirappalli from 25-11-2020 to 08-12-2020. (14 days)
6. **M.A. Rifayathali** attended the Four week Orientation Programme through Online for "Faculty in Universities/Colleges/Institutes of Higher Education" conducted by Ramanujan College, University of Delhi, New Delhi from 04-06-2020 to 01-07-2020 (27 days)

(iv) Department of Physics

1. **Dr. A. Ishaq Ahamed** completed successfully an eight week NPTEL Online Course on “Physics through Computational Thinking” conducted by Indian Institute of Science Education and Research, Bhopal from February to April 2020 (56 days)
2. **J. Ebenezar** attended the one-week FDP on Evolution of Functional Materials and Its Effective Characterization towards Diverse Engineering Applications conducted by Department of Physics, Kumaraguru College of Technology, and Coimbatore from 22-06-2020 to 29-06-2020 (7 days).
3. **S. Abbas Manthiri** attended the Refresher Course for Science Academics conducted by Department of Chemistry and Physics, Arulmigu Palani Andavar Arts & Science for Women, Palani from 24-06-2020 to 07-07-2020 (14 days).



Dr. A. SHAJAHAN, M.Sc., M.Phil., Ph.D.
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Coordinator of DBT Star College Scheme &
Associate Professor of Botany,
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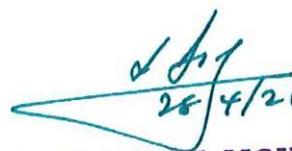
4. **S. Shek Dhavud** attended the two-week online FDP on Managing online classes and Co-creating MOOCS conducted by Teaching Learning Centre, Ramanujan College, University of Delhi, New Delhi from 20-04-2020 to 06-05-2020 (14 days).
5. **S. Shek Dhavud** attended the Indian Summer School on Crystal Growth conducted by SSN Research Centre, SSN Institutions (Autonomous), Chennai from 14-05-2020 to 23-05-2020 (10 days).

(v) Department of Zoology

1. **M. Aneez Mohamed** attended the FDP on Online Teaching, Learning and Research Methodology conducted by Government Post Graduate College, Bilaspur, Rampur (UP) from 18.7.2020 to 29.7.2020 (14 days).
2. **M. Aneez Mohamed** attended the online International FDP on Internet of things conducted by SRM Easwari Engineering College (Autonomous), Chennai from 18.7.2020 to 25.7.2020 (10 days).
3. **P. A. Ashique** attended the Orientation Programme for Faculty in Universities/Colleges/Institutes of Higher Education” conducted by Teaching Learning Centre, Ramanujan College, University of Delhi, New Delhi from 04-06-2020 to 01-07-2020 (27 days).
4. **K. Prabakar** attended the two-week online FDP on Managing online classes and Co-creating MOOCS conducted by Teaching Learning Centre, Ramanujan College, University of Delhi, New Delhi from 20-04-2020 to 06-05-2020 (14 days).
5. **Dr. K. Prabakar** attended the UGC Sponsored Two weeks Online Refresher Course in "Environmental Sciences" conducted by Human Resource Development Centre, Bharathidasan University, Tiruchirappalli from 24.02.2021 to 09.03.2021 (14 days).
6. **Dr. R. Krishnamurthy** attended the UGC Sponsored Two weeks Online Refresher Course in "Environmental Sciences" conducted by Human Resource Development Centre, Bharathidasan University, Tiruchirappalli from 24.02.2021 to 09.03.2021 (14 days).
7. **Dr. A. Sadqi Bukhari** attended the UGC Sponsored Two weeks Online Refresher Course in "Biological Sciences" conducted by Human Resource Development Centre, Bharathidasan University, Tiruchirappalli from 11.12.2020 to 24.12.2020 (14 days).
8. **Dr. H.E. Syed Mohamed** attended the UGC Sponsored Two weeks Online Refresher Course in "Biological Sciences" conducted by Human Resource Development Centre, Bharathidasan University, Tiruchirappalli from 11.12.2020 to 24.12.2020 (14 days).



