Ministry of Education
Government of India

MoE's INNOVATION CELL
(GOVERNMENT OF INDIA)

INSTITUTION'S INNOVATION COUNCIL
(Ministry of Education Initiative)

AICTE

CERTIFICATE OF ESTABLISHMENT

This is to certify that

Rishi Dayaram and Seth Hassaram National College and Seth Wassiamull Assomull Science College, MUMBAI

has established an Institution's Innovation Council (IC201810739) in the campus as per the norms of Innovation Cell, Ministry of Education, Govt. of India during the academic calendar year 2018-19

Prof. Anil D. Sahasrabudhe
Chairman
AICTE

Shri. R. Subrahmanyam
Secretary
Ministry of Education

Dr. Abhay Jere
Chief Innovation Officer
Ministry of Education's Innovation Cell

Certificate No: 547 **Aishe Code:** C-33953 **Date:** 17-12-2018

R. D. & S. H. National College
Bandra (W), Mumbai-50.
S.W.A. Sci. College

Government of India
Ministry of Human Resource Development

MHRD'S
INNOVATION CELL
(GOVERNMENT OF INDIA)

INSTITUTION'S
INNOVATION
COUNCIL
(Ministry of HRD Initiative)

AICTE
All India Council for Technical Education

CERTIFICATE

Institution Innovation Council (IIC) established at

Rishi Dayaram and Seth Hassaram National College and Seth Wassiamull Assomull Science College, MUMBAI

had undertaken various activities prescribed by Innovation Cell, Ministry of HRD, Govt. of India to promote Innovation and Start-up in campus during the IIC calendar year 2018-19.

Prof.Anil D.Sahasrabudhe
Chairman, AICTE

Shri. R. Subrahmanyam
Secretary, MHRD

R. D. & S. H. National College & S. W. A. Science College
Bandra (W), Mumbai-50.

Dr. Abhay Jere
CIO, MHRD, Innovation Cell

Certificate No : 547

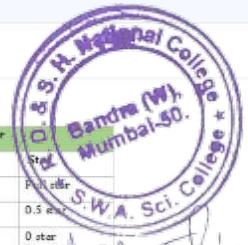
Issued On : 2019-11-06

Parameters for the calculation of 5th Star:

S.No	5th star Parameters	Weightage
1	Regional Mentoring Session hosting	5 marks
2	Innovation Ambassador Training Hosting	30 marks
3	Innovation Contest 2020 Participation	12.5
3.1	50- ideas	10 marks
3.2	25 PoCs	10 marks
3.3	15 prototype	10 marks
4	Reward points	50 marks *
5	Finalist of PoC contest	10

Score Range	Star
Score greater than equal to 50 marks	Full star
10 greater than equal to score greater than 49.9 marks	0.5 star
Score greater than 9.9marks	0 star

5th Star	
Score Range	**Star**
Score>=50 marks	Full star
10=<score<49.9 marks	0.5 star
Score<9.9marks	0 star



Following methodology has been used for calculation of quarterly score:

Scores are calculated based on the minimum prescribed activities in each "activity type". IIC earn Reward Points for conducting more than prescribed minimum activities under each "activity type", which is effective towards 5th star.

Score Matrix for IIC 2019-20 (All 4 quarters):

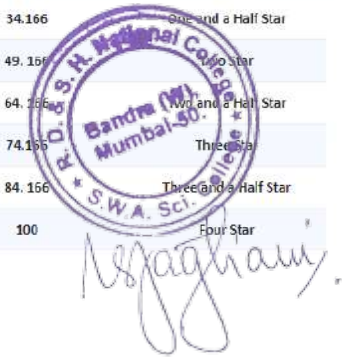
Activity Type	Total activities (approved) done by IICs	Score (If n>minimum prescribed activities)	Reward Points (for extra activities)
IIC Calendar Activity *(Score for 1 activity=4.16)*	n (out of 24 announced)	*(if n>=12)* 12 x 4.16 = 50 *(if n<12)* n x 4.16	*(if n>=12)* (n-12) x 4.16 *(if n<12)* 0
Self-driven Activity *(Score for 1 activity=2.5)*	n (Announced & done by IIC on its own)	*(if n>=12)* 12 x 2.5=30 *(if n<12)* n x 2.5	*(if n>=12)* (n-12) x 2.5 *(if n<12)* 0
MIC driven Activity *(Score for 1 activity=0.833)*	n (out of 26 announced excluding IFLTS)	*(if n>=24)* 24 x 0.833 = 20 *(if n<24)* n x 0.833	*(if n>=24)* (n-24) x 0.833 *(if n<24)* 0

**Total 24 activities have been considered as cut-off for MIC driven Activity.*

Note: IIC calendar year is divided in 4 quarters. IICs can earn maximum 25 marks in each quarter.

Effective score range for Star allocation from Quarter 1 to Quarter 4:

Starting Score range	Ending Score range	Star allocation
>0	24.166	One Star
24.99	34.166	One and a Half Star
34.99	49. 166	Two Star
49.99	64. 166	Two and a Half Star
64.99	74.166	Three Star
74.99	84. 166	Three and a Half Star
84.99	100	Four Star



About My Institute
- My Profile
- My Council
- Submit Expert Session
- Manage Pre-Incubation / Incubation Details
- Performance Card

Manage Activity
e-Learning Resources
Handholding and Capacity Development
Innovation & Start-up Support
Referral & Linkage
Help Desk
Information Dissemination
Contact us

IIC Annual Performance Report 2021-22 | IIC Annual Performance Report 2020-21 | IIC Annual Performance Report 2019-20

Performance Report

Cumulative Performance Report for the Quarter 1, Quarter 2, Quarter 3 & Quarter 4 for the academic year 2019-20

Bifurcation of Score and Reward Points

Score:99.17 | Reward:62.5 | Rating:4

Activity Type	Total Number of Activities Approved	Total Threshold Number of Activities	Score (for minimum prescribed activities)	Adjusted Cumulative Reward Points For Additional Activities Beyond the Threshold Numbers for Each Category (Reflection in multiple of 100 with activity score)
IIC Calendar Activity (Score for 1 activity=4.16) Minimum 12 activities	62	12	50 (Max Score=50)	37.5
MIC driven Activity (Score for 1 activity=0.833) Minimum 24 activities	23	24	19.1667 (Max Score=20)	0
Self-driven Activity (Score for 1 activity=2.5) Minimum 12 activities	56	12	30 (Max Score=30)	25

Weightage of each activity type:

Activity Type	Weightage in %	Q1	Q2	Q3	Q4	Total Score
IIC Annual Calendar Plan	50%	12.5	12.5	12.5	12.5	50
Self-Driven Activities	30%	7.5	7.5	7.5	7.5	30
MIC Driven Activities	20%	5	5	5	5	20
Total Score	100%	25	25	25	25	100

R. D. & S. H. National College Bandra (W), Mumbai-50. S. W. A. Sci. College

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Prof.Anil D.Sahasrabudhe
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Sh. Amit Khare
Secretary, Department of Higher Education, MOE

Dr. Abhay Jere
CIO, MOE, Innovation Cell

Certificate No : 547

Issued On : 2020-09-22

3.2 Innovation Ecosystem

3.2.1 Institution has created an ecosystem for innovations and has initiatives for creation and transfer of knowledge

The Institution has created an ecosystem for innovations and has initiatives for the creation and transfer of knowledge. The Journey of Institute Innovation Council (IIC) at RD National College began in 2018, and it has made significant progress since then. **In 2019, the IIC received a 5-star rating and scored 99.17 points, leading to its recognition as a premier MIC-affiliated institute.** Since then, IIC has been actively involved in various innovation-related activities, with a focus on IPR, start-ups, and entrepreneurship and declared as Mentor Institute for five Institutions from Maharashtra for inculcating Innovation and Entrepreneurship culture with a fund of 2.25 lakhs from Ministry of Education. A **pre incubation center (VPKIEC) with on National Innovation Start-up Policy (NISP)** guideline was eshtablished in 2020.

During its illustrious five-year history, College has consistently demonstrated its commitment to innovation and entrepreneurship. It has also actively encouraged students and faculty members to pursue ground-breaking research and develop their entrepreneurial skills. In recognition of its remarkable achievements, **College has successfully filed two patents and published one patent.**

The college has established dedicated research centers and laboratories, equipped with state-of-the-art facilities and cutting-edge technology, to support the inventive pursuits of its students and faculty. These resources have served as catalysts, fueling the creativity and ingenuity necessary for groundbreaking discoveries.

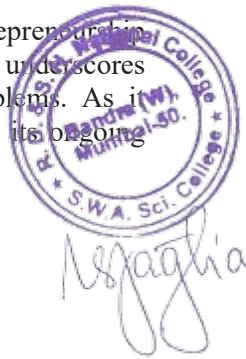
The IIC-RDNC has diversified representation from industry, inter-disciplinary departments, and units. The college has collaborated with reputed institutions and industries to provide hands-on training and skill development workshops to students and faculty members. Workshops on topics like IPR, Business model canvas, innovative thinking, and software solutions have been organized in association with organizations such as Merck Innovation Lab, DiscoverSTEM, Flowcytometry Solutions, and Blauplug Innovations. The college has also facilitated training sessions and workshops for support staff on laboratory equipment maintenance, cybersecurity, and energy conservation.

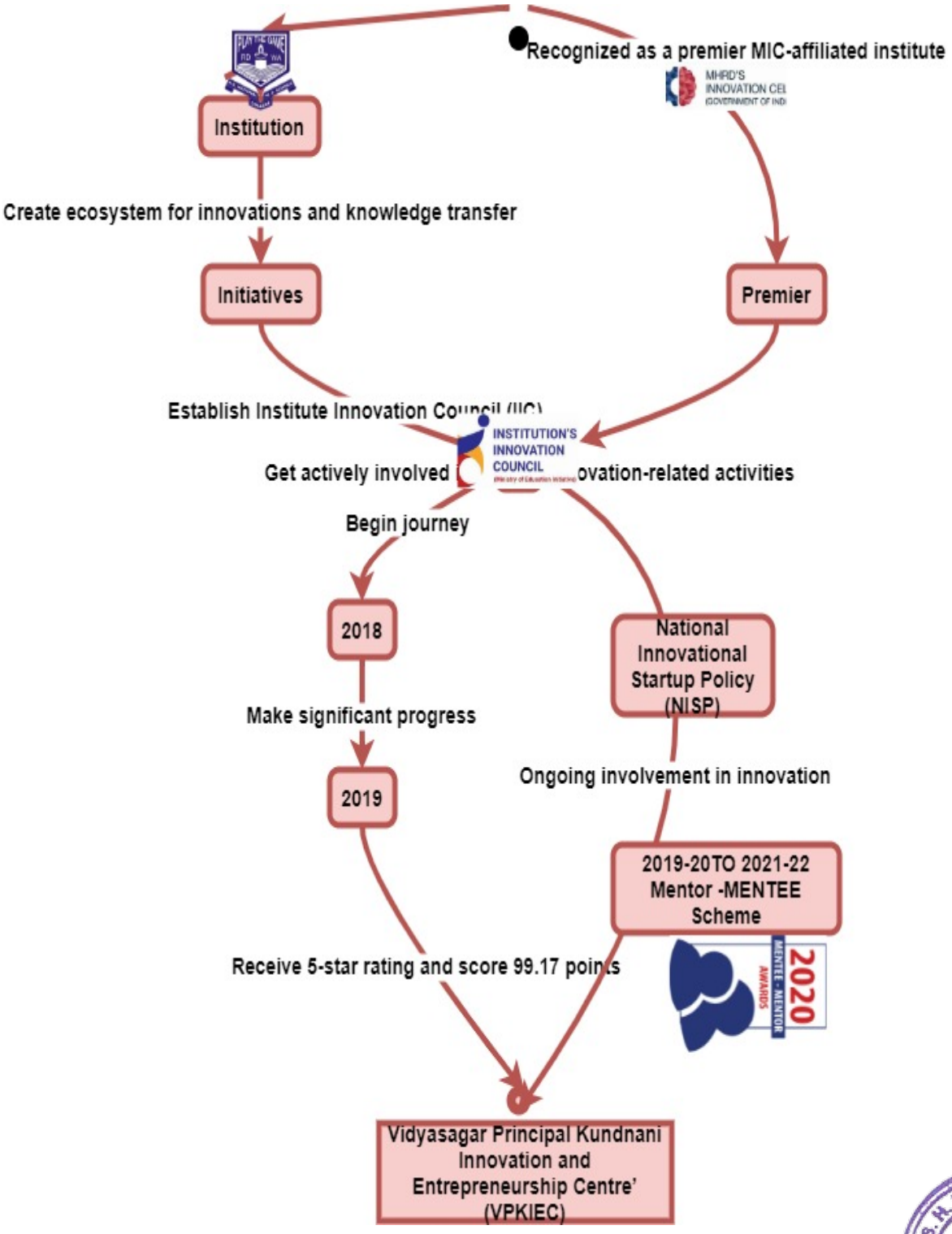
The IIC-RDNC has undertaken skill development-centered projects to enhance students' skills and knowledge. The college has also conducted the Lab to Land workshop, which encouraged students to convert their ideas into innovations.

The IIC-RDNC has a strong resource strength, with a total of 117 members, including advanced and foundation-level Innovation Ambassadors, faculty mentors, and a pre-incubation unit called Vidyasagar Principal Kundnani Innovation and Entrepreneurship Centre. The infrastructure of the IIC-RDNC includes specialized research laboratories, multimedia rooms, e-learning facilities, and a dedicated chamber for the Institute Innovation Council.

The IIC-RDNC has conducted various innovation and entrepreneurship activities, including leadership talks, workshops, competitions, and symposiums. These activities have focused on themes such as entrepreneurship, startup incubation, IPR, and design thinking. The institution has also celebrated National Innovation Day, National Science Day, and National Energy Conservation Day, among other events.

In conclusion, College has emerged as a leading institution in fostering innovation and entrepreneurship over the past five years. Its success in filing two patents and publishing an additional patent underscores its commitment to pushing boundaries and finding practical solutions to real-world problems. As it continues to nurture the spirit of innovation, College is poised to shape the future through its ongoing pursuit of excellence in Innovation and entrepreneurship culture.




Recognized as a premier MIC-affiliated institute
MHRD'S INNOVATION CEL (GOVERNMENT OF IND
Institution
Create ecosystem for innovations and knowledge transfer
Initiatives
Premier
Establish Institute Innovation Council (IIC)
INSTITUTION'S INNOVATION COUNCIL
Get actively involved
ovation-related activities
Begin journey
2018
Make significant progress
2019
National Innovational Startup Policy (NISP)
Ongoing involvement in innovation
2019-20TO 2021-22 Mentor -MENTEE Scheme
MENTEE-MENTOR AWARDS 2020
Receive 5-star rating and score 99.17 points
Vidyasagar Principal Kundnani Innovation and Entrepreneurship Centre' (VPKIEC)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A. About IIC Institute

- **Vision / Mission of IIC established at the Institute**

The Higher education Institutions are considered as architects of knowledge through substantial innovation and research practices. The relevant and appropriate innovation not only influences dialogue but also directs changes and enhancement required to address the needs and development of societies. However, one of the major challenges was to rationalize and mobilize these innovations is lack of a focal point that can facilitate cohesion with MHRD, and tools for bridging gaps beween academia and industry. Such an association helps in nurturing potentially executable ideas and establishment of research linkages across state, national and international level. Therefore, there was a pressing need of *Institute Level Innovation Centre* that can not only be a focal point for the aforesaid activities but can also create an *Innovation Ecosystem* at institute as well as at regional level. A well-defined innovation centre has not only enabled knowledge-sharing among various stake holders but has also enhanced collective and individual visibility of higher education institutes and faculty.

Initiating from a classroom idea of a student to transforming it with the help of her/her mentor to make it a reality needs necessary infrastructure and research support by the institution. When nurtured appropriately, the idea from being a laboratory innovation can reach to the community.

R.D. & S.H. National College has always been a front runner in Mumbai region for such initiatives. This College initiated the similar concept in 2009-10 through Community Assessment and Awareness Program (CAASP). The program started potable water testing through the Biotechnology Laboratory. In 2015-16, a structured program was introduced for such innovative community-based projects which was named "In-house Internship" at institution level. Department of Botany and biotechnology has developed a Water Quality Field Testing Kits (WQFTKs) for rapid and efficient potable water detection. Department of Zoology and Botany has initiated Solid waste management adopting three "Rs" strategy. The NSS Unit of college initiated an innovative project on "Mitigation of Nutritional Poverty in Adopted Village Pansai, Raigad, Maharashtra" through vegetable plant propagation in form of kitchen gardens for every village household, prepared by NSS students as per the requirement of Villagers. To strengthen the attendance monitoring system, students of physics department have developed biometric machines.

The IIC of the college is managed by IIC president and convenor supported by a team of coordinators that are be equipped with a strategic plan developed through participatory sessions. Its effective implementation is in consultation with the Head of the Institution. IIC coordinators with their team, ensure successive growth of innovation capacity building activities to develop an inclusive and robust innovation ecosystem. The IIC, through its teams strives to stimulate innovative and entrepreneurial thinking. Fostering research aptitude among students is one of the key areas with exposure to talks and seminars by leading academicians, scientists, industry leaders etc. Such activities help to cultivate a mindset for innovations, cohesive relationship, thereby building an innovation cohort and institutional consortium for innovation in mumbai region.

