

CHILDREN'S EDUCATION SOCIETY (REGD.)
THE OXFORD COLLEGE OF SCIENCE

REPORT 2020-21



Estd. 1974

"VIDYA SARVATRA SHOBHATE"

The logo statement envisions the knowledge to one and all for better future. The Institution stresses the importance of nourishing young minds with enough food for thought, sensitizing them to the socio economic realities thereby energizing them to work for bright and prosperous tomorrow.

Goddess Saraswathi the repository of knowledge or "Vidya" stands for the overall development of the student's personality that results from an ideal combination of values, knowledge and skills.

VISION



To participate in the nations march towards a knowledge society by nurturing intellectual growth and sound value systems in students through science education.

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MISSION



To realize the empowering and ennobling aims of education through scientific knowledge and research by providing an excellent learning environment with emphasis on values.



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Founder Chairman

Late Sri S. Narasa Raju
(05.06.1941-16.05.2016)



"Coming together is a beginning; keeping together is progress; working together is success".

The Oxford College of Science has adopted a dynamic creative and the communicative approach in education research and development. Since science converse the broad field of knowledge that deals with observed facts and relationships among these facts, faculty aims at facilitating the opportunities for the students and helps them to explore the world of these facts and their relationships. Keeping Abstract of modern developments, the college is constantly restructuring itself and renovating its physical infrastructure as well as research and education facilities. Our aim is to motivate and empower the students to be learners and critical thinkers throughout their lives.

Sri S.N.V.L Narasimha Raju Chairman, The Oxford Educational Institutions



"Education is not the filling of a pail, but the lighting of a fire".

Purpose of our institution is to transfer knowledge and prepare young generation to participate in the nation's march. The Oxford College of Science in its long journey cherishes the effort laid by the management, faculty and students to achieve exemplary credits in the annals of education. The institution is committed to provide quality education in an enviable environment built with diligence, perseverance and excellence. Annual College Report is humble step towards showcasing the earnest efforts of the management, faculty and the students during the academic year. I wish all the success to the faculty and the students in their future prospects.

Dr. R. Kavyashree Principal, The Oxford college of Science

COLLEGE PROFILE

















ACCOMPLISHMENTS:

- Best Learning Environment Award by EDTECH
- Supported by DST under FIST program
- Recognized Centre of Biotechnology Skill Enhancement Program
- Recognized as Research Centre by Bangalore University
- Minor Research Project UGC, GoI
- Research Grant for Scientist/Faculty (RGS/F)
- Women Scientists Scheme (WoS-A), DST, GoI
- Centre of Innovative Science Education (CISE)
- Karnataka Fund for Infrastructure in Science & Technology (K-FIST)
- Seed Money for Young Scientist Research (SMYSR)
- Small Projects in College Education (SPiCE)
- Ranked No. 7 in Karnataka MDRA survey- India Today
- Ranked No. 7 in Karnataka Hansa Research survey- The Week

