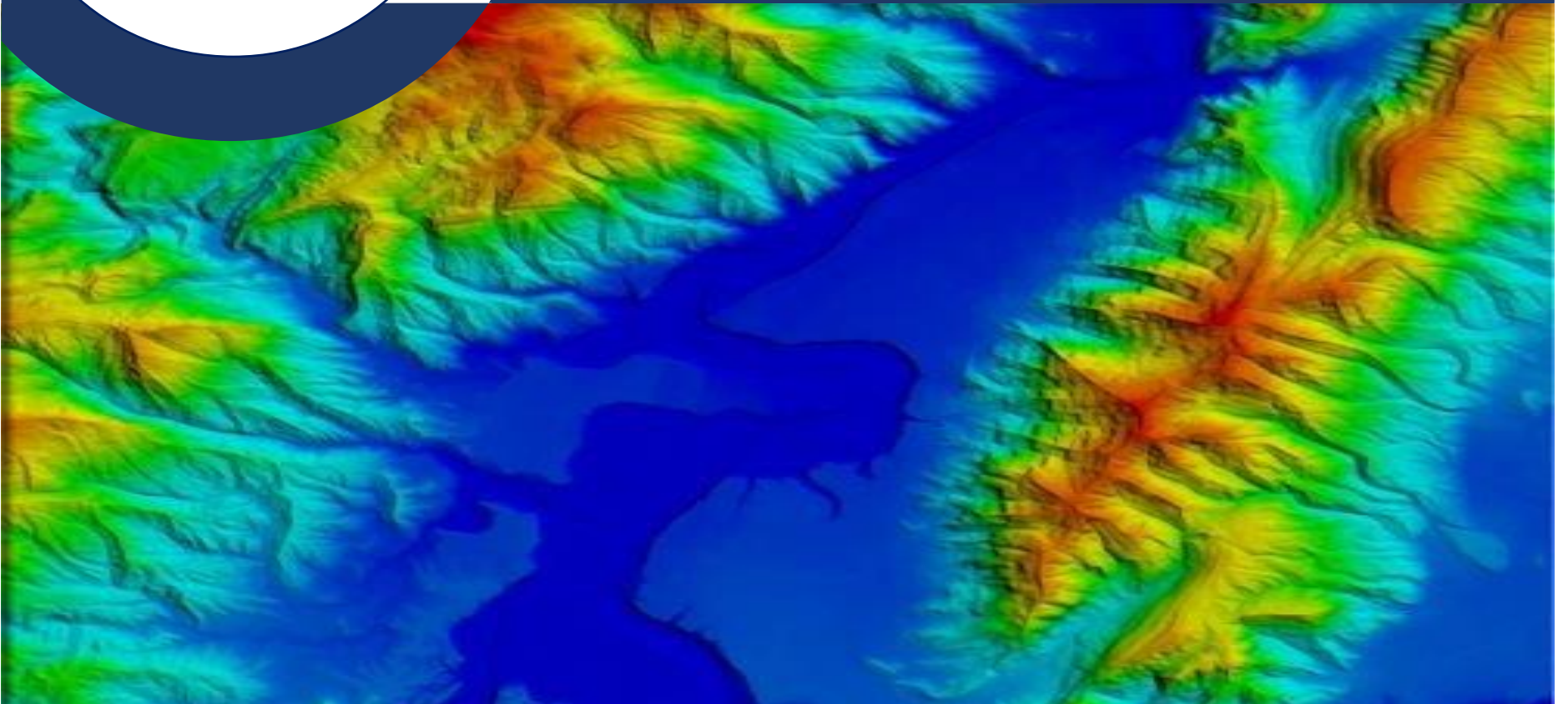


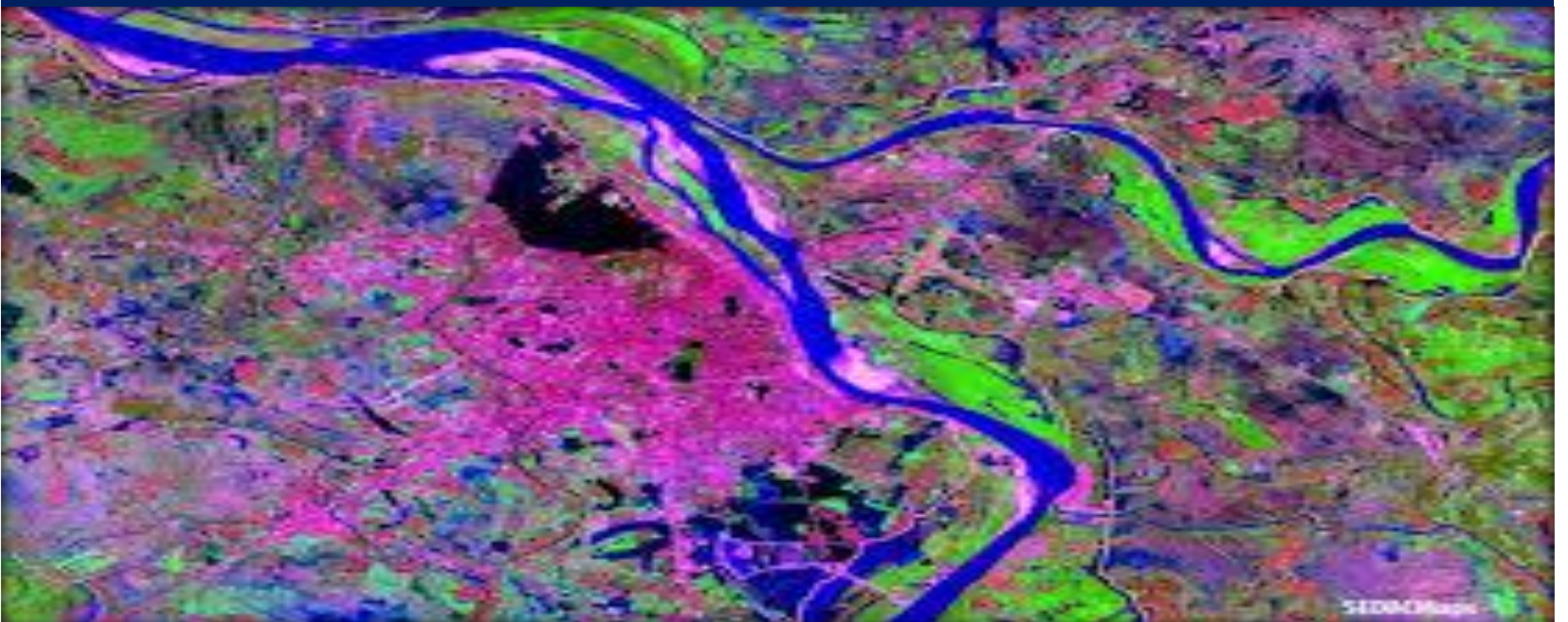
DEDICATED TO THE NATION



INFORMATION BOOKLET



EARTH SCIENCES AND REMOTE SENSING



JIS UNIVERSITY
www.jisuniversity.ac.in

DEPARTMENT OF EARTH SCIENCES AND REMOTE SENSING



VISION:

The vision of the department is to provide an outstanding education which enable students to discover and develop relevant knowledge and skillsets to face the challenges of our nation and world and to prepare them for successful careers so they can create, innovate, and lead the geosciences into the future.

MISSION:

M1: To Impart quality education and equip the students with strong foundation that could make them capable of handling challenges of the ever-advancing geosciences technologies.

M2: To Maintain state-of-the-art in research and outreach facilities in phase with the premier institutions for sustained improvement in the quality of education and research.

ABOUT THE DEPARTMENT

The Department of Earth Sciences and Remote Sensing is an interdisciplinary Department, providing the degree of M.Sc. in Remote Sensing & GIS. There is also provision for Ph.D. and Research in Project Work. The objective of the department is to be a center of excellence in the field of Geo-spatial Technology and Earth Sciences to match the needs of ever-increasing requirement of human resources in these fields and to cater to the larger interest of the Society and Nation. Besides, as the mission this department is maintaining the state-of-the-art in research and outreach facilities in phase with the premier institutions for sustained improvement in the quality of academics and research.

USP OF THE DEPARTMENT

- Innovative and career-oriented courses to match contemporary trends
- Integration of critical thinking, communication skills and technology
- literary club to build confidence, elicit talents and hone theatrical skills
- Amicable interpersonal relationship between members of faculty and students
- Collaborative programs with external agencies
- Well-equipped department library
- Dedicated members of faculty
- Peer learning and remedial coaching
- Periodic parent-teachers meet