- **Journey of IIC established at the Institute**

IIC-RDNC was established on September 1st, 2018 along with the inauguration of Innovation Cell and Atal Ranking of Institutions on Innovation Achievements (ARIIA) launched by M/o HRD

to foster culture of innovation in Higher Education Institutions at AICTE Headquters, AICTE Complex, Nelson Mendela Road, New Delhi took place. The event was attended by Dr. Mona Kejariwal as a representative member from RDNC to ensure establishment of IIC, MHRD under the guidance of Principal Professor Dinesh Panjwani. After establishing Innovation Council, the IIC, RDNC has been awarded establishment certificate by MHRD Innovation Cell. In 2018, IIC RDNC got 2-star rating from MHRD and was still in its learning phase. In 2019, the IIC-RDNC took a better shape with the involvement of several faculty members whose interest and hardwork for IIC 2.0, under the able guidance of In-charge Principal Dr. Neha Jagtiani, stirred the overall Innovation and Entrepreneurship Ecosystem in the institute and submitted a total of 81 activities; 31 IIC driven, 23 MIC driven and 27 self-driven activities which resulted in 5-star rating with a score of 99.17 and 62.7 rewards points. This added the name of the college in the list of the premier MIC affilliated institutes(mostly engineering and technology institutes) in western region, despite being a UG/PG Degree college of Mumbai. In 2020-21, the IIC 3.0 of the college has so far received 2 stars and rewards points in the quarters Q1 and Q2. The activities for the Q3 and Q4 have been completed with more than 50 activities in the various fields of innovation, IPR, Start-ups and entrepreneurship. It is noteworthy that during Covid-19 pandemic, IIC RDNC has initiated establishment of a Pre-incubation centre "Vidyasagar Principal Kundnani Innovation and Entrepreneurship Centre (VPKIEC) so that necessarry consultancy and mentoring can be mobilised online. In association with IIC team and network, institute has successfully completed NISP formation and now is in the implementation stage.

- **Diversified representation in the IIC established aΔt the institute from industry, Inter-disciplinary & Departments/ Units etc.**

  Since IIC-RDNC caters as a multi-faculty institution which includes basic subjects like Arts, Commers, Science and professional courses like business management, finance and accounting, mass & media, computer science, biotechnology and information technology, there is great diversity of stakeholders including students, their associated external mentors, research institute and Industry. For instance in 2019-20 the college and IIC collaborated with various institutions of repute for providing hands-on training and skill development workshops, to students and faculties. Since the institution also has support from DBT STAR College scheme which provide financial support for conducting such programs.

i. ***Some of the noteworthy associations with Instuitions and Industries are as follows:*** *5-Days Basic Molecular biology and genetic engineering workshop* in association with Merck Innovation lab and five day workshop on *Innovative mind-set: LAB TO LAND* in association with DiscoverSTEM, USA to inculcate innovative thinking among students and one day Assistant Facilitator's Workshop to trains the teachers were organised. An online course of 10 days on *Flow Cytometry* was also organised in association with Flowcytometry Solutions(FlowSols) Pvt. Ltd. A 3 day *Labview Training* on imitation based software solutions of by Blauplug Innovations Pvt. Ltd. was organised for students and teachers for acquaintance with recent advancements in virtual physics. One week Interdisciplinary training for support staff on *Maintenance and Repair of Laboratory Equipment* was organised keeping the reopening of college in mind with Western Region Instrumentation Centre (WRIC), University of Mumbai. *Cyber Suraksha* seminar was arranged for support staff in the current situation to secure them for any kind of cyber fraud. A 4 – days workshop on Python was conducted in association with

Datamatics Global Services Pvt Ltd, Mumbai so that students and teachers keep pace with the everchanging technological advancements. 2 days workshop on *Preparation of Thin Films* was conducted with resource persons from Saurashtra University and Institute Of Technology (ICT), Mumbai and the samples are in the process of characterization and publication. Many workshops and expert sessions were organised like *Cyber Suraksha* for support staff, 2 days expert sessions on Yeast Two Hybrid Systems, .

ii. ***Skill development centered projects*** have been initiated so that the students can work and add to their skills even from their home. A few of the minor research and skill development projects include preparation of E-herbarium making and Bio enzyme, Know Your Surroundings, training on literature survey from NCBI portal, etc. Science Literature based dissertation project of 1 month was organized for 39 students of Biotechnology with unique topics and submission of detailed project report with data presentation to external experts that helped in developing the science reading, review and writing skills of the students. TYBSC physics student have performed energy audit of their individual houses to understand the basics of energy conservation. Through various online presentation and projects, students have learnt several basic software, like Excel, PowerPoint, Canva, Photoshop, OpenShot, Google doc, sheet etc. Macro-faunal diversity observation out of the window by more than 100 students of FYBSc Zoology and uploading reports of documentation on Google Classroom.

iii. ***Field Visits*** could have been challenging but online solutions like association with like National Agriculture Biotechnology Institute (NABI) and Centre of Innovative and Applied Bioprocessing (CIAB) autonomous institute of the Department of Biotechnology, Govt. of India, facilitated virtual tour to their institution, in form of virtual visit to URU Brew park, J.P. Nagar, Bengaluru for providing field based knowledge on bioprocess technology & Virtual tour of Bhandup pumping station to study avifauna & Juhu Beach - marine fauna for understanding the expertise needed in wildlife conservation have been conducted for students of varied interest and aspirations.

B. Brief mention of key functionaries at the IIC Institute:

- **President & Vice President : Dr. Mona Kejariwal**, Assistant professor Botany, 13 years of teaching experience who is also a WEE fellow, who have been selected among 600 entrepreneur women for a 4 month vigorous training from Niti Ayog, DST GoI, and IIT Mumbai on Entrepreneurship for her venture on Potable water testing kit. Dr. Kejariwal has successfully completed advanced level Innovation Ambassador training and also handing the post of NISP coordinator. She is also handling DBT STAR College grant and DST FIST GRANT for the institution as coordinator and Principal Investigator Respectively. Dr. Mona is also the coordinator for NIRF Data submission of intuition and convenor of Research committee. Recently she has completed 15days FDP arranged by Symbiosis, Pune Maharashtra in Entrepreneurship training to students. She has been granted one Australian Patent and filed two Indian Patent in 2020-21.
- **Convenor and Innovation Coordinator: Mr. Sahir Qaiyum Mansuri, Assisstant Professor, Department of Biotechnology**, has been a faculty member of the college since 11 years. He was inducteed in IIC-RDNC in 2019 and since then has been working towards meeting the goals of IIC. He is also a Program Officer of college NSS unit and an associate

editor of Social Service Practices and Community Development Journal, University of Mumbai. He is one of the Innovation Ambassadors of the IIC-RDNC and has completed 15 days FDP arranged by Symbiosis, Pune Maharashtra in Entrepreneurship training to students.

- **Social Media Coordinator: Mr. Mukesh Chunnilal Kanojia, Assisstant Professor, Department of Accounting and Finance,** has been a faculty member of the college since 10 years. He has been spearheading his department in capacity of a coordinator since 2013. He is an active entrepreneur himself and is a key person behind the entrepreneurship activities of the IIC. He has mentored over 500 students during his career as a professor. He is also one of the Innovation Ambassadors of the IIC-RDNC.
- **Startup Activity Coordinator: Mr. Pravin Panigrahi, Assisstant Professor, Department of Accounting and Finance,** has been an active member of IIC since a year. He is a trained Innovation Ambassador. He is an excellent mentor for accounting and has been mentoring students since his joining.

C. Portfolio/graphical/Tabular representation of Resource strength (human capital and Physical capital) of the IIC institution

- Total No. of IIC Members: **67**
- Total No. of IAs : **Advance level: 2, Foundation level: 03**
- Total No. of Faculty Mentors: **09**

IIC ID IC201810739 | Rishi Dayaram and Seth Hassaram National College and Seth Wassiamull Assomull Science College | Star Ratings ★★★★★

Name	Email	Contact	Department	Designation	Qualification	Position	Experience in Years	Organization	Roles
Mona P Kejariwal	monakejariwal@gmail.com	9702040004	Botany	ASSISTANT PROFESSOR	Doctorate		18	R.D & S.H.NATIONAL COLLGEE	
Samir Qaiyum Mansuri	mansuriasamir@gmail.com	9820256936	Biotechnology	Assistant Professor	Post Graduate	Convener,Innovation Activity Coordinator	9.5		Convener,Innovation Activity Coordinator
Chetan Ramesh Patil	chetanpatil86@gmail.com	9820488876	Biotechnology	Assistant Professor	Post Graduate	PR Activity Coordinator	10		PR Activity Coordinator
Mukesh Chunilal kanojia	kanojia.mukesh@hotmail.com	9702274786	Accounting and Finance	Assistant Professor	Post Graduate	Social Media Coordinator	10		Social Media Coordinator
Dr. Sutnandra Dutta	sutnandradutta@gmail.com	9870308823	Botany	Assistant Professor	Doctorate	AR IA Coordinator	18		AR IA Coordinator
Manish Karale	manish_ronationalcollege@yahoo.com	9833442739	Information Technology	Assistant Professor	Post Graduate	NIRF Coordinator	8.5		NIRF Coordinator
PRAVIN PHAGWAN PANIGRAHI	pravinpanigrahi32@gmail.com	9769240021	Management Studies	Assistnat Professor	Post Graduate	Start up Activity Coordinator	2		Start up Activity Coordinator
Dr. Vijendra Shekhawat	vijendradoc@yahoo.com	8779396756	botany	assistant professor	Doctorate	Vice President,Internship Activity Coordinator	16		Vice President,Internship Activity Coordinator
Mr Ganesh Ruke	ganeshruke1983@gmail.com	9967506292	Office	Office Incharge	Graduate	Member	23		Member

Figure 1: Member of IIC

- Pre-Incubation Units: **01 (Vidyasagar Principal Kundnani Innovation and Entrepreneurship Centre)**

R.D. & S.H. National College Bandra (W), Mumbai-50. S.W.A. Sci. College

- Incubation Units, If any: **NA**
- IP Facilitation Unit, If any: **One unit (2 patent have been facilitated)**

D. Highlight Facilities, Infrastructure of Pre-Incubation & Incubation kind and Student bodies/clubs engaged in promotion of Innovation and Entrepreneurship in the campus.

1. Specialised research laboratory in herbal Cosmetics with High-end instruments like
2. Multi media Room, E-learning facility with audio-visual recording facility with interactive smart board & 20 computer terminals with internet facility, printer and software for State of the art content development and editing.
3. Dedicated Institute Innovation council chamber at a prominent place in college campus with two computers and printer.
4. Lab to land Club which encourages students to convert idea into innovations.

E. Highlight Achievements (Narrative/Graphical/tabular representation)

- Number and Different types of I&E and IPR activities Conducted

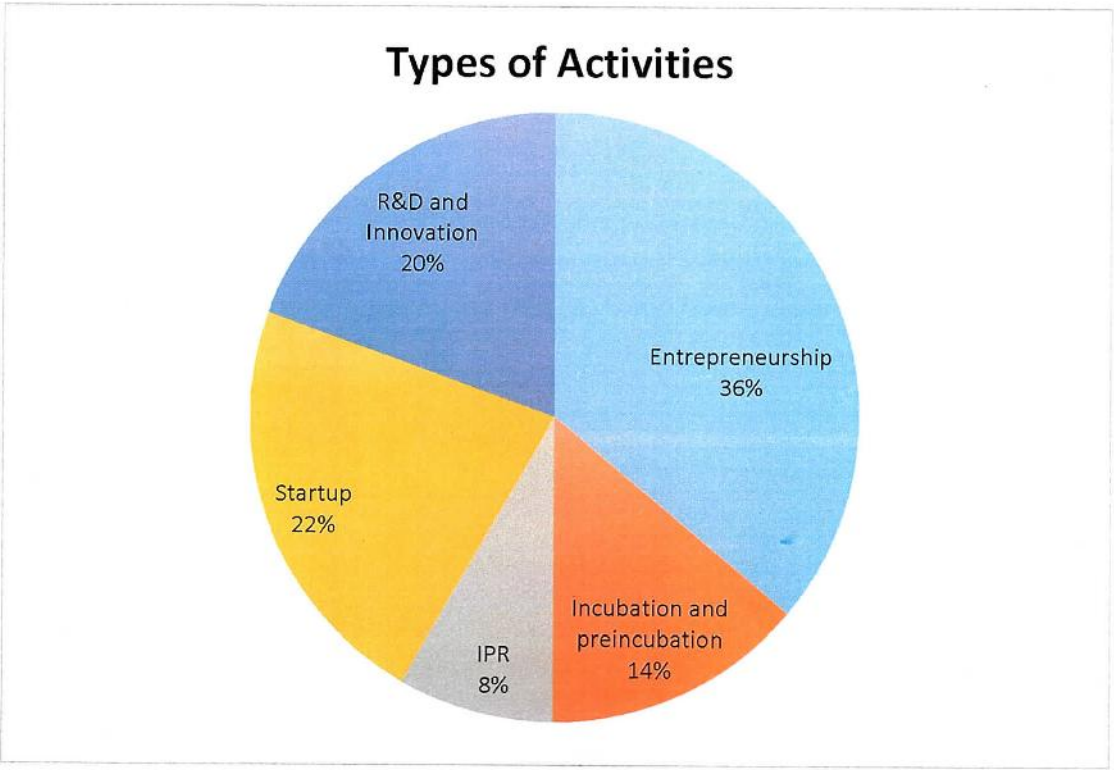

Figure 2: Distribution of different types of IIC 3.0 activities

➢ The details of the activities presented in the pie chart are mentioned in the table below:

S.No.	Title of Activity	Program Type	Theme	Quarter	Category
1.	Orientation Session on National Education Policy (with a focus on Innovation and entrepreneurship	Leadership Talk	Entrepreneurship	1	IIC calendar activity
2.	Pitching workshop &	Workshop	Startup	1	IIC

	Boot camp; linkage of innovators with Innovation Ambassadors				calendar activity
3.	My Story - Motivational Session by Successful Entrepreneur/Startup founder.	Motivation Speech	Entrepreneurship	1	IIC calendar activity
4.	Ideation for Incubators at Institute Level	Mentor meeting	Incubation and Pre Incubation	1	IIC calendar activity
5.	Logo And Slogan Competition For Pre Incubation Center	Competition	Incubation and Pre Incubation	1	Self Driven
6.	KAPILA: Kalam Program for IP Literacy and Awareness	Workshop	IPR	2	MIC driven
7.	Workshop on INNOVATION MINDSET - Lab to Land	Workshop	Innovation & Incubation and Pre Incubation	2	Self Driven
8.	IKS Orientation Session - Indian Traditional knowledge awareness	Preparation of herbal calendar 2021 – publication of a book	Incubation and Pre Incubation	2	MIC driven
9.	Orientation Session on National Innovation and Startup Policy (NISP)	Leadership Talk	Startup	2	IIC calendar activity
10.	Orientation session for all students & faculties of Institute by Innovation Ambassador	Motivation Speech	R&D and Innovation	2	IIC calendar activity
11.	Workshop on Entrepreneurship Development Phases	Workshop	Entrepreneurship	2	IIC calendar activity
12.	Session on identifying Intellectual Property component at the early stage of Innovation	Workshop	R&D and Innovation	2	IIC calendar activity
13.	Workshop on Intellectual Property Rights (IPRs) and IP management for start up	Workshop	IPR	3	IIC calendar activity
14.	Interactive Session/Mentoring Session "Successful Start-up founders" (Entrepreneurs in Campus)	Workshop	Entrepreneurship	3	IIC calendar activity
15.	Business Plan/Prototype Competition to Invite	Competition For Two Days	Design Thinking & Critical	3	IIC Calendar

	Innovative Business Models from Students		Thinking		Activity
16.	Workshop on Prototype/Process Design and Development – Prototyping: Ideation to Prototyping	Leadership Talk	Startup	3	IIC Calendar Activity
17.	Field/Exposure Visit to Incubation Unit/Patent Facilitation Centre/Technology Transfer Centre/ Co-working spaces	Field Visit	R&D and Innovation	3	IIC Calendar Activity
18.	Session/ Workshop on Business Model Canvas (BMC)	Workshop	Startup	3	IIC Calendar Activity
19.	Talk on "From your Ph.D./ Masters Thesis to a start-up	Leadership Talk	R&D and Innovation	3	MIC driven
20.	Session on Why IP is important in academia?	Leadership Talk	IPR	3	MIC driven
21.	Words, Intentions & Expression - The Trinc of Expression: Essentials in Entrepreneurship	Leadership Talk	Entrepreneurship	3	Self Driven
22.	Becoming Your Own Master: Entrepreneurship Basics	Leadership Talk	Entrepreneurship	3	Self Driven
23.	Booster Shot for India: 2021" – Rebuilding Confidence, Rebooting Economy	Motivation speech	Startup	3	Self Driven
24.	Molecular and genetic skill development workshop	Worskhop	R&D and Innovation	3	Self Driven
25.	Today's Readers are Tomorrow's Leaders	Motivation Speech	Entrepreneurship	3	Self Driven
26.	Semester Break : Internship at startup.	Internship	R&D and Innovation	4	IIC Calendar Activity
27.	Session on Angel Investment/VC Funding Opportunity for Early Stage Entrepreneurs – by Hanisha Vaswani	Leadership Talk	Startup	4	IIC Calendar Activity
28.	Organise Session on "Lean Start-up & Minimum Viable	Workshop	Entrepreneurship and Startup	4	IIC Calendar Activity

