

Semester - I notes 2020-21

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K K Birla Goa Campus



BITS Pilani
K K Birla Goa Campus



from the editor

Dear Readers,

We are pleased to present to you the 22nd Issue of BITSCAN magazine.

All of us continue to face the most puzzling situation of the recent times. The ongoing COVID-19 pandemic, which affected over 200 countries, has put forth several novel challenges before us. Although we have good news that vaccination drives have begun across the country, it is definitely likely to take some time to penetrate it at all levels.

Since mid-March last year, the entire functioning of our day-to-day life in the campus completely changed. Students are still not back and we continue to function in an online mode. In these situations the Institute carried its activities, including lectures and seminars, in the virtual mode with absolutely limited interactions in physical formats.

Given the circumstances, the much awaited annual convocation ceremony was not possible to organize this year. However, the top three medal winning students were felicitated in a virtual ceremony. Director Prof. Raghurama G, along with select key officials participated in the felicitation ceremony. The best part was that the medal winning students were also joined by their close family members, who got a chance to express themselves and engage in interaction with the BITS officials.

During this time two major seminars were successfully held virtually. 'Current Trends in Cyber-Physical Systems (CPS) 2020' was jointly organized with Telecom Paris, France and 'Current Trends and Challenges in Plant Biochemistry and Biotechnology' was jointly organized with Society for Plant Biochemistry and Biotechnology (SPBB), New Delhi. Several lectures / webinars were also delivered by renowned speakers from India as well as abroad.

21 research projects worth over Rs. 7 crores were sanctioned for various departments by government and non-government agencies during this semester. This includes the prestigious J. C. Bose Fellowship Award to Prof. Samit Chattopadhyay, Shri B.K. Birla and Shrimati Sarala Birla Chair Professor associated with the Department of Biological Sciences.

In addition to fulfilling teaching and research assignments, our faculty members were engaged in various initiatives including delivering invited lectures and conducting workshops at other institutions, presenting papers on their latest research at national and international events. Many faculty members are appointed on editorial boards and to review reputed international and national journals. Due to ongoing COVID-19 restrictions, almost all these activities had to be held virtually.

Our students continue to win accolades in India as well as abroad and make us proud. The first-ever BITSian team participated in iGEM 2020 and won the gold medal. Several student teams participated in national and international hackathons and also won it. Team Project RT's antenna design being selected for final prototyping, Team Vikings winning HAB-59: Hackathon 59 Atmanirbhar Bharat and Evotech 4.0, Team Pegasus securing 3rd prize in a Sustainability Challenge, Team Rasoe winning First Runners-Up at the 2020 Global PyTorch Summer Hackathon and BITS Team winning Top Marketer certificate Google Online Marketing Challenge are worth special mention and appreciation. Many students have successfully participated in numerous contests and competitions and won it too on individual talent.

We thank the entire BITS community for their contributions and support in bringing out this issue of BITSCAN.

Felicitatation of medal winners

In view of the COVID-19 pandemic, the Convocation 2020 ceremony for graduating students who completed the eligibility requirements in the academic year 2019-20 was not held. However, the top three medal winners of the K K Birla Goa Campus - GARGI BALASUBRAMANIAM (Gold medal); AKHIL NORI (Silver medal); and GUNJAN CHHABLANI (Bronze medal) - were felicitated by Director, Prof. Raghurama G and key officials in an online ceremony held on October 20, 2020. Degrees were posted to 827/1023 students of First Degree, 173 students of Higher Degree and 23 Ph.D. students. The video of the felicitation ceremony is available on our YouTube channel:

https://youtu.be/8Bd_cl_-rz0



a confluence of ideas academia

seminars/conferences/workshops/
training programs

Current Trends in Cyber-Physical Systems (CPS) 2020

BITS Pilani and Telecom Paris, France jointly organized a virtual seminar '**Current Trends in Cyber-Physical Systems (CPS) 2020**' on 10th – 11th October 2020. This online seminar was composed of a series of talks by researchers and industry experts from some of the best institutions across the world, related to various aspects of Cyber-Physical Systems (CPS). The talks were broadcasted live on YouTube and registered participants were able to engage in discussions with the speakers and other participants on a dedicated Slack group.

The inaugural session was addressed by Prof. Souvik Bhattacharya, Vice Chancellor, BITS Pilani; Prof. Sudhirkumar Barai, Director – BITS Pilani, Pilani Campus; Prof. Raghurama G, Director – BITS Pilani, K K Birla Goa Campus; Prof. Samit Chattopadhyay – Shri. B K Birla and Shrimati Sarala Birla Chair Professorship, BITS Pilani; Prof. Souri Banerjee, Dean – Faculty Affairs, BITS Pilani; Prof. Sunil Bhand, Dean – Sponsored Research and Consultancy Division, BITS Pilani; Dr. Soumyadip Bandyopadhyay, Assistant Professor, CSIS, BITS Pilani, K K Birla Goa Campus and Dr. Dominique Blouin, Permanent Research Engineer, Telecom Paris, France.

The entire seminar was divided into six tracks spread over the course of two days: Multimodel paradigm for CPS, Software Engineering for CPS, BIOCPs, Machine learning in CPS, Education for CPS, and Startup 4 CPS.