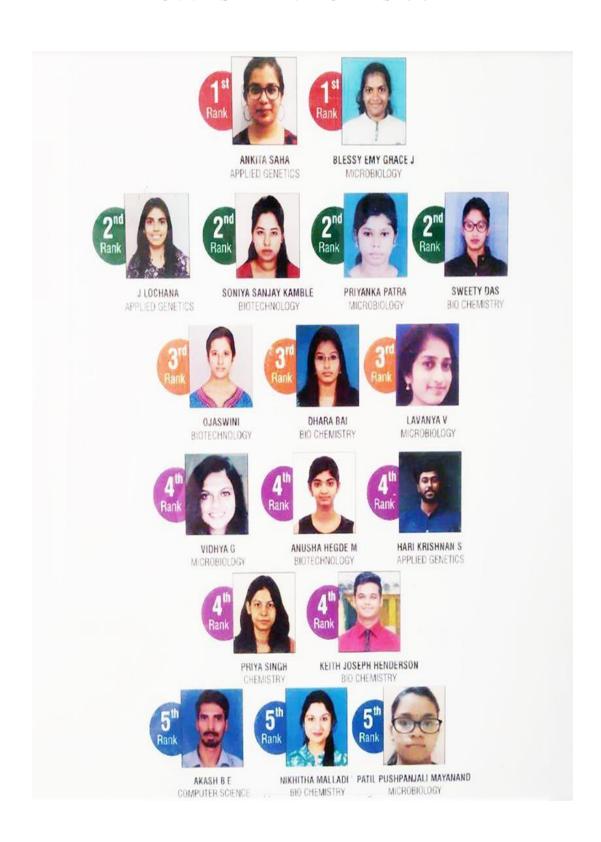
HIGHLIGHTS

- Implementation of NEP Scheme of Education.
- Karnataka Fund for Infrastructure in Science & Education (CISE).
- Research Grant for Scientist/Faculty (RGS/F) Seed Money for Young Scientist Research.
- (SMYSR) Small Projects in College Education (SPiCE) Women Scientists Scheme (WoS-A), DST.
- 576 students provided with The Oxford Merit Scholarship
- 907 students provided with The Oxford Unnati Scholarship.
- 44 faculty members were provided with financial support under Research promotion scheme to attend FDP, Conference, seminar, workshop and Refresher course.
- 105 faculty participated in FDP, PDP and refresher course.
- 19 non-teaching staff participated in Staff Training Program.
- Best Teacher Award for the faculty for outstanding contribution in the field of teaching
- Best Employee Award for excellent performance
- 7 MoUs/Collaborations were signed and executed.
- GoI Minor Research Project UGC, GoI
- Ranked No. 7th in Karnataka MDRA survey- India Today.
- Ranked No. 7th in Karnataka Week Hansa
- Best Learning Environment Award by EDTECH

GLIMPSE OF ACADEMIC EVENTS 2020-21

- The National Conference on "Science and Technology for Sustainable Development with Women Empowerment" in association with ISCA
- 2 days National e-Symposium on Recent Trends in Physics.
- National Symposium on Comprehending Cancer.
- Symposium on "Diagnostic and therapeutic approaches".
- 2 days International Virtual Symposium in "Decoding the Human Brain Activity".
- 3 days Intra Collegiate Youth Conclave Blizz was organized
- An orientation program on Sustainable activities organized by the Eco Club of TOCS with an initiative to promote environmental sustainability and engage in sustainable activities in association with **Directorate of Urban Land Transport (DULT)** and HSR Citizen Forum.
- Online Examination with live proctoring using single device followed by online valuation utilizing institutions CMS was introduced.
- Super 30 to groom advanced learners to excel was introduced.
- NEP for holistic and Multidisciplinary Education
 Perspective/Preparedness/Implementation Webinar series were organized.

STUDENTS WHO BROUGHT THE LAURELS TO THE COLLEGE UNIVERSITY RANK HOLDERS 2020-21



Department of Biochemistry

About the Department

The Department of Biochemistry was established in the year 2001 with combinations Biochemistry - Zoology - Microbiology, the PG course in Biochemistry was invented in the year 2001. Biochemistry includes both chemical & biological disciplines with exponential increase in information and understanding in the field of Life Science.

Departmental Activities

Industrial Visit	Add on Program	Workshop & EP	Conference	Webinar	PBL 5
1	1	1			

Department Achievements

4 University Ranks have been bagged by the PG students of MSc Biochemistry for the year 2020-21.

Sl.No	Title of the Program	
Industrial Visit		
1.	Biocon	
	Add on Program	
1.	Spectroscopy for biochemists	
	Workshop/Enrichment Program	
1.	RT-PCR	
Conference		
1.	Bioventure: During Covid 19 pandemic; through the lanes of Biopharma and	
	academia	
	Webinar	
1.	The role of calcium in intracellular signaling	
2.	"Acetyl CoA"	
	Problem Based Learning	
1.	Maple Syrup Urine disease: How do you propose a therapy?	
1.	Hurler Syndrome	
2.	How can stem cell be used in AML treatment?	
3.	DMD and steam cell therapy: How is it possible?	
4.	How do you propose a therapy of "Alzheimer Disease" by using Stem cells?	