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Enclosure – 6 : 9.10. Exhibition/Seminar/Training courses

(i) Department of Botany

1. National Level Workshop on Bio Python Collaborated with Spoken Tutorial IIT Bombay on 29th and 30th May 2020 (2 days)
2. International Webinar Lecture Series on “Biological Sciences” from 06.07.2020 to 08.07.2020 (3 days)
3. National Webinar Lecture Series on “Biosciences” from 13.07.2020 to 15.07.2020 (3 days).
4. Training Programme on “Collection, Identification, Labelling and Preservation of Biological Specimens” was conducted by the P.G. & Research Department of Botany, Jamal Mohamed College (Autonomous), Tiruchirappalli on 19.12.2020 (for Supporting Staff)
5. Training Programme on “Chemical Preparations (Acids, Bases, Buffers, fixatives and reagents)” was conducted by the P.G. & Research Department of Botany, Jamal Mohamed College (Autonomous), Tiruchirappalli on 22.02.2021(for Supporting Staff)
6. Training Programme on “Maintenance of Biological Equipments, Sterilization and Safety disposal of microbes” was conducted by the P.G. & Research Department of Botany, Jamal Mohamed College on 23.02.2021(for Supporting Staff)
7. An Awareness Programme on “Academic & Research Development – Role of DBT, Government of India” was conducted by the P.G. & Research Department of Botany, Jamal Mohamed College on 17.02.2021 (from Botany, Biotechnology, Chemistry and Microbiology PG students)

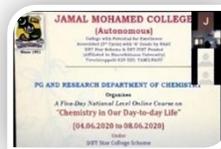


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(ii) Department of Chemistry

1. Online Training Programme: Methods of Expressing Concentration on 15.05.2020.
2. Online Training Programme on Digital class room on 23.06.2020
(for faculties of all participating departments)
3. National Level Online Course On “Chemistry in Our Day-to-day Life from 04-06-2020 to 08-06-2020 (5 days)
4. State level Webinar on Strategies to identify medicinally potent compounds from plants on 17-06-2020.
5. Online Training Programme on Water Treatment Using Polymer Based Materials on 25-07-2020.
6. International Conference on Chemical and Environmental Research (ICCER – 2020) on 12-11-2020.
7. Interdisciplinary Training Programme on Laboratory safety and First Aid Protocols were conducted by the PG & Research Department of Chemistry, Jamal Mohamed College on 16-12-2020 (for Supporting Staff of all participating departments).



(iii) Department of Mathematics

1. Online Course on Quantitative Aptitude from 24-04-2020 to 02-05-2020 (9 days)
2. Faculty Development Programme on Data Science using R Programming and GEO GEBRA in association with Spoken Tutorial, IIT Bombay from 11-05-2020 to 14-05-2020 (4 day)
3. National Level Webinar on "Indian Science: COVID 19 Scenario" on 29.05.2020.
4. International Online Faculty Development Programme on Pure and Applied Mathematics from 11-06-2020 to 17-06-2020 (7 days)
5. Online Faculty Improvement Programme on Advances in Linear Algebra and Differential Equations from 09-07-2020 to 10-07-2020 (2 days)



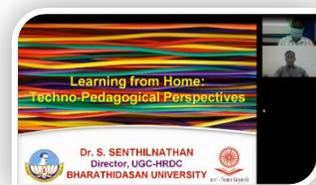
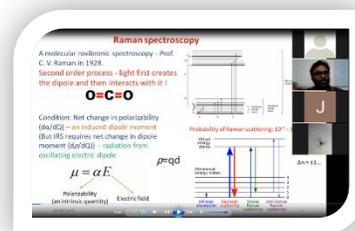
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6. Training Programme on Basic Concepts in Real Analysis on 6th & 7th January 2021 (2 Days)
7. Training Programme on Algebra and its applications 8th & 9th January 2021 (2 Days)
8. Online Aptitude test in view of National Mathematics Day on 22-01-2021.
9. Faculty Development Programme on Algebra and Analysis from 09-02-2021 to 11-02-2021 (3 days)
10. Virtual Short Term Training Program on Data Science and Statistical Applications in Association with Department of Statistics, Bharathiar University, Coimbatore from 15.03.2021 to 22.03.2021 (8 days)

