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### Criteria 3- Research, Innovations and Extension

#### Key Indicator 3.3- Research Publication and Awards

3.3.2. Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years

#### Year 2021-2022 Books Published

S. No.	Name of the Faculty	Title of the Book	Link
1	Dr.G.Jagadeeswari	Puranaanuru kattum kaiyarunilai	<a href="#">View Document</a>
2	Mrs.R.Uma Mageshwari	Literary Recipes-A Joy of Cooking	<a href="#">View Document</a>
3	Dr.G.Karthiyayini	Cybercrimes against women and its preventions	<a href="#">View Document</a>
4		PC Software (MS Office) Lab Manual	<a href="#">View Document</a>
5	Ms.D.Prabha	AI Driven CRM: The Future of Business	<a href="#">View Document</a>
6		A Paradigm shift in Marketing creating value for a sustainable future	<a href="#">View Document</a>
7		Financial Accounting Package- Tally ERP 9.0 Lab Manual	<a href="#">View Document</a>

S. No.	Name of the Faculty	Title of the Book	Link
8	Mrs.P.Manonmani	Ms Office & Internet - Lab Manual	<a href="#">View Document</a>
9	Dr.K.Vishnupriya	Lab Manual: Tally	<a href="#">View Document</a>
10	Ms.P.Shobanapriya	Competency Mapping -A tool in Monitoring the Employee Performance	<a href="#">View Document</a>
11	Dr.B.Karthikeyan	Principles of Auditing	<a href="#">View Document</a>
12	Dr.B.Karthikeyan & Dr.R.S.Sripoorni	Ms Office Lab	<a href="#">View Document</a>
13	Dr.P.Ashok	Principles of Management	<a href="#">View Document</a>
14	Dr.M.Lavanya	Consumers perception, Satisfaction and Brand Loyalty towards Milk and Milk products in Coimbatore District	<a href="#">View Document</a>
15	Dr.M.Lavanya & Mrs.S.Shalini	Tally Lab	<a href="#">View Document</a>
16	Dr.J.K.Bharath	Research Design	<a href="#">View Document</a>
17		A Study on Present Circumstances and Future Prospects of Advanced Education in India	<a href="#">View Document</a>
18		MS-Office Lab Manual	<a href="#">View Document</a>
19	Mr.V.Jeyakumar	C++ Programming Lab -Lab Manual	<a href="#">View Document</a>
20	Ms.V.Jenifer	Visual basic lab-Lab Manual	<a href="#">View Document</a>
21	Mr.M.Arunprasad	Prospects of Advanced Education in India	<a href="#">View Document</a>

S. No.	Name of the Faculty	Title of the Book	Link
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30	Mr.V.Balakrishnan	Oracle -Lab Manual	<a href="#">View Document</a>
31	Ms.Y.Preethi Ceon	LATEX Lab-Lab Manual	<a href="#">View Document</a>
32		MATLab-Lab Manual	<a href="#">View Document</a>
33	Dr.A.Gokilavani	VB and Oracle Lab	<a href="#">View Document</a>
34	Ms.J.Poornimha, Ms.K.Hemalatha, Ms.R.Aswanandini.	Linux and Shell Programming for Beginners	<a href="#">View Document</a>
35	Ms.D.Sasirega	Software Testing Lab-Lab Manual	<a href="#">View Document</a>
36	Mr.A.P.Christopher	Software Project Management Lab-Lab Manual	<a href="#">View Document</a>

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37	Dr.R.Sarala	Linux and Shell Programming Lab- Lab Manual	<a href="#">View Document</a>
38	Dr.D.Kavitha, Ms.G.Priyadarshini, Ms.D.Jeya Rani,	C++ Programming Lab - Lab Manual	<a href="#">View Document</a>
39	Ms. R.Romela, Ms.G.Priyadarshini,Ms.N .Karthika,	Graphics and Multimedia Programming Lab	<a href="#">View Document</a>
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42	Mr.M. Vinod Kumar & Mr.N.Sriram	HTML 5.0 for Beginners	<a href="#">View Document</a>
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50	Dr.V.Sathyavathy & V.Nithya	Programming Lab - Java	<a href="#">View Document</a>

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52	Dr.G.Yashodha, Mr.D.Sakthivel	Network Security Lab	<a href="#">View Document</a>
53	Ms.A.Lavanya & Ms.P.R.PameelaRani	Network Lab Manual	<a href="#">View Document</a>
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67	Dr.M.Shanmugavadivu	Cell Biology, Bioinstrumentation and Microbiology - Lab Manual	<a href="#">View Document</a>
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Title : Puranaanuru kattum kaiyarunilai

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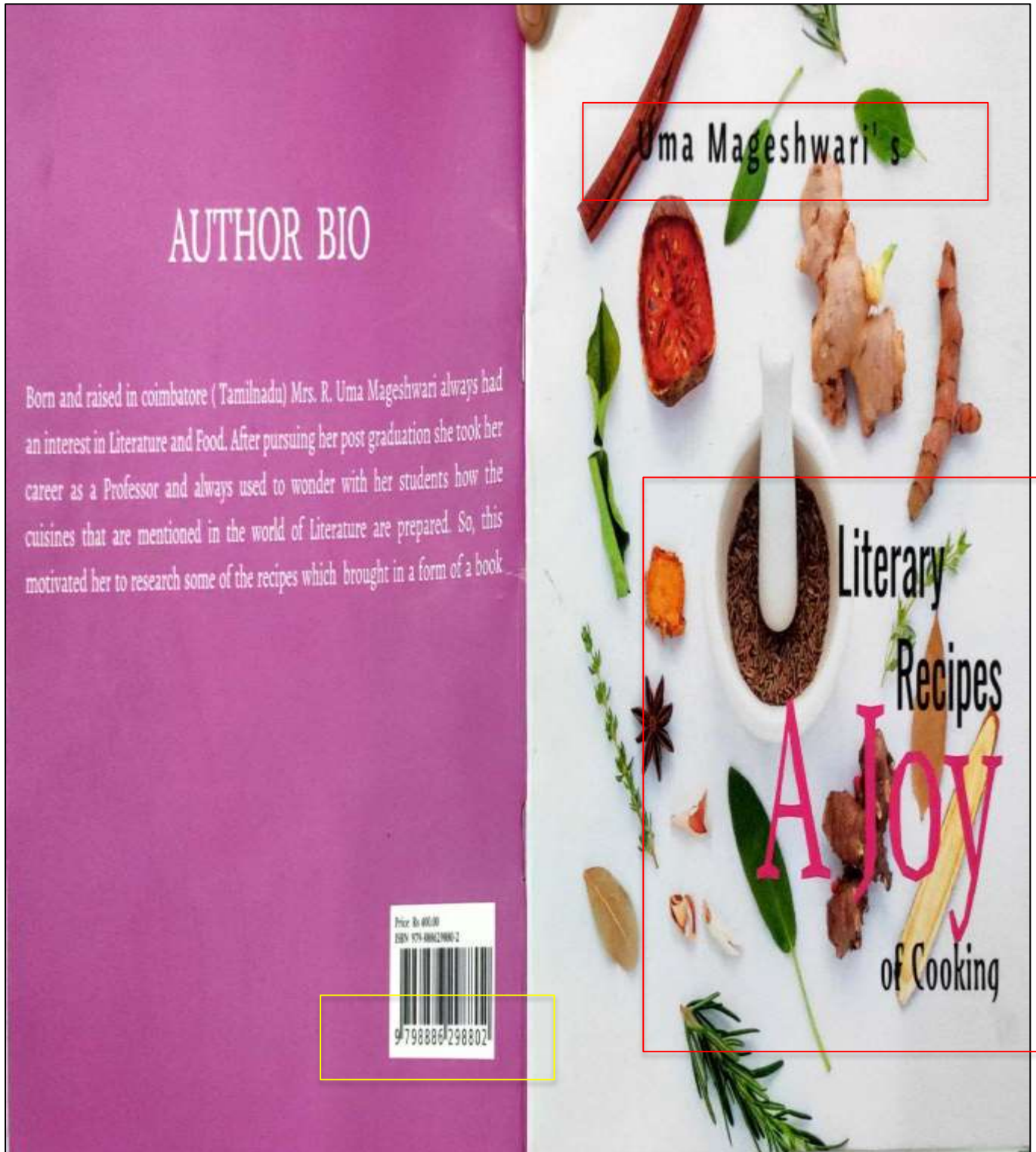
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Title : Literary Recipes-A Joy of Cooking  
 Author : Mrs.R.Uma Mageshwari  
 Department : English  
 Year of Publication: 2021



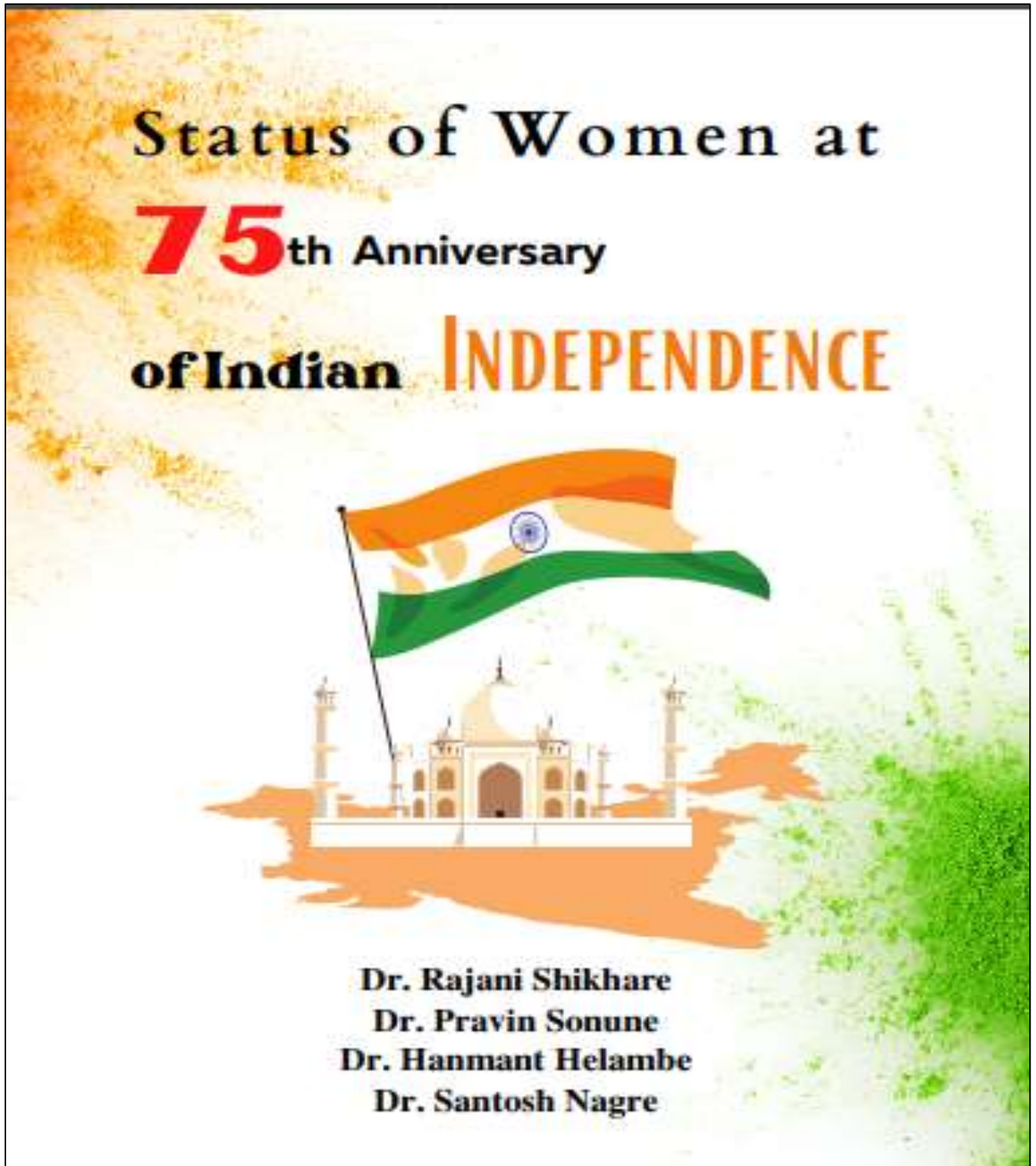


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Department : Management Studies

Year of Publication: 2021



## Status of Women at 75th Anniversary of Indian Independence

Dr. Rajani Shikhare

Dr. Pravin Sonune

Dr. Hanmant Helambe

Dr. Santosh Nagre



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**USA**

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**India**

#625, Esplanade One, Rasulgarh, Bhubaneswar - 751010, India

#55 S/F, Panchkuian Marg, Connaught Place, New Delhi - 110001, India

**UK**

International House, 12 Constance Street, London E16 2DQ, United Kingdom

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## **Cyber Crimes Against Women and its Prevention**

Dr. R.Kanchana, Assistant Professor, Department of Commerce with Professional Accounting, KG College of Arts and Science, Coimbatore - 642 035, Tamil Nadu, India

Dr. G.Karthiyayini, Assistant Professor, Department of Commerce with Professional Accounting, KG College of Arts and Science, Coimbatore - 642 035, Tamil Nadu, India

### **Introduction**

The pandemic has been a hard time for anybody around the globe. human beings faced various troubles from loss of healthcare facilities, lockdown frustration, and isolation, losing jobs and enterprise earnings, to dropping their cherished ones to this deadly virus. The COVID-19 virus has been proved to be a disaster causing innumerable deaths, intellectual, bodily, and emotional agony to tens of millions of human beings around the world. The pandemic has no longer most effective taken away the lives of tens of millions of humans however has been a period of misery for plenty folks that misplaced their jobs or needed to shut down their corporations due to lockdown, for individuals who misplaced the best individual who changed into able to incomes inside the circle of relatives, for youngsters who misplaced each of their mother and Father at this type of fragile age, and lots of extra.

But it isn't limited to that! while humans had been suffering and combating the pandemic, there was some other atrocity spreading like virus i.e., the crime the use of the net and cellular. meanwhile, whilst human beings were using the internet and cell to keep themselves distracted and busy in the course of the pandemic, some people have been taking away their lockdown frustration by misusing these sources and harassing human beings. The cybercrimes the use of the net and cellular phones have been gaining hype and had been escalating all through the pandemic.

What are the causes and reasons for the escalation of cybercrimes at some stage in the pandemic? Who had been the smooth objectives of cybercrime for the duration of the pandemic? What sort of cybercrimes were extra frequently committed in the last 12 months? What are the modern laws to address those crimes? this text answers these questions and lots of different questions revolving around the problem of cybercrime at some stage in the pandemic.

The book is an attempt to analyze the progress achieved towards the women empowerment in particular and gender equality in general at 75th anniversary of India's independence and also the road ahead in this regard from highlighting the challenges and hurdles and suggesting remedial measures in order to achieve women empowerment in India.



### Dr. Rajani Shikhare

Dr. Rajani Shikhare is working as the Principal of R.B. Attal College, Georai Dist Beed (MS). She is the author of Nirala aur Dinkar ki Kavya Chetna , Stri Vimarshe ke bahane se, Swami Vivekanand Vichar Darshan. She was awarded Hindi Sevi Samman for her contribution in language and literature by Rastriya Hindi Sevi Mahasangh, Indore(MP). She was honoured as Godawari Udyojak Mahila Puraskar for her contribution in educational sector.



### Dr. Pravin Sonune

Dr. Pravin Sonune is the Head, Department of English at R.B. Attal College, Georai. His areas of interests are Feminism, Multiculturalism and Indian Writing in English. He edited a book entitled - Changing Nature of Human Relationship.



### Dr. Hanmant Helambe

Mr. Hanmant Helambe is presently working as Head, Department of Public Administration at R. B. Attal College Georai, Dist. Beed(MS). He has to his credit a book on New Trends in Public Administration and one edited book on Disaster Management. His research interest area is Administrative Reforms in India.



### Dr. Santosh Nagre

Mr. Santosh Nagre is presently working as Head, Department of Hindi at R. B. Attal College Georai, Dist. Beed(MS). He is an emerging and passionate scholar in the field of Gender Studies and Feminism. He has published research papers in various national/ international journals.



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 Author : Dr.G.Karthiyayini  
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**ABOUT THE AUTHORS**



**Dr.G. Karthiyayini**, has 15 years of experience in outstanding teaching and currently working as Head and Assistant Professor in the Department of Management Studies at KG College of Arts and Science, Coimbatore. She has completed her Ph D degree in Government Arts and Science College, Coimbatore and Post Graduate at PSG College of Arts and Science, Coimbatore. She has more than 10 research articles were published in reputed journals & more than 20 papers in national and international conferences. She has invited as a Resource person by Neighboring College for the programmes



**Mrs. VC. Pravenpriyaa**, has 9 years of teaching experience in Management Domain, offering a wealth of talent in the implementation of educational technology tools and applications in the classroom. Deliver lectures to undergraduate students on the topics such as Finance and Marketing. Completed PGDCA having vast Knowledge in MSWORD& power-point. Conducted research in a particular field of knowledge and published findings in Professional Journals and books. Participated in students" recruitment registration and placement activities, served on academic committees that deal with departmental matters and academic Issues



**Dr. Gifteen Ringel**, has four years of experience in innovative and practical approach towards teaching. She is currently working as Assistant Professor in the Department of Management Studies at KG college of Arts and Science, Coimbatore. She has completed her MBA and Doctorate from the esteemed SRM School of Management, SRM University, Chennai. She has published research articles in reputed journals. She has more than 10 research papers to her credit in International and National conferences.



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**DEPARTMENT OF MANAGEMENT STUDIES**

**LAB MANUAL**  
**PC SOFTWARE(MS OFFICE)**



Dr. G. Karthiyayini  
 Mrs. VC. Pravenpriyaa  
 Dr. Gifteen Ringel



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### Chapter –XVI

# 16

## AI DRIVEN CRM: THE FUTURE OF BUSINESS

**Dr.R.Umarani**, (umasusi@gmail.com) Associate Professor, Coimbatore  
Institute of Technology, Coimbatore.

**Ms.D.Frabha**, (dprabha99@gmail.com) Assistant Professor of  
Management, KG College of Arts and Science, Coimbatore.

### Introduction

The term **artificial** can be dehumanizing and artificial but only '**artificial intelligence**' permits for a personalized experience with the customers. Artificial intelligence is all around us. Perhaps the concept is still new to some, but it already has a significant impact on your daily routine. When you make a call to Uber, Alexa, Amazon, or other voice assistants on your smartphone, such as Siri, Artificial Intelligence (AI) technology, is designed to make your life easier. Who hasn't looked on Netflix for movie recommendations? AI Algorithms have undoubtedly influenced your decision on what to do.

The sales staff has never been more data-rich than it is now, thanks to AI-driven CRM. AI has revolutionised the customer experience, and everything has been simplified. Because AI is integrated with CRM, the benefits are numerous, as shown below.