Department of Biotechnology

About the Department

The Department of Biotechnology at the Oxford College of Science was established in the year 1998 to nurture young minds and to generate a pool of skilled manpower to cater to the evergrowing demands of this sector.

Department Achievements:

3 University Ranks have been bagged by the PG students of MSc Biotechnology for the year 2020-21.

Departmental Activities

Industrial Visit	Add on Program	Workshop & EP	Guest Lecture	Webinar	PBL 21
8	3	6	1		21

Sl.No	Title of the Program
	Add-on Programs
1.	Protein-protein interaction using String
2.	Drug Design
3.	Primer Design
	Workshop & Enrichment Program
1.	Entrepreneurship Development Program
2.	Retrieving The Database And Sequence Alignment Using Bioinformatics Tool
3.	International Virtual Symposium on Decoding Human Brain Activity-Series I
4.	Retrieving The Database And Sequence Alignment Using Bioinformatics Tool
5.	Symposium on Diagnostic and Therapeutic Approaches
6.	Research Methodology
	Guest Lecture
1.	Forensic Science in Crime Investigation
	Webinar
1.	International Webinar on Recent Trends in Biotechnology-A Career Guidance
	Problem based Learning
1.	What strategies must be implemented to manage the surge in plastic waste
2.	How can we reduce and eliminate microplastics in the environment?
3.	Can current technologies and gadgets help in improving current air quality and
4.	How will you address development of antibiotic resistance?
5.	How will you address plastic pollution?
6.	How will you manage water pollution in industrial areas?
7.	How will you reduce pesticide load from food products?

8.	How will you address adulteration in food products?
9.	How can we avoid another pandemic like Covid-19?
10.	Is Emergency Use Approval (EUA) for drugs during the pandemic a necessary
11.	Is keto diet the way to go?
12.	Should GMO crops be approved for human consumption?
13.	Are all organic products in the market really organic?
14.	Are energy drinks really energy boosters?
15.	Are food supplements the boon or a marketing gimmick?
16.	Is bioremediation an economically viable solution?
17.	Are biodegradable polymers the real solution to curb plastic pollution?
18.	Will hydrogen city help to reduce the carbon footprint?
19.	Is personalized medicine a distant reality or farfetched dream?
20.	Are cold pressed oils just a fad?
21.	Can lab grown meat be a solution for cruelty free meat?
	Industrial Visit
1.	Well Crop Biotech
2.	Biocon Industries
3.	Swacha Graha Kalika Kendra (UG Students)
4.	Vriksha Vijnan Industry
5.	Hassan Milk Union (UG Students)
6.	Palmolive (India) Ltd (CPIL)
7.	Hassan Milk Union (PG Students))
8.	Swacha Graha Kalika Kendra (PG Students)

Department of Chemistry

About the Department

The Chemistry Department of The Oxford College of Science started in 1994 with B.Sc. [CZBt, CGtBt, CZMb] combinations and M.Sc., Organic Chemistry in 2009 and has evolved in terms of academics, co-curricular and extracurricular activities.

Department Achievements:

1 University Ranks have been bagged by the PG students of MSc chemistry for the year 2020-21.

Departmental Activities

Add on Program Workshop 1 Guest Lecture

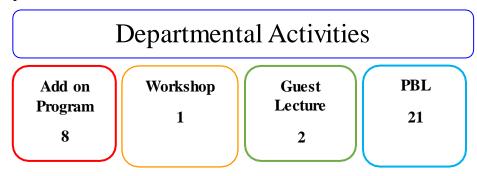
EDP 1 Webinar 1

Sl. No.	Title of the Program		
	Add on Program		
1.	Advanced tools for analytical chemistry		
2.	Chemistry of beverages and soft drinks		
3.	Advanced Tools for Analytical Chemistry		
	Workshop		
1	Chem draw		
	Guest Lecture		
1	General Aspects of Organic Chemistry		
	EDP		
1	Bench to Business (a small-scale industry)		
	Webinar		
1	Application of cyclic Voltammetry		