	Product/Business"- Boot Camp (or) Mentoring Session – Entrepreneurial Capacity Building				
29.	Session on Accelerators/Incubation - Opportunities for the Students & Faculties - Early Stage Entrepreneurs	Entrepreneurship	Incubation and Pre Incubation	4	IIC Calendar Activity
30.	Session on Prototype Validation - Converting Prototype into a Start-up	Workshop	Entrepreneurship and Startup	4	IIC Calendar Activity
31.	National Webinar on Research, Innovation and Ranking	Leadership Talk	R&D and Innovation	4	MIC driven
32.	World Entrepreneurs Day Celebration	Motivation Speech	Entrepreneurship	4	MIC driven
33.	Cracking cases with Digital Forensics: An entrepreneur approach	Leadership Talk	Entrepreneurship	4	Self Driven
34.	Role Of Biodiversity Act For Entreprenuers	Leadership Talk	Entrepreneurship	4	Self Driven
35.	Be the Architect of your Career: Skills in the New Normal World	Motivation Speech	Entrepreneurship	4	Self Driven
36.	Importance Of Research Methodology In Innovation	Motivation Speech	R&D and Innovation	4	Self Driven

- **No. of student's & faculty ideas generated:**

S.No.	Title of Innovation	Stage	Theme
1	Coliform diversity for personalized medicine	Ideation	Healthcare & Biomedical devices.
2	Fungal Pigment from Mushrooms	Ideation	Food Processing/Nutrition/Biotech
3	Potability of water - detection kit	Ideation	Clean & Potable water
4	Spectroscopic Study of Organic dye and Biological molecule embedded in sol-gel glass	Ideation	Material Synthesis and Stability

- **No. of student's & faculty Innovation/prototypes developed:**

S.No.	Title of Innovation	Stage	Remark
1	Fire Retardant Gel	Prototype	NA
2	Smart Shopping Cart	Prototype	NA
3	Sign Language To Speech	Prototype	NA

R.D. & S.H. National College Bandra (W), Mumbai-50. S.W.A. Sci. College

	Convertor		
4	Myogenic Prosthetic Arm	Prototype	NA
5	HEMOCO for Divyaang	Prototype	1st position at State Level in Avishkar: A Research Convention; Won the ZEE 24 TAAS Young Innovator award, held third position in the basic sciences category at National Level Anveshan
6	Gas Leakage Alert And Control System (GLACS)	Prototype	Won the third prize at the District level in Avishkar: A Research Convention
7	Smart Drone	Prototype	NA
8	De-Oiling OTG	Prototype	NA
9	Coin Based Mobile Charging Using Solar	Prototype	NA
10	Search And Rescue Robot	Prototype	NA
11	Vehicular Anti Theft Control System	Prototype	NA
12	Earthquake Detection And Alert System	Prototype	NA
13	Optimization Of Crop Yield	Prototype	NA
14	Digital Soldering Station	Prototype	NA
15	Web Interfaced Automated Detection And Penalization On Over Speeding Vehicles	Prototype	NA
16	Overfoot Piezo Energy Generator (OPEG)	Prototype	NA

- **No. of IPs generated, published and granted**

S.No.	Title	IPR Type	Status
1.	**Use of Natural pigments for production of various colored Nutritional gummy supplement**	Patent (202121023956)	Published
2.	**Peptone Induced Pigment Production of Ganoderma Lucidum**	Patent (202121025566)	Published

- **No. of Student & Faculty Start-ups/Ventures established.**

S.No.	Name of Startup	Category	Classification
1.	Earth Rituals	Startup	Student
2.	Entrepreneur in Baking	Venture	Student

- Amount spent on promotion and awareness generation on Innovation Entrepreneurship in the campus: ~ **30000/- per Annum**

- Amount grant or fund supported to student & Faculty lead Innovations, start-ups and IPR - **NIL**

- No. of Technology Transfer and Commercialisation happened - NIL

F. Highlight few best IIC Faculty/Student members and their achievements/ Rewarded for the innovations at different forum:

- Mrs. Rashmy Panday got selected for two months sponsored 5th Cohort of Agripreneurship Orientation Programme under RKVY-RAFTAAR at CCSNIAM, Jaipur, Rajasthan.
- **HEMOCO for DIVYAANG**
  The important input devices of computer are mouse and keyboard. Due to lack of input devices, people with disabilities find it difficult to use computers and smartphones. This project will help them to use computers and smartphones with the help of their head movements and eye blink. This device will assist people with disabilities to use computers and smartphones. It uses an accelerometer based tilt sensor for movement of mouse on the screen, IR based eye blink sensors for the click operation of the mouse and is controlled using an ARDUINO Leonardo. **Won the ZEE 24 TAAS Young Innovator award, held third position in the basic sciences category at National Level Anveshan: At Research Convention, 1st position at State Level in Avishkar: A Research Convention.**
- **GAS LEAKAGE ALERT AND CONTROL SYSTEM (GLACS)**
  A microcontroller-based gas leakage alert and control system. It is proposed as a compact and affordable solution to counter domestic gas leakage and fire hazards. The system consists of a gas sensor for leakage detection, buzzer to raise an alarm in case of leakage, a stepper motor to turn off the regulator, a fan to dissipate the gas, GSM module to inform the owner and the nearest fire station in case of a fire and a PIR sensor to detect human motion. **Won the third prize at the District level in Avishkar: A Research Convention.**

G. Highlight selected best Innovations & images with mention of inventor/innovation name:

i. SMART DRONE

Drones are widely perceived as gadgets of leisure that are sent to the skies to shoot impressive aerial photographs and high-definition video. While they're commonly used for entertainment, our study reveals that there's also a range of business applications for drones across various industries, resulting in a significant potential market that can be expected to grow exponentially. Today, drones are sophisticated observers. They can capture data more efficiently than traditional alternatives. They also significantly reduce risks associated with specific observations, eliminating the need for humans to be physically present in hazardous environments. The commercial use of drones is approaching the 'plateau of productivity' But evolving from REMOTE CONTROLLED flying robot to REMOTELESS including a degree of autonomy will be innovation added to Multi rotors and Heli rotors technology. Through software controlled flight plans in their embedded systems working in conjunction with onboard sensors and GPS will give an autonomous control to Quad copter. It can SEE and FLY INTELLIGENTLY.

ii. FIRE RETARDANT GEL

The Nano-composite gel & Powder prepares by sol-gel reaction at room temperature and thus the prepared gel is used as a fire resistance for cloth, paper , wood and plastic. Whereas normal sol-gel glass or powder is used as a host material for doping various organic & biological molecules. . The samples prepared by this sol-gel method shows good optical, structural fire resistive properties. The present work mainly consist of preparation of sol-gel in gel form or powder form. The gel was applied to a certain part of the cloth , which was then exposed to fire. Then it is observed that only the gel coated part of that cloth is not burned where as the remaining part of the cloth was totally burned. Similarly we have tested on different material such as paper, plastic wood and rubber.

iii. OPTIMIZATION OF CROP YIELD

Cropping is an important and a tedious activity for any farmer, and for large scale farms this activity is so lengthy that it requires more workers. This also limited the size of field that can be planted. Thus machines were introduced to simplify the human efforts. In automated method of seed planting, we get accurate results for equal placed seed sowing and fertilizer distribution. Also a large area could be covered using the machine. The main objective here is to use the automated vehicle to increase crop yield by first characterizing the properties of soil using NPK meter, selecting the crop suitable for the soil as per the properties followed by equal distant distribution of seeds and fertilizers.

iv. DE-OILING OTG

Fried food items (specially the one's deep fried) retain a lot of oil on their surface and also absorb a good amount of it too. This oil leads to a lot of health issues related to cholesterol and heart, and along with it, it also makes food fattier and diminishes the taste. This machine based on basic principle of centrifugal force helps reduce this unwanted oil and hence enhance the quality of food. It can be used as a simple household appliance on a daily basis, replacing other ovens and heater appliances, as this can not only de-oil the food but can also bake, grill, fry, cook making our lives more easy and healthy.

v. SMART SHOPPING CART

Nowadays shopping at malls is becoming a daily activity in metro cities as it's a one stop solution for all requirements. Due to this there is always alot of rush at the malls on holidays and weekends. What's dreading are the long billing queues and the time that would be wasted after one has collected all the items they require. Thus we have developed an automated system that can be used in shopping malls to solve this problem of rush at the billing counters. The main component of our device is the RFID reader which is controlled using the Arduino. The customer at any time can check the total worth of the products in the cart and can thus easily add or subtract items further.

vi. COIN BASED MOBILE CHARGING USING SOLAR

Nowadays mobile phones have become an essential commodity for business as well as personal communication. This coin operated mobile phone charger system is a new application for those areas where charging resources are not readily available. This system converts sun(light) energy into electrical energy which is stored in a battery that can be used for charging the phones as and when required. However one gets an access to this charge point when a coin of the correct denomination has been entered into the system. This can be implemented in the public places like railway stations, bus stands, atms, etc to provide mobile charging facility.

vii. SIGN LANGUAGE TO SPEECH CONVERTOR

Due to lack of means of communication for people with speech and hearing disabilities with normal people, their development is hindered in many ways. They can't go to normal college, it is difficult for them to seek help on the way as people around will not be able to understand properly and many such difficulties cut them out from this rapidly evolving world. This project aims to find a way to make communication between people with such disabilities and normal population much easier and convenient. The Sign language to speech converter we devised is a neural network based system which takes in as input the hand movement sequence and convert it into corresponding text. This text is then sent to a mobile app via Bluetooth which converts that text into speech. Hand movement is tracked using a wearable sensor embedded hand glove.

viii. SEARCH AND RESCUE ROBOT

Serpentine robots are multi-segmented vehicles. Inspection task in hazardous environment have one need in common: small sized mobile robots that can travel across the rubble of a collapsed building, squeeze through small crawl-spaces, and slither into small openings. One species of mobile robot that promises to deliver such great mobility is the so called Serpentine or Snake robot. Based on their physical structure and design these robots could have great mobility in their movements. Our project aims to provide all the above mentioned features along with a live camera screening which could help the rescue team detect beings trapped in such situations at a faster rate. The entire system is controlled using a Raspberry pi microcontroller.

ix. **MYOGENIC PROSTHETIC ARM**

A prototype of a myogenic sensor and a robotic arm which can be 3D printed and further used as a myogenic prosthetic arm is presented. The arm is electronically actuated by virtue of servo motors triggered in response to the muscle signals of the user relayed by the means of the myogenic sensor and controller. The myogenic sensor used, is designed and built by us and has adjustable sensitivity. The bionic arm presented has the potential to be used by an amputee or a person born without a limb. This type of technology does exist although it is expensive and generally not available to people in developing countries.

x. **VEHICULAR ANTI THEFT CONTROL SYSTEM**

This project deals with the design and development of a theft control system for automobiles. The developed system makes use of GSM and GPS technology. The ARDUINO acts as a controlling head of the system. In this project the GSM Module sends alerts message to the owner and based on the response received, Arduino takes the necessary actions. The project proposes a GPS modem that tracks the vehicle location, and the obtained location will be sent to the authorized person (owner of the vehicle).

xi. **EARTHQUAKE DETECTION AND ALERT SYSTEM**

This project is about an embedded system which detects the vibrations of the surface on which it is placed and alerts the people in its surroundings. This system uses an accelerometer based tilt sensor to detect the vibrations due to earthquake and alerts people with the buzzer sound along with displaying a message on the LCD screen and also alerts the concerned authorities via SMS using GSM-GPS module. The entire system is controlled by the Arduino UNO microcontroller. The project could be useful in the earthquake prone areas.

xii. **DIGITAL SOLDERING STATION, WEB INTERFACED AUTOMATED DETECTION AND PENALIZATION ON OVER SPEEDING VEHICLES, OVERFOOT PIEZO ENERGY GENERATOR (OPEG)**

- A microcontroller based digital soldering station.
- An affordable and easy to use system which can be easily incorporated in the existing soldering irons.
- It controls the temperature of the soldering iron tip using a 555 timer IC and thus protects the system from over heating.
- Has a mechanical feeder controlled by a switch which uses a two gear motor to pass the solder wire through it.
- If unused for more then 10minutes at a stretch, then the system automatically shuts off.

xiii. **WEB INTERFACED AUTOMATED DETECTION AND PENALIZATION ON OVER SPEEDING VEHICLES**

The system basically consists of a GSM module for sms sending, speedometer to display the speed of the vehicle and abs sensor to detect the speed. If the driver of the vehicle goes beyond a speed (in this case, 40kmph) close enough to the allowed speed limit(say 45kmph), an alarm inbuilt in the system will go on and warn the driver. If the driver still continuous to drive at a speed beyond this range, then GSM Module comes into action. It will send a standard message to nearest traffic station about the vehicle's overspeed. The traffic authority then can have access to the vehicle owner's information which will include vehicle's data (car registration number) and owner's bank account details. The authority will deduct the fine which is preset

by the Traffic Control Authority. After the deduction has taken place, an sms will be sent to the owner on the registered mobile number. Incase of insufficient balance in the account, an sms regarding same would be sent to the owner and he will be expected to pay the fine within 3days at the nearest traffic station. If he fails to do so then an sms with the details will be sent to the traffic officer for further action.

xiv. **OVERFOOT PIEZO ENERGY GENERATOR (OPEG)**
This project mainly aims at using the energy generated by human footfall during locomotion in our day to day life. It consists of piezo buzzers which are basically transducers that convert mechanical energy into electrical form. The transformed energy is stored in batteries which can later be used in various home applications, agriculture, etc.

Refer Figure 4 for photos of the prototypes developed in the college.

H. Highlight selected start-ups established by students/faculties with mention of founder/cofounder name

Earth ritual: Rituja Dandekar: This start up has been fully supported for preparing formulation lab testing and mentoring support by herbal cosmetic laboratory of college. The screenshot for the same has been provided below in Figure 3.

Figure 3: Screenshot of the Flyer of the startup 'Earth Ritual' supported by the college IIC

I. List if any break through Innovations / Technology Developed at the institute (2-3 technology with 2-3 lines about technology and innovation):

1. Department of Botany and Biotechnology has developed a cost-effective Potable water testing kit based on hydrogen sulphide assay which can be performed without any technical knowledge. The test kit can be prepared in a low cost laboratory.

2. Department of Physics has prepared prototype in various technology, few of them have been selected further by FICCI for financial support. The details are as follows:

i. **HEMOCO for DIVYAANG**

The important input devices of computer are mouse and keyboard. Due to lack of input devices, people with disabilities find it difficult to use computers and smartphones. This project will help them to use computers and smartphones with the help of their head movements and eye blink. This device will assist people with disabilities to use computers and smartphones. It uses an accelerometer based tilt sensor for movement of mouse on the screen, IR based eye blink sensors for the click operation of the mouse and is controlled using an ARDUINO Leonardo. **Won the ZEE 24 TAAS Young Innovator award, held third position in the basic sciences category at National Level Anveshan: At Research Convention, 1st position at State Level in Avishkar: A Research Convention.**

ii. **GAS LEAKAGE ALERT AND CONTROL SYSTEM (GLACS)**

A microcontroller-based gas leakage alert and control system. It is proposed as a compact and affordable solution to counter domestic gas leakage and fire hazards. The system consists of a gas sensor for leakage detection, buzzer to raise an alarm in case of leakage, a stepper motor to turn off the regulator, a fan to dissipate the gas, GSM module to inform the owner and the nearest fire station in case of a fire and a PIR sensor to detect human motion. **Won the third prize at the District level in Avishkar: A Research Convention, 2017-2018**