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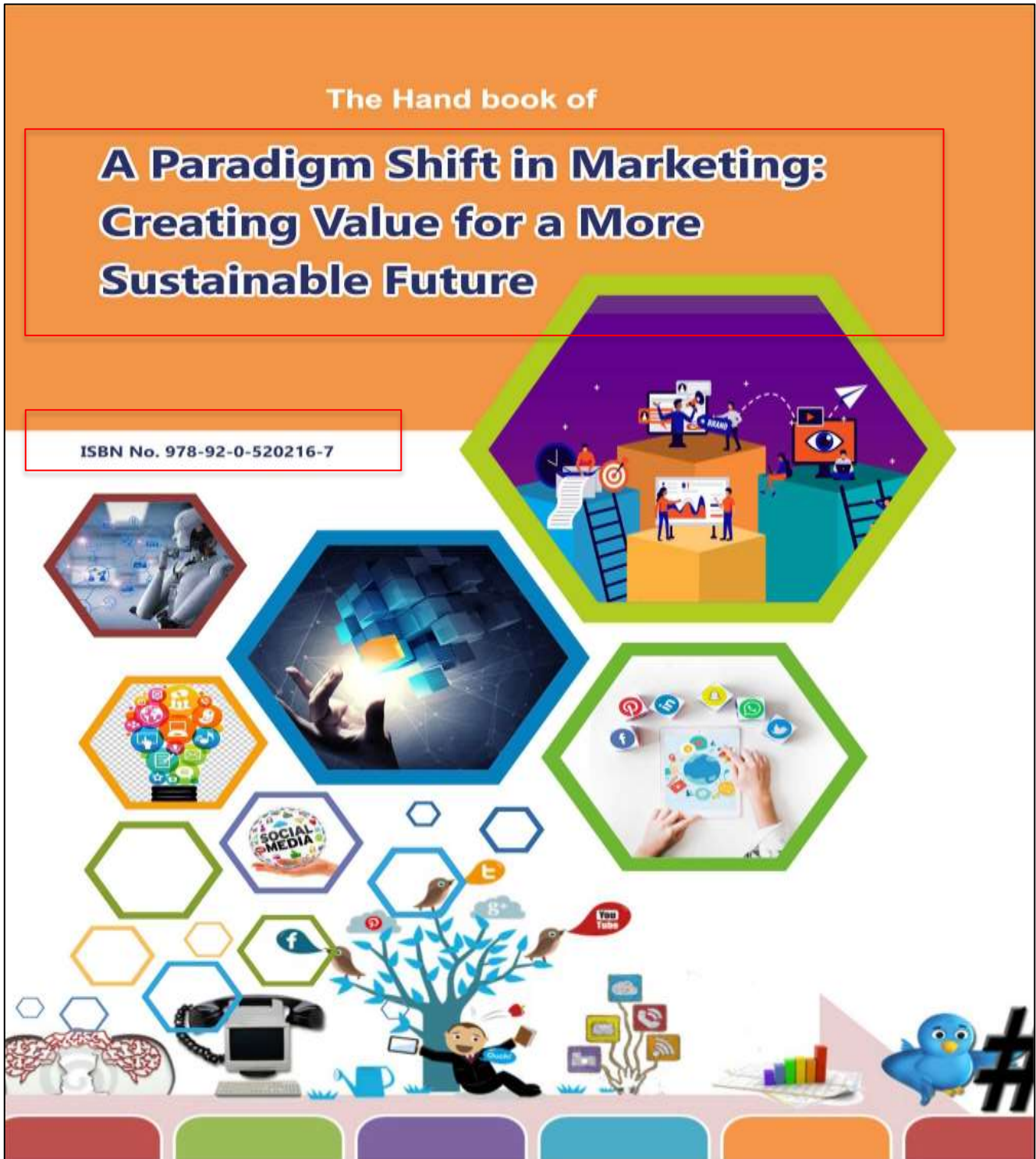
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**The Hand book of**

**A Paradigm Shift in Marketing: Creating  
Value for a More Sustainable Future**

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**Dr. Arpana. D**

*Associate Professor, Department of Management,  
The Oxford College of Business Management, Bangalore, Karnataka-560102*

**Mrs. D.Prabha**

*Assistant Professor, Department of Management Studies, KG College of Arts and Science,  
Saravanampatti, Coimbatore - 641035*

**Dr. S. Ramachandran**

*Associate Professor, Department of Management Studies, St.Peters Institute of Higher Education and Research,  
Avadi, Chennai, Tamilnadu-600054*

*E-mail: arpanad100682@gmail.com, dprabha99@gmail.com, drsranphd@gmail.com*

**Abstract:** A wide variety of electronic goods and banking services have been made available to a wide range of people thanks to the use of technology, which has improved the efficiency of the financial system. To improve the payment system's openness and efficiency, governments throughout the globe are embarking on a path that includes everything from cash to contactless payments to mobile money. The Indian banking industry is undergoing a gradual but significant change. There has been a lot of investment and expansion in this sector in recent years. Mobile banking, SMS banking, internet banking, and ATMs are just few of the options available to consumers of most banks. RBI said India's banking sector is well-capitalized and tightly regulated (RBI). Unmatched in the world, the country's financial and economic conditions are incomparable. Indian banks' resilience in the face of the global financial crisis has been shown by several studies. New financial ideas, such as payments, have recently been introduced in the Indian banking industry. The banking and insurance sector is under constant pressure to adopt new business models, streamline operations, and improve processes due to competition, changing customer loyalty, a stringent regulatory environment, and the introduction of new rivals.

**Keywords:** *Digital Banking, Payment System, IMPS and Retail Banking.*

## 1. INTRODUCTION

Retail banking has been around for some time, it is becoming more widely accepted as a profitable and growing business sector for banks. Consumers may utilise the banking system to meet a range of financial needs via the notion of "retail banking." Retail banking include both retail loans and retail deposit accounts. Although retail banking and retail lending are often referred to as one and the same, retail lending is really a subset of the former. In retail banking, all of a customer's needs are addressed in a seamless manner. For retail banking, the

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 Author : Ms.D.Prabha  
 Department : Management Studies  
 Year of Publication: 2021

**ABOUT THE AUTHORS**

Ms. Prabha D has over 18 years of teaching, research and administrative experience and is presently working as Assistant Professor at KG College of Arts and Science, Coimbatore. She holds a postgraduate degree in MBA with a specialisation in Human Resource Management and Systems from Avinashilingam University in Coimbatore. Her interest in research stimulated her to pursue Doctoral Degree from OHS Institute of Management, Coimbatore. She has published research papers in National and International journals and has authored book chapters in edited volumes of books and conference proceedings. In the year 2008, she passed the National Eligibility Test for Lectureship in Management, which was held by the University Grants Commission. Her areas of interest are Leadership, Organisational behaviour and Information technology. She has been awarded with best paper presentation in the international national conference on "The new normal in Business and Management" in the year 2020.



Dr.K.Vishnupriya is working as Associate professor at KG College of Arts and Science, Coimbatore. She has successfully completed double doctorate in the field of Human Resource and Marketing under the Management domain. She has more than a decade of both industrial and teaching experience in various reputed institutions of Tamilnadu and Karnataka. She has an adequate exposure in the areas of Human Resource Management, Organisational Behaviour, Consumer Behaviour, Business Research Methods, Strategic Management, International Business Management and Marketing Management. She has also attended and presented a research paper in the national and as well as international seminars/conferences. In addition to she has also acted as organizing secretary and co-ordinator for the various events and programmes. She has also published large number of research papers in national journals both National and International level. She was also attended a Faculty Development Programme on Introduction of Research Methodology organized by IIT, Mumbai. She has been very interesting in conducting the various national level management meet in UG and PG Level. She has acted as an Editor of various programme's Business Time Newsletter. She has also been invited as a guest by various colleges for the programmes. She is a member of ISMA membership since 2017.



Ms. P Manonmani, Associate professor at KG College of Arts and Science, is in the profession of teaching the students and conducting research over a period of two decades. She has graduated from Avinashilingam University, Coimbatore and holds Post graduate degree in MBA specialising in Human Resource Management and Hospital management. The quest of research in the area of "Doctors' Att - Health and Welfare measures" motivated her to acquire her pre-doctoral degree (M Phil) from Alagappa University, Karaikal. Devoting interest of research into Employer Branding proved way for her in pursuit of Doctorate from Avinashilingam University. She is qualified in the National Eligibility Test for Lectureship in Management conducted by University Grants Commission in the year Nov 2012. To sharpen the edge she has undergone an intensive one-month Faculty Development Program at Hyderabad, organized by Institute of Chartered Financial Analysts of India on conventional teaching pedagogy. She has a list of 13 research articles being published in national journals both at National and International level and Conference proceedings together with the above she has also presented nearly 25 papers in the various national level and international level conferences. She has a passion of teaching in the area of General paper, Marketing related paper, Strategic Management, Logistics and Supply Chain management and Human Resource management related papers. She also has a great deal of interest in facilitating number of workshops for the students of various disciplines on the soft skills development.



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**ABOUT THE AUTHORS**



Mrs. P. Manonmani, Associate professor at KG College of Arts and Science, is in the profession of training the students and conducting research over a period of two decades. She has graduated from Avinashilingam University, Coimbatore and holds Post graduate degree in MBA specializing in Human Resource Management and Hospital management. The quest of research in the area of "Factors Affecting Health and Welfare measures" motivated her to acquire her pre-doctoral degree (M Phil) from Alagappa University, Karaikal. Diving interest of research into Employer Branding proved way for her in pursuit of Doctorate from Avinashilingam University. She is qualified in the National Eligibility Test for Lectureship in Management conducted by University Grants Commission in the year Nov 2012. To sharpen the edge she has undergone an intensive one month Faculty Development Program at Hyderabad, organized by Institute of Chartered Financial Analysts of India, on conventional teaching pedagogy. She has a list of 11 research articles being published in referred journals, both in National and International level and Conference proceedings together with the above she has also presented nearly 21 papers in the various national level and international level conferences.

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 Author : Dr.K.Vishnupriya  
 Department : Management Studies  
 Year of Publication: 2021

**ABOUT THE AUTHORS**



Dr.K.Vishnupriya who is working as Associate professor at KG College of Arts and Science, Coimbatore has successfully completed double doctorate in the field of Human Resource and Marketing under the Management domain. She has more than a decade of both industrial and teaching experience in various reputed institutions of Tamilnadu and Bangalore. She has an adequate exposure on the areas of Human Resource Management, Organizational Behaviour, Consumer Behaviour, Business Research Methods, Strategic Management, International Business Management and Marketing Management. She has also attended and presented a research papers in the national and as well as international seminars/conferences. In addition to she has also acted as organizing secretary and co-ordinators for the various events and programmes. She has also published large number of research papers in refereed journals both National and International level. She was also attended a Faculty Development Programme on Introduction of Research Methodology organized by IIT, Madras. She has been very interesting in conducting the various national level management test for U Grad PG Level. She has acted as an editor of various programme's Business Time Newsletter. She has also been invited as a guest by various colleges for the programmes. She is a member of CMA membership since 2017.



Mrs P Manonmani, Associate professor at KG College of Arts and Science, is in the profession of training the students and conducting research over a period of two decades. She has graduated from Avinashilingam University, Coimbatore and holds Post graduate degree in MBA specialising in Human Resource Management and Hospital management. The quest of research in the area of "Factors Affecting Health and Welfare outcomes" facilitated her to acquire her post doctoral degree (M Phil) from Alagappa University, Karaikal. Her strong interest of research into Employer Branding paved way for her in pursuit of Doctorate from Avinashilingam University. She is qualified in the National Eligibility Test for Lectureship in Management conducted by University Grants Commission in the year Nov 2012. To sharpen the edge she has undergone an intensive one month Faculty Development Program at Hyderabad, organized by Institute of Chartered Financial Analysts of India, on conventional teaching pedagogy. She has a list of 13 research articles being published in refereed journals both in National and International level and Conference proceedings together with the above she has also presented nearly 20 papers in the various national level and international level conferences.



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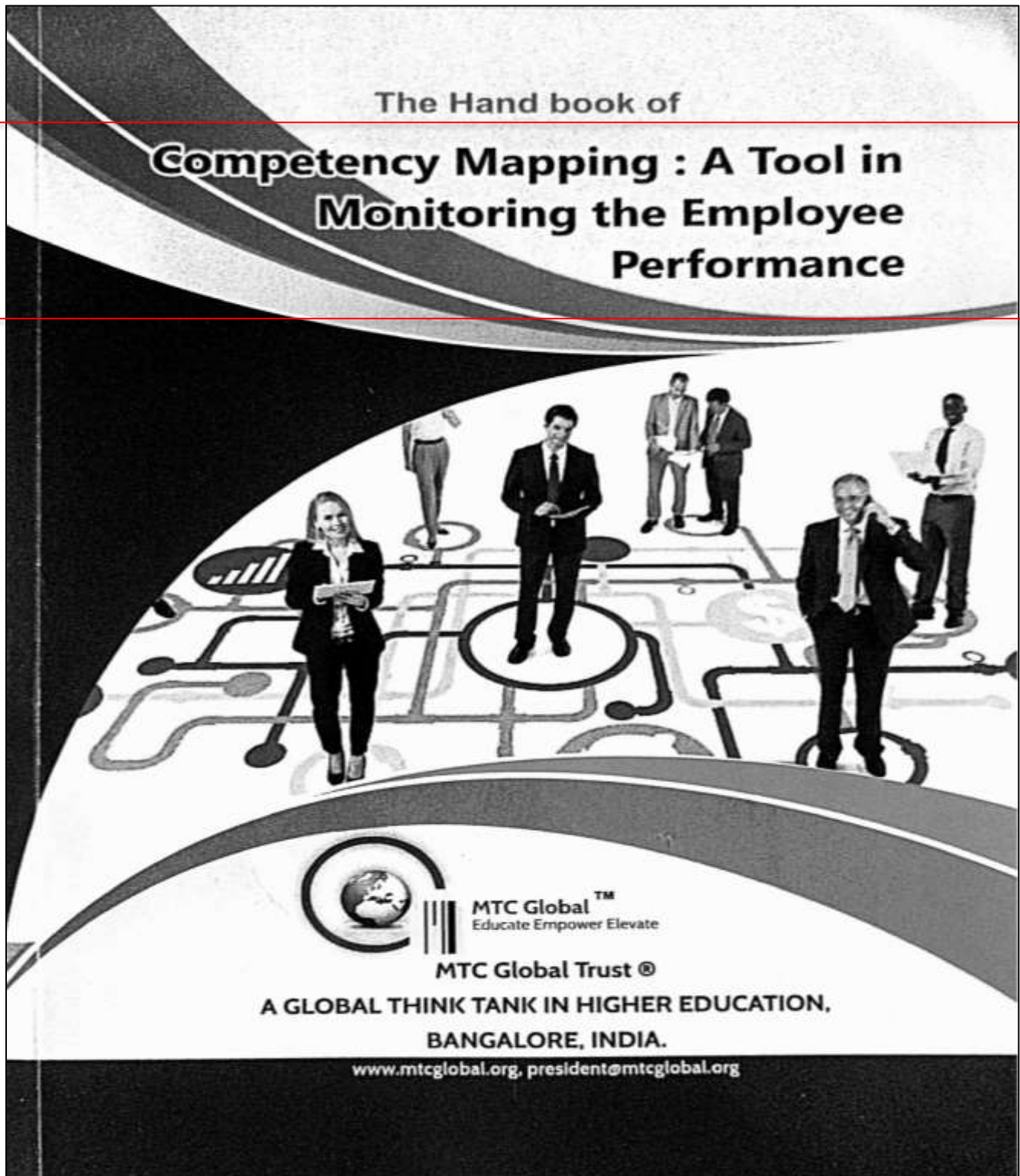


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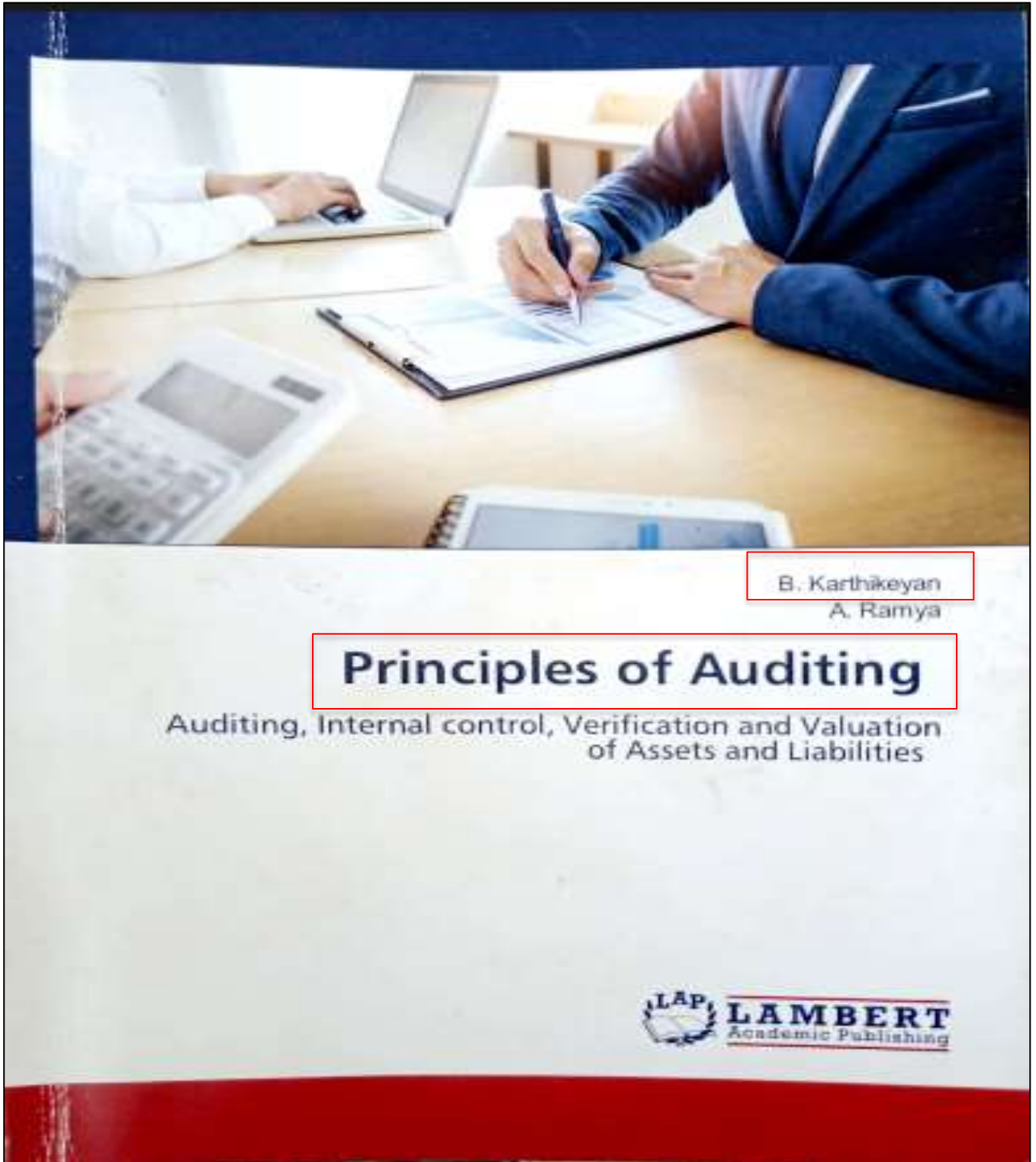


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The origin of audit may be traced to middle ages but the audit in the present sense can be traced after the introduction of large-scale production in consequence of Industrial Revolution during the 18th century. Before this era, goods were produced by individuals on small scale. There was not much capital. The individual who invested the capital, usually himself maintained the accounts and, therefore, there are no necessity of checking them.