Department of Computer Science

About the Department

Computer science department was incepted in 1995, now over's both UG and PG courses BCA, B. Sc (CS), M. Sc(CS) and MCA. The courses are eloquently carried to the student community such that it bridges the gap between IT industry requirements and the university curriculum. The department strives and provides industry ready professionals. The courses are delivered through lectures with excellent qualified faculty, (who are experienced both in academics and has hands on in industry), Practical sessions, Projects, Add-on courses and workshops. Course modules are assessed with assignments, presentations, and examinations.



Department Achievements:

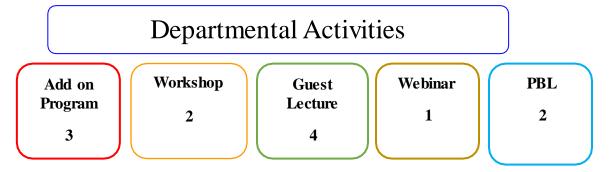
- 1 University Rank has been bagged by the PG students of MSc Computer Science for the year 2020-21.
- Department is also recognized as Research Centre by the Bangalore University; Faculties of the department are actively engaged in research and the articles are published in Peer Reviewed Journals.

Sl. No.	Title of the Program		
	Add on Program		
1.	Internet Of Things		
2.	26 Cloud Virtualisation		
3.	Data Virtualisation Techniques With Python		
5.	Hacking And Cyber Security		
6.	Intelligent Systems		
7.	Microsoft Visual.Net		
8.	Number Theory And Cryptography		
	PBL		
9.	PBL on Web Based Profile Creation		
	Enrichment Program		
10.	Enrichment Program on Advance Concepts On Object Oriented Programming		
Guest Lecture			
11.	Learn the Skills to land your ideas on C programming		
12.	Cloud Computing		

Department of Electronics

About the Department

The Department of Electronics was established in the year 1994 with combinations Physics, Mathematics and Electronics (PME). A second combination of Electronics, Mathematics & Computer Science (EMCs) started in the year 2000. The PG course in was incepted in the year 2010.



Sl.No	Title of the Programs		
	Add On Programs		
1.	Designing PCB using PSPICE		
2.	Internet of things and Embedded systems		
3.	Robotics and Artificial intelligence		
	Guest Lecture/Webinar		
1	The Next wireless		
2	IOT and Applications		
3	Current trends in industry		
	Workshop		
5.	Robotics		
	PBL		
6.	Pros and Cons fast mobile charges		

Department activity conducted:

PEER TEACHING: Based on the belief that "to teach is to teach twice" (Whitman, 1998)", the current IV Semester MSc students taught the theory behind and demonstrated the experiments to II semester BSc students on 23rd September 2021. As per guidelines given to them, the peer teachers had to make the students familiar with the components, pin configuration, connections on the breadboard, the working of the component/devices and principle of the experiment. Each of them was assigned experiments to be performed and explained. The experiments assigned were-UJT characteristics, UJT Relaxation Oscillator, Astable Multivibrator, Colpitt's Oscillator, FET Characteristics, Wein Bridge Oscillator.

Department of Fashion & Apparel Design

About the Department

The Department of Fashion and Apparel Design was established in the year 1999, it is affiliated to Bangalore University. It is a 3-year full term undergraduate Fashion Designing course, where it covers the study of specialized field in the area of fashion costume designing, accessory and jewelry design, fashion illustrations, Textile designing, etc.

Departmental Activities

Add on Program

1

Workshop

3

Sl. No.	Title of the Program		
	Add on program		
1.	Bridal Makeup and Hairstyle		
	Workshop		
1	1 Lippan Art		
2	Tie &Dye		
3	Liquid Embroidery		

Department of Languages

About the Department:

The Department of Languages of The Oxford College of Science was started in the year 1994. The staff of the Department has taken keen interest in training students for intercollegiate competitions and regularly conduct assembly in the college. Counselling in academic and emotional matters and involving in administrative work of the college are the other responsibilities of the Department. Another addition to the Department of English is the Language Lab, which is functioning in full swing to hone the student's communication skills.