A satellite map of a river system, likely the Amazon, showing a large river branching into many smaller tributaries. The river is dark blue, and the surrounding land is green and brown, indicating different vegetation and terrain types.

Access to a massive, continuous, and well-calibrated stream of geographical data on the dynamics of natural and socioeconomic systems has become possible with the turn of the millennium. The exponential growth in data availability can be attributed to technology advancements in space-based and field-based earth observation. It makes it possible to keep an eye on and control environmental processes at many different temporal and spatial dimensions. Integrating such datasets into the geo-enabled data processing, mining, analysis, assimilation, interpretation, and visualization environment is necessary for the full exploitation of the potentialities. It is extremely relevant to society and the country, and it can help with the formulation of policies for sustainable development. It also helps businesses handle operations more effectively and educates the public about geography.

With time, we will require a solid foundation in the state-of-the-art of Remote Sensing and GIS technology and its applications, not only to reap the benefits of an information system for the nation but also to assist in formulating effective national development initiatives in areas ranging from infrastructure development to homeland security cooperation to cross-cutting environmental and climate change issues. In order to help aspiring professionals and researchers tackle these urgent problems, Department of EARTH SCIENCES AND REMOTE SENSING of JIS University has been providing an MSc in Remote Sensing and GIS since 2019.



Dr. Ratnadeep Ray
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M.Sc., Ph.D.

Dr. Atanu Bhattacharya
(Associate Professor)
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B.E., M.Tech., Ph.D.

Alexander von Humboldt (AvH) Fellow, TU Dresden, Germany

Swiss National Science Foundation (SNF) Fellow, University of Zurich, Switzerland and
University of St. Andrews, Scotland

Scientist (External) Mountain Cryosphere Research Group, TU Graz, Austria



Dr. Manua Banerjee
(Assistant Professor)
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M.Sc., Ph.D.