B. Karthikeyan, Assistant Professor & Head,  
Department of Commerce, KG college of Arts and  
Science, Coimbatore. He has 15 years of experience in  
Teaching and Research.

A. Ramya, Associate professor, Department of  
International Business, Sri Ramakrishna college of Arts  
and Science. She is having more than one decade of  
Academic and research Experience.



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 Year of Publication: 2021

**ABOUT THE AUTHORS**



**Dr.B.Karthikeyan** is working as Head & Assistant Professor, Department of Commerce, KG College of Arts and Science, Coimbatore, He has more than fourteen years' experiences in teaching field. He has published many articles under various titles in refereed journals both National and International.



**Dr.R.S.Sripoorni** is working as an Assistant Professor, Department of Commerce, KG College of Arts and Science, Coimbatore, she has completed Ph.D in Economics and has more than four years' experiences in teaching field. She has published many articles under various titles in refereed journals both National and International.



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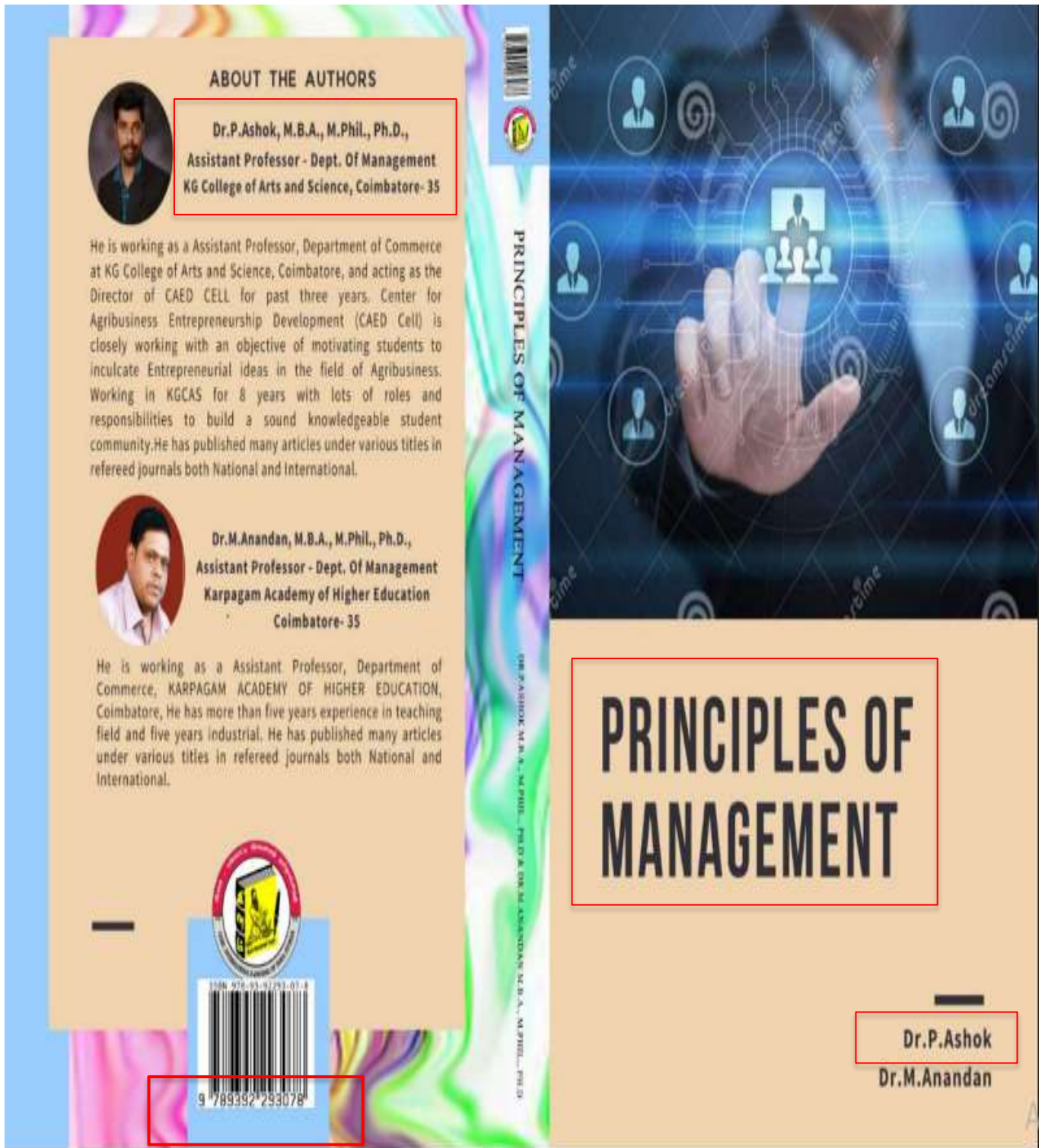


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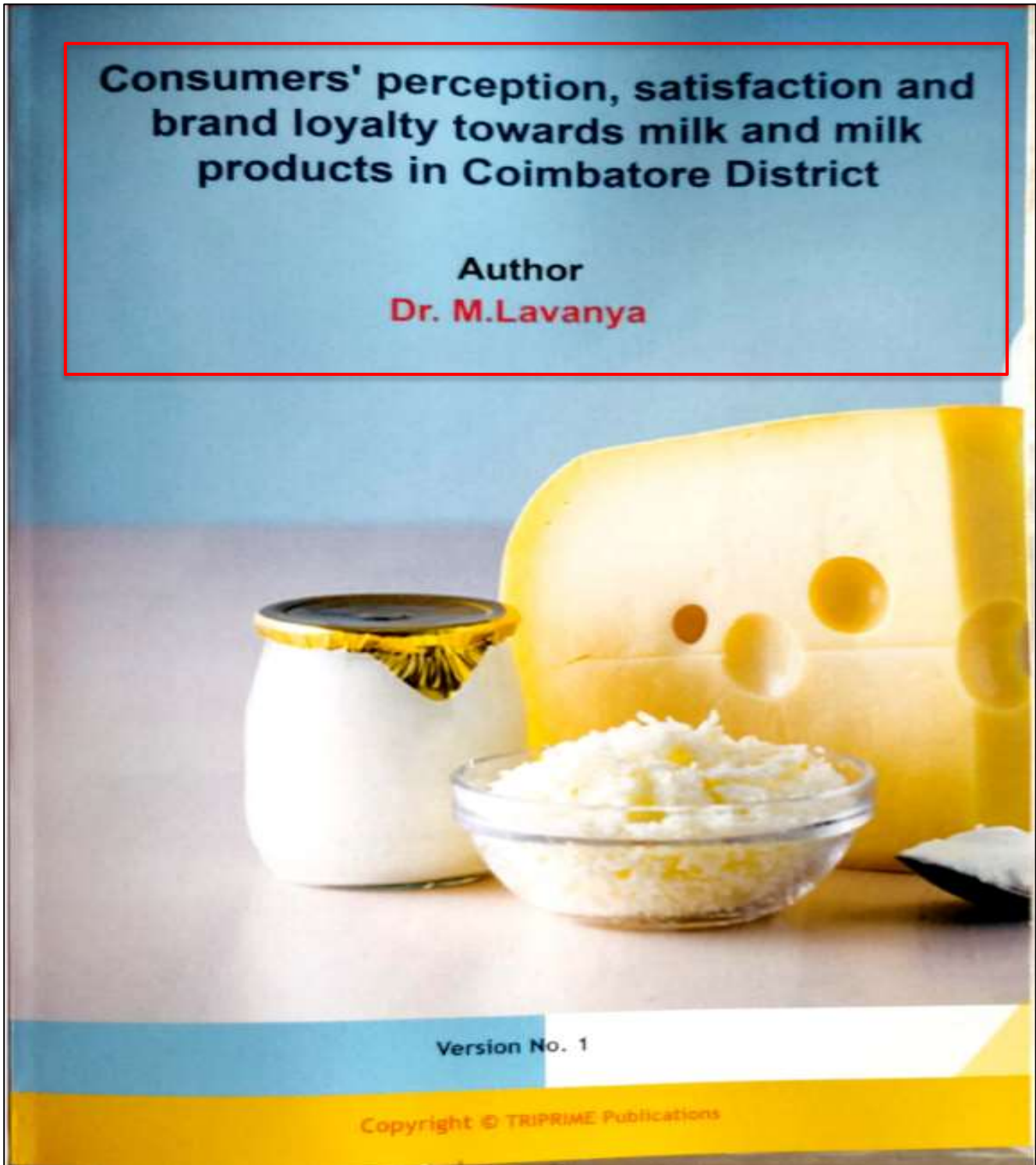


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**About the Author**

Dr. M.Lavanya is working as an Assistant Professor in the Department of Commerce at KG College of Arts and Science, Coimbatore. Having Specialization in Marketing and 6 years of teaching experience, she has published a numerous research articles in international journals and presented her research works in various national and international conferences all over the nation.





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**ABOUT THE AUTHORS**



**Dr.M.Lavanya** is working as an Assistant Professor, Department of Commerce, KG College of Arts and Science, Coimbatore; she has more than Seven years' experiences in teaching field. He has published many articles under various titles in refereed journals both National and International.



**Ms.S.Shalini** is working as an Assistant Professor, Department of Commerce, KG College of Arts and Science, Coimbatore. She has more than Seven years' experiences in teaching field. She has published many articles under various titles in refereed journals both National and International.



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Department : Commerce with Computer Applications  
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**Dr. C.Thanavathi**  
Assistant Professor of History,  
V.O.C.College of Education,  
Thoothukudi – 628008. Tamil Nadu. India

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**Advanced Educational Research and Statistics****RESEARCH DESIGN****Dr.J. K. BHARATH**

M.Com., M.Phil., MBA (MM), MBA (IB), Ph.D.,  
Head&Assistant Professor,  
Department of Commerce CA,  
KG College of Arts and Science,  
KGSIL Campus, Saravanampatti,  
Coimbatore- 641035, Tamil Nadu, India.

**Meaning of Research**

The word "research" originated from the mature French word "recherchier" value to search and search again. It factually implies repeating a search for impressive and implicitly assumes that the previous search was not exhaustive and realize in the feeling that in attendance is silent scope for improvement. Exploration in unexceptional dialect refers to a search for knowledge. It may be definite as an exact and systematic search for related in sequence on a particular topic/area.

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*Sri Ramakrishna College of Arts and Science*

*Coimbatore -641006*



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Kanyakumari, Tamilnadu, India.

Phone: +91 7868917740

E-Mail: [editor@multispectrum.org](mailto:editor@multispectrum.org)

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2022

**A STUDY ON PRESENT CIRCUMSTANCES AND FUTURE PROSPECTS OF  
ADVANCED EDUCATION IN INDIA****Mrs. Archana Kumar**Assistant Professor  
KG College of Arts and Science  
Mail ID: archanakumar@kkgcas.com**Dr. J.K. Bharath**Head, Assistant Professor  
KG College of Arts and Science  
Mail ID: bharath.j.k@kkgcas.com**Abstract**

Education is one of the significant factors necessary to the development of a country. It should be converted to the requirements of the time and changing script of the world. In particular, the advanced education and the mode of its delivery should be tuned time and again for lesser development and changes to manage with similar challenges. In this background, given the present script of Indian advanced education, there needs a paradigm shift in the advanced education system. The advanced education in India is, in general, sounded to be bleak since post-independence and raises several questions still unanswered.

The unplanned expansion of advanced education openings, twisting trend of the educated jobless, commercialization of education, the imbalance of volume with quality, ignorance equity and excellence are some of the material cases in point which pose nonstop pitfalls to advanced education of India. In this light, the new reforms in education to come must address all the below enterprises in advanced education and involve innovative modalities of how to classify and reclassify information, how to look at problems from new and different directions and at last how to bring about new unborn society to meet the challenges to come. To meet the futuristic prospects of Indian advanced education, preceptors shouldn't be spared in similar meaningful reforms since preceptors give with the stylish trained force for a nation similar as technologists, scientists, croakers, masterminds, policy makers, businessmen etc. It's thus preceptors too should be empowered as a part of reforms for Indian advanced education meeting the growing demands of liberalization and globalization going on in the world. Hence, the arising Indian society needs to make the system of their advanced education must innovative and futuristic to face the changing demands of the ultramodern Indian Society.

**Keyword:** Advanced education, paradigm shift, challenges

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Page 23

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**Dr.J.K. Bharath** is working as Head and Assistant Professor in the Department of Commerce with Computer applications at KG College of Arts and Science, Coimbatore. He completed his Ph.D degree in Thuvathiru Sambalinga Adikalur Tamil Arts and Science College, Coimbatore and Post Graduate Degree holder in Marketing Management and International Business. He has 7 Years of experience in teaching field, more than 12 research papers were published in international Journals with high impact factors and presented 18 papers in National and International conferences. At present he is a member in Indian Academicians and Researches Association.

**Dr.R.Kanchana** is working as Head and Assistant Professor in the Department of Commerce with Professional Accounting at KG College of Arts and Science, Coimbatore. She has completed her Ph.D degree in Government Arts and Science College, Coimbatore and Post Graduate Degree holder in marketing. Her Voice echoes in the class room as a teacher for the last 12 years. She has more than 10 research papers were published in international Journals with high impact factors, 25 papers in National and International conferences.

**Dr.R.Pennarasamy** has 21 years of experience in academic and currently working as Head and Associate Professor in the Department of Commerce with Information Technology at KG College of Arts and Science, Coimbatore. He was received his Post graduate and under graduate from Thanjai Hans Roever College of arts and Science, Perambalur and Doctorate from Nehru Memorial College at Puthanampatti, Trichy. He has published many articles under various titles in referred journals in both National and International.

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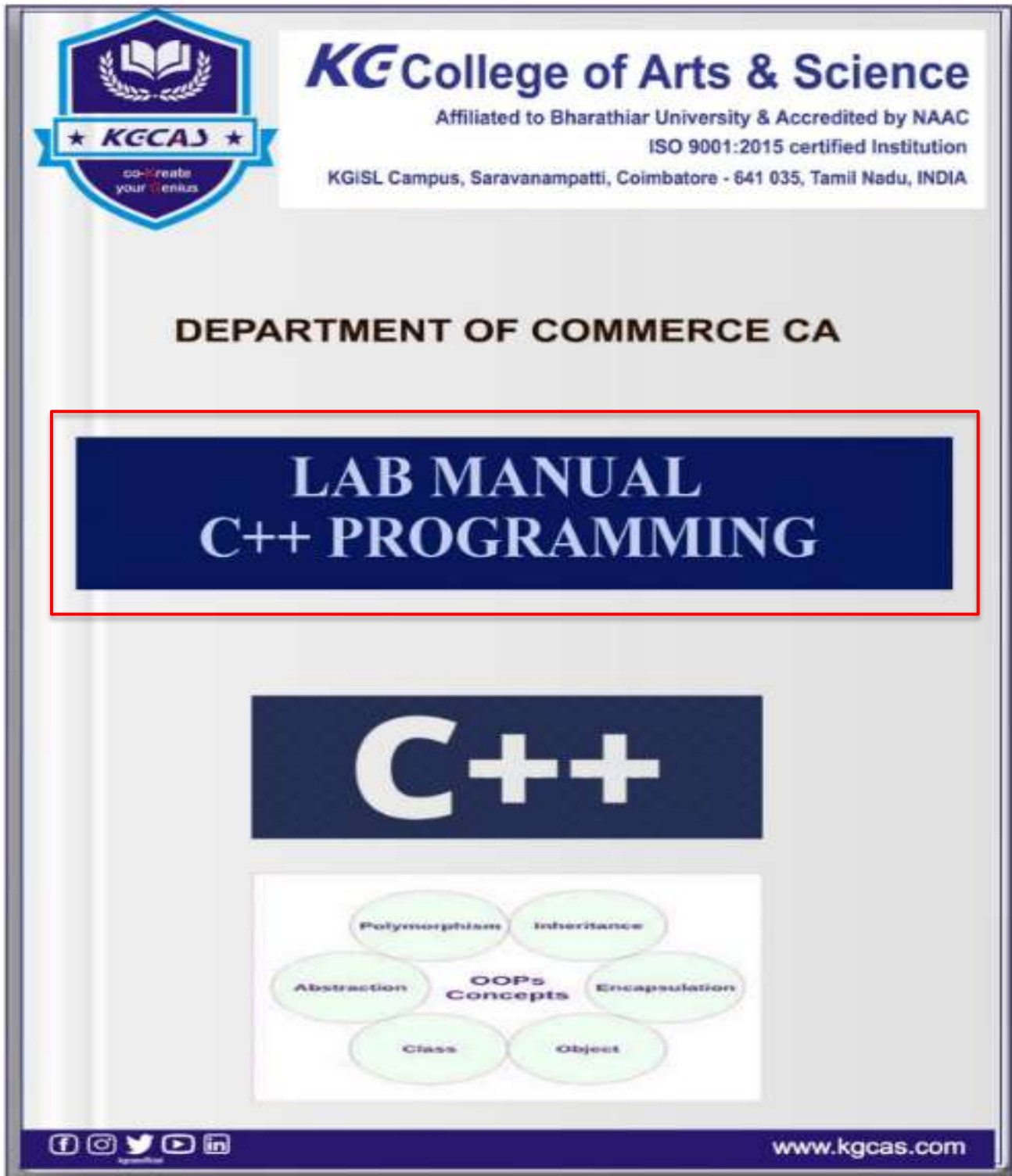
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**AUTHORS**