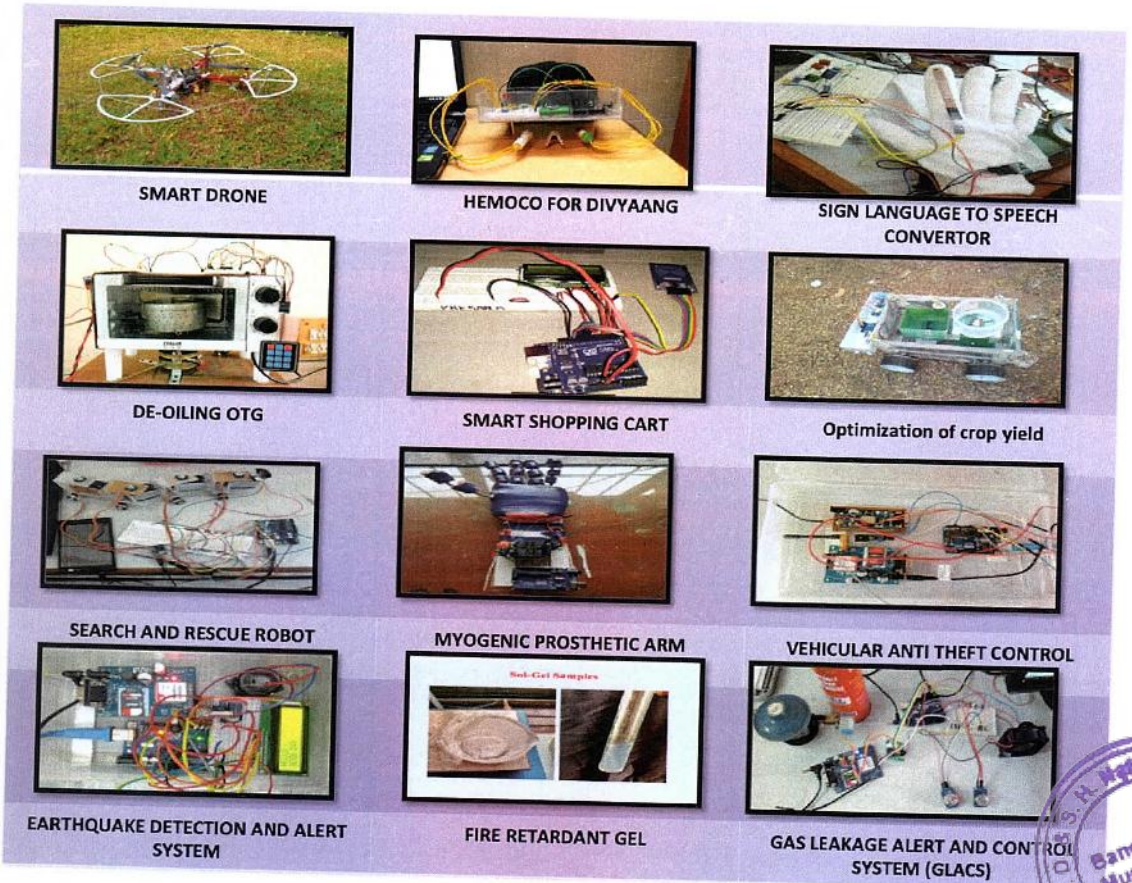

Figure 4: Prototypes developed at the college

J. **Participation of IIC-institute in various programs of Central and Stage Govt. Highlighting specially for the schemes or programs**

- ARIIA – no participation
- NISP Adoption status - Trained Faculty, Policy Formulation, Policy Implementation: Adoption, formulation, faculty training done.
- Smart India Hackathon: no

K. Detail of Social Media & Connections of IIC institute:

S.No.	Social media	Link
1.	Facebook	https://www.facebook.com/544873259379556/
2.	Instagram	https://instagram.com/rdnationalcollege?
3.	Twitter	https://twitter.com/rdnational?s=11

L. Testimonials from IIC members and externals about IIC institute and IIC of MoE's Innovation Cell:

S.No.	Testimonial	Link
1.	Rituja Dandekar: Earth ritual	https://drive.google.com/file/d/1OP-2w9oip9wgFw_cKqw-LL2VV-emlmyP/view?usp=sharing
2.	Mr. VedPraksh Yadav, Mr. Anubhav Dube , Mr. Aspak , Mr. Mrutunjay Tiwari	https://youtu.be/MfAjWYN8hd0
3.	Khushboo Chouhan, Sakshi Soni, Saloni Koli, Akash Kushwaha , Sayok Ghosh, Kanika Shetty, Eeshrita Jog, Surabhi Parkar & Tanvi Patil	https://youtu.be/zODXBoi75QQ
4.	Zee News Students involved - Sunil Sahani, Althea Barboza, Ariba Surve, Krushnali kapadia, Sayok Ghosh, Arushi Aslam Deepak Singh, Sakshi Soni, Kavan Thakur, Khushboo Yadav, Jaswantsingh Choudhary, Padma Bhat, Aditi Patil, Sanika Kamath, Saloni Koli	https://www.youtube.com/watch?v=lXDVfslRGso

M. Images

Figure 5: Collage of a few activities conducted in the academic year 2020-21.

N. Contact

i. Designated Functionaries and contact:

S.No.	Designation	Name	Cell phone No.	Email address
1	Head of the Institution (Incharge Principal)	Dr. Neha Jagtiani	+91 99209 89602	principalrdn@gmail.com
2	President	Dr. Mona Kejariwal	+91 97020 40004	mona.kejriwal@rdnational.ac.in
3	Convener	Mr. Sahir Qaiyum Mansuri	+91 99202 56956	sahir.mansuri@rdnational.ac.in

ii. College Address: Rishi Dayaram And Seth Hassaram National College And Seth Wassiamull Assomul Science College Smt. Jotu Kundnani Chowk, Off Linking Road, Bandra West, Mumbai-50

iii. College website: https://rdnational.ac.in/#!home.html

The aforementioned report has been submitted by the college as a compulsory submission for IIC3.0.

Dr. Neha Jagtiani
(I/C) Principal

Dr. Mona Kejariwal
President, IIC 3.0

Mr. Sahir Qaiyum Mansuri
Convener, IIC 3.0

R. D. & S. H. National College Bandra (W), Mumbai-50. S.W.A. Sci. College


R. D. & S. H. National College
Bandra (W).
Mumbai-50.
S.W.A. Sci. College

Performance Report

Cumulative Performance Report for the IIC Calendar Year 2020-21

Bifurcation of Score and Reward Points

Score: 97.5 | Reward: 97.7778 | Rating: 3.5/4 | Fifth Star Rating: 0/1 | Final Star: 3.5/5

Activity Type	Activity Submitted	Total Number of Activities Approved	Total Threshold Number of Activities	Score (for minimum prescribed activities)	Adjusted Cumulative Reward Points For Additional Activities Beyond the Threshold Numbers for Each Category (Reflection in multiple of 100 with activity score)
IIC Calendar Activity Score for 1 activity=5.55 Minimum 9 activities	24	23	9	50 (Max Score=50)	77.78
MIC driven Activity Score for 1 activity=2.5 Minimum 8 activities	7	7	8	17.5 (Max Score=20)	0
Self-driven Activity Score for 1 activity 3.33 Minimum 9 activities	21	15	9	30 (Max Score=30)	20
Total	52	45	26	97.5 100	97.7778

Effective score range for Star allocation from Quarter 1 to Quarter 4:

Score Range	Star allocation
0<Score<=25	1
25<Score<=50	2
50<Score<=75	3
75<Score<=100	3.5

Score range for 5th Star allocation:

Score Range	Star allocation
0<Score<50	0
Score=>50	0.5

Parameters for 5th Star:

S. No.	Parameter	Weightage	Score Earned
1	Reward Points earned	30	5
2	Submission of Annual Report of IIC Institution 2020-21	15	15
3	Participation in Innovation Ambassador Training Program 10	10	10
4	Shortlisted Student Innovation teams from IIC institutions have reached the [illegible] (Business Plan development) as part of the National Innovation Contest 2020.	10	0
5	Participation and Hosting of Technothon 2021 program of MIC	10	0
6	Participation in [illegible]	10	10
7	Participation in ARIIA	10	0
8	Innovation Ambassadors from the IIC institutions had engaged as Mentor to the student teams as part of the National Innovation Contest 2020.	10	5
	Total	100	45

About My Institute
- My Profile
- My Council
- Submit Expert Session
- Manage Pre-Incubation / Incubation Details
- Performance Card

Manage Activity
e-Learning Resources
Handholding and Capacity Development
Innovation & Start-up Support
Referral & Linkage
Help Desk
Information Dissemination
Contact us

Weightage of each activity type:

Activity Type	Weightage in %	Q1	Q2	Q3	Q4	Total Score	Threshold Activities	Score for one Activity
IIC Annual Calendar Plan	50%	12.5	12.5	12.5	12.5	50	9	5.56
Self-Driven Activities	30%	7.5	7.5	7.5	7.5	30	9	3.33
MIC Driven Activities	20%	5	5	5	5	20	8	2.5
Total Score	100%	25	25	25	25	100	26	

Note: IIC calendar year is divided in 4 quarters. IICs can earn maximum 25 marks in each quarter.

*For the IIC calendar year 2020-21, considering the impact of national lockdown had adversely affected all HEIs in terms of deferring and squeezing academic and IIC calendar year, it further limited HEIs in terms nature and mode of activities conducted, and quality participations in comparison to physical mode of activities, further there is drastic reduction in on-campus engagements for innovation and startup generating activities during the period, a normalization approach was applied towards star allocation. Therefore, for the 2020-21, the maximum stars any institution can obtain is 3.5 out of 4 stars allocated . Similarly, for the 5th star, considering the criteria (mentioned in the performance card), the maximum star any institution can obtain is 0.5 star score out of 1upon fulfilling majority of these requirements. Institute can check the stars obtained in respective sections and total stars obtained at the top of the performance card. This applies to all IIC institutions irrespective of categories they belong to.

Ministry of Education
Government of India

MoE's INNOVATION CELL
(GOVERNMENT OF INDIA)

INSTITUTION'S INNOVATION COUNCIL
(Ministry of Education Initiative)

CERTIFICATE

Institution's Innovation Council (IIC) established at

Rishi Dayaram and Seth Hassaram National College and Seth Wassiamull Assomull Science College, MUMBAI

had undertaken various activities prescribed by Innovation Cell, Ministry of Education, Govt. of India to promote Innovation and Start-up in campus during the IIC calendar year 2020-21.

Prof. Anil D.Sahasrabudhe
Chairman
AICTE

Dr. Abhay Jere
Chief Innovation Officer
MOE, Innovation Cell

Mr. Dipan Sahu
Assistant Innovation Director
MOE, Innovation Cell

Certificate No : 547

Issued On : 2022-01-03

RISHI DAYARAM AND SETH HASSARAM NATIONAL COLLEGE AND SETH WASSIAMULL ASSOMULL SCIENCE COLLEGE

Annual Progress Report

(2021-22)

of

DBT Star College Scheme

Supported by Department of Biotechnology (DBT), Government of India

Departments Supported by The Scheme

- **Department of Biotechnology**
- **Department of Botany**
- **Department of Chemistry**
- **Department of Mathematics and Statistics**
- **Department of Physics**
- **Department of Zoology**

R.D. & S. H. National College Of Arts And Commerce And S.W.A. Science College, Bandra West, Mumbai, Maharashtra. 400050
Affiliated To University Of Mumbai Linking Road, Bandra (W), Mumbai – 400050 Maharashtra, India
Tel 022 2648 3544 / 2604 1777 Fax 022 2646 2620
E - Mail: rdnational1949@gmail.com

R.D. AND S.H. NATIONAL COLLEGE & S.W.A. SCIENCE COLLEGE

Bandra (W), Mumbai

Annual Progress Report of DBT STAR SCHEME (2021-22)

Supported by Department of Biotechnology (DBT), Government of India

1 **Name of the College** : **RISHI DAYARAM AND SETH HASSARAM NATIONAL COLLEGE AND SETH WASSIAMULL ASSOMULL SCIENCE COLLEGE**

2 **Name of Programme Coordinator for Star College Scheme** : **Dr. Mona Kejariwal, Assistant Professor**

Complete Address: Department of Botany,
R.D. & S. H. National College Of Arts And Commerce And S.W.A. Science College, Bandra West, Mumbai, Maharashtra. 400050
Phone: 02226004434
Email: monabansal@gmail.com
Mobile No: 9702040004/9987923125

3 **Assessment duration** : **01/04/2021 to 31/03/2022**

Duration in years: : **One Year**

4. **Details of Departments** :

S No.	Name of Department	Courses (B.Sc./M.Sc./PG Diploma, certificate etc.) offered	Regular Faculty members Total = 27	
			With Ph.D.	Without Ph.D.
1.	BOTANY	B.Sc. , Ph.D.	04	NIL
2	BIOTECHNOLOGY	B.Sc., M.Sc. ,	02 (02 ongoing)	03
3	CHEMISTRY	B.Sc., M.Sc., Ph.D.	05	01
4	MATHEMATICS & STATISTICS	B.Sc.	01	01
5	PHYSICS	B.Sc. , M.Sc.(by papers)	**03** (02 ongoing)	**03**
6	ZOOLOGY	B.Sc.	01(02 Ongoing)	03

5. Number & Date of Advisory committee meeting:

S.No.	Name of Dep.	Date	Name of advisor/expert	No. of faculty
1	Quarterly Advisory meeting	19/02/2022	Internal meeting with Principal Dr. Neha Jagtiani & Vice Principal Dr. Kiron Jathar	25
2	Annual progress Review meeting	4th June, 2022	Internal meeting with Principal Dr. Neha Jagtiani & Vice Principal Dr. Kiron Jathar	25
2.	Last Annual Advisory Meeting	**03/05/2021 Annexure: 2** 2a. Half yearly report 2b. Resolution & suggestion by committee	Externals: Dr. Garima Gupta, Scientist 'E', National Program Officer, DBT STAR College scheme. Dr. Vinita Deshpande (Former Head, Department of Physics, ICT) Dr. Rajesh Singh, (Director, IIL, R T M Nagpur University, Nagpur) Dr. Indu Shastri (Former Head, Chemistry, RDNC)	27

R. D. & S. H. National College Bandra (W), Mumbai-50. S.W.A. Sci. College

Course Coordinator
(with seal)

Head of the Institution
(with seal)

6. Qualitative improvements due to DBT support.

Department of Botany:

1. Academic infrastructure improvement in the form of instruments and conduction of workshops, guest lectures improves overall quality of learning experience of students especially after pandemic where they have missed hands on experimentation.
2. Projects like Compost testing with BMC, Garden planning and Poster making in grandma's pouch has improved the interest of students in subject of Botany.
3. Online 5day training with March Innovation lab which was help in march, 2021, has resulted students' interest in Molecular biology and genetics and one students got selected for 3 months paid internship in Merck Laboratory, Chandigarh in association with IMTECH, CSIR.
4. Regular lecture series under Science-Setu series engaged students in second Covid waves to meaningful discussion and understanding the real industry-academia interface. This year we have planned a physical visit to NABI CIAB institute to give students real feel of plant biotechnology Applications and 3-day training under Merck innovation Laboratory, Chandigarh.
5. College has established Dhanwantri Medicinal garden with an external agency, with DBT infrastructure more projects will be given this year to students on various phytochemical and medicinal aspects.
6. Department faculty could publish quality research work in UGC Care list and two patents with undergraduate students.

Department of Biotechnology:

1. There is an uptick in student engagement and interest due to availability of equipment and accessories.
2. There is an increase in the number of students who want to pursue Biotechnology studies in their academic and professional career

Department of Chemistry:

1. The pandemic bought a difficult scenario to the teaching process, but with the help of the scheme the department was able to hold guest lectures, workshops training sessions online.
2. Tools such as the pen tab, acquired under the scheme has allowed the teachers to enhance their teaching narratives and has also made the process of online teaching easier.
3. Collaboration with different departments, industries and government bodies was made more accessible due to the scheme.
4. The scheme has given opportunity to procure expensive reference books and Scientific Journals which are necessary tools for enhance scientific knowledge.
5. The guest lecturers, workshops and training programs have provided new insight and help raise awareness on current ongoing topics like the pandemic, renewable source of energy etc.

Course Coordinator
(with seal)

Head of the Institution
(with seal)

Department of Mathematics and Statistics

1. The department could organize Online Instructional Workshop S.Y.B.Sc. / S.Y.B.A. Syllabus Mathematics Paper I (Semester III & IV). Conducted using link https://meet.google.com/uff-sqbf-omc on Friday July 9, 2021 from 3.00 pm to 5.00 pm. It is organized jointly with The Board of Studies in Mathematics, Mumbai University. Keynote address is given by Professor Sudhir R. Ghorpade, Department of Mathematics, IIT Bombay, Mumbai 400 076. It is followed by discussion on semester III and IV syllabus by teachers from different colleges under Mumbai university viz. Dr. Rajesh B. Raut, Dr. Ranjan Suresh Khatu, Deepak S. Jadhav, Dr. S. K. Pawar and Mugdha Kurambhatti. The link for recording is https://drive.google.com/file/d/1j5BP6BHpV16Lp90YZNHbV8hmQQbmhO8N/view?usp=sharing . There were 90 registration for this workshop.
2. The department in collaboration with the department of Physics could conduct online 3 sessions on "Problem Solving Using CAS (Computer Algebra System)". In these sessions Dr. Rajesh B. Raut demonstrated problem solving using different software. These presentation are done using Google Classroom link https://meet.google.com/mza-tmgc-syp?authuser=0 . There are 64 members using this classroom.
3. The department could arrange an online Workshop on R. There were 3 sessions conducted on March 05, 12 and 19 , 2022 from 2.00 pm to 4.00 pm. Mr. Parvesh Tiwari conducted there sessions for students and teachers from basics to applications in the industry. Around 191 participants were registered for this workshop. The department could arrange online talk by Dr. Mukund Sanglikar on 'Digital Technology' in the Workshop on 'Circular Economy' arranged by all the science departments of the college. The talk was on February 26, 2022 from 10.45 am to 11.30 am.
4. The department could arrange Field Visit to the Department of Mathematics and Statistics ICT Matunga, Mumbai. It is on March 14 , 2022 from 10 am to 1.30 pm. There were 17 students and 2 teachers of the department attending talks by faculties Dr. Ajit Kumar, Dr. Bhaumik and Dr. Vikram Aithal. Also computer labs are visited and information about departments and activities is shared.
5. The department could celebrate π-day on March 14, 2022. The students are encouraged to make flages with different objects in Mathematics and formula written on them. The department could do lamination of posters on Mathematicians and their work using funds from DBT recurring grant.
6. The department has purchased various Mathematical models using DBT grant 2021-22. The Mathematical models can be prepared and demonstrated. The experimental methods in Mathematics and Statistics make student learn more details. These methods expose students to steps in development of theorems and their applications. Thus students become more creative.
7. The department got a lab from Management which will help students and teachers to learn and use ICT techniques. The teachers and students can use equipment in lab to learn online courses by other institutes. Students and teachers can learn various data analysis tools.