Current Trends and Challenges in Plant Biochemistry and Biotechnology

National Conference on “Current Trends and Challenges in Plant Biochemistry and Biotechnology” was organized by the Department of Biological Sciences in collaboration with Society for Plant Biochemistry and Biotechnology (SPBB), New Delhi, on 20th and 21st of November, 2020. The virtual conference provided a unique opportunity to the researchers and students to discuss ways and means to enhance productivity and nutritional quality of crops through breeding and modern biotechnological approaches by integrating the research efforts of plant biochemistry and biotechnology. Distinguished delegates from diverse Institutions participated and deliberated on various issues and recommended future research thrust-areas for meeting new challenges in productivity enhancement.

The broad themes of the conference were:

1. Plant Biochemistry and Crop Improvement
2. Plant Metabolites and Nutraceuticals
3. Plant Stress Management
4. Genome Editing, Translational Genomics and Plant Breeding
5. Conservation of Genetic Resources, IPR and Biosafety issue

The virtual conference had a plenary session, five keynote talks which include two international delegates, 14 lead talks, 15 oral presentations, 33 young scientist talks, 29 poster presentations and more than 100 registrations. Young scientists (five of them) were awarded by Springer Nature for the best presentations under each theme. The talks ranged from ‘Himalayan Plants and their Nutraceutical Potential’ to ‘Bioprospecting Native Wild Nutmegs from Andaman and Nicobar Islands for their Sustainable Utilization.’ Dr. N. B. Das Memorial Lecture was delivered by Dr. Trilochan Mohapatra, Secretary of DARE & Director General of ICAR. Prof. G. Raghurama, Director BITS Pilani, K. K. Birla Goa Campus, delivered welcome address and Dr. S. L. Mehta, President SPBB, delivered Presidential address of at the Inaugural session.



distinguished lectures

Sr. No	Date	Title of the Talk	Speaker's Name	Speaker's Designation / Affiliation	Organised by Department of
1.	21st Aug 2020	Current Regulatory Guidelines and Ethical Requirement for Clinical Trials in India		Institutional Human Ethics Committee (IHEC)	Biological Sciences
2.	26th Aug 2020	Webinar on Devising Effective Lab. to Land Strategies For Scientific Discoveries in Biotech	Dr. Taslimarif Saiyed	Director and COO, C-CAMP, (Centre for Cellular and Molecular Platforms)	Biological Sciences
3.	19th Sept 2020	Webinar on Porous Framework Materials: What are They Good for?	Prof. Rahul Banerjee	Associate Professor, IISER Kolkata	Chemistry
4.	26th Sept 2020	Webinar on Luminescent Metal Nanoclusters: Spectroscopic Signatures and Applications	Prof. Saptarshi Mukherjee	Professor & Deputy Director, IISER Bhopal	Chemistry
5.	31st Oct 2020	Webinar on Generating Hydrogen Sulfide from Organic Compounds	Prof. Harinath Chakrapani	Professor, IISER	Chemistry
6.	7th Nov 2020	Webinar on Metal-Ligand Cooperativity in Molecular Functionalization	Prof. Goutam Kumar Lahiri	Professor, IIT Bombay	Chemistry
8.	12th Nov 2020	Webinar on Nuts and Bolts of bio-entrepreneurship (Innovator Seminar Series Lecture)	Dr. Milind Choudhari	CEO, WeInnovate Biosolutions Pvt. Ltd.	Biological Sciences
9.	28th Nov 2020	Webinar on Organocatalysis Using N-Heterocyclic Carbenes (NHCs)	Prof. Akkattu T. Biju	Associate Professor at the Department of Organic Chemistry, Indian Institute of Science, Bangalore	Chemistry

alumni affairs

Talks by Alumni/Students On and Off Campus:

Apart from organizing various events, the ARC was also involved in organizing regular lectures and talks from numerous alumni who have achieved success in their respective fields. Maintaining a strong alumni network, ARC has organized several talks in LTs, the telepresence room as well as in the form of online webinars to enable the student community to benefit from the interactions held with the alumni. The following is a list of events conducted:

Sr. No.	Dates	Title of the Talk	Speaker(s)
1.	9th Aug 2020	BITS2Civil Services	Mr. Saurav Pandey and Ms. Malavika G Nair
2.	15th Aug 2020	BITS2Defence	Col. Rakesh Sharma Major Praveen Vimal and Air Vice-Marshal Rakesh Chopra
3.	7th Nov 2020	A conversation with Yashoraj Tyagi	Mr. Yashoraj Tyagi

BITSians' Day 2020

The BITSian day was celebrated on 7th August, 2020, virtually this year. We invited BITSians while performing Yoga asanas/working out and uploading a picture tagging us @bitsgoa_arc (Insta Handle) or @AlumniRelationsBITSGoa (Facebook Handle) with the hashtag #bitsiansday. We also hosted a contest named "NOSTALGIC BITS" to share with us the reminiscing pictures that took back to those good old Campus times. The best 3 pictures were given BITS Goodies delivered to their doorsteps.

enriching the learning experience visits by faculty

invited talks / workshops by faculty
at other Indian/Foreign institutes

Dr. Anirban Roy, Department of Chemical Engineering, delivered a talk entitled as 'Sustainability in Desalination: From Fundamentals to Product Development' at the international conference on "Sustainable Technologies for Water Treatment and Desalination (STWTD-2020)" organized by NIT Calicut, held on 18th - 19th December 2020.

Prof. Halan Prakash, Department of Chemistry, delivered a talk at India-UK SPARC Online Workshop on Water Pollution and River Dynamics, conducted by Mahatma Gandhi University, Kottayam, Kerala held on 19th – 20th November 2020.