**Mr.Jeyakumar V**

**Assistant Professor**

**Department of Computer Science**

**Ms.V.Jenifer**

**Assistant Professor**

**Department of Computer Science**

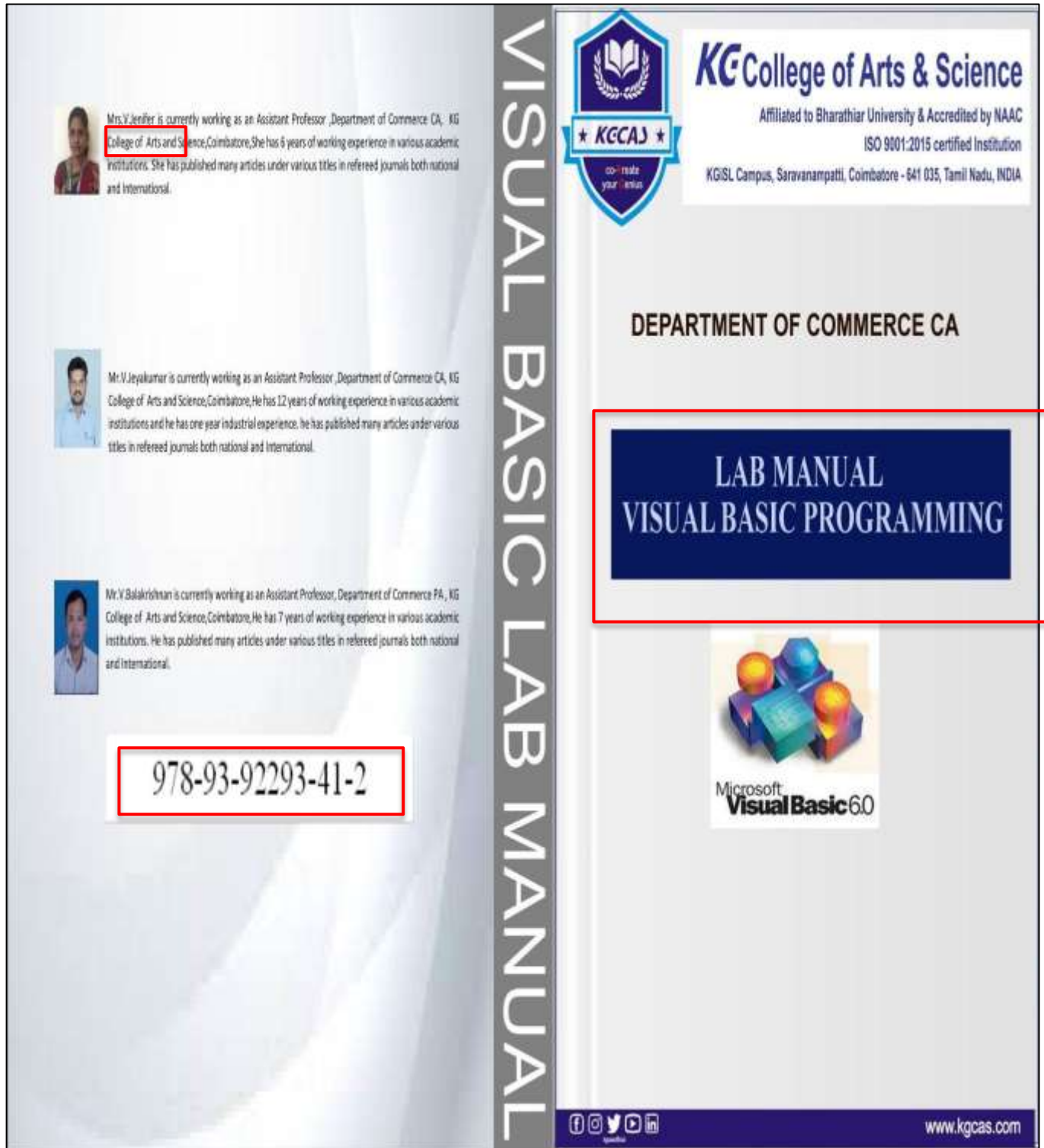
**Mr.V.Balakrishnan**

**Assistant Professor**

**Department of Computer Science**

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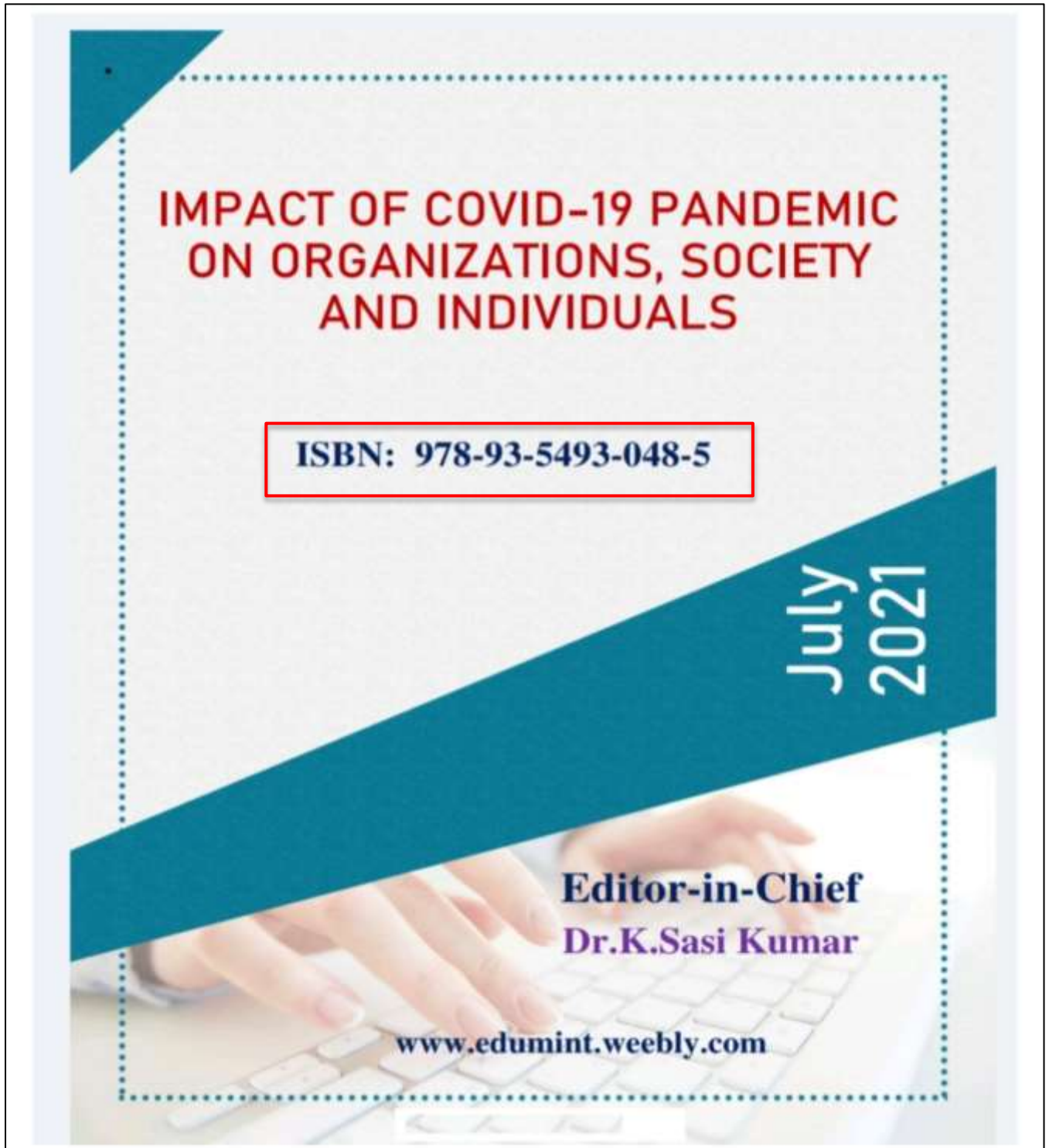


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IMPACT OF COVID-19 PANDEMIC ON ORGANIZATIONS, SOCIETY AND INDIVIDUALS- JULY 2021

M.Arunprasad<sup>1</sup> BE., M.B.A., MPhil., (PhD)

<sup>1</sup> PhD Research scholar at Bharathiar School of Management and Entrepreneurship Development, Coimbatore, Tamilnadu, India – 641046 & Assistant professor of Commerce CA at KG College of Arts and Science, Coimbatore, Tamilnadu, India.- 641035 arunprasad.m@kpcas

#### ABSTRACT

This Paper is a study on the impact of Covid -19 on the franchise business especially in the kindergarten education. Covid 19 first surfaced in India in march 2020 since then the classes for the pre primary students has stopped and by June it has started with the online mode of conducting classes. Franchise model has more overheads in the form of high initial investment on infrastructure, royalties and advertisement charges which need to be paid to the franchisor this is coupled with the other rental, labor expenses. Covid -19 has brought in a situation that rents had to be paid without income or needed renegotiation and also the franchisor fees. As education can be imparted if there is speaker and a listener and the listener is capable of acquiring the knowledge then it is successful impartation of knowledge. Online platform has helped educational institution to further their services in the Covid - 19 pandemic. This study gives an insight to the franchisees in this sector of some possibilities to realign different parameters for the continuity of the business with reasonable profit within the stipulated rules laid down by the Government of India.

Keywords: Franchise, Business continuity, Kindergarten education, Covid 19, Fees, Government stipulation.

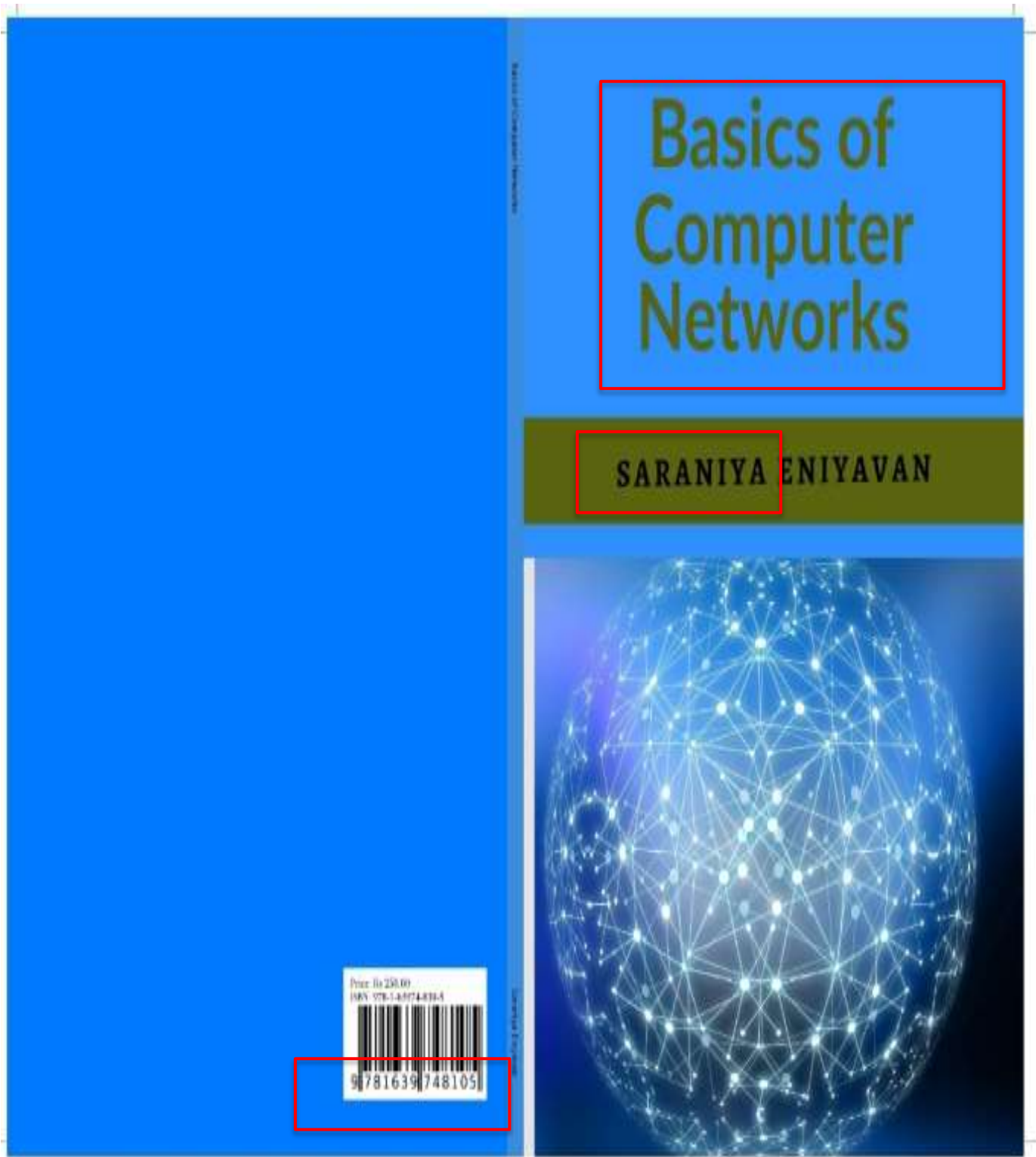
**About the Editor-in-Chief**

**Dr. K. Sasi Kumar** has done his schooling at Erode and Under Graduate studies from Periyar University. He holds his Master's in Business Administration from Anna University Coimbatore. He also holds Post Graduate Degree in Human Resource Management. Completed his Ph.D. in Management from Bharathiyar University in 2018. He has a distinction of clearing National Eligibility Test (NET) in Management. He started the career as Research Assistant, Placement Officer, Lecturer, currently serving as an Assistant Professor in the Department of Commerce & Management at Vivekanandha College, Tiruchengode, Tamil Nadu, India having 12+ years of teaching, learning and research experience.

His areas of expertise include Retail & Supply Chain Management, Human Resource Management. To his credit, he published more than 20 articles in reputed National and International journals including UGC indexed and conference volume proceedings. Participated and presented several papers in many National and International conferences. In addition acting as President - Indian Association of Social Sciences Research (IASSR), Editor-In-Chief at International Journal of Innovation in Social Sciences, Editor of Thaavan International Journal of Research in Marketing Mangement, Active member of many professional bodies. He delivered invited talks and lectures as a Chief Guest in various Universities & colleges. Organizing Secretary of International conferences, Faculty Development Programs, Workshops and serving as a convener and member in several committees and event organizer of various Academic Programmes.

**Contact us****E-mail:** [drsasi2021@gmail.com](mailto:drsasi2021@gmail.com)**Website:** <https://edumint.weebly.com>

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Department : Commerce with Information Technology  
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### ABOUT THE AUTHORS



**Ms. G. Saraniya** is working as an Assistant Professor, Department of Computer Science, KG College of Arts and Science, Coimbatore. She has 9 years of experience in teaching field. Her area of specialization is Networking. She has published a book and more than 10 papers in various refereed journals both National and International.



**Mr. N. Sriram** is working as an Assistant Professor, Department of Computer Science, KG College of Arts and Science, Coimbatore. He has 8 years of teaching experience. He has published 3 books and published 10 papers in journals and conferences. His area of specialization includes Data Mining, Machine Learning, Natural Language Processing and Computer Vision.



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JS

```
const flower = {name:"Lily",color:"white"};
const clone = {...flower};
clone.name = "Caneilia";
console.log(flower);
//Object {name: "Lily", color: "white"}
console.log(clone);
//Object {name: "Caneilia", color: "white"}
```



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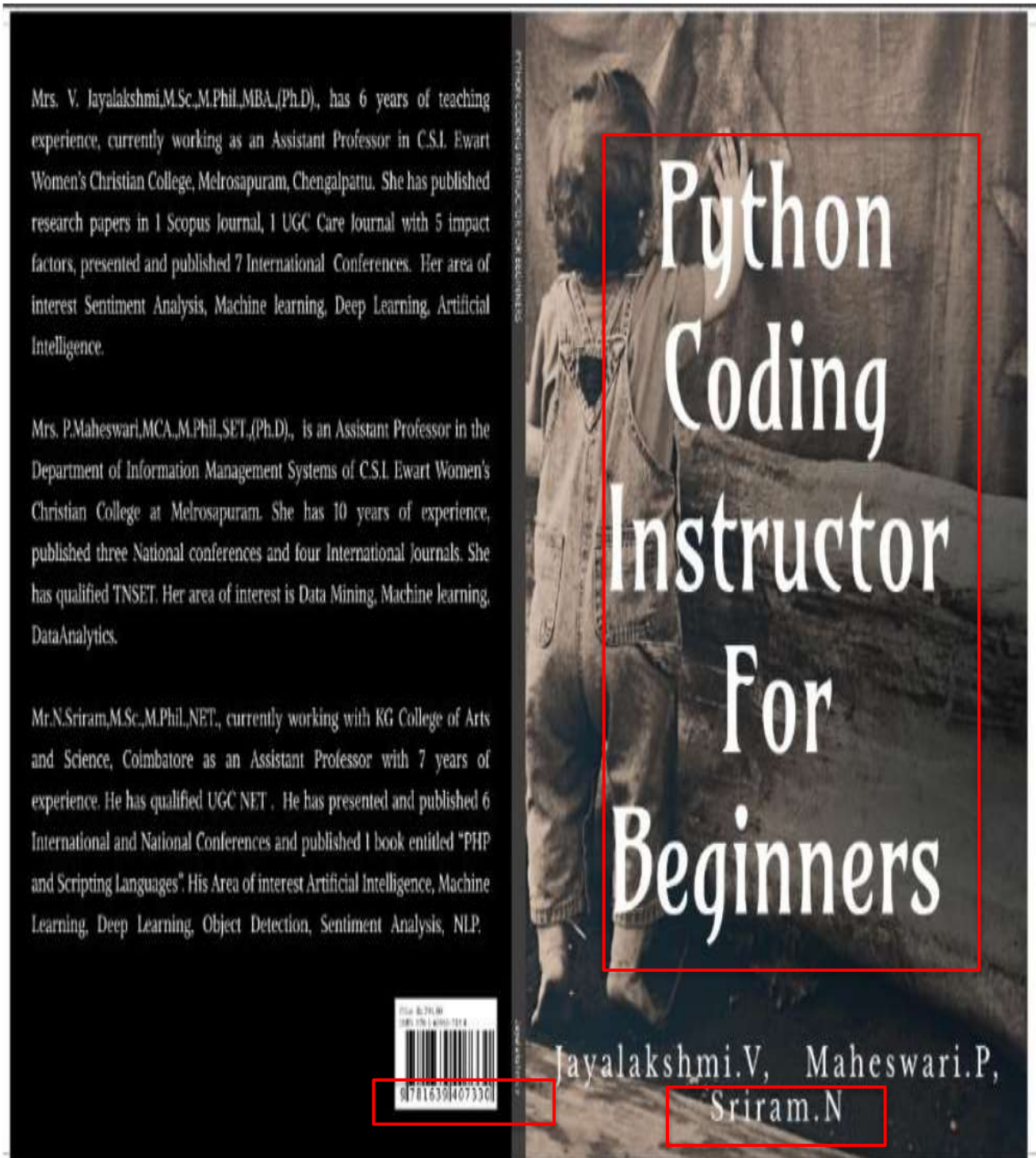
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Title : Python Coding Instructor for Beginners

Author : Mr.N.Sriram

Department : Commerce with Information Technology

Year of Publication: 2021



## ABOUT THE BOOK

The book "Python Coding Instructor for Beginners" is aimed to provide basic knowledge about Python programming which is essential for Data Science. This book is divided into 12 chapters. Chapter 1 is about Introduction of Python, Installation, 2 important Python IDEs which are widely used in industries. Chapter 2, 3 and 4 about the basic building block of any language that is variables, operators and control structures respectively.

Chapter 5, 6, 7, 8 are about built-in data types used to store collections of data named List, Tuple, Dictionary, Set respectively. Chapter 9 Function is one of the important concepts applied for code optimization explained with examples. Common python libraries Numpy, Matplotlib were discussed briefly in chapter 10. Chapter 11 is about short notes on the Matrix.