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Department of Zoology:

1. Project on "Faunal Diversity on Birds/Insects/Pisces (Fish)/Molluscan Shells)" was carried out very well by students due the camera, binoculars and spotting scope and other field equipment.
2. Better hands on training was imparted using occulometer, microscopes, trinocular camera microscopes, lab equipments, etc
3. Better interaction with scientists, academician, livelihood specialist, etc to get know how and skills necessary for working in field, lab setups and entrepreneurial scopes.
4. Training to Teachers and Non-teaching for First Aid –Unique in Covid Era.

Department of Physics:

1. Under the DBT Star Scheme the department arranged online and offline guest lectures and invited talks on varied topics like Digital Forensics, Astrology and Astronomy, E – Vehicle, Radiation measurements and protection measures, Nuclear Energy program of India for the staff and students.
2. The department also arranged two offline workshops. One day workshop on "Beneficial effects of Radiation & Indian Nuclear Energy Programme" in association with Indian Association of Radiation and Protection (IARP) BARC attended by 120 students from Physics, Chemistry, Maths, Botany, Zoology of FYBSc, SYBSc, TYBSc & MSc Physics which also had demonstration experiments on Nuclear Physics and Radiation measurements. Two days hands on interdisciplinary training of the Physics faculty and final year under graduate students of BSc & BCom on "How to assemble computer and network cable crimping was organized to understand the networking hardware and develop skills on handling the various tools of network cabling.
3. This year the department conducted a one day interactive seminar, "Synergy of Physics" with the alumni of the department explaining the students the recent trends in Physics in the industry and career opportunities in Physics.
4. CINEFIZZICS a half day activity where the students were shown movies and explained the laws of Physics used in astronomy.
5. One day visit to Magnetic Observatory, Indian Institute Of Geomagnetism, Alibaug, where 90 students from Physics, Chemistry, Maths, Botany, Zoology of FYBSc, SYBSc, TYBSc & MSc Physics gained the knowledge on advances in Geomagnetism and the instruments used in weather forecasting.
6. With the support received from the DBT STAR SCHEME our students actively participated at the Inter University research convention AVISHKAR, thus encouraging and improving research skills. Eight projects were presented at the Zonal Level.
7. A three hour session on how to give interviews and group discussion was arranged for final year undergraduate and post graduate students to equip them with better skills for jobs.

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7. Any Novel aspect introduced or planning to introduce during the Scheme duration.

Department of Biotechnology	
•	An Innovative internal project was conducted in T.Y.B.Sc. (Sem-VI) for enhancing research skills like literature survey and review, data interpretation and analysis, plagiarism and ethics etc. in scientific writing and presentation to external experts. A software – Plagiarsim Checker was used to check plagiarism in the project reports and was one of the assessment parameters.
•	Introduction and practice of research writing pertaining to reference and citation styles, and their tools like Mendeley, Zotero etc. in F.Y.B.Sc. and S.Y.BSc.
•	A book writing exercise has been initiated with students and should complete by June 2021.
•	All teachers of the department were trained as facilitators for inculcating STEM based approaches in the students.
•	Department plans to organize an international online conference on 'Frontiers in Biological Science Research' for all the UG and PG students of Biology in the country.
•	An innovative exercise was conducted to comprehensively understand the different morphological, staining and biochemical tests for identification of bacteria using GoogleSheets.
Department of Botany	
•	A six months integrated training cum project with BMC on compost testing where interested students Where taken to society and they were given actual demonstration of waste segregation, composting by various mean and then testing it in laboratory for its physical, chemical and biological aspects.
•	Planning to reorganize the existing botanical garden where endemic, rare species of plants and species of medicinal and plants having nutritional value will be conserved.
•	To develop a nutraceutical formulation of probiotics utilizing indigenous varieties.
•	Gel hand-sanitizer making exposed students to laboratory instrument after pandemic.
•	Facility on Bioinformatics and Information Retrieval.
•	Minor research project cum internship on 'Medicinal Botany' (blended course) for students is being planned.
Department of Chemistry	
•	Various hands on sessions on instrumentation and milk testing project in laboratory help students to gain confidence in laboratory.
•	A workshop for frequently used analytical methods like Chromatography, UV-Visible spectroscopy and IR Spectroscopy was organized for UG and PG students of the department.
•	A full day workshop on First Aid was planned for the Non Teaching and Teaching staff of the college in March that has been postponed, due to 2nd wave of COVID-19, to a later date.

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Department of Physics	
•	The department had conducted a two day workshop on "Preparation of Thin Films", with the able guidance of resource persons from SAURASHTRA UNIVERSITY and INSTITUTE OF TECHNOLOGY (ICT), Mumbai in 2019 - 2020. Some samples made in this workshop were sent for characterization. The undergraduate students made poster and oral presentations of the research outcomes of this
•	Activity at International and National level conferences this year and have won prizes, these papers will be published.
•	Created digital repository of various UG & PG experiments and uploaded the same on YouTube
•	A Lab Manual on "How to assemble, troubleshoot Personal Computer and Basics of setting up Computer Network" was the outcome of the two day interdisciplinary workshop.
•	Several sessions were taken to enhance the mathematical skills of undergraduate students to understand concepts in Quantum and Mathematical Physics
•	Summer Internship & projects for the UG students will be arranged with various companies and academic institutions.
•	A Lab Safety Manual to be designed on Laboratory Ethics and Electrical Hazards
•	An offline Instrument audit has been planned for all the science departments
Department of Zoology	
•	Value addition to animals food products –Demonstration of Prawn pickle process (An entrepreneurial activity)
Department of Mathematics & Statistics	
•	Introduction to free software for Mathematics and Statistics (Geogebra, R, Python, SageMath etc.) Further comparative study of free and paid software to be done. And trying to develop program useful in studying Mathematics and Statistics.

8. Lessons learnt/difficulties faced/suggestions/challenges experienced in implementation of the program and utilization of DBT grant.

1. The offline interaction could not be done because of restrictions due to COVID-19. Thus it became difficult to use lab facility by students and teachers.
2. Since there are restrictions on spending recurring grant on software, some advanced softwares could not be bought.
3. Having laptops or minicomputers can help more because of portability. These machines could be taken to class and used for demonstrations more easily. If DBT allows us to buy it from recurring grant it will be very useful for the department.
4. Delay in acquiring chemicals needed for future program execution.
5. Lockdown and phases wise relaxation in the Initial part of the year led to slow initiation of the activities.
6. Uncertainty of grant disbursal in the 3rd year of the scheme affected the yearly plan. Books and other planned activities could not be conducted however previous year grant which could not be utilized due to pandemic has been utilized in last three months.

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9. Key Performance Indicators

9 (1.) No of Students admitted:

9. Key performance indicators														
9 (1.) No of Students admitted														
F. Y.B. SC	**Pre-support (2018-19)**							**During /After Support (2021-22)**						
Departments	**Enrolled**			**Category**				**Enrolled**						
	T	**M**	**F**	**G**	**SC**	**ST**	**OBC**	**T**	**M**	**F**	**G**	**SC**	**ST**	**OBC**
Botany	**119**	**45**	**74**	**108**	**5**	**0**	**6**	88	24	64	**82**	**3**	**0**	**3**
Zoology	**119**	**43**	**76**	**110**	**4**	**0**	**5**	**88**	**28**	**62**	**82**	**3**	**0**	**3**
Chemistry	**173**	**72**	**101**	**161**	**6**	**0**	**6**	130	49	81	**118**	**5**	**0**	**7**
Physics	**96**	**56**	**40**	**92**	**2**	**0**	**2**	**74**	**40**	**34**	**66**	**2**	**0**	**6**
Maths	**62**	**40**	**22**	**60**	**1**	**0**	**1**	**40**	**30**	**10**	**35**	**2**	**0**	**3**
Statistics	**25**	**20**	**5**	**24**	**0**	**0**	**1**	**15**	**11**	**4**	**10**	**2**	**0**	**3**
Biotech	**37**	**8**	**29**	**35**	**0**	**0**	**2**	**38**	**30**	**8**	**32**	**3**	**0**	**3**
S. Y.B. SC	**Pre-support (2018-19)**							**During /After Support (21-22)**						
Departments	**Enrolled**			**Category**				**Enrolled**						
	T	**M**	**F**	**G**	**SC**	**ST**	**OBC**	**T**	**M**	**F**	**G**	**SC**	**ST**	**OBC**
Botany	**69**	**26**	**43**	**62**	**3**	**0**	**4**	**51**	**11**	**40**	**45**	**3**	**0**	**3**
Zoology	**80**	**22**	**58**	**73**	**2**	**1**	**4**	**73**	**13**	**60**	**68**	**3**	**0**	**2**
Chemistry	**69**	**31**	**38**	**64**	**1**	**1**	**3**	**85**	**26**	**59**	**75**	**5**	**0**	**5**
Physics	**38**	**23**	**15**	**35**	**1**	**0**	**2**	**52**	**32**	**20**	**45**	**4**	**0**	**3**
Maths	**13**	**9**	**4**	**13**	**0**	**0**	**0**	**8**	**7**	**1**	**6**	**1**	**0**	**1**
Statistics	**19**	**9**	**10**	**17**	**1**	**0**	**1**	**11**	**11**	**0**	**10**	**1**	**0**	**1**
Biotech	**32**	**8**	**24**	**23**	**3**	**0**	**6**	**34**	**26**	**8**	**28**	**3**	**0**	**3**
T. Y.B. SC	**Pre-support (2018-19)**							**During /After Support (2021-22)**						
Departments	**Enrolled**			**Category**				**Enrolled**			**Category**			
	T	**M**	**F**	**G**	**SC**	**ST**	**OBC**	**T**	**M**	**F**	**G**	**SC**	**ST**	**OBC**
Chemistry	**50**	**17**	**33**	**49**	**0**	**1**	**0**	**61**	**17**	**44**	**56**	**4**	**0**	**3**
Physics	**20**	**11**	**9**	**17**	**1**	**0**	**2**	**42**	**22**	**20**	**38**	**2**	**0**	**2**
Biotech	**30**	**9**	**21**	**26**	**1**	**0**	**3**	**38**	**28**	**10**	**32**	**3**	**0**	**3**
Remark: College has T.Y.B.Sc. in mentioned subjects only therefore students who have Zoology &Botany combination in SYBSC have to change their college in TYBSc.														

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9. (2-5) - 2. Passing out (pass %); 3. Drop-out rates; 4. No. of students opting for MSc; 5. Average marks

Class	Name of Department	Pass Percentage		Drop out %		Average marks		Student opting for MSC	
		Pre-support (2018-19)	During /After Support (2021-22)*	Pre-support (2018-19)	During /After Support (2021-22)*	Pre-support (2018-19)	During /After Support (2021-2220)*	Pre-support (2018-19)	During /After Support (2021-2220)
F.Y.B.Sc	Botany	89	88	11	12	60%	68%		
	Zoology	87.89	89	7	11	63%	66%		
	Chemistry	54	85	46	15	53%	60%		
	Physics	86	87	14	13	67%	68%		
	Maths	30	63	70	37	45%	50%		
	Statistics	70	53	30	47	55%	56%		
	Biotechnology	93	96	7	4	69%	82%		
S.Y. B.Sc.	Botany	86	95	14	5	70%	71%		
	Zoology	92.45	98	15	2	71%	71%		
	Chemistry	91	97	9	3	60%	62%		
	Physics	82	96	18	4	66%	67%		
	Maths	38	95	62	5	45%	46%		
	Statistics	58	81	42	19	49%	52%		
	Biotechnology	95	96	5	4	70%	85%		
T.Y.B.Sc.	Chemistry	66.66	93.33	21	01	65%	65%	16	16
	Physics	50	97	25	04	69%	71%	15	16
	Biotechnology	100	100	0	0	70%	89%	20	20

9.(6) No. of hands-on experiments being conducted: (Upgraded)

All the practical exercises mentioned below have been upgraded to some additional techniques with the help of some instruments/chemicals/industry visit which have been procured in DBT STAR College scheme and performed individually by students then as demonstration prior to scheme. Department list is as follows:

Department of Biotechnology		
S.No.	**Name of Extra practical/upgraded practical**	**Class & No of Beneficiaries**
1.	Studying effects of Abiotic factors of Draught, toxic chemicals and alkaline conditions using mannitol, Copper Sulphate and sodium chloride respectively on seed germination as well as plant growth	T.Y.B.Sc. – 38 S.Y.B.Sc. – 38
2.	Extraction of genomic DNA plasmid DNA from *E.coli* and analysis of bands after Gel Electrophoresis using Gel documentation unit	S.Y.B.Sc. – 38 F.Y.B.Sc.- 40

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Department of Botany		
1.	Garden Plan and management	S.Y.B.Sc. – 52
2.	Herbarium making	S.Y.B.Sc. – 30 F.Y.B.Sc. – 52
3.	Study of Leaf Morphology Inflorescence	F.Y.B.Sc. – 88
4.	Study of Plant Families	S.Y.B.Sc. – 52 F.Y.B.Sc. – 88
5.	Economic importance of Brown algae	S.Y.B.Sc. – 52
6.	Formulation of gel Sanitizer	S.Y.B.Sc. – 30 F.Y.B.Sc. – 50

Department of Chemistry		
1.	Redox Reaction of $KMnO_4$ and $NaHSO_3$ under different conditions	45
2.	Synthesis of Di-benzalacetone purification and Techniques used for measuring physical constant	40
3.	Thin Layer Chromatography	40
Department of Physics		
1.	Modulus of rigidity using Flat spiral spring **Extension of practical – Y by flat spiral spring: New method: η by flat spiral spring:** New elastic constant introduced	30 FYBSc Students
2.	Plotting of the graph of various experimental data using Microsoft Excel **Extension - Plotting of graph manually:** Demonstrate, encourage concrete experiences to develop their reflective observation along with runtime change in data or formulas.	30 FYBSc Students
3.	R. P. of Prism using prisms of different material **Extension – R. P. of Prism:** Understanding whether the resolving power of prism changes with the change in material of the prism	24 SYBSc Students
4.	Op-Amp as Logarithmic Amplifier on bread board **Extension – Application of Op-Amp:** Explains the use of this IC as a mathematical tool and explains how the components of a circuit can be changed in initial circuit designing using bread board	14 SYBSc Students
5.	8085 Microprocessor Programming **Extension - Basic Programming:** Programs on finding odd and even numbers in a given array of numbers, finding out the square root of given numbers, read keyboard programs	23 TYBSc Students
6.	Refractive index of different liquids using Ultrasonic Interferometer **Extension – R. I. of Liquids:** In depth understanding of the working of ultrasonic interferometer and measurement of R. I. of different liquids using ultrasonic frequency.	24 TYBSc Students
Department of Zoology		
1.	Estimate Free CO2 from given samples and compare the results.	FYBSC & SYBSC Zoology Students
2.	Determine moisture content from biscuits/ any other suitable food product	

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3.	Body Mass Index	
4.	Estimate Vitamin C from given sample.	
5.	Detect adulterants present in the given milk sample	
6.	Analyse the given food sample and identify food adulterants	
7.	Evaluate milk quality by Methylene Blue Reduction Test (MBRT).	
8.	Study of placoid scales of cartilaginous fish	
9.	Study of ctenoid & Cycloid scales of bony fish	
10.	To separate pigments by adsorption chromatography using chalk.	
11.	To prepare a pH indicator from natural sources as an alternative to Universal pH indicator	
12.	Study of population density by Line Transect method & Quadrant method and calculate different diversity indices. a. Index of Dominance.,b. Index of	
13.	Study of Prokaryotic cells (bacteria) by Crystal violet staining technique.	
14.	Qualitative test for Carbohydrates	
15.	Qualitative test for Protein	
16.	Qualitative test for Lipids	
Department of Mathematics & Statistics		
1.	The department use to conduct some sessions in practical on use of calculator and demonstrations of free software.	FYBSC & SYBSC Students
2.	In online teaching teachers use free (Python, GeoGebra, SageMath) and paid (Maple and MATLAB) softwares to demonstrate graphs of various functions and to explain calculations. The Geogebra classroom is used to make sessions interactive and giving students worksheet to work.	