DST Women Scientist, Post Doc IIT Kharagpur,
Ex-IISER-K Fellow

Dr. Sourav Bhattacharya
(Assistant Professor)
sourav.bhattacharya@jisuniversity.ac.in

M.Sc., M.Tech., Ph.D.



For studies on environmental and sustainable development planning, both spatial and non-spatial datasets are essential. Additionally, the growing requirement for geospatial technology has led to an unparalleled need for skilled laborers who can assist in the creation and analysis of these datasets. The MSc in Remote Sensing & GIS offers training in cutting-edge technology, which has the ability to provide consistent and timely information required for natural resource management, in order to meet the need for such qualified individuals.

The Department of Earth Sciences and Remote Sensing offers a program designed to teach professionals and students about geographic information systems, satellite systems, remote sensing, and spatial modeling methods. Additionally, it provides elective courses that aid in the comprehension of the multidisciplinary uses of this cutting-edge technology by students. After completing this program, students will have the self-assurance and abilities to draw in a variety of employers from both public and private sectors. An organized path to the field's study and development is offered by this master's degree.

The Program comprises a set of core courses taught during the first and second semesters. A set of advanced courses and elective courses, taught in the third semester allows students to gain in-depth knowledge in this field and specialize in a theme of interest. In the third semester, student is also required to take up an independent study as dissertation. It encourages students to conduct independent research to get the feel of real-time research project experience. That has been continued till the final semester. In the final semester, the student must carry out a Internship program preferably in a company or organization outside the University to gain exposure to professional experience to real-life situations.

SEMESTER: 1 (AUTUMN)

SUBJECTS	FULL MARKS	CREDITS
Mathematics for Remote Sensing - I	100	4
Fundamental of Remote Sensing and Digital Image Processing	100	4
Remote Sensing in Earth Sciences	100	4
Geographic Information System (GIS) & GNSS	100	4
Remote Sensing & GIS Lab	100	4
CBCS: Energy Sources and Harvesting Technologies	100	4
SEMINAR	25	1
SKILLX	25	1
Total	650	26

SEMESTER: 2 (SPRING)

SUBJECTS	FULL MARKS	CREDITS
Mathematics for Remote Sensing - II	100	4
Advanced Digital Image Processing	100	4
Advanced GIS & Cartography	100	4
Fundamentals of Photogrammetry	100	4
Advanced Remote Sensing and Programming Lab	100	4
CBCS: Geospatial Data Science.	100	4
SEMINAR	25	1
SKILLX	25	1
Total	650	26

SEMESTER: 3 (AUTUMN)

SUBJECTS	FULL MARKS	CREDITS
Elective-I (Departmental)	100	4
Elective-I (Departmental)	100	4
Elective-I (Departmental)	100	4
Web GIS & Programming Lab	100	4
Dissertation-I**	..	..
SEMINAR-I	100	8
SEMINAR	25	1
SKILLX	25	1
Total	550	26

SEMESTER: 4 (SPRING)

SUBJECTS	FULL MARKS	CREDITS
DISSERTATION-II	200	20
Elective-I (Departmental)	100	4
Internship	100	2
..	..	..
..	..	..
..	..	..
SEMINAR	25	1
SKILLX	25	1
Total	450	28

COURSE USPs

- DRONE Technology
- Machine learning using Python and ArcPy
- Google Earth Engine
- Web GIS
- Leaflet Programing
- Remote Sensing of high mountain Glacier using most advanced Satellite data and technology
- Field based hand held digital instrumentation
- Project based skill development
- Full scape support for the GATE examination
- Geo AI



Students must have the degree of B.Sc. with at least 55%* marks in Electronics / Physics / Mathematics / Geography / Geology / Applied Geology / Geo Physics / Geo Informatics / Oceanography / Environmental Science and Equivalent degree (OR) B.E. / B. Tech in ECE / EE / Civil / Geo Informatics / CSE / Agriculture Engineering / Urban & Regional Planning / IT (OR) B.Sc., Agriculture/ Forestry / Horticulture (4 years). Mathematics in (10+2) level is desirable. (OR) B.A in Geography.