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### ABOUT THE AUTHORS



**Mr. N. Sriram** is working as an Assistant Professor, Department of Computer Science, KG College of Arts and Science, Coimbatore. He has 8 years of teaching experience. He has published 3 books and published 10 papers in journals and conferences. His area of specialization includes Data Mining, Machine Learning, Natural Language Processing and Computer Vision.



**Ms. G. Saraniya** is working as an Assistant Professor, Department of Computer Science, KG College of Arts and Science, Coimbatore. She has 9 years of experience in teaching field. Her area of specialization is Networking. She has published a book and more than 10 papers in various refereed journals both National and International.





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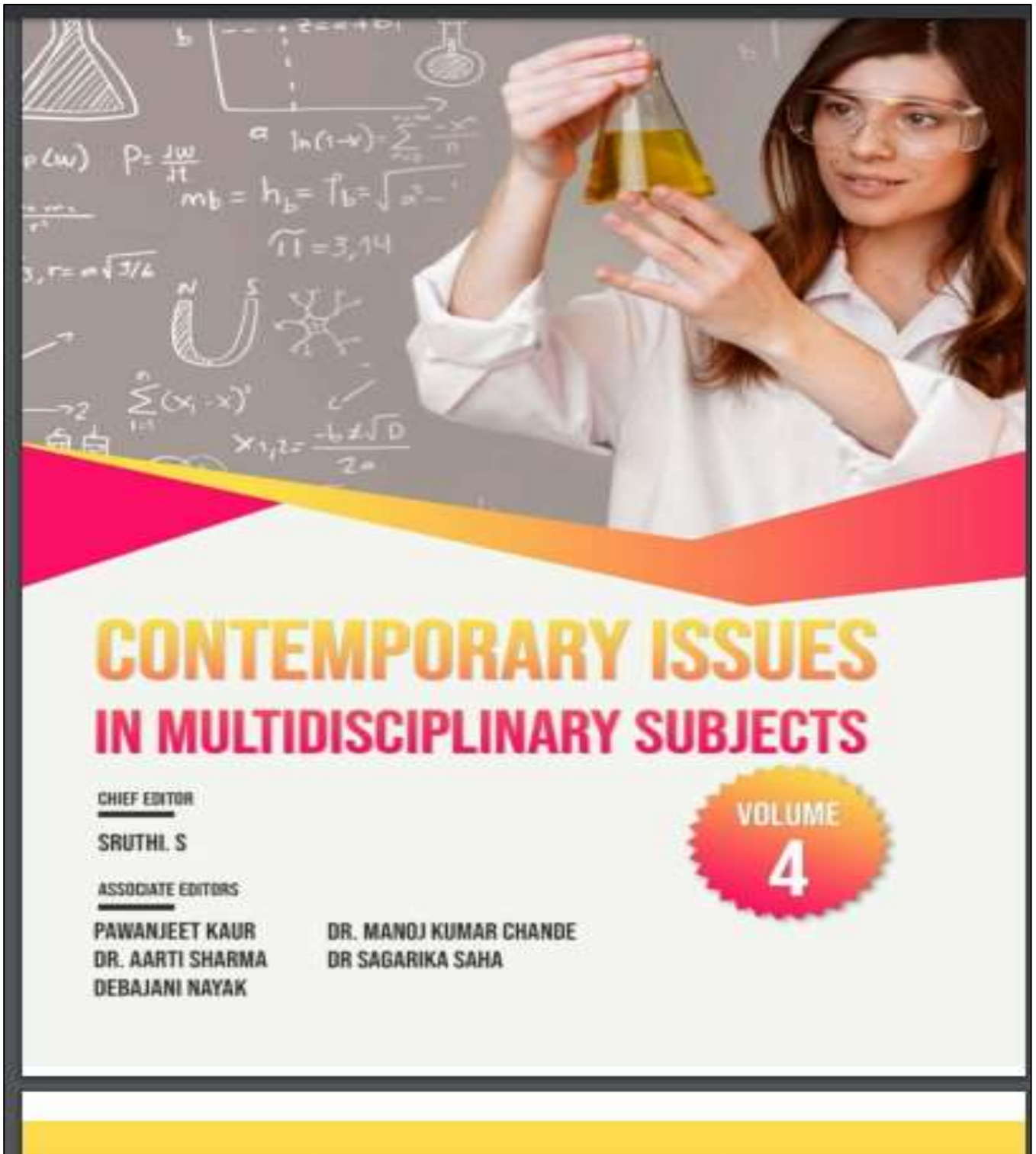
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**CHAPTER 17****Ethical and Lawful Issues in E-Marketing in India****Dr. R. Kanchana<sup>25</sup>, Dr. G. Karthiyayini<sup>26</sup>****Abstract:**

Virtuous concerns in the study of what is right and what is wrong, some disputes are like not having clearness in financial interest about the product, use of intellectual property rights (IPR) ownership, pirated software worldwide, preserving security, web tracking etc. A technology occurring in innovation joins certain moral principles into law. E-promoting empowers new strategic approaches it enjoys many benefits similarly it likewise brings certain risk. This applied paper states around moral and lawful issues in e-promoting safety and security

**Keywords:** *E-Marketing, Ethical and Lawful issues, Intellectual Property Rights, Web tracking, Security preserving*

**Introduction:**

**E**-Marketing has its capacity to show the presence of the item progressively. Marketing has its own importance to say making a want and mindfulness about the item in the brain of individuals to buy the item. When its blend in with data innovation it might give rise numerous moral and lawful issues identified with safety and security. A moral and lawful issue applies to business same must apply for e-business. Likewise marketing moral and legitimate issues must be apply for e-marketing. In the present universe of Information Technology everybody needs to finish their job in extremely more limited term and with little exertion. This might affect thought of moral and lawful perspectives.

**E-Marketing ethical issues:**

Ethics normally worried about qualities and practices followed by experts or potentially other individual who is master in the information. Ethics worried about picking the option among good and bad. In the event that one pick directly from wrong it called as ethics though off-base arrangements with deceptive. Ethical issues regarding e-marketing includes web following, Privacy save, Paid ad and so forth, with content advising, remote web mail, picture moving, video accounts, and even video conferencing from telephones and other individual specific contraptions with verifiable speakers and cameras, the Internet will impact a larger number of lives than any time in late memory. Security and

<sup>25</sup> Assistant Professor, Department of Commerce with Professional Accounting, KG College of Arts & Science, Coimbatore – 641035, Tamilnadu

<sup>26</sup> Assistant Professor, Department of Commerce with Professional Accounting, KG College of Arts & Science, Coimbatore – 641035, Tamilnadu



**CHIEF EDITOR**



Dr. M. Corn, NET, SET is working as Assistant Professor, Department of Commerce, Gregorian College of Advanced Studies, Tiruvandur. She had published many Research Papers in National and International Books having ISBN and also in many International Peer Reviewed and Refereed Journals including UGC CARE listed and Scopus indexed Journals. She authored 4 academic books with ISBN. She received Global Educational Awards 2020 titled "Best Researcher" for remarkable achievements in the field of Research and Publications and also received Global Professionals-Educationalist Awards titled "International Star Excellence Award" in the year 2020 from Sarojini Research and Development Council, New Delhi. She edited more than 32 International and National Books having ISBN. Her area of specialization is Banking, Economics, Financial Management and Marketing.

**ASSOCIATE EDITORS**



Mr. Pawanjeet Kaur, Assistant Professor (Chemistry) of GD Goenka University, Gurgaon, is holding 6.5 years of professional experience in teaching and actively engaged in the research of Coordination Chemistry. She is a life member of "Environment and Social Development Association" (ESDA) Delhi. She had worked as an organizing committee member for national and international conferences & won best paper presentation awards in technical sessions at several scientific conferences. She has written book chapters in the books named "Wisdom of the Scientific Research- International Book of Multidisciplinary Studies", "NEP 2020 A Road Map in Future Higher Education", "Plastic Waste Management: Turning Challenges into Opportunities", "Women in the 21st Century" & "The Change & Impact".



Dr. Aarti Sharma (M.A.M.E., Ph.D.) is serving as a faculty member in the Department of Management, MGFC, Chennai. She has worked with ITM University, Dindur and DGT University, Gurgaon as an Assistant Professor, Management. She has an exposure in both the academics as well as corporate sector while working with Axis Bank in the past, as Assistant Manager International Trade.



Manoj Kumar Choudhary is currently positioned as Professor and Head of Department of Applied Mathematics at Shri Shankaracharya Institute of Professional Management and Technology, Raipur (C.G.). He has 23 years of experience of teaching to undergraduate and Postgraduate engineering students. He has published 26 research papers in SCI and SCOPUS indexed journals; presented 13 papers in reputed national and international conferences. He is a life member of ICSI and ISTE. His research area is Cryptography-Analysis, Design and Applications of Digital Signature Schemes, Authentication Schemes and related topics.



Dr. Sagarika Saha, the author is presently working as Assistant professor and Field Work Co-ordinator of Social Work Department in AMR Institute of Management Sciences and Technology, Durgapur under Vidyasagar University and visiting faculty of Department of Social Work, Bankura University. She also headed the Department of Peace and Transformation studies (MDW specialization) and also acted as Field work Co-ordinator in North East Institute of Social Sciences and Research (NEISSR) under Jagadgur University.



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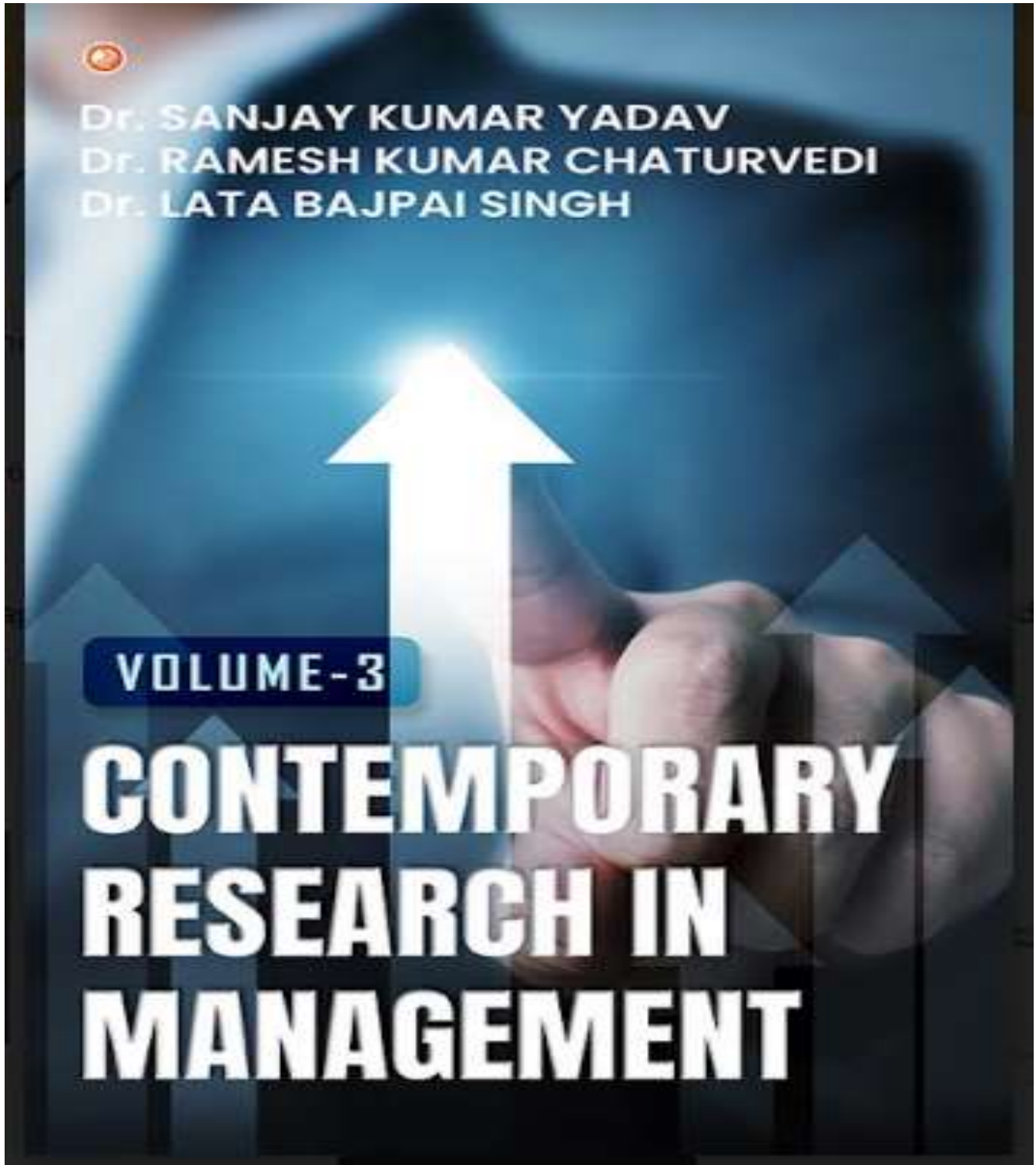
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# **CONTEMPORARY RESEARCH IN MANAGEMENT**

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# Online Business Challenges & Safeguarding Issues

## Authors:

1. **G.Kowsalyadevi**- Research scholar (PT), Hindusthan college of arts and science (Autonomous), Assitant Professor, KG college of Arts and Science, Coimbatore- 35.
2. **Dr. M.Mahalakshmi** -Professor, PG and Research Department of commerce with CA, Hindusthan college of arts and science(Autonomous), Coimbatore-28.

## Abstract

On every year new trends and new technologies are emerging. These deviations help the great growth opportunities for ecommerce companies and online retailers who are equipped to wrestle them, they can also present challenges for businesses that aren't prepared to take new technology and other changes in pace. The growth of the e-Commerce market in India is mounting as it attracts lots of retailers to have an online store to enhance their business worldwide.

**Keywords:** E-commerce, Retailers, Challenges, Problems.

## Introduction

E-Commerce in India is **the** firmest growing and most exciting channel for viable transactions. The Indian e-commerce market is expected to grow to see 300-350 million shoppers by 2025. As of August 2020, the number of



Dr. Sanjay Kumar Yadav is the Faculty in Faculty of Management studies (FMS), ICFAR University Raipur, Chhattisgarh. He is graduated in Physics from University of Allahabad (A central university), MMS/ MBA in Marketing from Mumtaz University and Ph.D in Consumer Psychographics from Gurugaidas central university, Bilaspur, Chhattisgarh. He has experience of six years in Industrial Marketing and two years of teaching. He is Executive & Managing Editor of International Journal of Interdisciplinary Contemporary Research (IJICR), Editor of Contemporary Research in Management and General Secretary (Chhattisgarh) of Indian council for Business education (ICBE). He has published more than 18 Research in Management and General Secretary (Chhattisgarh) of Indian council for Business education (ICBE). He has published more than 18 Research papers including UGC Care and Scopus indexed Journals & 5 Research articles in Edited Book. He has attended more than 20 workshops & FDP Program along with it he has presented more than 20 research papers and delivered lectures as a Guest speaker in various dimensions in National and International conferences, Seminars and Webinars. He is Expert Examiner in Board of studies (BOS). Dr. Sanjay has successfully supervised over three research scholars and one has pre submitted his thesis under him.

Thanks & Regards,

Dr. Sanjay Kumar Yadav | +91 7000491914 | yadavsanjaykumar395@gmail.com | www.ikcs.in



Dr. Ramesh Kumar Chaturvedi is Electronics and Instrumentation graduate from Mumbai University, MBA from Mahatma Gandhi Kashi Vidyapeeth and MA in Public administration from Pondicherry University. He has earned Ph.D. in discipline of Retail and Consumer Behavior at Dept. of Business Administration, University of Lucknow. He holds Masters Diploma in Software engineering. He has completed certification program on Management of MFIs from IIM, Lucknow. Along with ten years of experience in academics, he also possesses seven years work experience of corporate. To pursue his research interest he has supervised Many Ph.D. and M. Phil. and has published many research papers, refereed and indexed with impact factor. He has made many presentations in national and international seminars as part of his academic achievement and received best paper presenter award twice. He is author of three books and his Book on 'Marketing Management - A Contemporary Approach' is well referred by students of various universities. He has interest in subjects like Strategic Management, Business Research Methods and Management of Microfinance. He is adherent believer of collaborative and participative learning. His current research interests are in understanding role of Microfinance Institutions and SHGs in poverty alleviation especially in Rural India. He is currently working as Assistant Professor at Department of Rural Management, Babasaheb Bhimrao Ambedkar Central University, Lucknow. In addition to teaching and research he is assuming administrative responsibilities like Coordinator Mechanical Engineering Department of University Institute of Engineering Technology, BBAU and Program Officer, National Service Scheme. He is Chief Editor of International Journal of Interdisciplinary Contemporary Research (IJICR).



Dr. Lata Bajpai Singh is an Assistant Professor at the Department of Rural Management, Babasaheb Bhimrao Ambedkar University, Lucknow, U.P. India. She holds degrees of Ph.D., M.A. (Sociology), MBA in H.R. specialization and possesses 15 years of experience. She has been actively involved in the training, research & consulting assignments. Her research Papers have been accepted and published in ABDC listed and Scopus-indexed journals listed in Emerald Insight and Science Direct databases. Her areas of interest include entrepreneurial intention, employability skills, and employee behavior issues including employee engagement, workplace ostracism, and psychological well-being.

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## CHAPTER - 27

### AN OVERVIEW OF BIG DATA AND ITS APPLICATION IN MANAGEMENT PERSPECTIVE

Ms. Paramesswari. N<sup>96</sup>, Ms.J anani. R<sup>97</sup>

#### Abstract:

Now –a –days the term big data is prevailing all over the world in all the field in the organizations. The challenges include analysis, capture, curation, search, sharing, storage, transfer, visualization, and privacy violations. The trend to larger data sets is due to the additional information derivable from analysis of a single large set of related data, as compared to separate smaller sets with the same total amount of data, allowing correlations to be found to "spot business trends, prevent diseases, and combat crime and so on". An attempt is made to overview the big data analytics in the field of human resource management.

**Keywords:** *Bigdata, golden opportunity*

#### Introduction:

**B**ig data is an all-encompassing term for any collection of data sets so large and complex that it becomes difficult to process them using traditional data processing applications. The challenges include analysis, capture, curation, search, sharing, storage, transfer, visualization, and privacy violations. The trend to larger data sets is due to the additional information derivable from analysis of a single large set of related data, as compared to separate smaller sets with the same total amount of data, allowing correlations to be found to "spot business trends, prevent diseases, combat crime and so on."<sup>(1)</sup>

#### What is big data?

Big data is a popular term used to describe the exponential growth and availability of data, both structured and unstructured. And big data may be as important to business – and society – as the Internet has become. Why? More data may lead to more accurate analyses.

More accurate analyses may lead to more confident decision making. And better decisions can mean greater operational efficiencies, cost reductions and reduced risk. <sup>(2)</sup>

<sup>96</sup> Assistant Professor, Department of Management Studies, KG Arts and Science College, Coimbatore

<sup>97</sup> Assistant Professor, Department of Management Studies, KG Arts and Science College, Coimbatore

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 Author : Ms.S.Nazira Begum  
 Department : Commerce with Professional Accounting  
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 KGISL Campus, Saravanampatti, Coimbatore - 641 035, Tamil Nadu, INDIA.