9.(7) - **No. of new experiments/exercises introduced:**

Pre-support (2018-19) these experiment were not being conducted due to lack of instruments/chemicals/technical skill. Some practicals have been added which is not mentioned in syllabus but have appropriate curriculum connect. This has imparted application-based skills to students in basic sciences. The Department wise list for these practicals which has been added in 2021-22 is as follows:

Department of Biotechnology		
S.No.	**Name of Extra practical/exercise**	**Class & No. of Beneficiaries**
1.	Measuring moisture content of soil sample using a moisture analyzer	T.Y.B.Sc. – 20
2.	Demonstration of HPLC and analysisof its data	T.Y.B.Sc. – 38

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3.	Demonstration of computer hardwareand various types of ports for better assembly of a suitable computer for Bioinformatics and computationalBiology studies	T.Y.B.Sc. – 38 S.Y.B.Sc. – 38
Department of Botany		
1.	Study of Plant Morphology: Introduction of Morphometry to analyse Leaf shape, Leaf Apex and Leaf Base using the plant samples collected by the students	F.Y.B.Sc. – 88
2.	Documentation of Plant Diversity: Use of geotagging using mobile phone based App "Angle Cam"	F.Y.B.Sc. – 88
3.	Neutraceuticals: Concept of Prebiotics and probiotics as functional food and in daily diet	S.Y.B.Sc. –52
4.	Compost testing and evaluation (Physical, chemical and Biological) use of Moisture analyzer	F.Y.B.Sc. –25
5.	Herbal formulation development by some important ingredients from Grandma's pouch and Poster making	F.Y.B.Sc. – 88

Department of Chemistry		
1.	"Preparation of Solution Preparation of Solutions of various	95
2.	"Applications of Conductometry "	85
3.	"How to write monograph?"	50
4.	Investigation of proper condition for titration of permanganate with Oxalic acid	40
Department of Physics		
1.	**Applications of LDR :** Understanding the concept of LDR or Light Dependent Resistor is a kind of resistor that exhibit a wide range of resistance values depending on the intensity of light incident on its surface. The variation in the resistance range can be anywhere from few hundred ohms to many megaohms.	FYBSc, 25 students
2.	**Elastic constants of different rubber tubes:** Understanding of concept of elasticity & its comparison for different rubber tubes	SYBSc, 20 students
3.	**Study of communication using pulse modulation:** Understanding the ways of communication of signal using pulse modulation, done using kits bought under DBT: PAM, PWM, PPM	SYBSc , 20 students TYBSc, 30 students
Department of Zoology		
1.	To study how random genetic drift occurs by a hypothetical experiment using ICT.	FYBSC & SYBSC Zoology Students
2.	To study size of cells/Tissue components through occulometer.	
3.	Identification of birds – Morphology	
4.	Identification of birds – Calls	
5.	Identification of birds – Behaviour	
6.	Estimation of pH of various household products such as facewash, handwash, liquid soap,	
7.	Use of pH pen to find pH of different water samples eg. Pond water, sea water and well	
8.	Use of salinometer to find salinity of different water bodies	
9.	Use of tools and weapons in animals	
10.	Applications and products of Fisheries	
Department of Mathematics & Statistics		

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1.	**Geogebra** : 1. Continuity and differentiability. (FYBSC) 2. Curve Scketching. (FYBSc) 3. Calculations for Normal Disrtibution (FYBCOM). 4. Integrals (SYBSC	FYBSC & SYBSC Maths & Statistics Students
2	**Sagemath and Python:** 1. Continuity and differentiability of Vector fields (SYBSC) 2. Calculations of Taylor Series (FYBSC) 3. Differential Equations (SYBSC)	
3	**MATLAB and Scilab** 1.Calculation for basic statistics (FYBCOM) 2. Calculations using Numerical Methods (SYBSC)	
4	**Maple:** 1 Solving Differential equations (SYBSC)	
5	**R:** 1. Doing correlation and regression calculations.	

Table cont.

9. (8) - Publications (Scopus indexed) /patents, if any.

Publication:

1. V. D. Mendhulkar, L. Shetye (2021). Investigation of the anti-cancer potency of nanomedicine, green synthesized from Spirulina platensis, against breast cancer. International Journal of Pharmaceutical Science and Research. 12(6).
2. Pradhan Shashwati. Comparative analytical study of Furosemide from various diuretic formulations using titrimetric and UV-Visible Spectroscopy technique. in Journal of The Maharaja Sayajirao University of Baroda titled:Volume no.54 No.2(IV)2020-2021.
3. Patil Nilesh, Synthesis and biological evaluation of novel 3-aryl-4-methoxy n-alkyl maleimides. Indian Journal of Chemistry, Vol. 60B, March 2021, pp. 473-478.
4. Kejariwal Mona (2021), Domestication of Fungi and their Application, In: Sampat Nehra, (eds) Plant Pathogen, Pathogenesis and Management. p. 1-21.
5. Pandey Rashmi and Kejariwal Mona (2021), Opportunities and Challenges for Seaweed Cultivation in India, In: Tripti Agarwal, (eds) Microbes and Agro-Ecosystem. p. 255-272.
6. समीर शर्मा, शेखावत विजेन्द्र (2020) "कोविड-19 काल मैं उच्चशिक्षा और शिक्षण मैं निरन्तरता हेतु चुनोतियाँ" In: कोरोना काल एवं मानव जीवन, बाबूलाल बैरवा)संपादक(, विपुल परेवा)सहसंपादक) 130-140। राज पब्लिशिंग हाउस
7. Suchandra Dutta, Hensal Rodrigues & Kiran Chakral (2021): Mangrove Diversity of Maharashtra in Concepts in Environmental Sciences P. 50-60. Edited by Kalpit G. Mhatre . Published by Mahi Publisher.
8. R Pandey and M. Kejriwal. Marine Macroalgae Diversity at Bhuigaon Coast, District Palghar, Ma harashtra, Journal of Scientific Research 65 (6), 126-131, 2021.
9. Suchandra Dutta, et. Al.(6th author) (2021). Report of the special purpose committee on virtual participation in nomenclatural section. Taxon 70 (6). 1399-1401
10. Suchandra Dutta, Subir Bandopadhay (2021). Proposal to add a new paragraph in Recommendation 31B.Taxon 70(6). 1390.

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11. Suchandra Dutta, et. Al.(6th author) (2021). Proposal to add new Provisions and Recommendations to Division III of the ICN related to virtual participation in the Nomenclature Section. Taxon70 (6). 1397-1398
12. Laxman V. Jathar', Milind Kulkarni, Dinesh Himatsinghani, Namrata Ajwani, Dilip G. Achalawat. Comparative Study of Coumarin-120 (C-120) and Stilbine-3 (STB-3) Laser Dyes Doped in Sol-Gel Glasse. New Journal of Glass and Ceramics, 2021, Details: ISSN Online: 2161 – 7562, ISSN Print : 2161-7554. https:/doi.org/10.4236/nigc.2021.113004
13. Exalted catalytic performances of bimetallic Ru/Rh nanoparticles on carbon nanotubes in the hydrothiolation of alkenes and alkynes - Dhanaji V. Jawale, Frédéric Fossard, Frédéric Miserque, Joël Armel TchuitengKouatchou, Valérie Geertsen, Edmond Gravel, Eric Doris - Green. Chem. 2022 (Impact factor 10.18)
14. Solvent-free hydrosilylation of alkenes and alkynes using recyclable platinum on carbon nanotubes -Dhanaji V. Jawale, Valérie Geertsen, Frédéric Miserque, Patrick Berthault, Edmond Gravel, Eric Doris - Green. Chem. 2021, 23, 815-820(Impact factor 10.18)
15. Carbon nanotube-polyoxometalate nanohybrids as efficient electro-catalysts for the hydrogen evolution reaction-Dhanaji V. Jawale, Frédéric Fossard, Frédéric Miserque, Valérie Geertsen, Anne-Lucie Teillout, Pedro de Oliveira, Israël M. Mbomekallé, Edmond Gravel, Eric Doris – Carbon2021 (Impact factor 9.58)
16. Tailor-made polydiacetylene micelles for the catalysis of 1,3-dipolar cycloadditions in water -Ramar Arun Kumar, Dhanaji V. Jawale, Emmanuel Oheix, Valerie Geertsen, Edmond Gravel, Eric Doris - Adv. Synth. Catal. 2020,362, 4425-4431(Impact factor 6.00)
17. Synthesis of 3-methyl-4H-benzo[b][1,4]thiazine-2-carboxylates using CAN as a catalyst and its conversion into guanidines -Dhanaji V. Jawale,Devendra Wagare, Dinesh Lingampalle, Prashant Netankar- Curr. Organocatal. 2021, 8, 258-263(Impact factor 1.00)
18. One pot green synthesis of N-substituted Succinimides. Keshao A. Mahale, Kirankumar S. Gosavi, Nilesh S. Patil, Sambhaji V Patil, IJCPS, 7 (2018), 216-220.

Patents:

19. Use of Natural pigments for production of various colored Nutritional gummy supplement. Patent(202121023956)Indian patent
20. Peptone Induced Pigment Production of *Ganoderma Lucidum*, Indian Patent (202121025566)Published, Mona Kejariwal

9. (9) - Training received by faculty:

Prior to support (2018-19) there are few training which have been planned by institution. No structured training were arranged prior DBT support for non-teaching staff. During the support (2021-22) departments have initiated various interdisciplinary training at institutional level which has also support non-science faculty.

S.No.	Name and details of training course	Faculty who received training
1.	Faculty Development Programme on The Power of Music organized by R D National College, 11th March 2022	All faculty staff of college
2.	Interdisciplinary FDP for Non-teaching staff on Cyber suraksha	Non-teaching staff from all the departments
3.	• Two Week Online Certificate Course on "Basics of R Software" from 8th February to 24th February 2022 organized by Department of Statistics, VPM's B.N. Bandodkar College of Science (Autonomous), Thane • Online Portal Based Training for becoming Team Owner and Contributor on Manav Platform Jan-Feb 2022.	Mr. Sahir Qaiyum Mansuri

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	• Online Training Program/Workshop on Scientific Communications organized by CSIR-National Physical Laboratory, New Delhi during the period March, 25th - 26th, 2022.	
4.	1. Online workshop on 'Basics of Fermentation Technology' from29th June to 3rd July 2021 at the National Facility of Biopharmaceuticals, Mumbai. 2. Training program on FermentationTechnology from 20th to 23rd December 2021 organized by CSIR-CSMCRI, Bhavnagar 3. NPTEL Online Certificate Courseof 4 weeks on "Legal and Regulatory issues in Biotechnology" in July-August 2021 coordinated by IIT Kharagpur.	Mr. Laukik Shetye
5.	Six days online course on 'Research and publication ethics' from 25th to 31st May 2022 at Patkar College	Mrs. Archana Ghugal
6.	Faculty Induction Program from16th May to 16th June 2022 organized by UGC Human Resource Development Centre University of Mumbai and coordinated by R.D. and S.H. National College	Mr. Chetan Patil
7.	Conducted Faculty Induction Program from16th May to 16th June 2022 organized by UGC Human Resource Development Centre University of Mumbai and coordinated by R.D. and S.H. National College	Dr. Mona Kejariwal and Dr. Seema Shinde
8.	MS-DEED Level 1 online workshop 0n introduction to innovative Pedagogies for UG Teachers from 21/12/2021 to 23/12/2021	Dr. Mona Kejariwal, Mr. Dinesh Hmatsinghani Dr. Nilesh Patil
9.	1. Kinetics and mechanism the oxidation of menthol by Imidazolium dichromate, International Journal of Health sciences, 2. Nano technology and nano sciences part(1) course organized byISREAL INSTITUTE OF TECHNOLOGY, 29 JULY to August 25 2021 3. Interdisciplinary work shop on ENTREPRENEURIAL CAPACITY BUILDING organized by R D National College,23-25 july 2021 4. National Webinar on Cyber Security and social media security organized by Siddarth college Boradpada Badlapur, 8th July 2021 5. InterNational wewbinar on CHEMLIBRE LIBRE TEXTS as an open education resource organized by Sophioa College Bhulabai Desai Road Mumbai, 9th July 2021 6. FDP ON Power of Music FDP organized by R D National College, 11th March 2021 7. WORKSHOP ON Safety measure organized by R D National College, August 2021	Dr. Shashwati Pradhan
10.	Faculty development programme on characterization techniques used in Chemical and Biological Sciences organized by Waghire College of Arts, commerce and Science College Saswad, Pune from 10/02/2022 to 16/02/2022 under FDC UGC-HRDC PMMMNMTT and SPPU Pune.	Dr. Lahu Ghule
11.	**"How to assemble computer and network cable crimping", Department of Physics, R.D. National College (**8th & 9th March, 2022**)** **Resource Persons:** Mr. Dilip Achlawat, Technical Expert, Panache Interics Mr. Sushant Poojari, Technical Engineer, Eco Friendly Diamond Lip **Sessions: Day 1:** Basics of computer hardware, Operating System installation, troubleshooting, partitioning the hard drive with demonstration Day 2: Network components, physical, logical and port addresses, LAN, WLAN along with live demo and hands on session related to RJ 45.	Ms.Namrata Ajwani Mr. Dinesh Himatsinghani Dr.Milind Kulkarni Dr.Laxman Jathar Dr. Seema Shinde Ms Poonam Jaju

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12.	One day IARP (BARC) workshop on "Beneficial effects of Radiation & Indian Nuclear Energy Programme" 12th March, 2022 Dr. Seshadri Murali & team Indian Association of Radiation and Protection (IARP) DEMONSTRATIONS: Gamma spectroscopy, Half life estimation, Use of radiation monitoring kits	Ms. Namrata Ajwani Mr. Dinesh Himatsinghani Dr. Milind Kulkarni Dr. Laxman Jathar Dr. Seema Shinde Ms Poonam Jaju
13.	4 week (Feb 12 to March 12 2022) Certificate Online course in Ornithology with Field training in Kamshet, Pune (12 and 13th Feb 2022)	Dr. Lalana Khot Mr. Nikhl Disoria Mr. Manoj Kadam

9.(10) - Exhibitions/seminars/training courses conducted:

Prior support (2018-19) very few interdisciplinary National level Training programs were hosted by science departments. The grant has facilitated various exhibitions, Interdisciplinary seminar and training sessions through science departments. The details are as follows:

S.No.	Detail of Exhibition/training/Seminar with the Name of Department(s)	Resource Person(s)	No. of Beneficiaries
1.	National Science day celebration : Circular Economy Water Conservation Poster Exhibition by students of vari departments	Prof . Habbu, ICT, Mumbai Padmashri Anuradha Paudwal , Founder Survoday Foundation	150
2	Scienspur Online Cell, Biology program	Harvard University	01
3	Short Term AnalyticalTraining Program	Haffkine Institute of Training, Research and Testing, Mumbai	01
4.	Training by Manav OnlinePortal Resource Person/TeamOwner – Sahir Qaiyum Mansuri	Manav – Human AtlasContributor training 2021 and ongoing)	70
5.	Workshop on Ayurvedic Recipe by	URUZ Shaikh on 23rd December, 2021	52
6.	Prebiotics and Probiotics : 3rd September, 2021	Dr. Mona Kejariwal	32
7.	Terrarium /dish garden making on 22nd December, 2021 for fy and sy bsc students	35 students FY AND SY BSc Participated under the guidance of Mr. Sahadev Sawant and Dr. Suchandra Dutta	100

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8.	Gel Sanitizer making	Dr. Mona Kejariwal	40
9.	Biostatistics with Excel	Dr. Vijendra Shekhawat	60
10.	FDP on Music therapy to relies stress	Mr. Roshan Mansukhani, Motivational Counselor	100
11.	FDP for Non teaching staff on Cyber suraksh	PSI S.S. Sahasrabudhe, Mumbai Police	110
12.	Two day Workshop for journal writing and practical extension	1. Dr. Indrani Das 2. Dr. Gulshana Shaikh Homi Bhabha Centre for Science Education,TIFR "	150 UG studen 12 Faculty
13.	Workshop on "Beneficial effects of Radiat Nuclear Energy Programme" 12th March, 20	Dr. Seshadri Murali & Team of Indian Association of Radiation and Protection (IARP)	120 students f Chemistry, Ma Zoology of FY TYBSc & MS
14.	Two Day workshop on "How to assemble, troubleshoot of Personal Computer & Computer Networking 8th & 9th March, 2022	Mr. Dilip Achlawat, Technical Expert, Panache Interics Mr. Sushant Poojari, Technical Engineer, Eco Friendly Diamond Lip	30 Students f Physics & 30 S TYBCom
15.	Field Visit Magnetic Observatory, Indian Institute Of Geomagnetism, Alibaug: Advances in Geomagnetism, Instruments used	Observatory staff - Dr. Abhishek Kumar & Team Magnetic Observatory, Indian Institute Of Geomagnetism, Alibaug 31st March, 2022	90 students f SYBSc, TYB Physics
16.	A film on the Importance of the Mangrove and Marine habitat and threats to it	Zoology Faculty	FY SY Zoolog students
17.	A presentation on initiatives of Coastal & Marine Biodiversity Centre, Airoli to Conserve the Mangrove and Marine habitat such as the radio tagging turtles & various aquaculture programmes.	Zoology Faculty	FY SY Zoolog students
18.	A Guided trail in to the Mangrove habitat	Mr. Nikhil Disoria	FY SY Zoolog students
19.	Bird watching during the Board walk on 14th March 2022 at field Visit to Coastal & Marine Biodiversity Centre, Airoli.	Zoology Faculty	FY SY Zoolog students
20.	Celebration of π-day on March 14, 2022.	The students are encouraged to make flages with different objects in Mathematics and formula written on them	25 M&S
21.	5. Workshop on Biosanitizers on 26th Feb 2022 from 2 pm to 4pm as part of the Circular Economy – National Science Day Celebrations	Dr. Prachi Bedekar , Asso. Prof & Head Pathology and Microbiology SMT. CMPH Medical College.	150 students

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22.	Nipha Winery Niphad Nashik, Industrial visit	Chemistry Faculty	70 students

9.(11) - Books/journals subscribed from grants:

As departments have not received grants for year 2021-22, books were not purchased only two departments were the funds were remaining in recurring grant purchased the books.