Department fest/activity conducted:

A program on the many societal groups and cultures is organized by the Department of Languages. With the help of such events, the department was able to educate individuals about the intrinsic value of the various traditions practiced by different communities and the wisdom that each tradition imparts.

Department of Mathematics & Statistics

About the Department:

The Department of Mathematics started in the year 1994. The UG course was started in the year 1994 and PG course in the year 2010. The Department of Statistics was incepted in the year 2005 followed by the PG course in the year 2010. The Department aims to prepare skilled professionals in statistics.

Departmental Activities

Add on Program

2

Sl.No	Title of the Program		
Add On Programs			
1.	Matlab		
2.	Maxima		

Department of Microbiology

About the Department:

The Department of Microbiology since its inception in 1994 is committed to disseminating, inculcating and harvesting knowledge. Student centric approach and overall development of students are the vital strategy adopted in the department. Consistent University ranks and outstanding placement record are the key achievements. The Department is known for its constant innovations reflecting the creative potential with which the Department is well endowed.

Department Achievements:

5 University Ranks have been bagged by the PG students of MSc Microbiology for the year 2020-21.

Sl. No	Title of the program		
	Add On Programs		
1.	Biomethanation of Kitchen Waste		
2.	Vinification		
3.	Conversion of Organic Waste to Methane		
	Guest Lecture		
4.	AIDS Awareness		
5.	World Aids Day		
6.	National Symposium on Comprehending Cancer		
	Workshop		
7.	Production and Evaluation of Bio fertilizer		

Department of Physics

About the Department:

The Department of Physics (UG) was established in the year 1994 with Physics, Mathematics, Computer Science (PMCs) and Physics, Mathematics, Electronics (PME) combinations, the PG course in Physics was incepted in the year 2014.

Departmental Activities

Add on Program

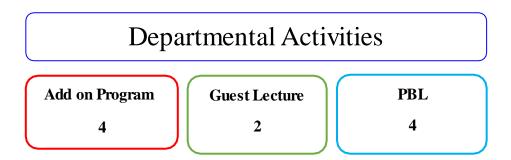
1

Sl. No	Title of the program	
Add On Programs		
1.	Advances in astronomy	

Department of Zoology and Genetics

About the Department:

The Department of Zoology was incepted in 1994 for undergraduate program, with the aim of imparting quality education to young minds. The Department of Genetics was started with undergraduate program in the year 2000 and PG course in Applied Genetics in 2003. Presently, the two departments have amalgamated into "The Department of Zoology and Genetics".



Department fest/activity conducted:

Genesis is the departmental science fest conducted by the Department of Zoology and Genetics, it's a fun filled and thoughtful event that runs for almost a week with different events organized on each day where in students apply their knowledge to play the exciting activities. It not only enhances the ability of students but also give them an exposure to think and engage out of the curriculum. Every year this event is focused on a particular theme like Mendel's Legacy wherein 150th birthday of Gregory Mendel was celebrated. The fest brings in lot of science related games where students enthusiastically participate.

Department Achievements:

Many of our students cleared various competitive exams in the academic year 2021-22 including Joint CSIR-UGC NET (Athira M Sarath), JAM (Shruti Singh), GATE (Vikas Choudhary), International Level Exams (Pramod K C, Evan). Our students secured first and second positions in paper presentations in an international conference "Biospectrum 2022- Biotechnological Advances towards Sustainable Developments".