(iv) Department of Physics

1. Online Faculty Development Programme on C and C++ in association with Spoken Tutorial, IIT Bombay from 27-05-2020 to 30-05-2020 (4 days).
2. Summer Online Training Programme on LATEX organized by the PG & Research Department of Physics, Jamal Mohamed College (Autonomous), Tiruchirappalli from 15-06-2020 to 19-06-2020 (5 days).
3. Vocational Training on Telecom Technologies organized by the Bharath Sanchar Nigam Limited (BSNL), Tiruchirappalli from 22-06-2020 to 26-06-2020 (5 Days).
4. Online Programme on Skill Development using Learning Assistance Tools organized by the PG & Research Department of Physics, Jamal Mohamed College (Autonomous), Tiruchirappalli from 13-07-2020 to 17-07-2020 (5 days).
5. Online Faculty Development Programme on Spectroscopic Techniques organized by the PG & Research Department of Physics, Jamal Mohamed College (Autonomous), Tiruchirappalli from 03-08-2020 to 05-08-2020 (3 days).
6. Online Faculty Development Programme on Teaching, Learning and Evaluation in the Digital Era organized by the PG & Research Department of Physics, Jamal Mohamed College (Autonomous), Tiruchirappalli from 17-08-2020 to 19-08-2020 (3 days).



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7. Online Faculty Development Programme on Condensed Matter Physics organized by the PG & Research Department of Physics, Jamal Mohamed College (Autonomous), Tiruchirappalli from 19-10-2020 to 21-10-2020 (3 days).

8. Online Faculty Development Programme on Astrophysics organized by the PG & Research Department of Physics, Jamal Mohamed College (Autonomous), Tiruchirappalli from 11-11-2020 to 12-11-2020 (2 days).

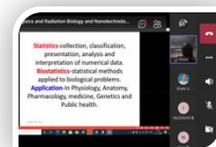
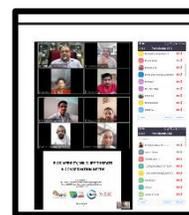


9. Training Programme on Electrical Safety and Laboratory Instruments Maintenance and Servicing organized by the PG & Research Department of Physics, Jamal Mohamed College (Autonomous), Tiruchirappalli, on 09-02-2021 (for Supporting Staff).

(v) Department of Zoology

1. Online Summer Training Course on Advances in Life Sciences from 29.3.2020 to 18.4.2020 (21 days)

2. International Conference- Challenges to Environment and Health from 18.11.2020 to 19.11.2020 (2 days)



3. Training Programme on Solution Preparation and Glassware Handling conducted by the PG & Research Department of Zoology, Jamal Mohamed College (Autonomous), Tiruchirappalli, on 29.12.2020 (for Supporting Staff).

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Enclosure – 7 : 9.11. Books/Journal Subscribed from Grants

(i) Department of Botany

1. Research Methodology for Biological Sciences, 2006, Gurumani, N (1 copy)
2. Principles and Practice of floriculture, 2019, Nag, Khiromani, (1 copy)
3. Flowers for Trade, 2021, Sheela, V.L, (1 copy)
4. Postharvest Technology of Horticultural Crops, 2021, Sudheer, K.P, (1 copy)
5. Textbook of Seed Science and Technology, 2021, Padmavathi, S, (1 copy)
6. Laboratory Manual of Biochemistry, 2018, Khan, N.A, (1 copy)
7. Introduction to Horticulture, 2010, Kumar, N, (1 copy)
8. Objective Genetics, 2015, Thirugnana Kumar, S, (1 copy)
9. Objective Horticulture, 2018, Verma, Anil Kumar, (1 copy).