Prof. Halan Prakash was invited as a resource person for AICTE sponsored Short-term Training Program (STTP) on Wastewater Treatment and Characterization Techniques- Hands-On Experience - Webinar Series conducted by Manipal Institute of Technology, Karnataka during 14th - 19th December 2020.

Prof. Kundan Kumar, Department of Biological Sciences, participated in a National Virtual Conference 2020 entitled as 'Current Trends and Challenges in Plant Biochemistry and Biotechnology,' which was organized by the Department of Biological Sciences, BITS Pilani, K K Birla Goa Campus, in association with Society for Plant Biochemistry and Biotechnology on 20th – 21st November 2020.

Prof. Lakshmi Subramanian, Department of Humanities and Social Sciences participated in an international seminar on the "Self and the other", organized by the University of Nantes in April 2020.

Prof. Lakshmi Subramanian participated in The Conversation Series: Business History the Discipline and its relevance at Ahmedabad University on 27th June 2020.

Prof. Lakshmi Subramanian delivered a keynote address for an international seminar organized by the Jamia Millia Islamia University and the University of Witwatersrand held during 23rd – 25th November 2020.

Prof. Lakshmi Subramanian was invited to be a resource person for the refresher course at the Academic Staff College, Calicut, on 23rd November 2020.

Prof. Lakshmi Subramanian delivered an invited lecture on 'Business at the time of Contagion' organized by the Godrej Archives and the CSMVS on 26th November 2020.

Prof. Lakshmi Subramanian conducted a "Methodology" workshop for the research scholars of the Department of History at Asoka University on 12th December 2020.

Prof. Lakshmi Subramanian delivered an invited talk on "Piracy in the Indian Ocean", organized by the Maritime Mumbai Society held on 12th December 2020.

Prof. Lakshmi Subramanian participated in "The Art of the Painted Post Card", a conversation organized by the Victoria memorial, Delhi Art Gallery and the Jadunath Bhavan Museum and Resource Centre, on 21st December 2020.

Prof. Meenal Kowshik, Department of Biological Sciences, delivered a talk entitled as 'Biocompatible nano-vehicle composed of surface modified inorganic nanoparticles for bio-imaging and gene delivery applications' at an International Symposium on 'Material Sciences and Innovation for Sustainable Society' organized by Dhempe College of Arts and Science and Govt. College, Khandola held on 26th – 27th August 2020.

Dr. Nilak Datta, Department of Humanities and Social Sciences delivered an invited talk via webinar on "Literary and Cultural Studies: Challenges for Researchers in the 21st Century" at the Professor Som P Ranchan Memorial Annual Lecture on 19th October 2020 at the English Teachers' Forum of Himachal Pradesh.

Dr. Rajiv Kumar Chaturvedi, Department of Humanities and Social Sciences delivered a lead talk in the "International conference on Himalayan Cryosphere", organized by IISc Bangalore on 23rd October, 2020.

Dr. Rajiv Kumar Chaturvedi co-organized (in the capacity of Co-Chair Forest Systems group of IUCN) an International Workshop (online) entitled as 'IUCN Red List of Ecosystems (RLE) Typologies and Principles of Classification: Assessing Ecosystem Risks for Prioritizing Conservation in Mountain Ecosystems of S. Asia' on the occasion of the World Mountain Day, 14 December 2020.

Dr. Rajiv Kumar Chaturvedi delivered an invited talk in a webinar on the "Goa State Action Plan on Climate Change", organized by Government of Goa, on 29th December 2020.

Prof. Ranjan Dey, Department of Chemistry, delivered an invited talk on "Solution Thermodynamics and its Applications", at UGC- MHRD Faculty Development Programme Refresher Course in Chemistry on "Recent Trends in Chemistry Education and Research," held between 23rd Nov – 5th Dec, 2020 at SGB Amravati University.

Prof. Ranjan Dey delivered an invited talk on "Use of Combined Anaerobic Bioreactor and Low Pressure Membrane Filtration System for the Treatment of Low Strength Wastewater to Recover Renewable Resources" in a FDP cum Workshop on Waste to Bioenergy, organized by Sharda University and MIT from 28th June to 4th July, 2020.

Prof. Ranjan Dey and Ms. Sanyukta Jain presented a paper entitled as 'Modified Hind Ubbelohde Approach for Predicting Viscosity of Binary and Multi-component Liquid Mixtures' at the THERMAM 2020, organized by the Institute of Technical Thermodynamics, University of Rostock, Rostock, Germany, on 15th October 2020.

Ms. Aditi Prabhune and Prof. Ranjan Dey presented a paper entitled as 'Density, Ultrasonic velocity, Viscosity, Refractive Index and Surface Tension of aqueous Choline Chloride with Electrolyte Solutions' at the THERMAM 2020, organized by Institute of Tech-

nical Thermodynamics, University of Rostock, Rostock, Germany, on 15th October 2020

Dr. Soumyadip Bandyopadhyay, from the Department of Computer Science & Information Systems, delivered an invited talk on 'Translation Validation of Code-optimizing Transformations Involving Loop using Petri Net based Models of Programs' in the Current trends in cyber-physical systems (CTiCPS), organized by BITS Pilani and Telecom ParisTech, France, held on 10th - 11th of October, 2020.