Sl. No	Title of the program	
Add On Programs		
1.	Molecular Docking	
2.	DNA fingerprinting	
3.	Organic composting	
4.	Leukocyte culture for chromosome analysis	

Sl.No	Title of the Program	
Guest Lecture		
1.	Genetic counseling in current medical practice	
2	Insect as future food	
PBL		
1.	Pros and cons of gene therapy	
2.	Identification of novel methods to eradicate virus infection in plants	
3.	Case study on Immunology	
4.	Gene therapy- Boon or Bane	

IQAC ACTIVITIES

ABOUT IQAC

IQAC was established at TOCS in 2011 as a post-accreditation quality sustenance measure to channelize the efforts and measures of an institution towards academic excellence. IQAC adopts multifaceted integrated approach involving all the stakeholders for all the quality measures to fulfil the dream of achieving excellence. IQAC ensures quality literacy among all its stakeholders, prepares quality strategy for execution, conducts quality audit periodically, obtains 360°quality feedback from all the stakeholders, crafts quality policy, provides participative quality governance, delivers quality academics and performs quality research thus developing the quality culture of the institution that leads to quality quotient enhancement and thereby quality sustenance.

Accordingly, IQAC, regularly conducts conferences, seminars, inter/intra institutional workshops on quality related themes and faculty development programs, staff training programs, professional development programs to upgrade and update the professional skills of faculty and staff.

In 2020-21 IQAC organized 8 Faculty Development Program, 1 Professional Development Program, 1 Refresher Program and 1 Staff training Program. Altogether 87% teaching and non-teaching staff had participated for the same, 3 Faculty had participated in UGC sponsored Refresher Course (Life Science).

Sl.No	List of FDP, PDP.RP & STP organized during 2020-21	
Faculty Development Program		
1.	FDP on Embedded Systems	
2.	FDP on MOOC & E-Content Development	
3.	FDP on National Educational Policy	
4.	FDP on Invitro Cell Culture Techniques	
5.	FDP on How to Write a Scientific Research Paper in Quality Indexed	
6.	FDP on Hapiness and Worklife Balance	
7.	FDP on Mentoring the Mentor	
8.	FDP on Grant Proposal Writing	
Refresher program		
9.	AICTE -ISTE approved Refresher Program on OBE and NBA	
	Accreditation	
Professional Development Program		
10.	Professional Development Program on Sneak and Peak into UUCMS	
	Portal	
Staff Training Program		
11.	Staff Training Program On Safety Measures For Laboratory	
	Management	

Teaching-Learning-Evaluation

Highlights:

- 10 Workshop & Enrichment program, 13 enrichment program, 9 Guest Lecture, 8 Industrial Visit, 1 Internship Program and 34 PBL were conducted as part of Curriculum Supplementing Programs.
- 70 Add-on Programs were offered and was successfully completed by the students.
- Online Examination with live proctoring using single device followed by online valuation utilizing institutions CMS was introduced.
- Super 30 to groom advanced learners to excel was introduced.
- NEP for holistic and Multidisciplinary Education Perspective/Preparedness/Implementation
 Webinars were organized.
- 17 University ranks were obtained from different PG courses were bagged by the students of the Institution.
- 83.94% of students successfully graduated from respective courses.
- 57 In-house Student Research Projects were undertaken and completed.

Carrier guidance - Placement

Highlights:

- Career Guidance Program on Key Factors Influencing Employability. Quick start your Career in Life Science Industry and Job Skills for Industry, were organized. KSET and GATE coaching. Overview on NET/GATE/SLET Examination were conducted as part of Career Counseling Program.
- An overall 72.6% Placement and progression rate for the year 2020-21.
- 13 Alumni activities were conducted which include 12 webinars, 1 alumni meet. Incubation facility was extended to the Alumni

Research Innovations

Highlights:

