St. Xavier's College (Autonomous)

(Recognized as "College with Potential for Excellence" by UGC &
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Palayamkottai – 627 002

ANNUAL REPORT 2023-2024

DEPARTMENT OF DATA SCIENCE

The Inauguration of Data Science Association was held on 25.07.2023 in MCA Seminar Hall at 2.45 p.m. Also it was arranged under the aegis of Industry Institute Interaction - Skills Required For Students To Become Industry Ready. Rev. Dr. S. Mariadoss S.J., Principal, delivered the Presidential address. He said that students should work together with synergy and achieve goals in their life. He urged the students to make use of the opportunities given to them to the maximum. Dr A. Lourdusamy, the HoD, explained about the efforts taken by the Department of Data Science in Palayamkottai, to give best education in the country. The Department has designed best curriculum in the country for the benefit of students.

Then the resource person Mr. R. Sharwin Xavier, Software Developer, SAP Labs India, Bangalore, elaborated on the following: Industry Expectations and Interview Experiences. He said that the following are the skills required for Industry readiness: Building relevant projects; Participation in competitions and getting achievements in competitions; communication and networking; Linkedin Profile Development; Subject knowledge and problem solving skills;

Internship experiences; and Completing Certifications. There was an interaction between resource person and students. Students shared that the session was useful to prepare themselves for attending interviews. The Resource Person insisted that students should learn through YouTube, SWAYAM, NPTEL, and other online sources. He said that students should prepare resume and share it in Linkedin so that there is a good chance for them to get placements. The resource person insisted that the students should take part in competition and the awards won by them will be a good showcase before the interview panel to get better placements; he also insisted that the students should take up internship to have industry exposure. The meeting came to an end at 4.45 p.m.

On 04.01.2024, the Data Science Association arranged an offline interaction with Mr. Ulaganathan, Director of Augmented Analytics Company. Dr. A. Lourdusamy, introduced the resource person to the students. He invited the students to take keen interest in knowing the details on the ways of preparing themselves to get placement in Multinational Companies. The Director of Augmented Analytics Company presented a number of tips to students in preparing themselves to match with the talent needed in Multinational Companies. Students were informed on the process of developing themselves leading to developing projects and softwares. With vote of thanks by Dr. Sunil Raj the meeting was concluded.

On 16.02.2024, an online meeting was arranged under the aegis of Industry Institute Interaction-How to become a Software Engineer in big tech companies. The Resource Person was Mr. Arun, Software Developer, Google, Bangalore office. Ms. Vijaya Priya (23PDS503) welcomed the gathering; Ms. V. Lakshmi Devi (23PDS506) introduced the Resource Person; Dr. A. Lourdusamy, Head, Department of Data Science, explained the importance of the topic of the online meeting. It was a career development session on 'How to become a Software Engineer in big tech companies'. He deliberated on the following points: Introduced Software Engineering; Learn Machine Learning Algorithms – Develop Paper Presentation Skills; A Designer – should learn 'figma' tool; Refer LEETCODE (website) – try to solve problems; Solid knowledge in Data Structure is essential; In NEETCODE (youtube channel) – learn to solve problems; Aim at becoming a good Software Engineer – 1. Problem solving techniques, 2. Coding(in any one language), 3. Communication skill (to explain the problem); In GOOGLE – visit career.google.com- to learn the technical knowledge; Become aware of LinkedIn, Github; Read blogs for writing resume.

On 21.02.2024 & 22.02.2024, the Department conducted International Conference on "Recent Trends in Data Science".In the Inaugural function, the Website for the journals of our college developed by Data Science Department was released. In this the key role was played by I M.Sc., Data Science student Mr. Mangaleshwaran(23PDS505). Rev. Dr. V. Henry Jerome, S.J. released the webpage of all the journals of the college; Dr. S. Athisayanathan, the Controller of Examinations, received it. Rev. Dr. S. Mariadoss, S.J. released the webpage of Arts Journal of our college; Dr. D. Jockim, the Dean of Arts, received it. Rev. Dr. G. Pushparaj, S.J. released the webpage of Science Journal of our college; Dr. A. Anitha, Head, Department of AI &DS, Francis Xavier Engineering College, who was one of the Resource Persons for the International Conference, received it. Dr. A. Lourdusamy, HOD, Department of Data Science, St. Xavier's College, Palayamkottai welcomed the gathering and explained the objectives of the conference. Rev. Dr. S. Mariadoss, S.J., Principal, St. Xavier's College, Palayamkottai delivered the Presidential Address; Rev. Dr. G. Pushparaj, S.J., Secretary, St. Xavier's College, Palayamkottai and Dr. B. Xavier Innocent, Deputy Principal, St. Xavier's College, Palayamkottai felicitated the gathering; Dr. A. Anitha, Head, Department of AI & DS, FX Engineering College, Tirunelveli delivered the Chief Guest address; Rev. Dr. V. Henry Jerome, S.J. Rector, St. Xavier's College, Palayamkottai delivered the inaugural address.