Prof. Veeky Baths, Department of Biological Sciences, delivered a talk entitled as 'Alzheimer's Detec-

tion Using Speech Analysis' at the 34th Annual Conference, Society for Neurochemistry, INDIA SNCI, organized by the Society for Neurochemistry, INDIA held from 11th to 13th of December, 2020.

Prof. Veeky Baths, delivered a talk entitled as 'EEG Based Brain Computer Interface: Automation and Control of IoT devices using Visual Identification and Augmented Reality(AR) Interfaces' at CTiCPS (Current Trends in Cyber-Physical Systems) 2020 online seminar series, co-organized by BITS Pilani, India and Telecom Paris, France on 10th – 11th of October, 2020.

significant projects

Sr. No.	Title of the Project	Principal Investigator/ Co-investigator and Department	Funding Agency	Proposed/ Sanctioned amount (Rs. In Lakhs)
1	J. C. Bose Fellowship Award	Dr. Samit Chattopadhyay Biological Sciences	SERB	66.45
2	MTU Field Study	Dr. Srikanth Mutnuri Biological Sciences	WASH Institute	10.00
3	Generation 2 Reinvented Toilet (G2RT)	Dr. Srikanth Mutnuri Biological Sciences Dr. Shannnon Yee (GIT)	Bill and Milenda Gates Foundation (Georgia Institute of Technology, GIT)	73.28
4	Assessing the Impact of Climate Change on Mountain Communities in Spiti Basin	Dr. Rajiv Kumar Chaturvedi Humanities and Social Sciences	ISRO-Under Cryosphere Science and Applications Programme (CAP)	24.84
5	Recovery of Water from Gaseous Emissions	Dr. Srinivas Krishnaswamy Dr. Amol Deshpande Dr. Anirban Roy Chemical Engineering	Birla Carbon (ABG)	63.00
6	Colab Agreement	Dr. Ashwin Srinivasan CS&IS	Reflexis Systems, INC, USA	22.00
7	TCS- Research Advisory	Dr. Ashwin Srinivasan CS&IS	Tata Consultancy Services (TCS)	7.20

8	Demonstration of a Practical Solution for Removal and Monitoring Heavy Metal Ions from Drinking Water using Modified Biopolymer	Dr. Amrita Chatterjee Chemistry	DSTE-Goa	2.15 (1st Installment)
9	Dual-Functional and Band-Gap Tunable Visible-Active Semiconductors as Hosts for Single Atom Catalysts: Co-Production of Solar Fuels and Value-Added Chemicals with High Selectivity	Dr. Kiran Vankayala Chemistry	SERB-SRG	29.19
10	Water Filtration, Advanced Oxidation and Capacitive-Deionisation Treatments for Removal of Emerging Contaminants in Water	Dr. Halan Prakash Dr. Kiran Vankayala Chemistry IIT Guwahati, Eureka Forbes and the Way Membrane are the collaborating Institutes	DST-WTI call	105.23
11	Recovery of Resources from Worn-out Tires for Enabling Circular Economy	Dr. Sunil Bhand Chemistry Dr. Utpal Roy Biological Sciences	Birla Carbon (ABG)	42.00
12	Food Insecurity, Intrahousehold Dynamics, and Lifecourse Outcomes in Low and Middle-Income Countries	Dr. Sukumar Vellakkal Economics Dr. Jasmine Fledderjohann of the Lead, Lancaster University, and with collaboration with Imperial College Aurino Elizebetta Imperial College of Science, Technology and Medicine	UKRI-MRC-Lancaster	£ 54,876.09 (BITS share) Rs.52.00
13	Predicting Grease Lubrication Behavior: (a) Novel Methods to Determine Grease Rheology at Extremely Large Shear Rates and (b) The Role of Nanoscale and Mesoscale Structure of Grease in Film Formation Inside Tribocontact	Dr. Asima Shaukat Chemical Engineering	SERB- CRG	40.65
14	Experimental and Theoretical Investigations of Ultra-Thin Two Dimensional Semiconductor Heterostructures and Their Application to Make Nano-Scale Devices	Dr. E S Kannan Physics	SERB-CRG	46.14
15	Field Theories with Carrollian Symmetry	Dr. Kinjal Banerjee Dr. Rudranil Basu Physics Dr. Arjun Bagchi IIT Kanpur	SERB-CRG	18.03

16	Development of Therapeutic Phages to Combat Drug Resistant Staphylococci Infection	Dr. Malabika Biswas Dr. Samit Chattopadhyay Biological Sciences Dr. Susmita Ghosh Collaborator	SERB-CRG	40.41
17	Holography from Null-Infinity: Curious Interactions and (how) Do They Probe Black-Holes?	Dr. Rudranil Basu Physics	SERB-SRG	13.65
18	Entanglement, Non-Local Games and Quantum Error Correction—An Operator Algebraic Viewpoint	Dr. Mizanur Rahaman Mathematics	SERB-SRG	12.46
19	Surface Water Purification for Handwash and Other Application for Rural India	Dr. Anirban Roy Chemical Engineering	DST- NIDHI PRAYAS scheme	6.75
20	Designing New 2D Heterostructured Materials: A Definitive Path Towards Next Generation Energy Storage Devices	Dr. Swastibrata Bhattacharyya Physics	SERB-SRG	19.72
21	Brownian Dynamics Studies on Depinning, Melting and Dynamics phases of Driven partially pinned vortex Lattice	Dr. Toby Joseph Physics	SERB-CRG	18.19

faculty achievements

The term of **Prof. Arun V Kulkarni**, Department of Physics, as Visiting Associateship at the Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune has been extended for a period of another three years w.e.f. 1st August 2020.