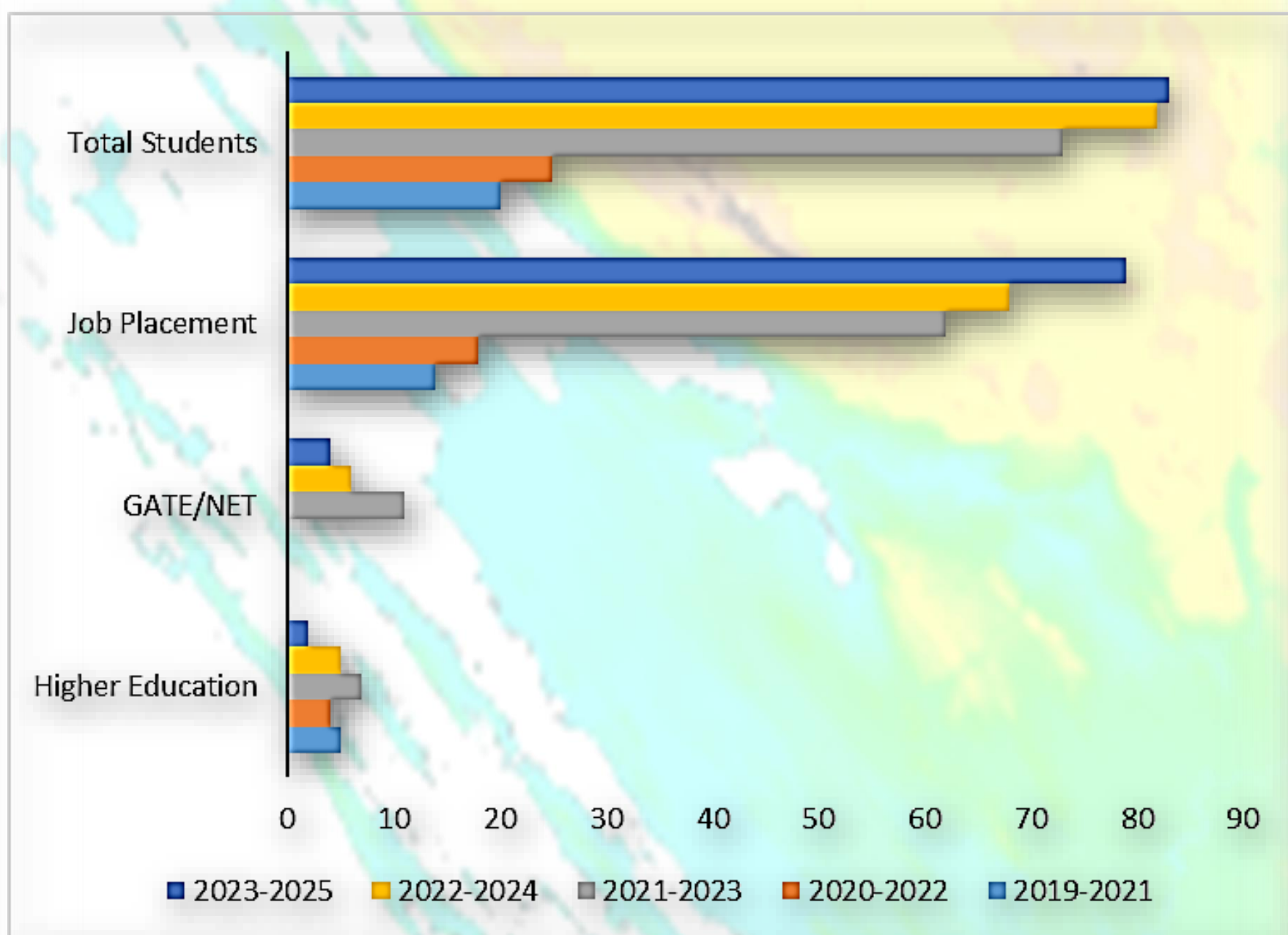
The University uses an online exam to determine who gets admitted to the M.Sc. programs. Candidates are asked to apply by advertising the programs on the university website and in a few prestigious newspapers each year. The one-hour online exam consists of a single paper with one hundred multiple-choice questions. Three sections comprise the questions: Proficiency in English, Analytical reasoning, Quantitative ability. Negative points are there for incorrect responses.

- **An autonomous Institute of Nation and International importance.**
- **Up-to-date academic infrastructure, well equipped digital library, Smart Class Rooms.**
- **Access to the in-campus WEATHER STATION and different portable digital hand-held instruments.**
- **Up-to-date curriculum with Value added Courses as per modern research and industrial demand.**
- **Constant effort of faculties to train students for facing the ever-increasing industrial demands and placement.**
- **Compulsory Internship Program and Placement assurance.**
- **Opportunities to interact with students, academicians and researchers of premier National and International Institutes like IITs, IISER, ISI, ISRO, TIFR, IMD, University of Zurich, University of St. Andrews, University of Dresden.**
- **Opportunities to participate in Govt. of India funded departmental research projects**
- **For the students of Remote Sensing there is a unique course structure having the provision to learn Modern Geospatial technologies like Google Earth Engine (GEE), Cloud GIS, Big data analysis etc. and dealing with advanced Remote Sensing data like LIDAR and SAR data, Hyperspectral data, UAV data etc. Besides there are well equipped integrated digital laboratories along with advanced geospatial software and digital database.**

- Asian Consulting Engineers Pvt Ltd
- Assam Remote Sensing and Applications Centre
- Centre for Research on Energy & Clean Air
- Defence Terrain Research Laboratory (DTRL),
- DRDO
- Eicher
- EGIS India
- Emergent Venture
- ESRI India
- GeoEPC Management Advisors Pvt. Ltd
- Geospatial Delhi Limited
- Genesis Ray Energy
- Global Hydrological Solutions
- Grassroots
- HERE : Nokia Business
- Indian National Centre for Ocean Information Services
- Indian Institute of Science, Bangalore
- Intergraph
- ISRO
- International Water Management Institute
- Cybertech Systems and Software Ltd.
- West Bengal State Council of Science & Technology
- WildLife Trust Of India
- Windforce Management Pvt. Ltd.