(ii) Department of Chemistry

1. Advanced Food Chemistry, 2011, Iqbal, Syed Aftab (1 copy)
2. Applied Chemistry: Research methodology and Areas, 2015, Chandrashekhar, J, (1 copy)
3. Food Safety and Preservation, 2016, Kuamr, Rajeev, (1 copy)
4. Physico Chemical Analysis of River Water, 2007, Kislaya, Shardendu, (1 copy)
5. Textbook of Dairy Chemistry, 2010, Shukla, A.N, (1 copy)
6. Textbook of Forensic Chemistry, 2011, Iqbal, Syed Aftab (1 copy)
7. Textbook of Photochemistry, 2011, Mishra, Shubhrata R, (1 copy)
8. Textbook of Soil Chemistry, 2010, BhattacharyA, L (1 copy)
9. Textbook of Sugar Chemistry, 2011, Arora, Amit (1 copy)
10. Textbook of Water Chemistry, 2011, Iqbal, Syed Aftab (1 copy)



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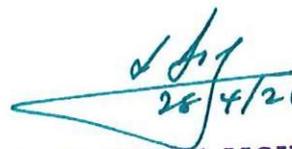
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(iii) Department of Mathematics

1. Astronomy: principles and practice, 2011, Roy, A E (1 copy)
2. introduction to mathematica with applications, 2019, muresan, marian,(1 copy)
3. Modern Algebra an introduction 2005,Durbin, John.R,(1 copy)
4. Operations Research: Theory and Applications, 2017, Sharma, J K ,(1 copy)
5. students introduction to mathematica, 1999, Torrence, bruce. F, (2 copies)
6. Calculus, 2019, Narayanan, S,(2 copies)
7. Trigonometry for B.Sc. Mathematics Major, 2019, Narayanan, S,(2 copies)
8. Analytical Geometry, 2019, Manicavachagam Pillai, T K, (5 copies)
9. Differential Equations and Its Applications, 2019, Narayanan, S ,(2copies)
10. Quantitative Aptitude for Competitive Examinations (Fully Solved),2020, Aggarwal, R.S., (2 copies)
11. Object Oriented Programming With C++,2018, Balagurusamy, E ,(3 copies)
12. Methods of Real Analysis, 2019, Goldberg, Richard R, (1 copy)
13. Complex Analysis, 2019, Arumugam, S ,(2 copies)
14. Vector Analysis, 2018, Lipschutz, Seymour,(2 copies)
15. Calculus, 2019, Narayanan, S ,(2 copies)
16. Graph Theory With Applications to Engineering and Computer Science, 2019, Deo, Narsingh,(2 copies)



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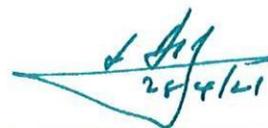
17. Elements of Mathematical Statistics, 2019, Gupta, S C, (2 copies)
18. Textbook of Analytical Geometry, 1983, Manicavachagom Pillay, T K ,(2 copies)
19. Algebra, 2012, Manicavachagom Pillay, T K, (4 copies)
20. Calculus, 2012, Narayanan, S,(6 copies)
21. Elementary Number Theory, 2010, Burton, David M,(2 copies)
22. Elementary Number Theory, 2010, Burton, David M,(1 copy)
23. Introductory Methods of Numerical Analysis, 2012 (1 copy)
24. Trigonometry, 2012, Narayanan, S ,(2 copies)
25. Elementary Number Theory, 2010, Burton, David M,(1 copy)
26. Introductory Methods of Numerical Analysis, 2012 (1 copy)

(i) Department of Physics

1. Textbook of Optics, 2012, Subrahmanyam, N, (3 copies)
2. Heat Thermodynamics and Statistical Physics, 2010, Brij Lal, (3 copies)
3. Mechanics and Mathematical Physics, 2008, Murugesan, R (2 copies)
4. Non-Conventional Energy Sources and Utilization, 2014, Rajput, R (2 copies)
5. Properties of Matter, 2012, Murugesan, R (3 copies)
6. Waves and Oscillations, 1994, Subrahmanyam, N (3 copies)