Prof. Lakshmi Subramanian, Department of Humanities and Social Sciences authored:

- The book 'Singing Gandhi's India Music and Sonic Nationalism' (Roli Books, Delhi 2020)
- A Chapter; 'Cohabiting with Contagion: lessons from History', in The Viral World ORF Global Policy edited by Maya Mirchandani and Shobha Suri. (Durham University and Wiley Blackwell 2020) <https://www.orfonline.org/wp-content/uploads/2020/06/The-Viral-World.pdf>
- 'Musical Publics in Twentieth-Century Madras: Competing Narratives of Sonic Sociability' in Tejaswini Niranjana edited Music, Modernity, and Publicness in India (O.U.P., 2020)

Dr. Rajiv Kumar Chaturvedi, Department of Humanities and Social Sciences, contributed to India's official (prepared by the Union ministry of Env. Forest and Climate Change) Biennial Report on Climate Change to United Nations, scheduled to be submitted to UN by the Govt. of India on 31st Dec, 2020.

Dr. Rajiv Kumar Chaturvedi contributed to preparation of Goa's State Action Plan on Climate Change, received the honor to co-present the SAPCC to Goa Cabinet on 28th of Oct, 2020.

Prof. Ranjan Dey, Department of Chemistry was awarded Certificate of Recognition by the 'Journal of Chemical Thermodynamics', in November-2020.

Prof. Samit Chattopadhyay, Department of Biological sciences, received the J C Bose National Fellowship for the year of 2020 to 2023.

Prof. Sumit Biswas, Department of Biological sciences, has been invited to be a Fellow of the High Energy Accelerator Research organization (KEK), Japan.

student achievements

BITS Pilani - Goa team won Gold Medal at iGEM 2020

Team BITSPilani-Goa was the first-ever BITSian team to participate in iGEM 2020. The iGEM (International Genetically Engineered Machines) Foundation is an independent, non-profit organisation dedicated to the advancement of synthetic biology. Each year, they host the iGEM competition, where they give 250+ student teams an opportunity to push the boundaries of bioengineering through designing, building, testing and measuring systems of interchangeable biological modules with standard biological methods.

The BITS Goa team consisted of Shruti Sridhar, Gourav Saha, Ameya Thete, Yogen Borkar, Pranav Ballaney, Saransh Gokhale, Sharanya Shastri, Arya Agarwal, Suhas Badadal, Ithihas Madala, Shrilaxmi Patil, Naman Choudhary and secondary Principal Investigator (PI), Malabika Biswas along with Sumit Biswas, Associate Professor in the Department of Biological Sciences, BITS Pilani K K Birla Goa Campus, as Principal Investigator (PI). The team was graciously funded by our generous alumni.

For iGEM 2020, BITS Goa focused on a problem plaguing the sugarcane industry: the problem of post-harvest sucrose deterioration. With the interdisciplinary team of twelve members from the departments of Biological Sciences, Chemical Engineering, Physics, Economics, Computer Science, Mechanical Engineering, and Electrical branches, they came up with a solution — SugarGain, to help reduce the loss plaguing both the farmers and the mill owners. SugarGain contains genetically-engineered *Escherichia coli* that target the invertase enzyme responsible for this deterioration.

The team won a Gold Medal at the iGEM 2020 Giant Jamboree on 22nd November 2020 along with two special awards for the Best Software and the Best Composite Genetic Part.

More information about the project and the team can be found at the team Wiki (https://2020.igem.org/Team:BITSPilani-Goa_India).

Team Vikings wins HAB-59: Hackathon 59 Atmanirbhar Bharat and Evotech 4.0

Team Vikings, consisting of Anshuman Singh (2018A4PS0512G), Akash Jha (2018B5A80893G), Ashwani Kottapalli (2018B4A70646G), Abhi-jeet Swain (2018B4A70540G), Wahib Sabir Kapdi (2018A3PS0247G) won the following hackathons:

a) HAB-59: Hackathon 59 Atmanirbhar Bharat's main objective was to identify potential secure applications that not only replace but work better than those banned by the Government of India. It was powered by MIT-ADT, TERRE Policy Centre and Smart Campus Cloud Network. Team's Solution Chimera aimed to provide a one-stop social hybrid gaming platform to promote Indian Game Developers.

Project link: <https://devfolio.co/submissions/chimera>

Video link: <https://youtu.be/Q1u4beOSzX8>

They were placed First in the Gaming Category and received a cash prize of Rs. 1 lakh.

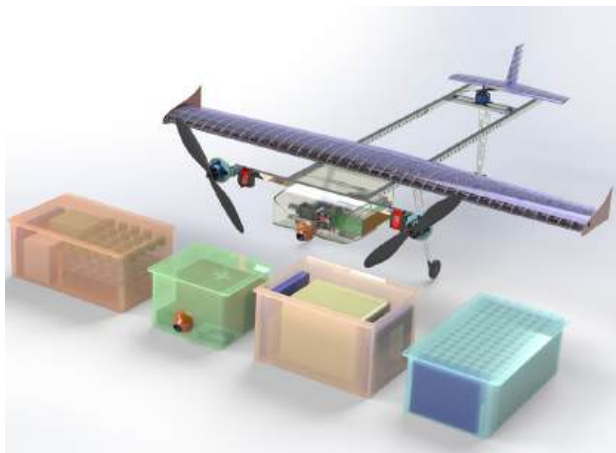
Links: MIT ADT University Pune organises Hackathon 59 Atmanirbhar Bharat 2020, Winners | HAB 59, IIT Roorkee, JSPM's, VIT Vellore, BITS Pilani and MIT ADT University Students win Hackathon 59-Atmanirbhar Bharat

b) Evotech 4.0: Organized by Bharati Vidapeeth's College of Engineering, New Delhi. Team's solution LearnAR. The team was placed 2nd in the Education Theme Category and won a cash prize of Rs 3,000/-.