A total of fifteen resource persons from different parts of the Globe delivered lectures and chaired paper presentation sessions.The following topics were taken for deliberation:Machine learning models with Python; The power of Big Data Analytics; How LLMs are used in Market Research Synthesis; Predictive modelling in identifying patients in need; Imaging and Raman Spectroscopy in Precision Agriculture; Role of Machine Learning in Fog Intelligence; Generative AI;Data Exploration: AI-Driven Creativity in Data Science; Cloud and Data Analytics; The symphony of Data Science in the Digital Age. 65 papers were presented by the authors from different parts of the country.

On 27.02.2024 & 28.02.2024, the International Conference on "Application of Mathematics in Data Science" was conducted in the college premises by the Departments of Data Science and Mathematics.

Dr. Y Therese Sunitha Mary, HOD, Department of Mathematics, St. Xavier's College, Palayamkottai welcomed the gathering; Dr. A. Lourdusamy, HOD, Department of Data Science, St. Xavier's College, Palayamkottai explained the objectives of the conference;Rev. Dr. S.

Mariadoss, S.J., Principal, St. Xavier's College, Palayamkottai delivered the Inaugural address. A total of fifteen resource persons from different parts of the Globe delivered lectures and chaired Paper Presentation sessions. The following topics were taken for deliberation:

1. Fractals, Archetypes and Big Data: A Multidisciplinary Approach Towards the Intrinsic nature of patterns;
2. Gradient Descent Optimization Techniques in Data Science;
3. Applications of Gradient Optimization Techniques in Data Science;
4. Important Tecniques in Graph Pebbling;
5. Machine Learning Algorithms for Image Classification in Health Care;
6. Recent Research Trends in Hyperspectral Data Processing;
7. Essential Maths for Data Science. 60 papers were presented from different parts of the country.

The Valedictory Function of the Association of Data Science and of the International Conference on "Application of Mathematics in Data Science was conducted on 28.02.2024 in Fr. Causannel Hall at 12.00 p.m. Dr. A. Lourdusamy, HOD, Department of Data Science, St. Xavier's College, Palayamkottai explained the proceedings of the conference and briefed the activities carried out by Association of Data Science for the benefit of students. He also invited the students to keep pace with the technological developments in the world and asked the students to concentrate only on equipping themselves with knowledge, skill and character formation. The report of the Association of Data Science was also presented.Dr. B. Xavier Innocent, Deputy Principal, St. Xavier's College, Palayamkottai delivered the Valedictory address.

TABLE.8.a . PAPERS PUBLISHED IN JOURNALS (2023.2024)

S. NO	Name of the Teacher	Name of the Department	Title of the Paper	Name of the Journal	Volume No/ Issue No/ Page No /year	ISSN No. / e.ISSN No.	Cited in Web of Science / Scopus Indexed/UGC Approved / Not Found in UGC.CARE List	National / International	Impact Factor	Month & Year of publication
01	Dr. A. Lourdusamy	Data Science	'Herscovici Pebbling Conjecture For The Middle Graph Of Fan Graphs	Indian institution of industrial Engineering	Vol.52(6), pp.99.103	0970.2555	UGC care list	National		2023
02.	Dr. A. Lourdusamy	Data Science	Monophonic Pebbling Number of Some Network.Related Graphs'	Journal of Applied Mathematics and Informatics	Vol.42(1), pp.77.83	2234.8417	Scopus, Web of Science	International	0.15	2024
03.	Dr. A. Lourdusamy	Data Science	*Monophonic cover pebbling of path related graphs*	Industrial Engineering Journal	Vol.52(4), pp.167.170	0970.2555	UGC care list	National		2023
04.	Dr. A. Lourdusamy	Data Science	*T. pebbling number and 2t.pebbling property for book graphs*	AIP Conference Proceedings	Vol. 2649, pp. 030033	0094.243X	Scopus, Web of Scienc	International		2023
05.	Dr. A. Lourdusamy	Data Science	*Detour pebbling number on some commutative ring graphs*	Communications in Mathematics and Applications	Vol. 14(1), pp.323.331	0976.5905	Web of science			2023
06.	Dr. A. Lourdusamy	Data Science	Total absolute difference edge irregularity strength of some families of graphs	TWMS Journal of Applied and Engineering Mathematics	Vol.13(3), pp. 1005.1012	2146.1147	Scopus, Web of Science	International	0.4	2023