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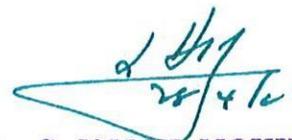
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(i) Department of Zoology

1. Applied Zoology, 2015, Arumugam, N, (2 copies)
2. Genetics, 2019, Meyyan, R P, (2 copies)
3. Immunology, 2014, Dulsy Fatima, (2 copies)
4. Economic Zoology, 2015, Jayasurya, (2 copies)
5. Seetha Lekshmy, M, 2014, Santhi, R, (2 copies)
6. Nanotechnology, 2016, Arumugam, N, (2 copies)
7. Biostatistics Computer Application and Bioinformatics Instrumentation, 2019, Gopi, A (2 copies)
8. Microbiology (General and Applied), 2018, Mani, A , (1 copy)
9. Trigonometry, 2012, Narayanan, S ,(2 copies)
10. Practical Mathematica, 2019, Gautam, Pragati, (10 copies)
11. Maple and Mathematica: a Problem solving approach for mathematics, 2007, Shingareva, Inna, (2 copies)
12. Programming in ANSI C, 2020, Balagursamy, E, (2 copies)
13. Object Oriented Programming With C++, 2021, Balagursamy, E, (10 copies)
14. Methods of Real Analysis, 2019, Goldbeg, Richard R, (10 copies)
15. Quantitative Aptitude for Competitive Examination (Fully Solved), 2018, Aggarwal, R S, (2 copies)
16. R for statistics, 2015, Cornillon, Pierre-Andre, (10 copies)



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Enclosure – 8 : 9.12. Outreach activities (Popular lectures)

(i) Department of Botany

1. Hand sanitizer prepared as per WHO standard and 40 liters hand over to Trichy Police Department on 31.03.2020, which was appreciated by the Assistant Commissioner of Police, Trichy city.
2. Virtual training on Herbarium Techniques for School teachers on 29.08.2020 (Beneficiaries - 21 School teachers from nearby Tiruchirappalli).
3. Online programme on Season Watch for School teachers on 05.09.2020 (Beneficiaries - 25 School teachers from nearby Tiruchirappalli).
4. Offline awareness programme on Traditional Knowledge Documentation for School teachers on 19.12.2020 (Beneficiaries - 34 School teachers from nearby Tiruchirappalli).



(ii) Department of Chemistry

1. Hand sanitizer prepared as per WHO standard and 40 liters hand over to Trichy revenue Department on 31.03.2020.
2. Two days Training Programme on Production of domestic products for women members of Gundur village of Tiruchirappalli, held from 20.02.2021 to 21.02.2021 (Beneficiaries – 70 women).



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(iii) Department of Mathematics

1. COVID-19 awareness program on 24.03.2020
(Beneficiaries phamblets were distributed to 1000 people).
2. Online programme on What to pursue after Twelfth? from 29.06.20 to 21.07.2020. (Beneficiaries – 800 School students)
3. Online program on Applications of Matrices on 03.10.2020 to the HSS teachers (Beneficiaries – 150 School teachers)
4. Science Quiz for Higher Secondary School students on 25.02.2021 (Beneficiaries – 62 School students)



(iv) Department of Physics

1. Online program on Awareness About SolarEclipse, 21.6. 2020. (Beneficiaries – 52 students)
2. Online program on Role of Meteorites in the Solar System on 30.06.2020 (Beneficiaries-118 School teachers)
3. Online program on Constructive Use of Nuclear Power on 30.08.2020. (Beneficiaries – 53 Students)
4. Online program on The Great Conjunction of Jupiter and Saturn- An event after 397 years on 20.12.2020. (Beneficiaries – 84 Students)