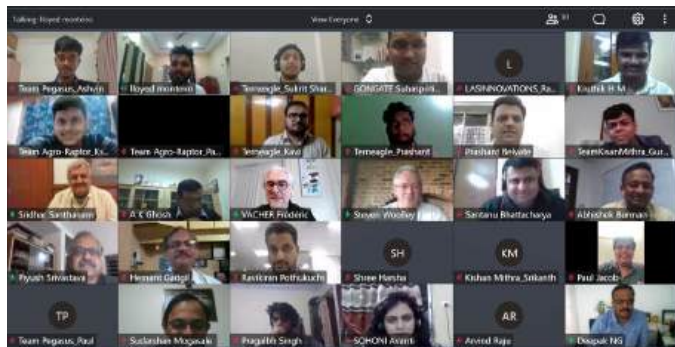
Team Project RT antenna design selected for final prototyping

Team Project RT, consisting of Devashish Gupta (2017A4PS0151G), Soham Deshpande (2018AAPS0723G) and Stuti Panda (2018B5PS0912G) under the guidance of Dr. Sudeep Baudha participated in an antenna design competition called SWAN-tenna20 for the Sky Watch Array Network (SWAN) organised by IUCAA (Inter-University Centre for Astronomy and Astrophysics, Pune). The goal was to design a novel dual-polarized antenna element for astronomical observations at low radio frequencies. Over 39 teams from 32 prestigious Indian educational institutions registered, involving more than 200 students and 60 faculty mentors. The team was shortlisted to present their design to a jury consisting of renowned antenna experts in India. The design has been selected for final prototyping, which will be done when the COVID-19 situation improves.

Team Pegasus secures 3rd prize in a Sustainability Challenge



SAE Aero Club, team Pegasus, consisting of Ashvin Ramesh (2018A4PS0559G), Pragalbh Dev Singh (2018A4PS0517G), Utkarsh Singh (2018AAPS0349G), Paul Jacob (2019B5PS0809G), and Vardhan Nihal Shah (2019A4PS0665G) participated in a Sustainability Challenge: 'Drone-a-thon: Propelling Sustainability' organized for start-ups, Industry Associations for Drones, and Academia. This hackathon was in collaboration with 3DEXPERIENCE Lab and the Drone Federation of India. The team bagged the 3rd prize among a total of 440 teams who registered for the hackathon from all over India. The hackathon was open for start-ups and industry associations for drones as well. 'Drone-a-thon: Propelling Sustainability' is a Design-Simulate-Experience 10 days challenge that inspires Young Minds to be the future innovators and future entrepreneurs in the UAV / Drone sector and it aims to use the 3DEXPERIENCE platform and boost participants' innovation capabilities, develop more creative solutions and create the conditions for remarkable talents to stand out. The Top 5 teams were additionally allowed to pitch their idea to the Shell Oil Company – one of the most diversified international oil companies.



Team Rasoe wins First Runners-Up at the 2020 Global PyTorch Summer Hackathon

Team Rasoe, comprising of Ameya Laad (2018A7PS0124G), Arijit Gupta (2018A8PS0856G), Anish Mulay (2018B3A70907G), Dev Churiwala (2018B1A70602G) and Smitesh Patil (2018A7PS0167G) won First Runners-Up at the 2020 Global PyTorch Summer Hackathon in the mobile/web application category. Rasoe is a web/mobile application that can be used to identify food items from images. The app can identify 308 different types of dishes from over 5 different cuisines. After identifying the dish, it also provides (if possible) a list of key ingredients that are used to make this dish and link to a recipe and some tutorial videos on YouTube.

The team was declared runners up globally, in the Web/Mobile Applications category. There were around 2500 participants from 114 different countries participating in the hackathon.

Project link: <https://devpost.com/software/ground-wav>

<https://medium.com/pytorch/rasoe-a-picture-is-worth-a-thousand-ingredients-82576790a7bc>

BITS Team wins Top Marketer certificate Google Online Marketing Challenge

Team comprising of Parul Verma (2016A8PS0405G), Ameya Sinha (2016A7PS0049G), Sonali Saksena (2016A7PS0791G), Raghav Agrawal (2016A7PS0079G) and Raghav Bhatia (2017B2A80634G) participated in the Google Online Marketing Challenge and received the Top Marketer certificate after successfully completing the challenge. The team, under the guidance of faculty, Mr. Tirtharaj Dash ran ad campaigns for a non-profit organization, BDA Benevolent Fund, a charity fund for dentists in need and managed to increase their website traffic by 54% and received an overall positive feedback as well.