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**TALLY AND INTERNET LAB MANUAL**

Mrs.Nazira Begum S is currently working as an Assistant Professor, Department of Commerce PA,KG College of Arts and Science, Coimbatore. She has 12 years of working experience in various academic institutions. and she has 2 years Industrial experience. She has published many articles under various titles in refereed journals both national and International.

Mrs.Menika R is currently working as an Assistant Professor ,Department of Commerce CA, KG College of Arts and Science,Coimbatore.She has 12 years of working experience in various academic institutions. She has published many articles under various titles in refereed journals both national and International.

Mrs.KowsalyaDevi G is currently working as an Assistant Professor, Department of Commerce PA,KG College of Arts and Science, Coimbatore. She has 7 years of working experience. She has published many articles under various titles in refereed journals both national and International.

Mrs.Archana Kumar is currently working as an Assistant Professor, Department of Commerce CA, KG College of Arts and Science, Coimbatore.She has 3 years of working experience. and she has 9 years Industrial experience. She has published many articles under various titles in refereed journals both national and International

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 Author : Mr.V.Balakrishnan  
 Department : Commerce with Professional Accounting  
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Mr. V. Balakrishnan is currently working as an Assistant Professor, Department of Commerce PA, KG College of Arts and Science, Coimbatore. He has 7 years of working experience in various academic institutions. He has published many articles under various titles in refereed journals both national and international.

Mr. V. Jeyakumar is currently working as an Assistant Professor, Department of Commerce CA, KG College of Arts and Science, Coimbatore. He has 12 years of working experience in various academic institutions and he has one year industrial experience. He has published many articles under various titles in refereed journals both national and international.

Mrs. V. Jennifer is currently working as an Assistant Professor, Department of Commerce CA, KG College of Arts and Science, Coimbatore. She has 8 years of working experience in various academic institutions. She has published many articles under various titles in refereed journals both national and international.

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Title : Latex Lab – Lab Manual  
 Author : Ms.Y.Preethi Ceon  
 Department : Mathematics  
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**ABOUT THE AUTHORS**



**KG COLLEGE OF ARTS AND SCIENCE**  
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 Accredited by NAAC  
 ISO 9001:2015 Certified Institution  
 KGISL Campus, Coimbatore - 641035



**Ms.Y.Preethi Ceon**, Assistant Professor, Department of Mathematics, KG College of Arts and Science. She has more than seven years of teaching experience. Her area of research interest is spiking neural p system and rough set topology. She has published nine research papers in National, International and Conference proceedings. She has co-authored a book entitled "Business Mathematics".

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**Dr.S.Sharmila**, Head Department of Mathematics, KG College of Arts and Science. She has nine years of industrial experience and more than eleven years of teaching experience. Her area of research interest is topology. She has published nineteen research papers in National, International and Conference proceedings. She received the best teacher award for the year 2016.

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 LAB**



**Ms.Y.Preethi Ceon  
 Dr.S.Sharmila**

Title : MATLAB - Lab Manual  
 Author : Ms.Y.Preethi Ceon  
 Department : Mathematics  
 Year of Publication: 2021

**ABOUT THE AUTHORS**



**KG COLLEGE OF ARTS AND SCIENCE**  
 Affiliated to Bharathiar University  
 Accredited by NAAC  
 ISO 9001:2015 Certified Institution  
 KGISL Campus, Coimbatore - 641035



**Ms.Y.Preethi Ceon**, Assistant Professor, Department of Mathematics, KG College of Arts and Science. She has more than seven years of teaching experience. Her area of research interest is spiking neural p system and rough set topology. She has published nine research papers in National, International and Conference proceedings. She has co-authored a book entitled "Business Mathematics".

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**Dr.V.Krishnaveni**, Assistant Professor, Department of Mathematics, KG College of Arts and Science. She has more than nine years of teaching experience. Her area of research interest is Differential Equations and Graph theory. She has published ten research papers in National, International and Conference proceedings.

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**Ms.Y.Preethi Ceon  
 Dr.V.Krishnaveni**



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Author : Dr.A.Gokilavani  
Department : Computer Science  
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## ABOUT THE AUTHOR



KG COLLEGE OF ARTS AND SCIENCE

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ISO 9001:2015 Certified Institution  
KGISL Campus, Saravanampatti, Coimbatore-641 035.

DEPARTMENT OF COMPUTER SCIENCE



Dr.A.Gokilavani is working as Assistant Professor & Head in the department of Computer Science in KG College of Arts and Science, Coimbatore, Tamilnadu. She has completed M.C.A, M.Phil, Ph.D. She has 12 years of teaching experience. Her area of specialization is Digital Image Processing. She has published research papers in various National and International Journals.

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Dr. Gokilavani. A



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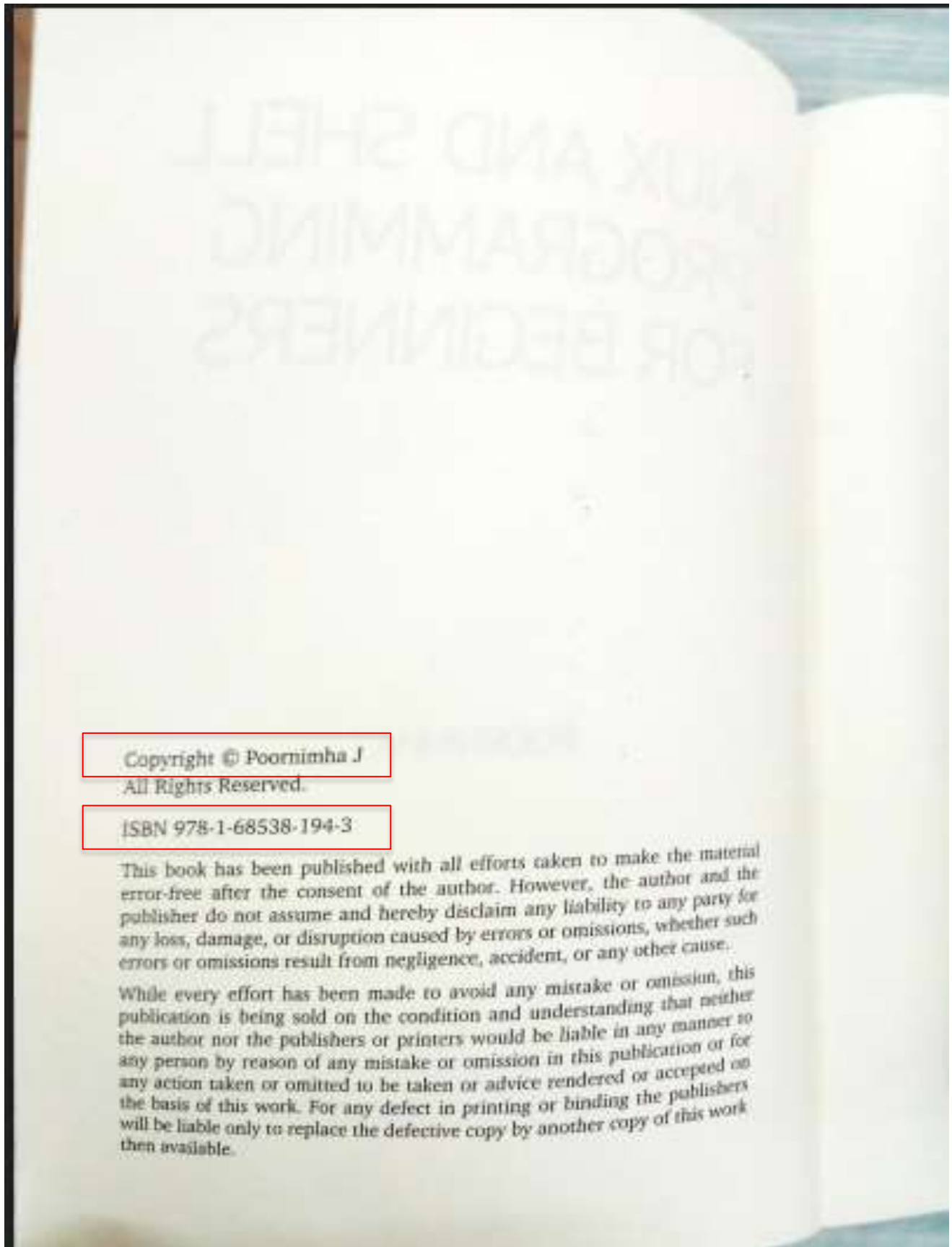
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Ms.Poornimha.J  
Ms.Hemalatha.K  
Ms.Aswanandini.R  
Ms.Selvi.P



**AUTHORS:**

**Peornimha. J** : She is currently working as an Assistant Professor in Department of Computer Science, KG College of Arts and Science, Coimbatore. She has more than 12 years of teaching experience in both Engineering and Arts and Science Colleges. Currently pursuing Ph.D in the area of Networking .

**Hemalatha K** : She is currently working as an Assistant Professor in Department of Computer Science, KG College of Arts and Science, Coimbatore. She has more than 13 years of teaching experience in various Arts and Science Colleges. Currently pursuing Ph.D in the area of Networking & IoT.

**Aswanandini.R** : She is currently working as an Assistant Professor in Department of Computer Science, KG College of Arts and Science, Coimbatore. She has more than 9 years of teaching experience in various Arts and Science Colleges. Currently pursuing Ph.D in Data Mining .

**Selvi.P** : She is also currently working as an Assistant Professor in Department of Computer Science, KG College of Arts and Science, Coimbatore. She has more than 9 years of teaching experience in various Arts and Science Colleges. Currently pursuing Ph.D in Data Mining and submitted her thesis .

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9 781685 381943

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 Department : Computer Science  
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## ABOUT THE AUTHORS



**KG COLLEGE OF ARTS AND SCIENCE**

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 KGISL Campus, Saravanampatti, Coimbatore-641 035.



**Ms.SASIREGA.D, MCA,M.Phil.(Ph.D.)**, is working as Assistant Professor in the department of Computer Science in KG College of Arts and Science, Coimbatore, Tamilnadu. She has 14 years of teaching experience. Her area of specialization is Data Mining. She has published four research papers in National and International Journals.



**Ms.HEMALATHA.K, MCA,M.Phil.(Ph.D.)**, is working as Assistant Professor in the department of Computer Science in KG College of Arts and Science, Coimbatore, Tamilnadu. She has 16 years of teaching experience. Her area of specialization is networking. She has published five research papers in National and International Journals.



**Mr.SURESHKUMAR.V, ME,MBA**, is working as Associate Professor in the department of Computer Science in KG College of Arts and Science, Coimbatore, Tamilnadu. He has vast years of experience in the Industry and Teaching field. His area of specialization is Database.

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**Ms. Sasirega. D  
 Ms. Hemalatha. K  
 Mr. Sureshkumar. V**



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 Department : Computer Science  
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## ABOUT THE AUTHORS



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 KGISL Campus, Saravanampatti, Coimbatore-641 035.

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Mr. A.P. CHRISTOPHER AROKIARAJ is working as Assistant Professor in the department of Computer Science in KG College of Arts and Science, Coimbatore, Tamil Nadu. He has completed M.C.A., M.Phil., (Ph.D). He has 15 years of teaching experience. His area of specialization is Data Mining and Network Security. He has published more than 5 research papers in National and International Journals.



Dr. G. PARAMASIVAM is working as Associate Professor in the department of Computer Science in KG College of Arts and Science, Coimbatore, Tamil Nadu. He has completed M.C.A., M.Phil., Ph.D. He has 19 years of teaching experience. His area of specialization is Digital Image Processing. He has published more than 10 research papers in National and International Journals.

# LAB MANUAL SOFTWARE PROJECT MANAGEMENT




Mr. Christopher Arokiaraj. A.P  
 Dr. Paramasivam. G




Title : Linux and Shell Programming Lab - Lab Manual  
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 Department : Computer Science  
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### ABOUT THE AUTHORS




**Dr.SARALA R** is working as Assistant Professor in the department of Computer Science in KG College of Arts and Science, Coimbatore, Tamilnadu. She has completed M.C.A., M.Phil., Ph.D. She has 11 years of teaching experience. Her area of specialization is Data Mining. She has published 12 research papers in various International Journals and she has published one book.




**Ms.R. ASWANANDINI** is working as Assistant Professor in the department of Computer Science in KG College of Arts and Science, Coimbatore, Tamilnadu. She has completed M.Sc., M.Phil., Ph.D. She has 11 years of teaching experience. Her area of specialization is Data Mining. She has published 10 research papers in various National and International Journals.



**Ms. POORNIMHA J** is working as Assistant Professor in the department of Computer Science in KG College of Arts and Science, Coimbatore, Tamilnadu. She has completed M.C.A., M.Phil., Ph.D. She has 11 years of teaching experience. Her area of specialization is Networking. She has published research papers in various National and International Journals.



**Dr.SELVI P** is working as Assistant Professor in the department of Computer Science in KG College of Arts and Science, Coimbatore, Tamilnadu. She has completed M.Sc., M.Phil., Ph.D. She has 11 years of teaching experience. Her area of specialization is Data Mining. She has published research papers in various National and International Journals.




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Dr. Sarala. R


Ms. Aswanandini. R

Ms. Poornimha. J


Dr. Selvi. P



9 789302 200550



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**Dr. D. Kavitha  
Ms. G. Priyadarshini  
Ms. D. Jeya Rani**



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**LAB MANUAL**

## C++ Programming Lab

**AUTHORS**

<b><u>AUTHORS</u></b>		
Dr. D.Kavitha Head,	Ms. G.Priyadarshini    Assistant Professor,	Ms. D.Jeya Rani Assistant Professor,
Department of Computer Applications,	Department of Computer Applications,	Department of Computer Applications,
K.G. College of Arts and Science.	K.G. College of Arts and Science.	K.G. College of Arts and Science.
d.kavitha@kgisliim.ac.in	priyadarshini.g@kgcas.com	d.jeyarani@kgcas.com



**Title** : Graphics and Multimedia Programming Lab

**Author** : Ms. R.Romela, Ms.G.Priyadarshini,Ms.N.Karthika,

**Department** : Computer Applications

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© Ms. R. Romela Elizabeth Preena, Ms. G. Priyadarshini, Ms. N. Karthika

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## LAB MANUAL

Graphics and Multimedia Programming Lab

### AUTHORS

Ms. R. Romela Elizabeth Preena	Ms. G.Priyadarshini	Ms. N. Karthika
Assistant Professor, Department of Computer Applications, K.G. College of Arts and Science.  romelaelizabethpreena.r@kgcas.com	Assistant Professor, Department of Computer Applications, K.G. College of Arts and Science.  priyadharshini.g@kgcas.com	Assistant Professor, Department of Computer Applications, K.G. College of Arts and Science.  karthika.n@kgcas.com

Title : Web Programming Lab  
Author : Dr.D.Kavitha, Ms.D.Matilda, Dr.P.Vijaya Kumar  
Department : Computer Applications  
Year of Publication: 2021



## KG COLLEGE OF ARTS AND SCIENCE

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KGISL Campus, Saravanampatti, Coimbatore-641 035.

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## LAB MANUAL

### Web Programming Lab

#### AUTHORS

Dr. D.Kavitha Head,	Ms. D. Matilda, Assistant Professor,	Dr.P. Vijayakumar. Associate Professor,
Department of Computer Applications,	Department of Computer Applications,	Department of Computer Applications,
K.G. College of Arts and Science.	K.G. College of Arts and Science.	K.G. College of Arts and Science.
d.kavitha@kgisliim.ac.in	matilda.d@kgcas.com	Vijayakumar.p@kgcas.com

Title : CASE Tools Lab

Author : Dr.K.S.Maharasan, Mr.M.Vinod Kumar, Ms.C.B.Pavithra

Department : Computer Applications

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**Mr. M. Vinod Kumar**  
**Dr. K.S. Maharasan**  
**Ms. C.B. Pavithra**



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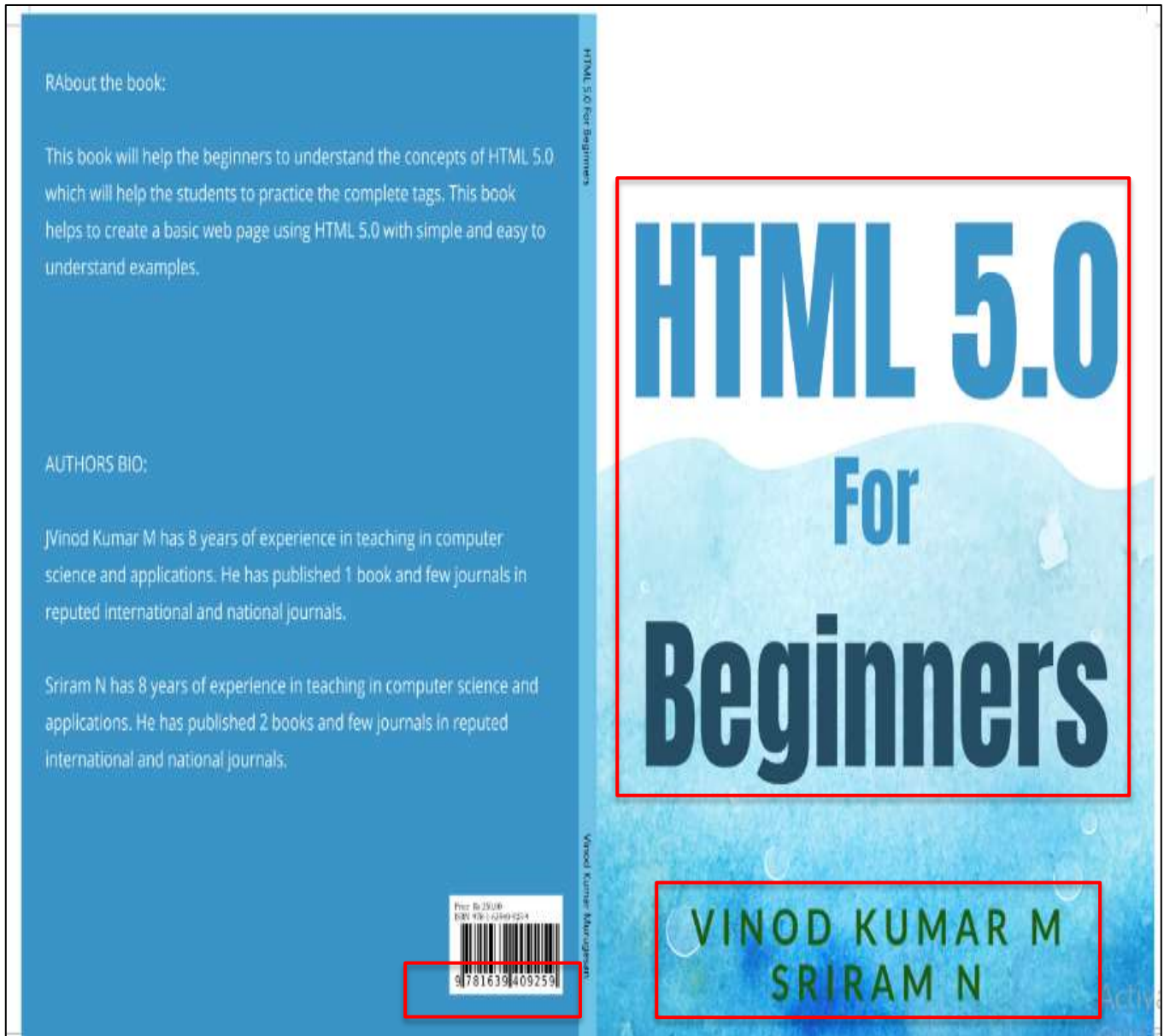
## LAB MANUAL

CASE Tools Lab

### AUTHORS

Dr. K.S. Maharasan	Mr. M. Vinodkumar	Ms. C.B.Pavithra
Associate Professor, Department of Computer Applications, K.G. College of Arts and Science. maharasan.k.s@kgcas.com	Assistant Professor, Department of Computer Applications, K.G. College of Arts and Science. m.vinodkumar@kgcas.com	Assistant Professor, Department of Computer Applications, K.G. College of Arts and Science. pavithra.b@kgcas.com

Title : HTML 5.0 for Beginners  
 Author : Mr.M.Vinod Kumar, Mr.N.Sriram  
 Department : Computer Applications  
 Year of Publication: 2021



Title : VB and Oracle Lab - Lab Manual

Author : Dr.M.Usha

Department : Information Technology

Year of Publication: 2021

**ABOUT THE AUTHORS**

**KG COLLEGE OF ARTS AND SCIENCE**  
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 Accredited by NAAC  
 ISO 9001:2015 Certified Institution  
 KGISL Campus Coimbatore-641035

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**LAB MANUAL**

**ORACLE**

**SEMESTER-V**

Dr.M Usha is working as Head of the Department in the department of Information Technology in KG College of Arts and Science, Coimbatore, Tamilnadu. She has completed M.Sc,M.Phil., Ph.D. She has sixteen years of teaching experience. Her areas of specialization are Natural Language Processing , Data Mining and Data Structures. She has published fifteen research papers in National and International Journals.