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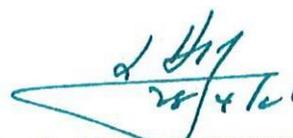
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(v) Department of Zoology

1. Online program on Essentials of Values and Ethics in the Post Covid Era on 25.08.2020 (Beneficiaries - 32 School teachers)
2. Online program on Virtual Classroom -Need of the hour to on 27.08.2020 (Beneficiaries - 21 School teachers)
3. Online program on Ornamental Fish culture on 13.02.2021 (Beneficiaries -50 School teachers)
4. Offline awareness programme Vermiculture and Composting on 21.02.2021 (Beneficiaries - 21 School teachers)



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Enclosure – 9 : 9.13. College mentored to apply for DBT Star College Grants

- (i) Dr. A. Shajahan, Coordinator, DBT Star College Scheme, Jamal Mohamed College, Tiruchirappalli, mentored to Vivekanda college, Thiruvengadam, Madurai, for apply DBT Star college scheme.
- (ii) Dr.M. Syed Ali Padusha, Additional Coordinator, DBT Star College Scheme, Jamal Mohamed College, Tiruchirappalli, mentored to Marudhar Kesari Jain College for Women, Vaniyambadi, Tirupattur, for apply DBT Star college scheme.



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College with Potential for Excellence
(Residential & Autonomous - A Gurukula Institute of Life - Training)
Re-accredited (3rd Cycle) with 'A' Grade (CGPA 3.59 out of 4.00) by NAAC
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Dr. T.Venkatesan, M.Com., B.Ed., M.Phil., PGDCA., Ph.D.,
Principal
Mobile : 9442883626

Website : www.vivekanandacollege.ac.in
Email : principal@vivekanandacollege.org

Certificate of Appreciation

This is to certify that **Dr. A. Shajahan, Coordinator of DBT Star College Scheme, Jamal Mohamed College, Tiruchirappalli** offered consultancy on gratis towards preparation of Proposal for DBT Star College Scheme for our college during June 2020. His guidance is highly appreciable.

Date: 15-04-2021



PRINCIPAL



Marudhar Kesari Jain College for Women
(A Project of Sri Marudhar Kesari Jain Trust)
Approved by Govt. of Tamilnadu - Permanently Affiliated to Thiruvalluvar University
Re - Accredited by the NAAC with 'A' Grade - An ISO 9001:2015 Certified Institution



Date: 25.03.2021

To

Dr. Syed Ali Padusha,
Associate Professor of Chemistry,
Jamal Mohamed College
Tiruchirappalli – 620020.

Respected Sir,

Greetings from Marudhar Kesari Jain College for Women.

With all due respect, we would like to express our gratitude for your presence in our discussion on Star College Scheme. We would like to convey our gratefulness towards you to the ideas given to apply Star College Scheme to our institution on 25/03/2021 to the greater level by your provoking ideas to the faculties. You produced one of the most valuable support to our college.

Thank you for truly helpful ideas. We hope you can join us in future. Thank you once more for your contribution.

With Regards,

PRINCIPAL
PRINCIPAL
Marudhar Kesari Jain College
for Women
Vaniyambadi - 635 751.

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Tiruchirappalli - 620 020.


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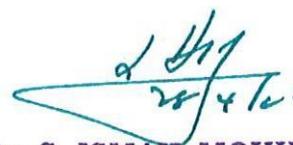
Enclosure – 10 : 9.14. Invited Lectures