& many more





Md. Jahid
(Kentrix Service Pvt Ltd)



Subhankar Paul
(Garudalytics Pvt. Ltd.)



Rohan Prasad
(Garudalytics Pvt. Ltd.)



Subham Das
(iMerit Technology)



Sourav Sen
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Atanu Samanta
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Suraj Molla
(GIS Consortium India Pvt. Ltd.)



Roni Dey
(CyberSWIFT Infotech Pvt. Ltd.)



Souvik Das
(Kentrix Service Pvt Ltd)



Sk. Motinur
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(CyberSWIFT Infotech Pvt. Ltd.)



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Anisha Jana
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Arina Parvin
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Chandrima Sarkar
(R Geo Solution)



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Shreya Manna
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Sreyashi Kumar
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Suparna Adhikary
(iMerit Technology)



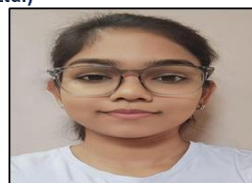
Swagata Dinda
(iMerit Technology)



Susmita Das
(iMerit Technology)



Urbi Panda
(iMerit Technology)



Tiltu Mukherjee
(Kentrix Service Pvt Ltd)



Sudipta Talukdar
(iMerit Technology)



Champa Basari
(SDTL)



Ankita Paul

Doctoral Research Scholar

Wise-Ph.D. Fellow (DST/WISE-PhD/EA/2024/43)

JIS University, Kolkata

She is currently working on the assessment of glacier mass balance in the Western Himalayas, India, with a focus on understanding the impacts of climate change and the influence of morphometric characteristics on glacier mass budget. Her research integrates geodetic techniques derived from remote sensing data with advanced modelling approaches to quantify temporal changes in glacier mass.



Anouska Roy
Doctoral Research Scholar
IIT, Bhubaneswar
(GATE, AIR-368)

She is currently working on the Urban Planning with a focus on Micro Climatic Sustainability. Her research integrates urban planning and micro climatic analysis derived from remote sensing data with advanced modelling approaches to quantify temporal pattern of urbanization and impacts on micro climate.

KOLKATA PUJA GUIDE ANDROID MOBILE APP PREPARED BY STUDENTS AND CERTIFIED

ABP

ABP Pvt Ltd 6 Prafulla Sarkar Street Calcutta 700 001 India T 9133 22345374 www.abp.in

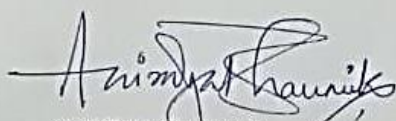
Dear Ms. Keya Das,

We appreciate your contribution to the Durga Puja Guide Map uploaded on Aaro Ananda in 2024.

Your persistent effort to complete the project within a short timeline, your intent to understand the client need followed by adept use of the GIS and other relevant software to produce solutions to meet the end consumer expectations was truly commendable.

We wish you all the best for your future. I am sure if the need arises, we will again associate professionally in future.

Regards


ANINDYA BHAUMIK

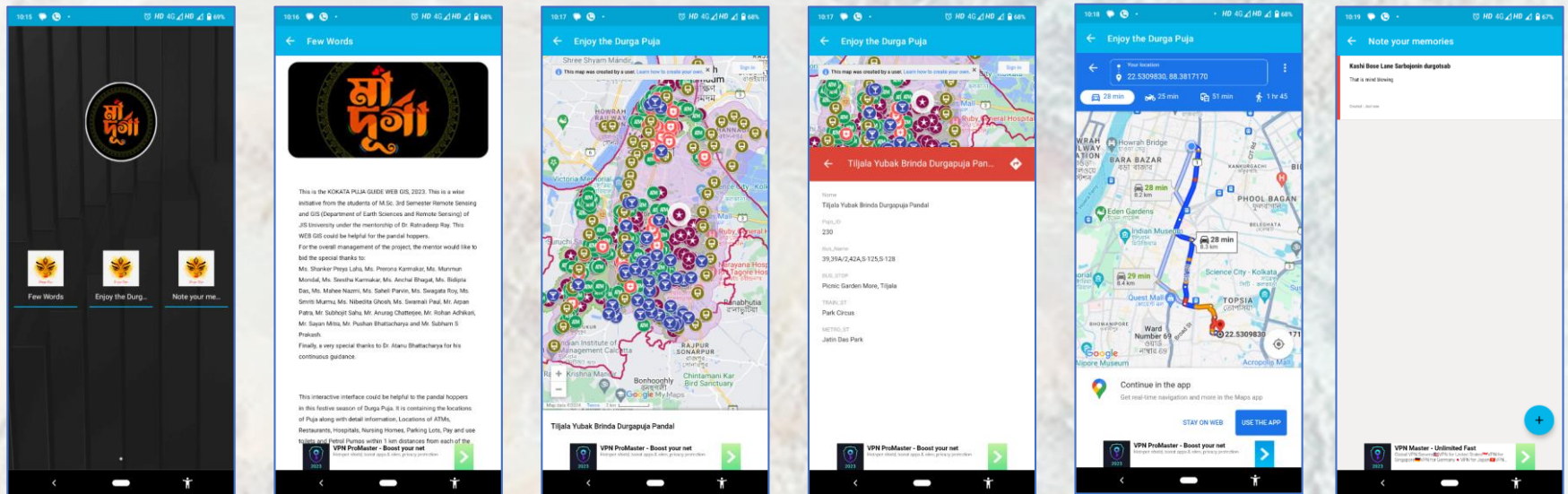
AVP - Anandabazar Patrika and Bengali Magazines

Anandabazar Patrika Desh Anandalok Anandamela The Telegraph Sananda TTIS Boiyer Desh
CIN-U22219WB1922PTC004503

Two of our students from M.Sc. 4th Semester (Remote Sensing and GIS/2023-24 batch) have prepared an Android Mobile App under the guidance of Dr. Ratnadeep Ray for the ABP Ananda and Kolkata Police. This particular application link could be found in **Aro Anando** app.