Anupam Mukherjee received the following awards:

- Best Paper Award at CHEMCON 2020 organized by Indian Institute of Chemical Engineers (IICChE) for the paper titled "Cavitation based Advanced Oxidation Process for effective treatment of emerging pollutants: A case study of real-life grey-water streams"
- Best Paper Award at SCHEMCON 2020 or-

ganized by Indian Institute of Chemical Engineers (IICHe) for the paper titled “Study of Hydrodynamic Cavitation based hybrid advanced oxidation technology: A case study for degradation of Sodium dodecyl sulphate”

- BRIC (BIRAC IKP) Idea Exposition Award: 1st Prize on “Healthcare and Environment” at GIM Goa 2020. (In collaboration with Epione Swajal Solutions LLP) for the paper titled “Prototype Development for Treatment of Grey Water Appliance GeRRy”

Jasneet Kaur Pala received the following awards:

- Best Paper Award at SCHEMCON 2020 organized by Indian Institute of Chemical Engineers (IICHe) for the paper titled “Zero Liquid Discharge Strategy And Related Energetics : A Study Of Thermal Desalination Integrated With Crystallization”
- IICHe Awards for the Year 2020 - Late Lakshmi Nandakumar Award of the Institute for best presentation in Schemcon 2020 by a Lady Student
- Best Poster Presentation at International Conference on Sustainable Technologies for Water Treatment and Desalination (STWTD - 2020) for the paper titled “Techno-Energy Analysis of MSF with Crystallizer & Zero Liquid Discharge Strategy”

Prakhar Yadav (2019H1030032G), **Dhairya Parikh** (2019H1030906G), **Dilpreet Kaur** (2019H1030907G), **Kajal Parikh** (2019H1030016G) and **Prof. Hemant Rathore** presented a paper on “Movie Recommendation System Addressing Changes in User Preferences with Time” in 20th International Conference on Hybrid Intelligent Systems (HIS 2020) on 14th December 2020. The paper shall be published by Springer Verlag.

Suraj Gupta (2017B2A30329G) and **Ashutosh Vashist** (2017A1PS0892G) have been selected for the prestigious Idea-to-Startup Lab, a start-up pre-accelerator by the Indian School of Business (India) and Bocconi University (Milan, Italy). Their start-up, PharmBox has been selected in the Top 25 ideas nationally out of 500+ applications to develop it further via the pre-accelerator.

Idea to Startup Lab is a first of its kind training program tailored for aspiring entrepreneurs in India. This hands-on training program combines cutting-edge practices from management, entrepreneurship, design thinking, and academic research. PharmBox is

a touchless 24/7 available medicine dispensing machine product integrated with an Android Application so that people have access to medicines in this crucial time of crisis when the pharmacies are not open. Their product dispenses medicines to a customer through a complete contactless model.

Ruturaj Atul Godse (2019A7PS0002G) participated in the ACM India Coding Contest and won second position in the finals and also won cash prize of Rs 10,000/-. The contest, held from 31st October to 21st November 2020, consisted of three rounds of coding and an interview. More than 1,100 students participated in the contest and after two rounds, 11 students were selected for the final round and interviews.

For more information: <https://www.acm.org/articles/acm-india-bulletins/2020/online-coding-contest-2020-results>

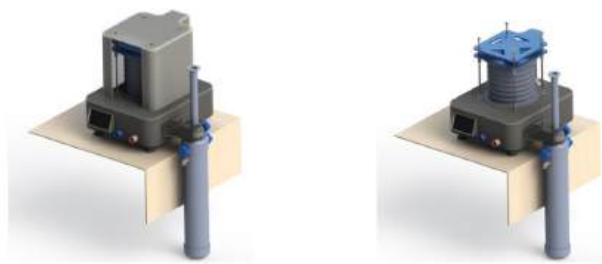
Yashraj Sah (2018A4PS0065G) and **Yash Bohra** (2018B3AA0711G) bagged the 2nd position in EY CAFTA Case Championship 2020 organised by Ernst & Young, among all the UG students across India in ‘Managing Cash & Investment’ category.

Aniruddha Nayak (2018A4PS0850G) and **Vivek Gupte** (2018B1A40948G) won second prize globally in NASA Challenge: A Common Restraint and Mobility Aid System for Multiple Gravity Environments. In this challenge, participants had to design a restraint and mobility aid system for space habitat enclosures that can be compatible with multiple gravity situations and can be reconfigured based on the gravity situation that it is deployed in. The winners for this challenge were announced on September 11, 2020. <https://grabcad.com/challenges/nasa-challenge-a-common-restraint-and-mobility-aid-system-for-multiple-gravity-environments>

Shashank Gupta (2020A4PS1816G) won the overall Global Voices MUN (Model United Nations) series organised by the DAIS, which includes a scholarship of 5000 USD. He received High Recommendation in UNOOSA organised by BITS MUN DUBAI, in World Leader’s Summit organised by Bhubaneswar IMUN, in WHA organised by NTU MUN Singapore and in UNGA:DISEC organised by BITS MUN Goa. He also received Best Delegate in UNESCO organised by NIT

SILCHAR MUN, in UNSC organised by Indian Diplomacy Summit, in African Union organised by VIT Pune MUN and in UNHRC organised by BITS MUN Hyderabad.

Devanshu Wakhale (2017A4PS0293G), **Anirudha Nayak** (2018A4PS0850G), and **Vivek Gupte** (2018B1A40948G) won the first runners up prize at the University of Queensland Engineering Design Hackathon India. In this hackathon, participants had to design a low-cost, easy to manufacture Covid-19 Ventilator.