(i) Department of Botany

1. **Dr.S.Seshadri**, Indigenous and Frontier technology, Research Centre, Chennai, delivered a lecture on the topic “**Essentials in research and how to do student group projects**” on 12.06.2020.
2. **Mr. P. Sureshkumar**, Proprietor and CEO of agna inc., Coimbatore, delivered a lecture on the topic, “**Research and entrepreneurship possibilities for budding graduates**” on 13.06.2020
3. **N.Nagamurugan**, Associate Professor, Department of Botany, Government Arts College, Melur, delivered a lecture on the topic “**Mathematics in nature – the golden secret of shapes and pattern**” on 22.06.2020.
4. **Dr. Asmahbintiawal**, Associate Professor, Faculty of Plantation and Agrotechnology, Universititeknologi mara Malaysia, delivered a lecture on the topic “**Plant tissue culture technology for seed industries**” on 06.07.2020.
5. **Dr. Alawi sulaiman**, Associate Professor, Faculty of Plantation and Agrotechnology, Universititeknologimara Malaysia, delivered a lecture on the topic “**Promising wealth creation initiative through borassusflabellifer plantation to uplift the livelihood of rural community**” on 06.07.2020.
6. **Dr. J. Kandakumar**, Manager, Research and Development, Masai Industrial Park, Malaysia, delivered a lecture on the topic “**Understanding the molecular mechanism of agarwood wood formation**” on 07.07.2020.
7. **Dr. J. Sridharan**, Post-doctoral Fellow, School of Plant science and Food security, Tel-aviv University, Israel, delivered a lecture on the topic “**Ethylene involvement in pollen grains thermo tolerance mechanisms**” on 07.07.2020.
8. **Dr. Syed sulthan**, Research fellow, School of applied sciences, RMIT University, Melbourne, Australia, delivered a lecture on “**Breast cancer and its effective diagnosis from breath**” on 08.07.2020.
9. **Dr. N. Palaniyappan**, Guest researcher in Material Chemistry, RMIT University, Melbourne, Australia, delivered a lecture on “**Phytochemistry and its application**” on 08.07.2020.
10. **Dr. Murtaza hassan**, Principal Scientist, Centre for Protected Cultivation Technology (cpct), ICAR-IARI, Pusa, New Delhi, delivered a lecture on the topic “**Vertical farming and hydroponics**” on 13.07.2020.
11. **Dr. M. N. Abubacker**, Associate Professor of Biotechnology, National college, Tiruchirappalli, delivered a lecture on the topic “**Biofuel – green energy**” on 14.07.2020.
12. **Dr. A. Panneerselvam**, Associate Professor & Head (retd.), Department of Botany & Microbiology, A.V.V.M. Sri Pushpam College (autonomous), Poondi, delivered a lecture on the topic “**diversity and biotechnological potentials of mushrooms**” on 15.07.2020.



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(ii) Department of Chemistry

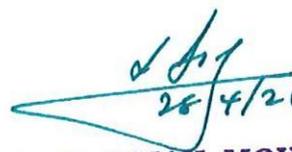
1. **Dr.V.M. Biju**, Associate Professor of Chemistry, National institute of technology, Tiruchirappalli, delivered a lecture on the topic “**Analytical separation techniques**” on 28.05.2020.
2. **Dr. V.S. Pragadheesh**, Scientist, CSIR-CIMAP, Bangalore, delivered a lecture on the topic “**Strategies to identify medicinally potent compounds from plants**” on 17.06.2020.
3. **C. Elangovan**, Regional sales manager, Cropex private limited, Bangalore, delivered a lecture on the topic “**Soil nutrients**” on 22.06.2020.

(iii) Department of Mathematics

1. **Dr. T.V. Venkateswaran**, Scientist ‘F’, Vigyanprasar, Department of Science and Technology, New Delhi, delivered a lecture on the topic “**Indian science: covid 19 scenario**” on 29.05.2020.
2. **Dr. Rajesh Singh**, Assistant Professor of mathematics, Ramanujan college, Delhi, delivered a lecture on the topic “**Small world phenomenon**” on 16.06.2020.
3. **Dr. N. Rajeswari**, Associate Professor of Mathematics, Sri GVGVisalakshi college for women, Udumalpet , delivered a lecture on the topic “**Introduction to group projects**” on 25.06.2020.
4. **Dr.P.S.Srinivasan**,Associate Professor of Mathematics, Bharathidasan University, Trichydelivered a lecture on the topic “**Applications of sagemath software**” on 22nd and 23rdSeptember 2020.
5. **Dr. D.I. George Amalarethinam**,Associate Professor& Director (MCA), Department of Computer Science
Jamal Mohamed College, Tiruchirappalli delivered a lecture on the topic “**Application of Mathematics in Digital Era**” on 10.10.2020
6. **Dr. M.G. Fajlul Kareem**, Assistant Professor, University of Technology and Applied Sciences, AlMusanna, Oman delivered a lecture on the topic “**Use of Mathematics in detecting diseases**” on 18.11.2020
7. **Dr.Vikas Saxena**, Associate Professor (Statistics & Operations Research), National Institute of Food Technology Entrepreneurship and Management, (Under MoFPI, GoI), Haryana delivered a lecture on the topic “**Application of Operations Research in the real life situations**” on 10.03.2021.