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 Department : Information Technology  
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**ABOUT THE AUTHORS**



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 Accredited by NAAC  
 ISO 9001:2015 Certified Institution  
 KGISL Campus, Coimbatore - 641035



**Dr.S.Vidhya**, MCA, M.Phil., Ph.D., NET, Assistant Professor, Department of Information Technology, KG College of Arts and Science, Coimbatore, Tamil Nadu. She has vast years of experience in the teaching field. Her areas of specialization are Network Security and Data Structures. She has published twelve research papers in various national, international journals and conference proceedings. She has co-authored a book entitled "Linux for the Beginners". She received fund from TNSCST for publishing the Tamil magazine Ariviyal Sangikal. She produced eight M.Phil. scholars and currently guiding three Ph.D. scholars.

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION SYSTEMS**



**Mr.S.Deepankumar**, MCA., (Ph. D), Assistant Professor, Department of Computer technology, KG College Arts and Science, Coimbatore. He has vast Years of Experience in the industry and Teaching field. His area of Specialization is Data Mining and Machine Learning. He has published six Research papers in various National, International Journals and Conference Proceedings. He has Co-Authored a book entitled "Introduction to Data Mining".

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Dr. S. Vidhya  
 Mr. S. Deepankumar



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 Author : Mr.P.Suresh Kumar &Mr.R.Maneendhar  
 Department : Information Technology  
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## ABOUT THE AUTHORS



**KG COLLEGE OF ARTS AND SCIENCE**

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**Mr.P.Sureshkumar** working as Assistant Professor in the Department of Information Technology, KG College of Arts and Science, Coimbatore. He has 13 years of working experience in academic institution. He holds Master of Computer Applications and pursuing Ph.D Degree at KG College of Arts and Science.

## DEPARTMENT OF INFORMATION TECHNOLOGY



**Mr.R.Maneendhar** is working as Assistant Professor in the department of Information Technology in KG College of Arts and Science, Coimbatore, Tamilnadu. He has completed MCA., M.Phil. He has 7 years of teaching experience. His area of specialization are Computer networks, Animation Techniques and Multimedia. He has published 5 research papers in national and international journals.

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Mr.P.Sureshkumar  
Mr.R.Maneendhar



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## ABOUT THE AUTHORS



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Accredited by NAAC

ISO 9001:2015 Certified Institution

KGiSL Campus, Coimbatore - 641035



**Dr.S.Vijaya**, is working as Assistant Professor in the department of Information Technology in KG College of Arts and Science, Coimbatore, Tamilnadu. She has completed M.Sc., M.Phil., Ph.D. She has twelve years of teaching experience. Her areas of specialization are Data Mining, Data Structures and Natural Language Processing. She has published twelve research papers in National and International Journals.

## DEPARTMENT OF INFORMATION TECHNOLOGY



**Ms.P.Lavanya**, is working as Assistant Professor in the department of Information Technology in KG College of Arts and Science, Coimbatore, Tamilnadu. She has completed MCA., M.Phil. She has four years of teaching experience. Her areas of specialization are Data Mining, Data Structures and Operating System. She has published five research papers in National and International Journals.

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Dr.S.Vijaya  
Ms.P.Lavanya

**LAB MANUAL**

**INTERNET BASICS LAB**

**AUTHORS**

**Dr.S.Vijaya,**  
Assistant Professor,  
Department of Information Technology,  
KG College of Arts and Science,  
Coimbatore.  
[s.vijaya@kcas.com](mailto:s.vijaya@kcas.com)

**Ms. P.Lavanya,**  
Assistant Professor,  
Department of Information Technology,  
KG College of Arts and Science,  
Coimbatore.  
[p.lavanya@kcas.com](mailto:p.lavanya@kcas.com)

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Ms.P.Lavanya

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 Department : Information Technology  
 Year of Publication: 2021

**ABOUT THE AUTHORS**



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Accredited by NAAC

ISO 9001:2015 Certified Institution

KGISL Campus, Coimbatore - 641035



**Ms.L.Padmavathy**, M.Sc., M.Phil., (Ph.D), is working as Assistant Professor in the department of Information Technology in KG College of Arts and Science, Coimbatore, Tamilnadu. She has 4 years of experience in teaching field. Her area of specialization is Data Mining. She has published 4 research papers in national and international journals.

**DEPARTMENT OF INFORMATION TECHNOLOGY**



**Ms.G.Gokilavani**, is working as Assistant Professor in the department of Information Technology in KG College of Arts and Science, Coimbatore, Tamilnadu. She has completed MCA., M.Phil. She has vast years of experience in the industry and Teaching field. Her area of specialization is Computer networks and Network Security. She has published 4 research papers in national and international journals.

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Ms.L.Padmavathy  
 Ms.G.Gokilavani



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Author : Ms.A.Lavanya, Ms.P.R.PameelaRani & Ms.N.Sowndharya

Department : Computer Technology

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A.LAVANYA  
P.R.PAMEELARANI  
N.SOWNDHARYA

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**A.Lavanya**  
**P.R.PameelaRani**  
**N.Sowndharya**  
Assistant Professor(s)  
Department of Computer Technology  
KG College of Arts and Science  
Coimbatore, Tamil Nadu.



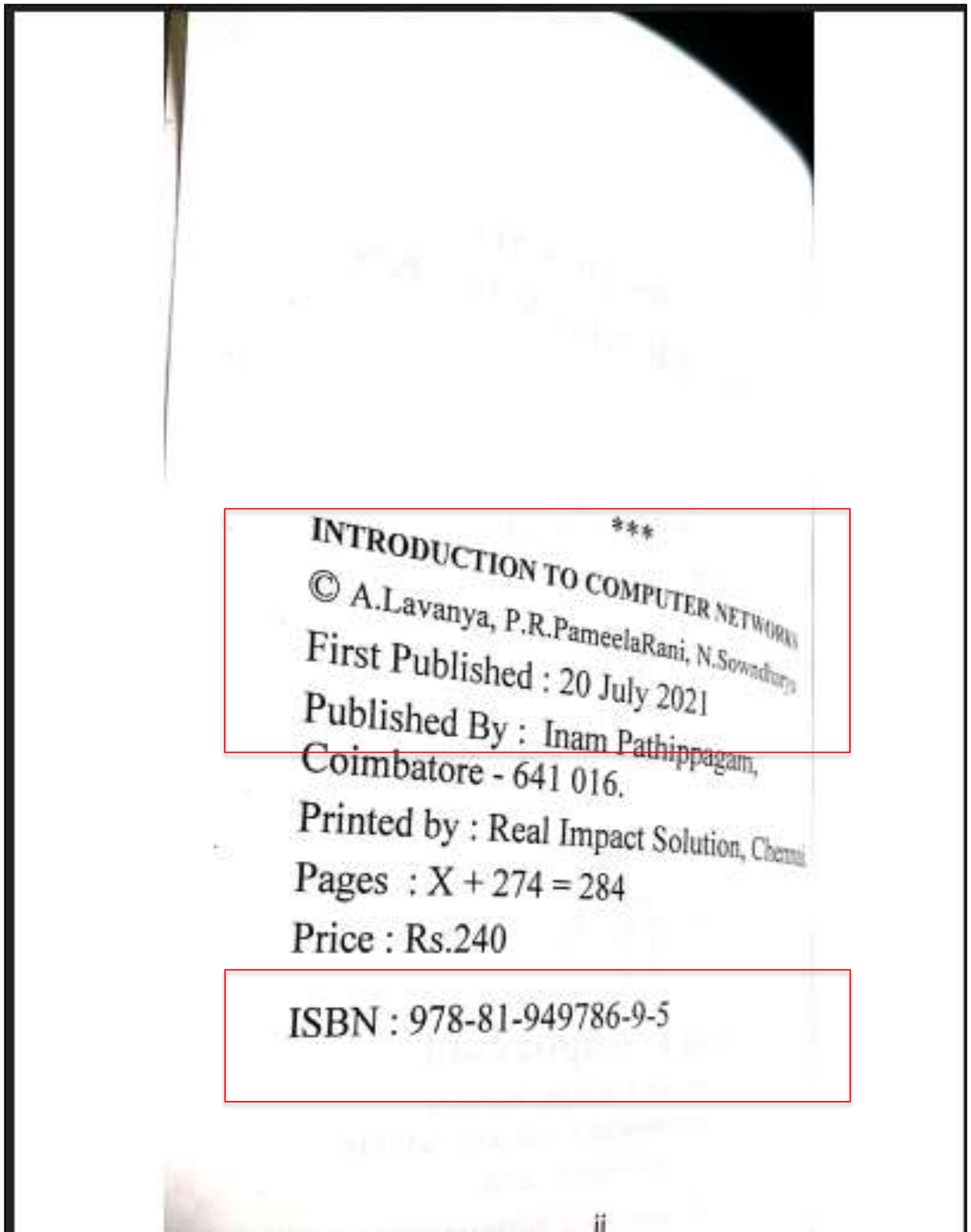
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Vallalar Nagar, Ondipudur, Coimbatore - 641 016

[www.inatamil.com](http://www.inatamil.com)

Cell: 9600370671, 9677821364

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Prof. A.LAVANYA is currently working as a Assistant Professor in the department of computer technology, KG College of Arts and Science, Coimbatore. She has completed her master degree in Anna University. She has ten years of experience. Her research areas are computer networks and security, SDN based Networks. Her publications are in various reputed journal national and international



Prof. P.R.PAMEELA RANI is currently working as a Assistant Professor in the department of computer technology, KG College of Arts and Science, Coimbatore. She received her post graduates in Bharathiar University. Her research areas are computer networks and security. She has published many articles in national and international journal. She is having six years of experience in academic institution

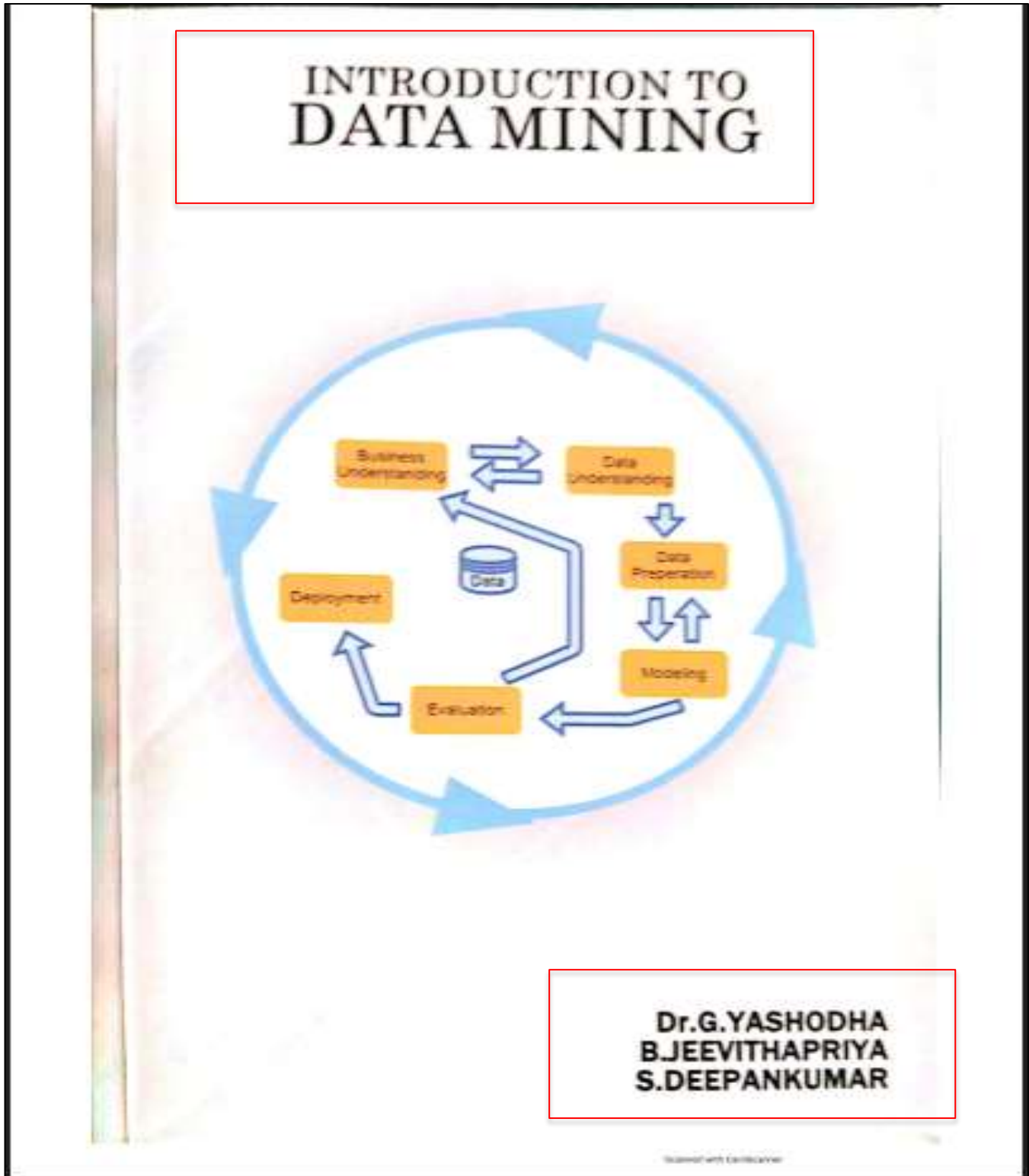


Prof. N.Sowndharya is currently working as a Assistant Professor in the department of computer technology, KG College of Arts and Science, Coimbatore. She received her post graduates in Bharathiar University. Her research areas are computer networks. She has published many articles in national and international journal. She is having three years of experience in academic institution





Title : Introduction to Data Mining  
Author : Dr.G.Yashodha, Ms.B.Jeevitha Priya & Mr.S.Deepan Kumar  
Department : Computer Technology  
Year of Publication: 2021



# INTRODUCTION TO DATA MINING

**Dr.G.Yashodha**  
**B.Jeevithapriya**  
**S.Deepankumar**  
Assistant Professor(s)  
Department of Computer Technology  
KG College of Arts and Science  
Coimbatore, Tamil Nadu.