Department of Mathematics and Chemistry

Sr. No	Author	Title	Publisher	Copies	Total Amt
1	Sheldon	Linear Algebra Done Right	Springer	1	2996.34
2	Gareth	Linear Algebra with Application	Jones	2	5141.52
3	Lipschutz	Schaum's Outline of Linear Algebra 3rd ED	THM	2	3112.20
4	Anton	Elementary Linear Algebra with Supplemental Application 11 ED ISV	Wiley	4	3004.80

9 (12). Outreach activities:

Prior to DBT Support (2018-19) all science department used to have Annual festival for popularization of basic sciences but after DBT support this has extended to various popular lectures/workshops/training of faculty/students/villagers of adopted village across India even in lockdown period. The details are as follows for 2020-21:

S.No.	Details of popular lecture/workshop/ training	Resource Person	Students Class No. & Beneficiaries
Department of Biotechnology			
1.	Manav Scientific Reading and Comprehension SelfAssessment Module (Sept. – Oct. 2021)	MANAV- Human AtlasInitiative	46
2.	**Manav – Human Atlas Contribute** (November 2021 and ongoing)	Training by Manav OnlinePortal Resource Person/Team Owner – Sahir Qaiyum Mansuri	70
Department of Botany			
3.	National Level Lecture Series Under The Aegis Of DBT Star College Scheme To Celebrate Vanmahotsav Week, 1st To 7th July, 2021 **Chemotaxonomy and Bioprospecting** **Current Developments in Indian Lichenological Research** **Ethnobotany**	a. Speaker: DR. APARNA WATVE IUCN SSC RED LIST AUTHORITY COORDINATORAND MEMBER, MAHARASHTRA STATE BIODIVERSITY BOARD, INDIA Topic: RED-DATA LISTING AND CONSERVATION PLANNING Date and timing: FRIDAY, 2ND JULY, 2021, 4-5 PM b. Speaker: DR. RAHUL MUNGIKAR	**452 (55 Teachers+ 05 Research Students+ 30 Undergraduate Students)**

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		ASSISTANT DIRECTOR, POLICY CELL, BNHS, MUMBAI-INDIA. Topic: *BIODIVERSITY ACT FOR COMMON PERSON Date and timing: SATURDAY, 3RD JULY, 2021, 4-5 PM c. Speaker: PROF. (DR.) S.R. YADAV DEPARTMENT OF BOTANY, SHIVAJI UNIVERSITY, KOLHAPUR, INDIA Topic: ROLE OF HEIs IN CONSERVATION OF BIODIVERSITY Date and timing: MONDAY, 5TH JULY, 2021, 4-5 PM	
4.	Skill enhancement initiative: Innovation day celebration on 15th October, 2021	Vijay kuntharia, BioNEST , South Campus, Delhi	**150 students of college**
5.	Rain water harvesting	Padma Shri Anuradha Paudwal and Subhajeet Mukherjee 25th Febraury, 2022	**150 Science students**
6.	Agro rural tourism know how	Dr. Shekhar Badsawle, CEO Saguna baug	**150 Science students**
7.	Solid waste management training to BMC Personnel especially on Compost making	Dr. Mona Kejariwal	**30 SHG group of BMC**
8.	Christmas celebration by preparing succulent garden a workshop cum exhibition	Dr. Suchandra Dutta and FYBSC and SYBSC studdents	**Open for all on the eve of Christmas**
Department of Chemistry			
9.	**National level Seminar of Circular Economy**	February 25-26th ,2022 Polymer Science and Applications, Dr V. G. Habbu, Professor, ICT, Mun	250
10.	NMR Spectroscopy	Dr. Kirtikumar Patel N.B Mehta College, Bordi	60
11.	26th Feb 2022, Career Guidance	P.D.Hinduja Hospital	150 science students
Department of Physics			
12.	Popular Lecture:"Cracking cases with Digital Forensics" August 14, 2021	Dr. Dilip Motwani, VIT, Mumbai	Online International Webinar Series 625 students and 15 Teachers
13.	Popular Lecture:Astronomy Vs. Astrology August 17, 2021	Ms. Mitali Damle, Research Scholar, Potsdam, Germany & Member of BS	Online International Webinar Series 65 students and 7 Teachers

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14.	Seminar SYNERGY of PHYSICS: Seminar on Physics and Opportunities in various fields of Physics February 12, 2022	Mr. Pradeep Nair, MD, BlauPlug Innovation Pvt., Ltd. Mr. Prathamesh Rajai, Senior Officer & Radiation Safety Officer, PD Hinduja Hospital Mr. Prajith Warrior, Senior Chip Development Officer, AMD Dr. Love Trivedi, Jayshree Periwal International School Mr Dhumil Jhaveri, CEO, Klassroom	140 Students from Physics, Chemis Statistics
	Popular Lecture:Group Discussion & Interview Techniques 29th March, 2022	Mr. Rohan Mehra Founder & Owner Neev, Providing Pre Placement Soft in areas ranging from GD, PI to CV D Schools across the country.	80 Students of TYBSc & MSc (Physics & Chemistry)
	Popular Lecture: Career Conclave, 9th April, 2022: Avenues in Basic Science	Dr. Lalchand Tiwari Senior Manager – R & D & Technica Pidilite Industries Ltd.	256 Students of UG & PG
Department of Zoology			
15.	1. Guest lecture on Challenging paths.. Artic & Antarctic by	Dr. Arundhati Sardesai (23/7/21)	50 science students
16.	Guest Lecture -Livelihood Generation Through Mangroves In Maharashtra	Mrs. Sailee Joshi, Livelihood Specialist – Mangrove Cell, 26th Feb 2022 from 11:30am to 12:30noon as part of the Circular Economy – National Science Day Celebrations	150 science students
17.	26th Feb 2022, Workshop on Biosanitiser at 2pm to 4pm	Dr. Prachi H Bedekar, MD-HOD Dept of Microbiology, Smt CMPH Medical College	150 science students
Department of Mathematics & Statistics			
18.	'Digital Technology' in the Workshop on 'Circular Economy'	Dr. Mukund Sanglikar	150 students and faculty

9. (13) - **Colleges mentored to apply for DBT Star College grants: This is the second year of grant so college is taking mentoring from the institutions having star status scheme. However, the process has been shared with other college as follows:**

S.No.	Name of College Mentored	Name of the mentor	Date & Place
1.	Doongarsee Gangjee Ruparel College, Senapati Bapat Marg Mahim, Mumbai 400016 Maharashtra, India	Dr. Mona Kejariwal	Online, 4th June, 2022
2.	MAHATMA PHULE ARTS, SCIENCE AND COMMERCE COLLEGE,	Dr. Mona Kejariwal	As external advisor in advisory committee for DBT STAR College scheme, 5th June 2022

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9.(14) - **Invited Lectures:**

Prior to DBT Support (2018-19) all science department used to arrange one guest lecture per semester which has increased significantly after the support as follows(2020-21):

S.No.	Detail of Invited Lecure	Resource Person	Students Class No. & Beneficiaries
Department of Biotechnology			
1.	Thrust Areas for Innovation in 21st Century	Mr. Vijay Kantharia 15th Oct. 2021	All biotechnology student
2.	Designing Bluerints to Understand the Patterns of Carbon Assimilation in Microalgae	Mr. Mukul Kareya, Resarch scholar, ICGEB, New Delhi 4th Feb. 2022	87 faculty and students
3.	The blue bioeconomy: Challenges, Innovations and Sustainability Delivered as the Annual Dr. Hargobind Khorana Memorial Oration	Dr. Reena Pandit Associate Professor 24th March 2022	100 faculty and students
Department of Botany			
4.	Rain water harvesting	Padma Shri Anuradha Paudwal an Mukherjee 25th Febraury, 2022	**150 Science students**
5.	Agro rural tourism know how	Dr. Shekhar Badsawle, CEO Saguna h	**150 Science students**
Department of Chemistry			
6.	Lecture on research and career opportunities in India and abroad	Dr. Pradip Pachfule Date: July 7th ,2021	90
7.	Covid-19 preventive measure/Chemistry perspective	Dr. Pramod Thakur Mahatama Phule College Panvel Date: Feb.7th ,2022	105
8.	Scope and opportunities in polymer and specialty chemicals	Mr Hemant Tambe BASF India Date: October 29th ,2021	80
9.	Quatanum chemistry and its applications	Dr. Harish A. Parbat Wilson College Mumbai Date: March 17th ,2022	70
10.	Scope of nanomaterials	Dr. Shilpi Sachar University of Mumbai Date: March 17th ,2022	85
11.	Electronic Spectra of Complexes	Dr. Pralahad Wagh Bandodkar College Thane Date: March 16th ,2022	70

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12.	Reactivity in Confinement	Dr. Sabyasachi Patra BARC Mumbai Date: March 25th ,2022	70
Department of Physics			
13.	Radiation Quantities, Units, Effects, 12th March, 2022	Smt. Rupali Karpe BARC	9 Teachers , 155 Students from I Chemistry, Maths & Statistics
14.	Principles of Radiation Detection, 12th March, 2022	Shri Tej Ram Meena BARC	9 Teachers , 155 Students from I Chemistry, Maths & Statistics
15.	Radiation Protection & Monitoring, 12th March, 2022	Shri Sanjay Patil BARC	9 Teachers , 155 Students from Physics, Chemistry, Maths & Statistics
16.	Nuclear Energy Program, Beneficial effects and application of Radiation Technology, 12th March, 2022	Dr. S. Murali BARC	9 Teachers , 155 Students from Physics, Chemistry, Maths & Statistics
17.	E Vehicles: The upcoming mode of transport, 14 March, 2022	Padmashee Prof. Ashok Jhunjhunwala IIT Chennai	10 Teachers, 198 Students from Physics, Chemistry, Maths & Statistics
Department of Zoology			
18.	The House of the Slytherin, on 3rd August 2021, 1:15pm to 2:45pm	Chetan Rao, herpetologist	FYBSC & SYBSC Zoology Students
19.	Last Wilderness Foundation, Guest Lecture titled – Community Conservation on Friday 13th August 2021 12:25 to 13:55hrs	Vidya Venkatesh, Director	FYBSC & SYBSC Zoology Students
20.	Guest lecture on Amazing Insects on Tuesday, 07 th September 2021 1:15pm to 2:45pm	Dr. Amol Patwardhan, Assistant Professor, K. J Somaiya College of Science and Commerce,	FYBSC & SYBSC Zoology Students
21.	guest lecture titled-Role of Pedigree charting and Mendelian inheritance in diagnosis of Genetic disorders on 24th December 2021 Friday 11.30am to 1pm.	Dr. Dhanlaxmi Shetty Madam, Office (Scientific Officer E), Cancer Cytoge Department, Advanced Centre for Tr Research & Education (ACTRE(Memorial Centre	FYBSC & SYBSC Zoology Students
Department of Mathematics' and Statistics			
22.	The department in collaboration with the department of Physics could conduct online 3 sessions on "Problem Solving Using CAS (Computer Algebra System)".	In these sessions Dr. Rajesh demonstrated problem solving usi software.	Physics and Mathematics Stude

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10. Self-evaluation

Departments	Objectives (1-5) % achieved	Reasons for underachievement / If achieved, state in quantitative metrics
1. To create and strengthen the existing academic and physical infrastructure for achieving excellence in teaching and learning.		
BOTANY	80%	Online Training imparted to UG students in foundation of core lab skills in following a Molecular and Genetic engineering, E-herbarium making, Leaf Morphology parameter microgreens, intrumentation and cosmetics formulations
BIOTECHNOLOGY	80%	Post pandemic the scheme has given enough opportunities to the department to enhanc through conducting online guest lectures, training sessions and field visits. Purchase of s tools has helped in delivery of curricular and extracurricular content with much ease and co
CHEMISTRY	80%	The pandemic bought a difficult scenario to the teaching process, but with the help of the scheme the department was able to hold guest lectures, workshops training sessions online.
MATHEMATICS & S	70%	The activities only conducted online or blended mode when participants where not al covid.
PHYSICS	75%	Invited talks by eminent International & National guest speakers, scientists on various applications of Physics in the fields of Physics like Astronomy v/s Astrology, E – Vehic Radiation, Digital Forensics
ZOOLOGY	100%	Various experiments were performed individually using the references, equipments, which were purchased in previous year.
2. To adopt experiential learning as part of teaching process to stimulate original thinking through 'hands–on' exposure to work and participation in summer schools.		
BOTANY	100%	Training imparted in Innovative mind set to ignite ideas and implement them in start- Beneficiaries were trained by International mentors.
BIOTECHNOLOGY	70%	The scheme has also motivated the teachers to employ innovative methods to circumvent the challenges of online teaching through the tools that can be procured with the help of the scheme.
CHEMISTRY	80%	The guest lecturers ,workshops and training programs have provided new insight and help raise awareness on current ongoing topics like the pandemic, renewable source of energy etc.
MATHEMATICS & S	70%	Mathematical models and high end software were purchased and demo practical were tak all lots of hands on experience to the subject.
PHYSICS	100%	To improve proficiency in teaching and research activities like Virtual Lab Training Cr repository of various UG & PG experiments, Use of Wacom Digi Pen Tab during the CO has helped improving online teaching, explaining the basic laws of Physics by showing also a method of teaching
ZOOLOGY	100%	Activities for knowledge imparting, curriculum enrichment, training and skill devel conducted. For Photography skill development, Biodiversity study and creating awareness i conservation. All activities like Quiz, Cross word, Films were used to build inquisitiven Virtual Tour of Bhandup Pumping Station ,Mumbai was organized to expose students and b skill to make any Environmental Assessment Report.
3. To create facility for In-house internships which can be further extended for summer trainings and internship outside.		
BOTANY	80%	First-hand experience the following areas: Different Ecological niche, Relevant industries, research Institute of national repute, Reserve Forest. Industry connect w professionals like Merck High-end Innovation lab, DiscoverSTEM USA, NABI, CIAB, Mangrove Society of India, Natural History Museum, London, Arizona State University, of scope is remaining to connect student with plant science based industries.
BIOTECHNOLOGY	80%	Collaborative efforts could be sought with different colleges under the scheme in order to quality training workshops, which were otherwise difficult to organize
CHEMISTRY	80%	Collaboration with different departments, industries and government bodies was made more accessible due to the scheme. The scheme has given opportunity to procure expensive

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		reference books and Scientific Journals which are necessary tools for enhance scientific knowledge.
MATHEMATICS & S	80%	Department will further coordinate with other department for survey based projects
PHYSICS	80%	5 projects have been sent for the State Level Interuniversity Scientific Competition – AVIS the Zonal Level, inspite of pandemic. General Physics Lab was done on virtual lab
ZOOLOGY	100%	Vermicomposting techniques have taught to students with emphasis on the safety equ techniques for working with biological, chemical and physical harmful substances and
4. To conduct specialized training programs for faculty improvement for teaching and non-teaching staff optimizi capabilities		
BOTANY	80%	National level lecture series, Science Setu series, Merck innovation lab training, workshop like terrarium making, Ayurveda recipe and guest lectures by eminent speakers enhanced knowledge on faculty.
BIOTECHNOLOGY	70%	Faculty can receive more specialized training to impart technical knowledge to students. Technical training to non-teaching staff for handing chemicals is needed
CHEMISTRY	80%	Safe handling of chemical, fire safety training were imparted, more practical session are ne
MATHEMATICS & S	70%	More training programes for students and teachers are needed.
PHYSICS	100%	The workshop conducted by IARP and visit to premier Research Institute like IIG Alibag have helped networking with them. Workshops on Nuclear Program And Radiation Detection with IARP, Computer assembling, and Networking gave hands on training to both Science and Commerce undergraduate students
ZOOLOGY	50%	Non-teaching training is pending
5. Development of Academic resources under the DBT STAR Grant.		
BOTANY BIOTECHNOLOGY CHEMISTRY MATHEMATICS & STATISTICS PHYSICS ZOOLOGY	70%	• Addition of Downloaded papers, Archives, Research journal, science magazine, **E-Herbarium**, **Practical manuals** for all semesters, **Herbal calendar** 2021 is created by SYBSC students with immune boosting herbs to create awareness about the same, Pictorial student handbooks on field botany, yearly **Newsletter "NEEV"** featuring ethnobotany. Traditional knowledge and conservation of plant biodiversity, • A comprehend **Lab manual developed by WRIC** for maintenance of instruments which has been uploaded on College website for all science departments. • FAQs, study material and study material from various online workshops were made available to all students for reference material. • Scope of developing SOPs and lab-based manuals, Hand book, Scopus indexed Research papers etc.
Overall matrix%:Objectives (1+2+3+4+5)=(80.83+86.66+83.33+75+70)=79.16%		

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MoE's INNOVATION CELL (GOVERNMENT OF INDIA)

INSTITUTION'S INNOVATION COUNCIL (Ministry of Education Initiative)

Letter of Appreciation

Dear Sir/Madam,

Please accept our sincere gratitude to all the chief functionaries and every members of the IIC Institution's Innovation Council (IIC) of Rishi Dayaram and Seth Hassaram National College and Seth Wassiamull Assomull Science College for the continuous support and contribution towards building the innovation and entrepreneurship culture development in your campus and also extending support to help other IIC institutions towards growth of the IIC network during the academic year 2021-22.