07.	Dr. A. Lourdusamy	Data Science	Further results on edge irregularity strength of graphs	AIP Conference Proceedings	Vol. 2649, pp. 0300051.030 0056	0094. 243X	Scopus, Web of Science	International	0.189	2023
08.	Dr. A. Lourdusamy	Data Science	'Edge irregularity strength of some related graphs to Tp tree	Jordan Journal of Mathematics and Statistics	vol.16, no.2, pp.233.248	2075.7 905	Scopus, Web of Science	International	0.36	2023
09.	Dr. A. Lourdusamy	Data Science	Detour Pebbling Number of star related graphs	Industrial Engineering Journal	vol. 52, no. 4, pp. 136.141	0970.2 555	UGC Care List	National		2023
10.	Dr. A. Lourdusamy	Data Science	Total absolute difference edge irregularity strength of Tp.tree graphs	Proyecciones Journal of Mathematics	vol. 42, no. 6, pp. 1597.1614	0716.0 917	Scopus, Web of Science	International	0.285	2023
11.	Dr. A. Lourdusamy	Data Science	On Tades of disjoint union of some graphs	Ars Combinatoria	vol. 157, pp. 89.94	0381.7 032	Scopus	International		2023
12.	Dr. A. Lourdusamy	Data Science	Total 3.sum cordial labeling on zero divisor graphs	AIP Conference Proceedings	vol. 2764, pp. 030018	0094. 243X	Scopus, Web of Science	International	0.189	2023
13.	Dr. A. Lourdusamy	Data Science	'Monophonic pebbling number of some families of cycles'	Discrete Mathematics, Algorithms and Applications	Accepted	235003 8	Scopus, Web of Science	International	1.2	.
14.	Dr. A. Lourdusamy	Data Science	Pebbling Number and 2.Pebbling Property for the Middle Graphs of the graph obtained from fan graph by deleting f independent Edges	Springer Book Series: Trends in Mathematics	Accepted		Scopus	International	0.27	.
15.	Dr. A. Lourdusamy	Data Science	On Tades of Transformed Tree and Path Related	Jordan Journal of Mathematics and Statistics	17(1),2024, pp.129.143	2075.7 905	Scopus, Web of Science	International	0.36	

S. No	Name of the Teacher	Department	Title of the Paper	Title of the Journal	Vol. No., Year, Page No.	ISSN/ISBN No.	Indexed in	National / International	Impact Factor	Year
			Graphs'							
16.	Dr. A. Lourdusamy	Data Science	Group S3 mean Cordial labeling for star related graphs	Journal of Applied Mathematics and Informatics	Vol. 41(2), 2023, pp.321.330		Scopus, Web of Science	International	0.15	2023
17.	Dr Sunil Raj Y	Data Science	AI.Powered Library [AIB]: Transforming Teaching.Learning and Research. A Study	IALA Journal	Vol. 11 (2), 2023, pp.22 . 34	2319 – 1392		International		2023
18.	Dr. Sunil Raj Y	Data Science	Blockchain Transformation In Libraries And Information Centers: A Paradigm Shift In Data Management	International Journal of Information Movement	Vol. 8(5), 2023 pp. 38 – 40	2456.0 553		International		2023

TABLE.8.b – PAPERS PUBLISHED IN CONFERENCE / SEMINAR PROCEEDINGS (2023.2024)