- National Conference on "Science and Technology for sustainable development with Women Empowerment" in association with ISCA.
- TOJSR journal had contributions from researchers across the Nation and published 12, Original research articles in Volume 3, Issue 1, October 2020.
- National symposium were organized on "National e-Symposium on Recent Trends in Physics", "National Symposium on Comprehending Cancer" and "Symposium on diagnostic and therapeutic approaches".
- International symposium were organized on "International Virtual Symposium in "Decoding
 The Human Brain Activity" for the faculty members and students
- 1 original research articles were published in peer reviewed journals. 2 books & 11 book chapters have been published.
- IPR Programs on "IPR in Drug Development", "Infringement and Enforcement of patents", "Drafting and filing Indian patents" "Trends and recent patents in Electronics "and "Emerging Dynamics of Intellectual property in India" were conducted for Faculty and Students by R & D cell.
- 5 Entrepreneurship Development Program was organized by ED cell for faculty members and PG students.
- A conference was organized to observe "Einstein Nobel Prize Centenary Year Celebrations".
- 9 Workshops was organized for the post graduate and graduate students.
- 7 MoUs/Collaborations have been signed for research, internships and projects.

Administration

Highlights:

- Awareness programs on Anti-Ragging & Anti-Sexual Harassment were organized for both UG and PG students.
- Programs on Inclusivity and oneness was conducted to create awareness on Unity and Diversity among the students.
- 4 sports event- Sports Day 2020-21, Inter-Department Chess Championship, Inter-Department Tug-Of-War Competition, Intramural throw Ball Match and 3 Cultural fests- Cheers and Chimes, eGALAXY, 3 days Intra Collegiate Youth Conclave Blizz was organized. Online Yoga and Sports Fest were introduced.
- 576 students provided with The Oxford Merit Scholarship
- 907 students provided with The Oxford Unnati Scholarship.
- 44 faculty members provided with financial support under Research promotion scheme.

Extension, Outreach, Awareness & Sensitization

Highlights:

- NSS Officer Mr. Mariswamy. N received letter of Appreciation from Bruhat Bengaluru Mahanagara Pallike, Bommanahalli zone, GoK for extending suport in combating in Pandemic.
- 10 Extension/Outreach Programs like, Swatcha Bharath Abhiyan, Volunteering in Pulse Polio drive, were conducted by NSS unit of the College.
- NCC ranking Ceremony was observed.
- Awareness programs on Environmental awareness like National Pollution Control Day, National Energy Conservation Day, World Environment Day were organized.
- Participated in promoting Environment sustainability and Volunteered in conducting survey for DULT SuMA.

Quality Enhancement-sustenance

Highlights:

- Faculty Development Programs using online Platforms conducted for effective curriculum delivery.
- Career Guidance Webinar Series was introduced involving Alumni settled overseas.
- A webinar series on Paradigm Shift to Foster Excellence in Higher Education. NEP 2020

 Bangalore University Implementation Perspective: Opportunities & Challenges. NEP

 2020–Karnataka Implementation Perspective, Skill Entrepreneurship Development & Employability: Challenges & Opportunities. Research Innovation & Ranking were organized to have more clarity on NEP scheme and implementation.
- Participated in India-Today, The WEEK and Outlook College Ranking Survey and positioned at
 - o7th in Karnataka a for B.Sc, 6th in Karnataka for B.Sc (FAD) and 15th in India for B.Sc FAD Program respectively by The Week survey.
 - o7th in Karnataka for B.Sc, 8th in Karnataka for BCA and 9th in Karnataka for B.Sc FAD, by India Today college survey.

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NCC RANKING CEREMONY -2021



FREE MASK & SANITISE DISTRIBUTION



SWACH BHARATH ABHIYAN



VOLUNTARY BLOOD DONATIONCAMP



INTERNATIONAL YOGA DAY



VOLUNTEERING FOR PULSE POLIO IMMUNIZATION PROGRAM-2021



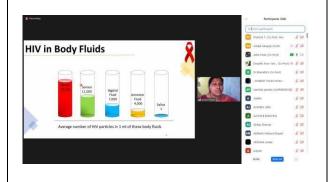
ANNUAL SPORTS MEET



NATIONAL SYMPOSIUM ON COMPREHENDING CANCER



NATIONAL E-SYMPOSIUM ON RECENT TRENDS IN PHYSICS





WORKSHOP-CHEM DRAW



DAC ON UNIVERSAL PCB