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(iv) Department of Physics

1. **Mr. Hermon carduz**, Assistant Professor, Department of Human excellence, St. Joseph's college (autonomous), Tiruchirappalli, delivered a lecture on the topic "**Leader in yourself**" on 09.03.2020.
2. **Mr. S. Jaya paul**, Scientific Assistant, Anna science centre - planetarium, Tiruchirappalli, delivered a lecture on the topic "**Our universe**" on 09.03.2020.
3. **Mr. M.J.Prasad**, Former physics faculty, A. M. Jain college soft skills trainer Chennai, delivered a lecture on "**Role of motivation in life**" on 10.03.2020
4. **Dr.S.Sabarathinam**, Post-doctoral Fellow (Modelage), Biomedical signal interpretation and computational simulation, Aragon institute of engineering Research University of Zaragoza, Spain delivered a lecture on the topic "**Scientific drawing tools**" on 13-07-2020.
5. **Dr. P.A. Praveen**, Post-doctoral Fellow, Department of Physics, Indian institute of science education and research, Tirupatidelivered al lecture on the topic "**Experimentation techniques**" on 14-07-2020.
6. **Mr.Jothimurugan**, Assistant Controller of Examinations and Assistant Professor of Physics, PG department of Physics, GTN arts college (autonomous), Dindigul, delivered a lecture on the topic on "**Xcircuit and other simulation tools**" on 15-07-2020.
7. **Dr. D. Aravinthan**, Guest faculty, Department of Physics, School of Basic & Applied sciences, Central University of Tamil Nadu, Thiruvarur, delivered a lecture on the topic "**Open source computational packages**" on 16-07-2020.
8. **Dr. Suresh kumarasamy**, Dr. S. Kothari Research fellow, Department of Physics & Astrophysics, University of Delhi, New Delhi, delivered a lecture on the topic "**Presentation and slide show tools**" 17-07-2020.
9. **Dr. C. Ravidhas**, Mentor for Physics, Assistant Professor and Head, Bishop Heber college (autonomous), Tiruchirappalli delivered a lecture on the topic "**Group projects under dbt star college scheme**" on 18-02-2021.



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(v) Department of Zoology

1. **Dr.Danial chellappa**, Eminent scientist, Chennai, delived a lecture on the topic“**Covid 19; break the chain**” on 07.05.2020.
2. **Dr.N.Manivannan**, Assistant Professor, Department of Biology, Gandigram University, Dindigul, delivered a lecture on the topic “**Fermentation technology**” on 20.09.2020.
3. **Dr.R.Selvam**, Former dean of science, Bishop Heber College, Tiruchirappalli, delivered a lecture on the topic “**Vaccine technology**” on 27.09.2020.
4. **Dr. B. Padmanaban**, Scientist retired), Agriculture research service of ICAR, Tiruchirappalli, delivered a lecture on the topic “**Entomopathogenic fungi, a potential biocontrol of insect pest of crops**” on 27.10.2020.
5. **Dr. V. Sukumaran**, Assistant Professor of Zoology, K. N. Govt. Arts and science college, Thanjavur, delivered a lecture on the topic “**Darwin’s legacy and modern science**” on 12.02.21.



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