Akash Jha (2018B5A80893G) and **Ashwani Kottapalli** (2018B4A70646G) secured first position in All India Elixar AR Challenge organised by Elixar Systems, CSIR-CEERI. Over 350 participants participated in the competition which concluded in August 2020. Team's entry for the competition was CoARona an AR one stop shop for all Covid related needs including news, resources nearby and even medical triage.



Navneet Raghunath (2017A3PS1902G) co-authored a conference paper with Prof. M.K Deshmukh and Prof. Sandip S. Deshmukh, titled "Field Performance Monitoring of Roof-Mounted SPV Systems: Application of Internet-Enabled Technologies" which was accepted to be published at Springer's SIST book series.

The conference was held on 21-22 August.

Akshay Valsaraj (2018B1A70608G), **M Ithihas** (2018B1AA0607G), **Nikhil Garg** (2016B1A30597G), and **Mohit Patil** (alumni), under the guidance of Prof Veeky Baths published a paper titled "Motor Imagery-Based Multimodal Biometric User Authentication System Using EEG" at the 2020 International Conference on Cyberworlds (CW), 272-279, in the biometrics category. The paper can be found here: <https://ieeexplore.ieee.org/document/9240525> They are also currently working on another project titled "Identifying Psychiatric Disorders With Speech and Deep Learning" under Prof Veeky Baths.

Akshay Valsaraj (2018B1A70608G) received the prestigious Mitacs Globalink Research Internship for the summer of 2021 from Alberta University to work under Prof Padma Kaul to analyse echocardiography images using deep learning.

Anirudh Nagaraj (2018A7PS0216G) secured the 2nd prize for a paper on "Using EPANET and Deep Learning to Predict and Localise Leaks in Smart Water Grids" at the National Technical Paper Contest conducted by the Institution of Electronics and Telecommunication Engineers (IETE-NTPC). The paper was submitted in December 2020 and the presentation was conducted on 3rd January 2021.

Rakshit Mittal (2017A8B40984G), a student of CSIS Department won Gold Medal in Programming Language Design and Implementation 9PLDI) Conference 2020 ACM Student Research Competition. He is the first Indian to win a Gold Medal at ACM Student Research Competition, Undergraduate Track. His paper was titled 'Translation Validation of Code-Optimizing Transformations involving Loops using Petri Net Based Program Models'.

Faculty members appointment on national/ international advisory committees/ acted as reviewers for books/ journals of national/ international repute

Faculty Name	Department of	Name of Advisory Committee / Editorial Board
Dr. Ashish Chittora	EEE	IEEE Transactions on Microwave Theory and Techniques, IET Microwaves, Antennas and Propagation
Dr. Asima Shaukat	Chemical Engineering	Reviewed manuscripts for Tribology Letters and Journal of Engineering Tribology
Dr. Rajiv Kumar Chaturvedi	Humanities and Social Sciences	Co-Chaired IUCN Forest Systems specialist group (global); –Selected as an Associate Editor, Tropical Ecology and a Guest Editor, Land (International journals).
Prof. Ranjan Dey	Chemistry	Selected as an Associate Editor for the journal of Chemical Physics Physical Chemistry (PCCP).
Prof. Soumyadip Bandyopadhyay	CSIS	ACM Transactions on Software Engineering and Methodology
Dr. Sravan Danda	CSIS	Encyclopedia of Mathematical Geosciences

introducing new faculty

Name	Department	Designation	Area of Research Interest
Iniyan Thiruselvam N.	Mechanical Engineering	Visiting Assistant Professor	Mechanics of Solids, Digital Image Correlation, Finite Element Method
Dr. Kizheppatt Vipin	EEE	Assistant Professor, Gr-I	Embedded Systems
Dr. Vaibhav Joshi	Mechanical Engineering	Assistant Professor, Gr-I	Fluid Structure Interaction, Computational Mechanics, Finite Element Methods, Computational Fluid Dynamics
Dr. Indrani Chakraborty	Physics	Assistant Professor, Gr-I	Condensed Matter Physics, Experimental Soft Matter Physics
Dr. Sravan Danda	CS & IS	Assistant Professor, Gr-I	Mathematical Morphology, Machine Learning, Combinatorial Optimization

Name	Department	Designation	Area of Research Interest
Dr. Ganesh Madhav Bapat	Mechanical Engineering	Assistant Professor, Gr-I	Biomechanics, Assistive Devices, Design Optimization
Dr. Saranya G. Nair	Mathematics	Assistant Professor, Gr-I	Number Theory, Diophantine Equations & Approximations, Analytic Number Theory, Algebraic Properties of Classical Polynomials, Computational Number Theory
Dr. Suman Gupta	Economics	Assistant Professor, Gr-I	Finance, Accounting, Behavioural Finance
Dr. Sundari R.	Chemical Engineering	Assistant Professor, Gr-I	Transport Phenomena, Fluid Mechanics, Computational Fluid Dynamics, Multiphase Flows, Systems Biology
Dr. Tanmay Tulsidas Verlekar	CS & IS	Assistant Professor, Gr-I	Computer Vision, Machine Learning, Biometrics, Gait Analysis, Fire Detection
Dr. Ashwin K.P.	Mechanical Engineering	Assistant Professor, Gr-I	Robotics and Design

introducing new Sr. non-teaching staff

Name	Department	Designation
Mr. Kaushik Anand Phal Desai	Estate & Stores	Sr. Engineer (Electrical)

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