<https://aaroananda.com/social/article/8613440>

PUJA GUIDE ANDROID MOBILE APP NAMED 'MAA DURGA'



M.Sc. 3RD Semester (Remote Sensing and GIS/2022-24 batch) have prepared this Android Mobile App under the guidance of Dr. Ratnadeep Ray. This was their practical assignment on Web GIS. But their immense effort and dedication to the technology had made possible to launch such Puja Guide Mobile App. This is presumably the first Puja Guide mobile app created in West Bengal by an academic department of Remote Sensing and GIS known as Earth Sciences and Remote Sensing of JIS University. The App could be downloaded from:

https://drive.google.com/file/d/1V_TBkNROZ_5EMyaV4gWGV3nrwC-uztXX/view?usp=share_link

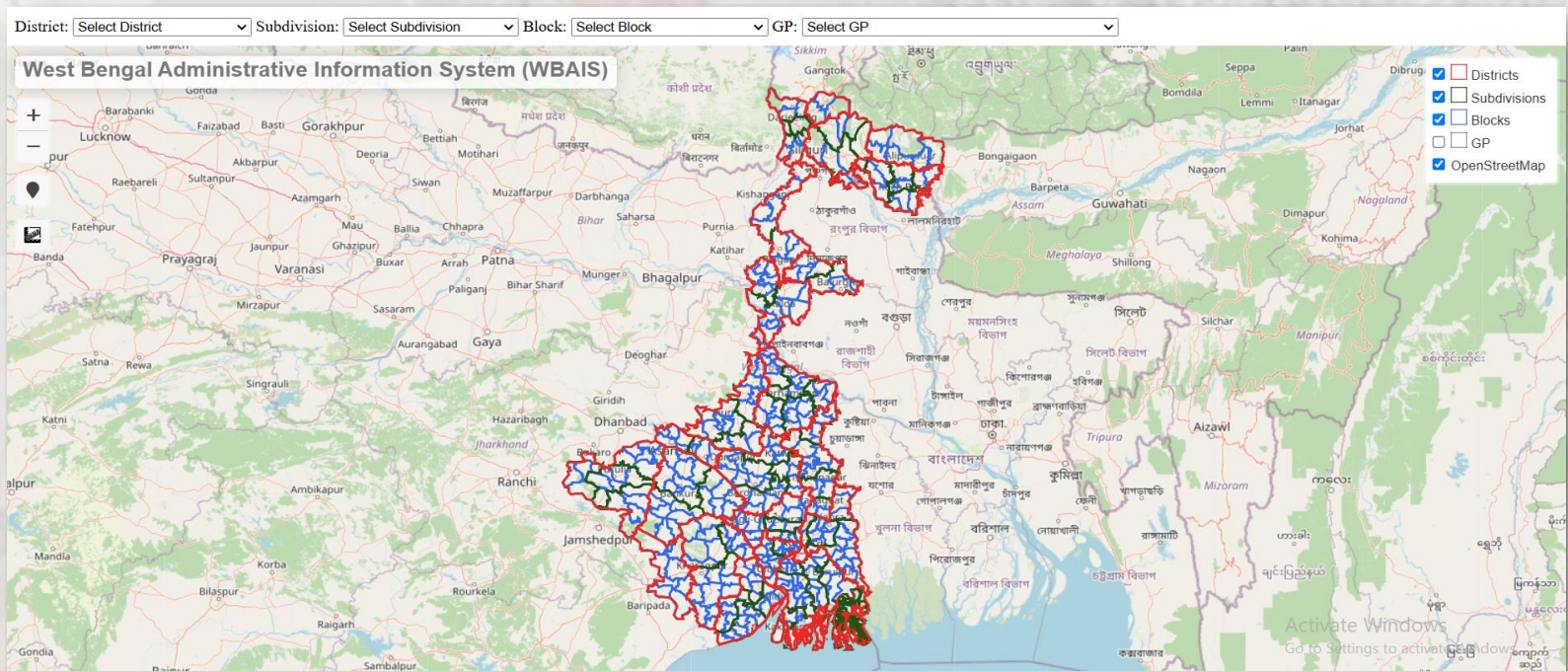
WEB STORY MAP



M.Sc. 3RD Semester (Remote Sensing and GIS/2023-25 batch) have prepared this Story Map under the guidance of Dr. Ratnadeep Ray. This was their practical assignment on Web GIS. But their immense effort and dedication to the technology had made possible to launch such information system. This is presumably the first mobile app on web based story created in West Bengal by an academic department of Remote Sensing and GIS known as Earth Sciences and Remote Sensing of JIS University. The App could be installed from:

<https://uploads.knightlab.com/storymapjs/4286aa5d541be4982451331f8353d3c6/the-heritage-palaces-of-west-bemgal/index.html>

WEST BENGAL ADMINISTRATIVE INFORMATION SYSTEM (WBAdIS)



M.Sc. 3RD Semester (Remote Sensing and GIS/2023-25 batch) have prepared this Android Mobile App under the guidance of Dr. Ratnadeep Ray. This was their practical assignment on Web GIS. But their immense effort and dedication to the technology had made possible to launch such information system. This is presumably the first mobile app on administrative boundary created in West Bengal by an academic department of Remote Sensing and GIS known as Earth Sciences and Remote Sensing of JIS University. The App could be installed from:

<https://wbadis-bd8fa.web.app/#7/24.212/88.204>

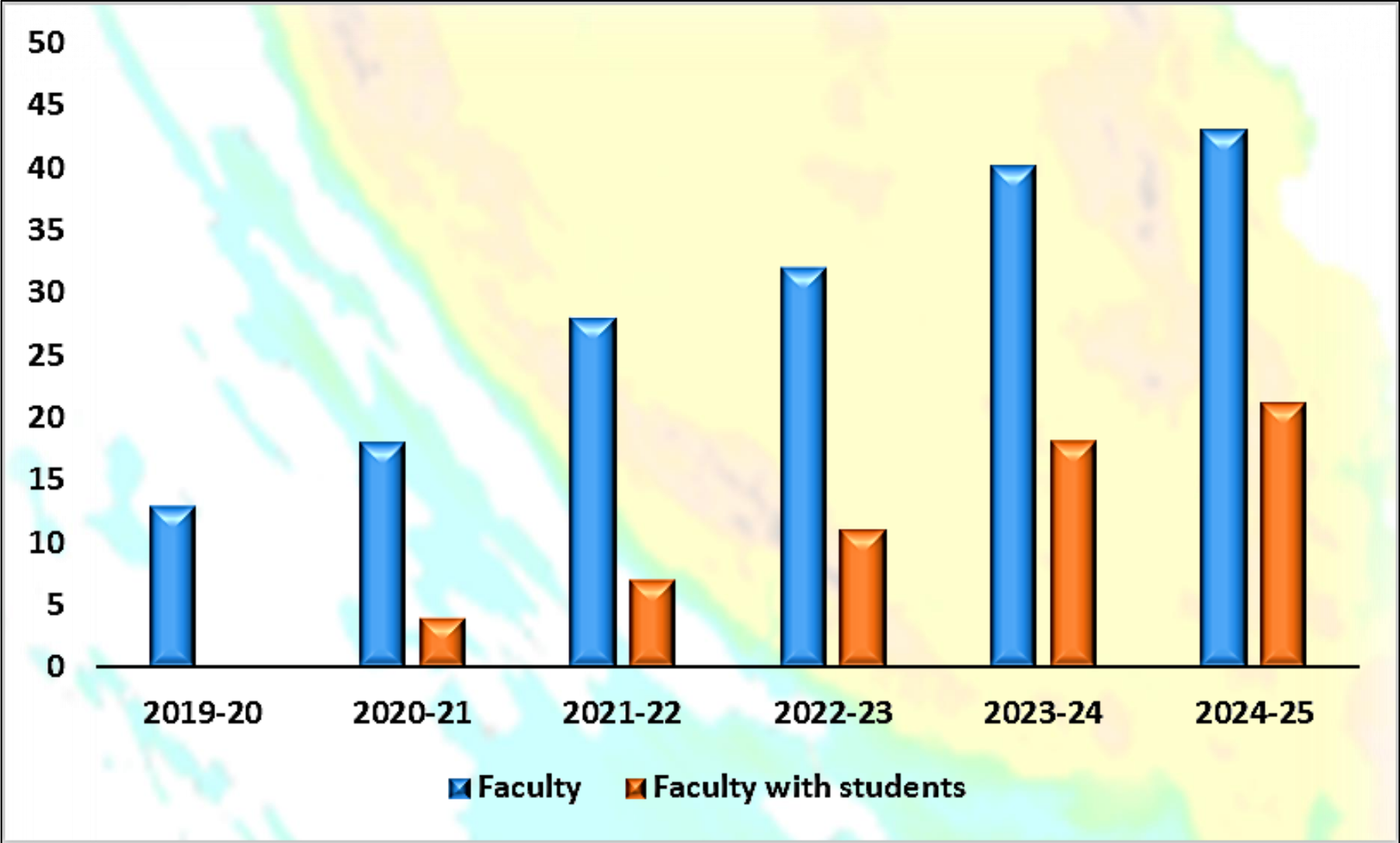
TOURIST INFORMATION SYSTEM (TIS)