Chief Functionaries of the IIC at Rishi Dayaram and Seth Hassaram National College and Seth Wassiamull Assomull Science College, MUMBAI

Name	**Position**
Mona Kejariwal	President
Dr. Mona Kejariwal	NISP Co-ordinator
Mona R.Kejariwal	Innovation Activity,Start up Activity Coordinator
Mukesh Chunilal kanojia	Vice President
PRAVIN BHAGWAN PANIGRAHI	Internship Activity Coordinator,Convener
Nikhil Disoria	IPR Activity Coordinator,Member
Miss Farheen Shaikh	NIRF Coordinator,Social Media
Dr. Seema Shinde	ARIIA Coordinator,Member

As we are progressing towards a 'quality' driven I&E ecosystem development, we strongly believe that the IIC model and its unique structure is definitely putting your HEI's thoughts, actions and aspirations in a systematic way to achieve inclusive and holistic development of the ecosystem.

Thank you & regards.

Yours Sincerely,

R. D. & S. H. National College Bandra (W), Mumbai-50. S.W.A. Sci. College

Dipan Kumar Sahu

Assistant Innovation Director
MoE's Innovation Cell, Govt. of India

Performance Report for the Academic Year 2021-22

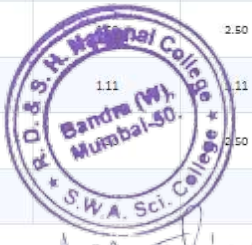
Total Score: 78.48/100 | Total Reward: 26.07 | Final Star: 3.5/5

Activity Category	Total No of Submited Activities	Total No of Approved Activities	*Disapproval % of Activities	Total Score Earned for Q1-Q4 Activities (I = A*80%)	Total Score Earned from Participation (II = B*20%)	Total Score Earned (I + II = 100)
IIC Calendar Activity	18	18	5.56%	76.87	1.60415	78.48
MIC driven Activity	7	7				
Self-driven Activity	22	19				
Celebration Activity	7	7				
Total	54	51				

*Proportionate Reduction in the Reward Points Based on Disapproval % ** No Reward Points upon Crossing the total no of Disapproval Activities Percentage of 30% or More.

Table A: Unit Score/Activity (Q1-Q4)

Activity Category	Max Score/Category	Threshold No of Activties/Category	Unit Score/Activity	Unit score per Activity		Score Earned (A)
				Offline(100%)	Online (75%)	
IIC CalendarActivities	50	12	4.17	4.17	3.13	50.00
Self-Driven Activities	30	12	2.50	2.50	1.88	30.00
MIC Driven Activities	10	9	1.11	1.11	0.83	6.09
Celebration Activities	10	4	2.50	2.50	1.88	10.00
Total	100					96.09



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Manage Activity
e-Learning Resources
Handholding and Capacity Development
Innovation & Start-up Support
Referral & Linkage
Help Desk
Information Dissemination
Contact us

Table B: Score for the IIC's Participation in Various Programs

Incentive Parameters		Weightage	Score Obtained
1. Redeeming of Reward Points Earned by the IIC (Upto 500 points)		10%	0.52
2. IIC Created YUKTI - Inovation Repository at the Institute level.	i. Scouted and Verified Minimum of 50 Ideas/PoCs	5%	0
	ii. Scouted and Verified Minimum of 25 Innovations/Prototypes	5%	0
	iii. Scouted and Verified Minimum of 15 Startups (Registered Startups but Not recognized by DPIIT)	10%	0
	iv. Scouted and Verfied Minimum of 5 Registered Startups Recognized by DPIIT (Submitted Document of Proof of Recognition)	10%	0
3. Innovations from IIC institutions Received Funding Support from MIC (Winners of SIH 2022 - 2%, YUKTI NIC 2020 Innovations - 8%)		10%	0
4. IIC Referred more than 5 HEIs to Join the IIC Network (Upto 20 referrals)		10%	0
5. IIC acted as Mentor Institute (Activities Reported through the IIC portal)		5%	5
6. Impact Lectures Organised (Sessions Reported through the IIC Portal)		5%	0
7. IIC has Registered and Adopted NISP (Status Updated through the NISP Portal)		5%	2.5
8. IIC Hosted the SIH 2022 Grand Finale Event		5%	0
9. IIC Hosted the Regional Meet 2022 Event		5%	0
10. IIC with Active Faculty Innovation Ambassadors (Minimum 10 IAs and Submitted Reports)		5%	0
11. IIC linked with upto 3 ATLs/SICs for Mentoring Support		5%	0
12. IIC Successfully Submitted Application for the ARIIA 2022		5%	0
Total		**100%**	8.02075

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Table C: Score Range and Star Allocation

Score Range	Star allocation
0<Score<=25	One star
25<Score<=50	Two star
50<Score<=65	Three Star
65<Score<=80	Three and a Half Star
80<Score<=90	Four Star
90<Score<=95	Four and a Half Star
95<Score<=100	Five Star

Ministry of Education
Government of India

MoE's INNOVATION CELL
(GOVERNMENT OF INDIA)

INSTITUTION'S INNOVATION COUNCIL
(Ministry of Education Initiative)

CERTIFICATE

Institution's Innovation Council (IIC) established at

Rishi Dayaram and Seth Hassaram National College and Seth Wassiamull Assomull Science College, MUMBAI

had undertaken various activities prescribed by Innovation Cell, Ministry of Education, Govt. of India to promote Innovation and Start-up in campus during the IIC calendar year 2021-22.

Dr. Abhay Jere
Chief Innovation Officer
MOE, Innovation Cell

Mr. Dipan Sahu
Assistant Innovation Director
MOE, Innovation Cell

Certificate No : 547

Issued On : 2022-11-17

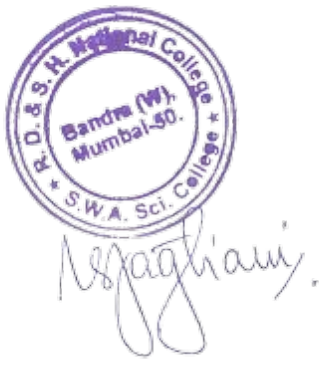
IIC Consortium

Consortium Id : C14
State : Dadar and Nagar Haveli, Daman and Diu, Maharashtra
Districts : Dadar and Nagar Haveli, Daman and Diu, Ahmednagar, Aurangabad, Beed, Dhule, Jalgaon, Jalna, Mumbai City, Mumbai Suburban, Nandurbar, Nashik, Palghar, Raigad, Thane

Governing Members Participating Members

S.No.	IIC ID	Institute Name
1	IC201810151	Shri G.S. Institute of Technology & Science, Indore
2	IC201810393	College of Home Science Nirmala Niketan
3	IC201810648	Institute of Chemical Technology
4	IC201810739	Rishi Dayaram and Seth Hassaram National College and Seth Wassiamull Assomull Science College
5	IC201811040	Fr Conceicao Rodrigues College of Engineering
6	IC201811069	PARLE TILAK VIDYALAYA ASSOCIATIONS INSTITUTE OF MANAGEMENT
7	IC201811085	Bhartiya Vidya Bhavans Sardar Patel Institute of Technology
8	IC201811183	Shri Vile Parle Kelavani Mandals Dwarkadas J. Sanghvi College of Engineering
9	IC201811236	Prin. L. N. Welingkar Institute of Management Development and Research PGDM
10	IC201811397	K. J. Somaiya Institute of Engineering and Information Technology

Items per page: 10 1 – 10 of 21



Accomplishments

Achievement: WeVidya fully funded Fellowship from Cambridge University & NIPGR, India

Achievement: 2 book publication for M.Sc. Pharma Students

Research (2018-till date)

International Patent	National patent
01	02

- **Full Patent Published:**

1. Nagpure, Vineet Santosh; Subhash Nikam, Dattatreya; Kejariwal, Mona; Deepak Nagvekar, Yogesh; SukhadeoThorat, Vinesh; Ajay Rudrawar, Ajinkya; Vinayak Joshi, Girish; Shashikant Gangatire, Omkar; Harun Shaikh, Sharif and Kumar, Shiv. Low-cost Brick: Environment-Friendly Low-Cost Multi Color Brick. Patent number: 2020104381; 17 March 2021. (Australian patent)

2. Use of Natural pigments for production of various colored Nutritional gummy supplement. Patent(202121023956)Indian patent Published Curriculum Vitae of Mona Kejariwal

3. Peptone Induced Pigment Production of Ganoderma Lucidu. Indian Patent (202121025566)Published

Student's Achievement

Australian Government

IP Australia

CERTIFICATE OF GRANT

INNOVATION PATENT

Patent number: 2020104381

The Commissioner of Patents has granted the above patent on 17 March 2021, and certifies that the below particulars have been registered in the Register of Patents.

Name and address of patentee(s):

Vineet Santosh Nagpure of Bhagya-Jyot, Sahyadri Colony, Jijamata, Chowk, Gurudwara Walhekarwadi Road Chinchwad Pune 411033 India

Dattatreya Subhash Nikam of Flat no-103, Block no-A, Sanskruti Apartment Rao Colony Talegaon Dabhade India

Mona Kejariwal of 404, B Wing Luv Kush Tower Sindhi Society Chembur East Mumbai 400071 India

Yogesh Deepak Nagvekar of Department of Civil Engineering, Dr. D. Y. Patil College of Engineering, and Innovation Varale Pune MH India

Vinesh Sukhadeo Thorat of Plot No.62, Survey No. 120, Modern colony, Shivtirtha Nagar, Kothrud Pune MH 411038 India

Ajinkya Ajay Rudrawar of Gokul Nagar Nanded MH 431602 India

Girish Vinayak Joshi of Solacia Phase 2, Flat Q2 101, Behind Moze Engineering College, Wagholi Pune MH 412207 India

Omkar Shashikant Gangatire of A503, Wildwoods 2, Baif Road, Wagholi Pune MH 412207 India

Sharif Harun Shaikh of A/P Shahupuri, Taj Vill Apartment, Flat no 101 Kolhapur MH 416001 India

Shiv Kumar of (Associate Professor and Head), Department of Civil Engineering, Jims Engineering Management Technical Campus, 48/4 Knowledge Park-III Greater Noida, UP 201306 India

Title of invention:

Low-cost Brick: Environment-Friendly Low-Cost Multi Color Brick

Name of inventor(s):

Nagpure, Vineet Santosh; Subhash Nikam, Dattatreya; Kejariwal, Mona; Deepak Nagvekar, Yogesh; Sukhadeo Thorat, Vinesh; Ajay Rudrawar, Ajinkya; Vinayak Joshi, Girish; Shashikant Gangatire, Omkar; Harun Shaikh, Sharif and Kumar, Shiv

Term of Patent:

Eight years from 29 December 2020

NOTE: This Innovation Patent cannot be enforced unless and until it has been examined by the Commissioner of Patents and a Certificate of Examination has been issued. See sections 120(1A) and 129A of the Patents Act 1990, set out on the reverse of this document.

Dated this 17th day of March 2021

Commissioner of Patents

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PATENTS ACT 1990

The Australian Patents Register is the official record and should be referred to for the full details pertaining to this IP Right.

This data, for application number 2020104381, is current as of 2021-04-04 21:00 AEST

(12) PATENT APPLICATION PUBLICATION (21) Application No.202121023956 A

(19) INDIA

(22) Date of filing of Application :29/05/2021 (43) Publication Date : 02/07/2021

(54) Title of the invention : USE OF NATURAL PIGMENTS FOR PRODUCTION OF VARIOUS COLORED NUTRITIONAL GUMMY SUPPLEMENT.

(51) International classification	:C07K0014795000, C09B0061000000, C12N0001200000, A23L0002580000, A23G0003340000	(71)**Name of Applicant :** **1)Dr. Mona Kejariwal** Address of Applicant :RD & SH National College, BANDRA WEST , MUMBAI-400050, MH, India. Maharashtra India **2)Mrs. Rashmi Pandey** (72)**Name of Inventor :** **1)Dr. Mona Kejariwal** **2)Mrs. Rashmi Pandey**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No	:NA	
Filing Date	:NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number	:NA	
Filing Date	:NA	
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :

ABSTRACT Our Invention Use of Natural pigments for production of various colored Nutritional gummy supplement is a Gummy bear have been an excellent source of delivery systems for pharmaceuticals as well as nutritional bioactive especially for kids. They are simultaneously gaining acceptance in adult as drug delivery systems. The use of natural color pigment increases owing to their safety and acceptance in such preparation. To cater to such a demand new natural pigments are continuously searched upon. Phycocyanin, a natural blue colour pigment from microalgae have been one such pigment of importance as a food additive and colourant. Being a natural antioxidant it also adds nutritional value to it. Phycocyanin exhibist color variation in different pH soluton. In this invention we have used Phycocyanin extracted from Spirulina microalgae as a single natural colourant to give various colored product by slightly altering the pH of the product with use of buffers. The final outcome is vegan antioxidant gummy bears of different shades using natural colour pigment Phycocyanin. These could be used as base for addition of various additives to suit the need of bioactive delivery.

No. of Pages : 11 No. of Claims : 6

/29/2021 PATENT eFiling

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- Renewal of Patent
- Reply to Examination Report
- Petition under rule 6(6)

Fifth Schedule · Form History · Payments/Submission · Pending CBR · Control Panel · User Panel · Downloads

Statement & Undertaking under Section 8

Application Number: 202121023956
Date of Filing: 29/05/2021 07:36:08
Type Of Applicant: NP
Title Of Invention: Use of Natural pigments for production of various colored Nutritional gummy supplement.
Address Of Service: RD & SH National College, BANDRA WEST , MUMBAI-400050, MH, India.
Applicant Name: Dr. Mona Kejariwal , Mrs. Rashmi Pandey
Applicant Address: RD & SH National College, BANDRA WEST , MUMBAI-400050, MH, India

Sr.No.	Applicant Name	Applicant Type	Address
1	Dr. Mona Kejariwal	NP	RD & SH National College, BANDRA WEST , MUMBAI-400050, [illegible]
2	Mrs. Rashmi Pandey	NP	RD & SH National College, BANDRA WEST , MUMBAI-400050, [illegible] India

Rights in the application(s) has/have been assigned to :

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R.D. & S.H. National College & S.W.A. Sci. College, Bandra (W), Mumbai-50.

(12) PATENT APPLICATION PUBLICATION (21) Application No.202121025566 A

(19) INDIA

(22) Date of filing of Application :09/06/2021 (43) Publication Date : 30/07/2021

(54) Title of the invention : PEPTONE INDUCED PIGMENT PRODUCTION OF GANODERMA LUCIDUM

(51) International classification	:C12N0001380000, C12Q0001040000, A01N0063300000, C12N0001140000, C12P0001020000	(71)**Name of Applicant :** **1)Mona Kejariwal** Address of Applicant :RD & SH National College, Bandra West , Mumbai-400050, MH, India. Maharashtra India **2)Eeshrita Jog** **3)Sakshi Soni** **4)Saloni Koli** **5)Kanika Shetty** **6)Sayok Ghosh** **7)Deepak Singh** **8)Surabhi Parker** **9)Tanvi Patil** **10)Khushboo Chouhan** (72)**Name of Inventor :** **1)Mona Kejariwal** **2)Eeshrita Jog** **3)Sakshi Soni** **4)Saloni Koli** **5)Kanika Shetty** **6)Sayok Ghosh** **7)Deepak Singh** **8)Surabhi Parker** **9)Tanvi Patil** **10)Khushboo Chouhan**
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No	:NA	
Filing Date	:NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number	:NA	
Filing Date	:NA	
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :

ABSTRACT Our Invention Peptone Induced Pigment Production of Ganoderma Lucidum is a Wood-rot fungi are known to be [illegible]phytic, they are grown on most of the organic and decaying matters. These fungi have an ability to produce coloured pigments in [illegible] cultures when they are grown in specific growth media. The pigment producing capacity of such fungi depends on the composition and pH of media. Various coloured compounds can be obtained by changing the concentration of component of growth media for such fungi. The most commonly used growth media for in-vitro culturing of wood-rot fungi are Potato dextrose agar (PDA) and Potato dextrose broth (PDB) and Sabouraud dextrose agar (SDA) and Sabouraud dextrose broth (SDB). Current study conducted [illegible] Ganoderma lucidum, a commonly occurring wood-rot fungi, it has been observed that the production of pigment in G. lucidum was dependent on various growth media and their components. The fungus forms white patchy, non-pigmented colonies when cultured on PDA medium [illegible] it showed pigmented growth on SDA medium. Further, by replacing each nutrient component in the growth medium one by one, it has been determined that the component plays a vital role in pigment production by G. lucidum. It has been [illegible] production in the fungus is totally dependent on peptone concentration.

No. of Pages : [illegible] No. of Claims : 6

Traditional knowledge dissemination through Botany artefacts