S. No	Name of the Teacher	Department	Title of the Paper	Title of the Proceedings	National / International	(Place, Publisher, Year, Page No.)	ISSN / ISBN No.
01.	Dr. A. Lourdusamy	Data Science	*Domination cover pebbling number of some Algebraic graphs*	Recent Trends in Pure and Applied Mathematics Conference Proceedings	National	Aditanar College, 2023, pp.54.58	– 978.81.965805.3 .7
02.	Dr. A. Lourdusamy	Data Science	Herscovici's Conjecture on Total Graphs	International Conference on Applications of Mathematics in Data Science	International	St. Xavier's College(Autonomous)	
03.	Dr. A. Lourdusamy	Data Science	Lourdusamy's Pebbling Conjecture on Book Graphs	International Conference on Applications of Mathematics in Data Science	International	St. Xavier's College(Autonomous)	
04.	Dr. A. Lourdusamy	Data Science	Monophonic Cover Pebbling Number of	International Conference on recent Trends in Data Science	International	St. Xavier's College(Autonomous)	

			Network Graphs			
05.	Dr. A. Lourdusamy	Data Science	Non Split domination cover pebbling number for some classes of middle graphs	ICMSA.2023	International	CRC publication	
06.	Dr. A. Lourdusamy	Data Science	Monophonic pebbling Number of some generalized graph	INCMPCA.24	National	Sri Bharathi Arts and Science College for Women 2024, pp.08.15	978.81.969971.6.8
07.	Dr. A. Lourdusamy	Data Science	Non Split Domination Cover Rubbling Number of Some Standard graphs	International Conference on recent Trends in Data Science	International	St. Xavier's College (Autonomous), Palayamkottai	
08.	Dr. A. Lourdusamy	Data Science	Optimization of Traffic Flow using	International Conference on recent Trends in Data Science	International	St. Xavier's College (Autonomous), Palayamkottai	
09.	Dr.A.Natarajan	Data Science	A Robustification Gene Feature Selection in Breast Cancer Diagnosis using Naïve Bayses Algorithm	International Conference on recent Trends in Data Science	International	St. Xavier's College (Autonomous), Palayamkottai	
10.	Dr.A.Natarajan	Data Science	Applications of AI in Various Fields	International Conference on recent Trends in Data Science	International	St. Xavier's College (Autonomous), Palayamkottai	
11.	Dr.A.Natarajan	Data Science	Role of Artificial Intelligence in Smart Buildings.	International Conference on recent Trends in Data Science	International	St. Xavier's College (Autonomous), Palayamkottai	
12.	Dr.A.Natarajan	Data Science	Impact of AI in Automobile industry in India.	International Conference on Applications of Mathematics in Data Science	International	St. Xavier's College (Autonomous), Palayamkottai	
13.	Dr. Sunil Raj Y	Data Science	Descriptive Analytics On Healthcare Data – A Systematic Approach To Enhance Patient Engagement	International Conference on recent Trends in Data Science	International	St. Xaviers College (Autonomous), Palayamkottai	
14.	Dr. Sunil Raj Y	Data Science	Artificial Intelligence Powered Metaverse	International Conference on recent Trends in Data Science	International	St. Xaviers College (Autonomous), Palayamkottai	
15.	Dr. Sunil Raj Y	Data Science	Classification of	International Conference on	International	St. Xaviers College	

S. No	Name of the Teacher	Department	Title of the Books / Proceedings	Title of Book Chapters	Place, Publisher, Page No.	National / International	ISSN / ISBN No.	Month & Year of publication
			Soyabean Dataset Using Weka Tool	Applications of Mathematics in Data Science			(Autonomous), Palayamkottai	
16.	Dr. Sunil Raj Y	Data Science	Natural Language Processing for Legal Domain and Low Resource Languages	International Conference on Applications of Mathematics in Data Science	International	St. Xaviers College (Autonomous), Palayamkottai	

TABLE 9 . BOOKS / BOOK CHAPTERS PUBLISHED (2023- 2024)

S. No	Name of the Teacher	Department	Title of the Books / Proceedings	Title of Book Chapters	Place, Publisher, Page No.	National / International	ISSN / ISBN No.	Month & Year of publication
01.	Dr. Sunil Raj Y	Data Science	Lecture Notes in Networks and Systems	An Intelligence Security Architecture for Mitigating DDOS Attack in CloudIoT Environment	Springer Nature , Singapore	International	978.981. 99.1745. 7_4	02 – 07 – 2023
02.	Dr. Sunil Raj Y	Data Science	Data Science Fundamentals		Self, pp. 1 . 121	National	978.93.6 039.572. 8	Feb 2024