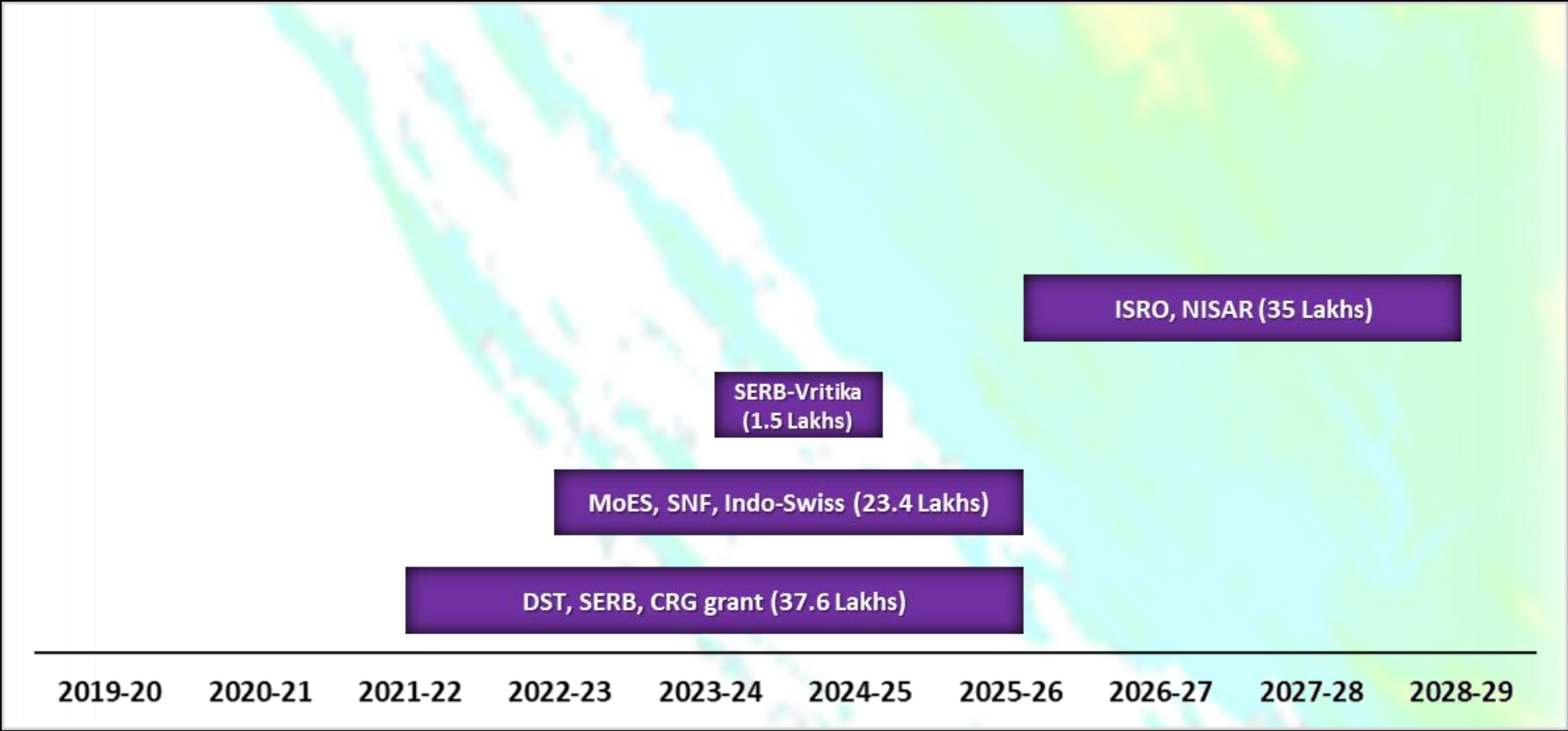
M.Sc. 3RD Semester (Remote Sensing and GIS/2023-25 batch) have prepared this Android Mobile App under the guidance of Dr. Ratnadeep Ray. This was their practical assignment on Web GIS. But their immense effort and dedication to the technology had made possible to launch such information system. This is presumably the first mobile app on administrative boundary created in West Bengal by an academic department of Remote Sensing and GIS known as Earth Sciences and Remote Sensing of JIS University. The App could be installed from:

<https://wbadis-bd8fa.web.app/#7/24.212/88.204>

PUBLICATIONS



FUNDED PROJECTS





INDIA METERIOROLOGICAL DEPARTMENT (IMD)



UNIVERSITY OF DRESDEN, GERMANY



UNIVERSITY OF GRAZ, AUSTRIA



UNIVERSITY OF ZURICH, SWITZERLAND



University of
St Andrews

UNIVERSITY OF ST. ANDREWS, SCOTLAND



SUKANTA MAHAVIDYALAYA, JALPAIGHURI, WEST BENGAL



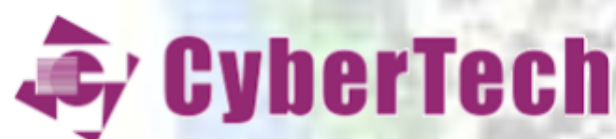
**RAMAKRISHNA SARADA MISSION VIVEKANANDA VIDYABHAVAN,
KOLKATA, WEST BENGAL**



Meghalaya Basin
Development Authority



PIONEER
Geo-science & Surveyors Private Limited





**81, Nilgunj Rd, Jagarata Pally, Deshpriya Nagar, Agarpara,
Kolkata, West Bengal 700109**

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