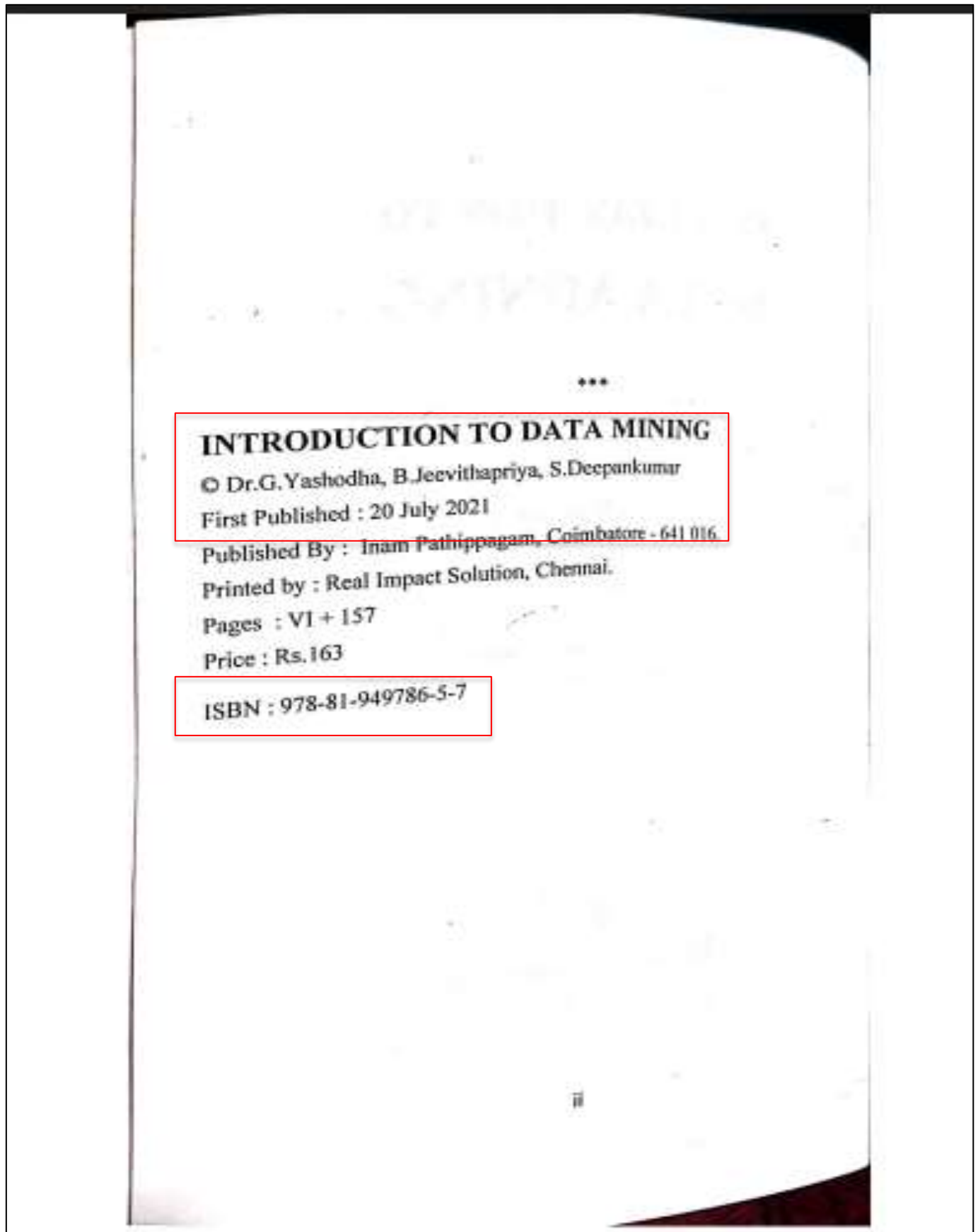


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Vallalar Nagar, Ondipudur, Coimbatore - 641 016

[www.inatamil.com](http://www.inatamil.com)

Cell: 9600370671, 9677821364





Dr.G.Yashodha is currently working as Assistant Professor in the department of Computer Technology, KG College of Arts and Science. Her research areas are Image Processing, Pattern Recognition. Her publications are in various reputed and scopus indexed journals



Prof. B.Jeevithapriya is currently working as Assistant Professor in the department of Computer Technology, KG College of Arts and Science. She got the post graduate from Bannari Amman Institute of Technology. Her research areas are Data Mining and Big data. She has published many articles in National and International Journals



Prof. S.Deepankumar is currently working as Assistant Professor in the department of Computer Technology, KG College of Arts and Science. Currently he is pursuing his research in the field of Data Mining at Bharathiar University. His research areas are Data Mining and Machine Learning. He has published many articles in National and International Journals





Title : Programming Lab Java  
 Author : Dr.V.Sathyavathy & V.Nithya  
 Department : Computer Technology  
 Year of Publication: 2021

**ABOUT THE AUTHORS**



**Dr.V.Sathyavathy**, is current working as the Head of the department of Computer Technology at KG College of Arts and Science. She has 13 Years of Teaching Experience. Her area of Specialization includes Software Testing and Quality Assurance, Data Analytics and Python for DataScience. She has published research articles in more than 20 Journals in National and 10 Journals at International Level and 5 Articles in Scopus Indexed Journals. She also participated in more than 5 National and International Conferences. She has coordinated and Conducted various seminars/workshop and Training Programmes



**V.Nithya**, Assistant Professor she received M.Sc degree from Bharathiar University,Coimbatore, M.Phil degree from Bharathiar university, Coimbatore. She is an Assistant Professor in the department of Computer Technology at KG College of Arts and Science, Coimbatore, and she worked as Guest Lecturer in Bharathiar university .She has got 6 years of teaching experiences. Her research area was in Networking. She has presented papers in International Journal of Modern trends in Engineering and Science and also Participation in State Level Work shop on IBM Main Frames.



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**DEPARTMENT OF  
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**LAB MANUAL  
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Title : Programming Lab - C

Author : Dr.K.Appathurai, Mr.S.Deepankumar & D.Padmapiya

Department : Computer Technology

Year of Publication: 2021

### ABOUT THE AUTHORS



**Dr.K. Appathurai**, is a Ph.D from the Department of Computer Science, Karpagam University, India. Prior to his doctorate, he completed Master of Philosophy in Computer Science from Manonmaniam Sundaranar University, India and Masters in Computer Applications from Bharathidasan University, India. Presently he is an Associate Professor of Computer Technology department, KG Arts and Science College, Coimbatore, Affiliated to Bharathiar University, Coimbatore. Before joining KG. He has published 14 research papers in various reputed national and international journals. He published and registered a Patent for his innovation in the year 2021. His field of research includes Data mining and Spatial Databases. Totally he has 21 years of Teaching experience and 2 years of Industry experience. Presently he is acting as a reviewer of few reputed national and International Journals.



**Mr.S.Deepankumar**, MCA,(Ph.D), Assistant Professor,Department of Computer technology,KG College of Arts and Science,Coimbatore. He has vast Years of Experience in the industry and Teaching field. His area of Specialization is Data Mining and Machine Learning. He has published Research Papers in various National, International Journals and Conference Proceedings.He has Co-Authored a book entitled "Introduction to Data Mining".



**D.Padmapiya**, Assistant Professor and She received M.C.A degree from Bharathidasan University, Trichy, M.Phil degree from Bharathiar university, Coimbatore and she is pursuing Ph.D Computer Science and core areas in Agricultural Informatics – DataMining , Tiruppur Kumaran College, Bharathiar University. She is an Assistant Professor In the department of Computer Technology at KG College of Arts and Science. She has presented various papers in National and International Conferences, published 14 Research papers in International and National conference and published her journals in Scopus and UGC list journals. She has guided nearly 200 PG real time Projects for MCA students. She has attended more seminars, workshops and training courses related to her research area.



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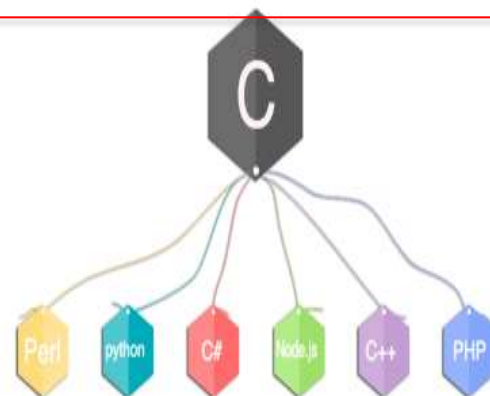
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Title : Network Security Lab  
 Author : Dr.G.Yashodha, Mr.D.Sakthivel  
 Department : Computer Technology  
 Year of Publication: 2021

### ABOUT THE AUTHORS



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 Accredited by NAAC  
 ISO 9001:2015 Certified Institution  
 KGISL Campus, Coimbatore - 641035

### DEPARTMENT OF COMPUTER TECHNOLOGY



**Dr.G.Yashodha**, is currently working as Assistant Professor in Department of Computer Technology. She has Eleven Years of teaching experience. Her areas of specialization are Image Processing ,Pattern Recognition, Data structures. She has published many papers in National and International Journals



**Mr.D.Sakthivel**, is pursuing his Ph.D in Computer Science from Bharathiar University. He did his Master degree in Computer Science in 2008 and BCA in 2006. He is presently working as Assistant Professor in the Department of Computer Technology, KG College of Arts and Science, Coimbatore. His specializations are Data Mining, Intrusion Detection System and Cloud Computing. He has 13 years of Teaching Experience in the field of Computer Science. He has published 24 Journal articles and conference papers.

## LAB MANUAL NETWORK SECURITY LAB





Title : Network Lab Manual  
 Author : Ms.A.Lavanya & Ms.P.R.PameelaRani  
 Department : Computer Technology  
 Year of Publication: 2021

### ABOUT THE AUTHORS



**Ms.A.LAVANYA,** is currently working as a assistant professor in the department of computer technology, KG College of Arts and Science, Coimbatore. She has completed her master degree in Anna University. She has eleven years of experience. Her research areas are computer networks and security, SDN based Networks. Her publications are in various reputed journal national and international.



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Title : Electronic Circuits, Radio, TV and Instrumentation Lab  
 Author : Mr.M.Arunprasad & Mr.S.Karthikeyan  
 Department : Electronics and Communication Systems  
 Year of Publication: 2021

**ABOUT THE AUTHORS**



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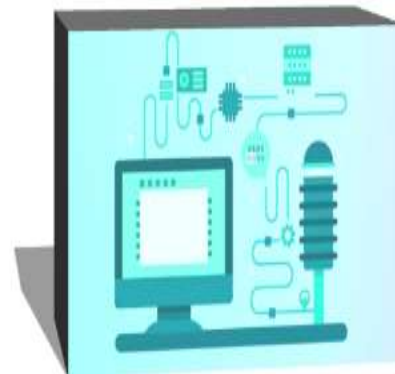
**Mr. M. Arun Prasad**, M.Sc., M.B.A., M.Phil., (Ph.D), Assistant Professor & Head, Department of Electronics and Communication Systems, KG College of Arts and Science, Coimbatore, Tamil Nadu. He has vast years of experience in the teaching field. His areas of specialization are Embedded Systems and Digital Signal Processing. He has published twelve research papers in various national, international journals and conference proceedings. He has co-authored a book entitled "Digital Principles and Applications".

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION SYSTEMS**



**Mr. S. Karthikeyan**, M.Sc., M.Phil., (Ph.D), Assistant Professor, Department of Electronics and Communication Systems, KG College of Arts and Science, Coimbatore, Tamil Nadu. He has vast years of experience in the industry and teaching field. His areas of specialization are Embedded Systems and Thin Film Technology. He has published fifteen research papers in various national, international journals and conference proceedings. He has co-authored a book entitled "Digital Principles and Applications".

**LAB MANUAL**  
**ELECTRONIC CIRCUITS,RADIO,TV AND INSTRUMENTATION LAB**



Mr. M. Arun Prasad  
 Mr. S. Karthikeyan

Title : Electronic Communication Lab  
 Author : Mr.M.Arunprasad & Mr.S.Senthilkumar  
 Department : Electronics and Communication Systems  
 Year of Publication: 2021

**ABOUT THE AUTHORS**



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 KGISL Campus, Coimbatore - 641035

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION SYSTEMS**

**LAB MANUAL**

**ELECTRONIC COMMUNICATION LAB**



**Mr. M. Arun Prasad**, M.Sc., M.B.A., M.Phil., (Ph.D), Assistant Professor & Head, Department of Electronics and Communication Systems, KG College of Arts and Science, Coimbatore, Tamil Nadu. He has vast years of experience in the teaching field. His areas of specialization are Embedded Systems and Digital Signal Processing. He has published twelve research papers in various national, international journals and conference proceedings. He has co-authored a book entitled "Digital Principles and Applications".



**Mr. M. Senthilkumar**, M.Sc., M.Phil., (Ph.D), Assistant Professor, Department of Electronics and Communication Systems, KG College of Arts and Science, Coimbatore, Tamil Nadu. He has vast years of experience in the industry and teaching field. His area of specialization is Embedded Systems. He has published ten research papers in various national, international journals and conference proceedings. He has co-authored a book entitled "Digital Principles and Applications".



Mr. M. Arun Prasad  
 Mr. M. Senthilkumar



Title : Semiconductor Devices Lab  
 Author : Mr.S.Karthikeyan & Mr.D.Antony Pradeesh  
 Department : Electronics and Communication Systems  
 Year of Publication: 2021

### ABOUT THE AUTHORS



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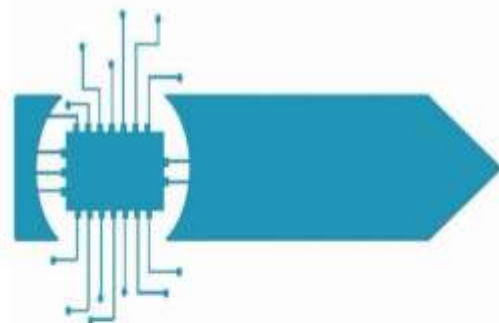
**Mr. S. Karthikeyan, M.Sc., M.Phil., (Ph.D),** Assistant Professor, Department of Electronics and Communication Systems, KG College of Arts and Science, Coimbatore, Tamil Nadu. He has vast years of experience in the industry and teaching field. His areas of specialization are Embedded Systems and Thin Film Technology. He has published fifteen research papers in various national, international journals and conference proceedings. He has co-authored a book entitled "Digital Principles and Applications".

### DEPARTMENT OF ELECTRONICS AND COMMUNICATION SYSTEMS



**Mr. D. Antony Pradeesh, M.Sc., M.Tech., (Ph.D),** Assistant Professor, Department of Electronics and Communication Systems, KG College of Arts and Science, Coimbatore, Tamil Nadu. He has vast years of experience in teaching field. His areas of specialization are Embedded Systems and Internet of Things. He has published four research papers in international conference proceedings. He has published three patents and mentored two DST funded projects and one TNSCST project.

## LAB MANUAL SEMICONDUCTOR DEVICES LAB



9 789392 293245

Mr. S. Karthikeyan  
 Mr. D. Antony Pradeesh



Title : Digital Electronics Lab  
 Author : Mr.S.Karthikeyan & Mr.M.Arunprasad  
 Department : Electronics and Communication Systems  
 Year of Publication: 2021

### ABOUT THE AUTHORS



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 KGISL Campus, Coimbatore - 641035



**Mr. S. Karthikeyan**, M.Sc., M.Phil., (Ph.D), Assistant Professor, Department of Electronics and Communication Systems, KG College of Arts and Science, Coimbatore, Tamil Nadu. He has vast years of experience in the industry and teaching field. His areas of specialization are Embedded Systems and Thin Film Technology. He has published fifteen research papers in various national, international journals and conference proceedings. He has co-authored a book entitled "Digital Principles and Applications".

### DEPARTMENT OF ELECTRONICS AND COMMUNICATION SYSTEMS



**Mr. M. Arun Prasad**, M.Sc., M.B.A., M.Phil., (Ph.D), Assistant Professor & Head, Department of Electronics and Communication Systems, KG College of Arts and Science, Coimbatore, Tamil Nadu. He has vast years of experience in the teaching field. His areas of specialization are Embedded Systems and Digital Signal Processing. He has published twelve research papers in various national, international journals and conference proceedings. He has co-authored a book entitled "Digital Principles and Applications".

### LAB MANUAL DIGITAL ELECTRONICS LAB



Mr. S. Karthikeyan  
 Mr. M. Arun Prasad



Title : Microprocessor and Microcontroller Lab  
 Author : Mr.S.Senthilkumar & Mr.S.Karthikeyan  
 Department : Electronics and Communication Systems  
 Year of Publication: 2021

## ABOUT THE AUTHORS



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KGISL Campus, Coimbatore - 641035



**Mr. M. Senthilkumar**, M.Sc., M.Phil., (Ph.D), Assistant Professor, Department of Electronics and Communication Systems, KG College of Arts and Science, Coimbatore, Tamil Nadu. He has vast years of experience in the industry and teaching field. His area of specialization is Embedded Systems. He has published ten research papers in various national, international journals and conference proceedings. He has co-authored a book entitled "Digital Principles and Applications".

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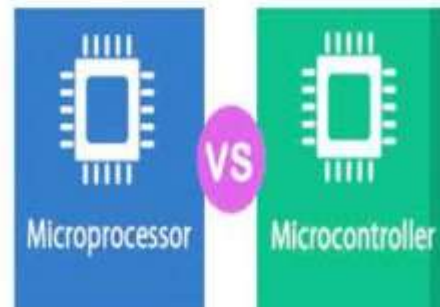


**Mr. S. Karthikeyan**, M.Sc., M.Phil., (Ph.D), Assistant Professor, Department of Electronics and Communication Systems, KG College of Arts and Science, Coimbatore, Tamil Nadu. He has vast years of experience in the industry and teaching field. His areas of specialization are Embedded Systems and Thin Film Technology. He has published fifteen research papers in various national, international journals and conference proceedings. He has co-authored a book entitled "Digital Principles and Applications".

## LAB MANUAL MICROPROCESSOR AND MICROCONTROLLER LAB



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Mr. M. Senthilkumar  
Mr. S. Karthikeyan

Title : Assembly Language Programming Lab  
 Author : Mr.S.Senthilkumar & Mr.D.Antony Pradeesh  
 Department : Electronics and Communication Systems  
 Year of Publication: 2021

## ABOUT THE AUTHORS



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 KGISL Campus, Coimbatore - 641035



**Mr. M. Senthilkumar**, M.Sc., M.Phil., (Ph.D), Assistant Professor, Department of Electronics and Communication Systems, KG College of Arts and Science, Coimbatore, Tamil Nadu. He has vast years of experience in the industry and teaching field. His area of specialization is Embedded Systems. He has published ten research papers in various national, international journals and conference proceedings. He has co-authored a book entitled "Digital Principles and Applications".

**DEPARTMENT OF SOFTWARE SYSTEMS  
 AND  
 COMPUTER SCIENCE [PG]**



**Mr. D. Antony Pradeesh**, M.Sc., M.Tech., (Ph.D), Assistant Professor, Department of Electronics and Communication Systems, KG College of Arts and Science, Coimbatore, Tamil Nadu. He has vast years of experience in teaching field. His areas of specialization are Embedded Systems and Internet of Things. He has published four research papers in international conference proceedings. He has published three patents and mentored two DST funded projects and one TNSCST project.

## LAB MANUAL ASSEMBLY LANGUAGE PROGRAMMING LAB



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Assembly Language

Mr. M. Senthilkumar  
 Mr. D. Antony Pradeesh

Title : Industrial and Power Electronics Lab  
Author : Mr.D.Antony Pradeesh  
Department : Electronics and Communication Systems  
Year of Publication: 2021

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**INDUSTRIAL AND POWER ELECTRONICS LAB**

**AUTHORS**

Mr. D. Antony Pradeesh

Assistant Professor,

Department of Electronics and  
Communication Systems,

KG College of Arts and Science.

[antony.p@kgcas.com](mailto:antony.p@kgcas.com)

Mr. M. Senthilkumar

Assistant Professor,

Department of Electronics and  
Communication Systems,

KG College of Arts and Science.

[senthilkumar.m@kgcas.com](mailto:senthilkumar.m@kgcas.com)



Title : Basic Electronics Lab  
 Author : Mr.D.Antony Pradeesh & Mr.M.Arunprasad  
 Department : Electronics and Communication Systems  
 Year of Publication: 2021

### ABOUT THE AUTHORS



**KG COLLEGE OF ARTS AND SCIENCE**  
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 ISO 9001:2015 Certified Institution  
 KGISL Campus, Coimbatore - 641035



**Mr. D. Antony Pradeesh, M.Sc., M.Tech., (Ph.D),**  
 Assistant Professor, Department of Electronics and Communication Systems, KG College of Arts and Science, Coimbatore, Tamil Nadu. He has vast years of experience in teaching field. His areas of specialization are Embedded Systems and Internet of Things. He has published four research papers in international conference proceedings. He has published three patents and mentored two DST funded projects and one TNSCST project.

### DEPARTMENT OF ELECTRONICS AND COMMUNICATION SYSTEMS



**Mr. M. Arun Prasad, M.Sc., M.B.A., M.Phil., (Ph.D),**  
 Assistant Professor & Head, Department of Electronics and Communication Systems, KG College of Arts and Science, Coimbatore, Tamil Nadu. He has vast years of experience in the teaching field. His areas of specialization are Embedded Systems and Digital Signal Processing. He has published twelve research papers in various national, international journals and conference proceedings. He has co-authored a book entitled "Digital Principles and Applications".

## LAB MANUAL BASIC ELECTRONICS LAB



9 789392 293160



Mr. D. Antony Pradeesh  
 Mr. M. Arun Prasad

Title : Genetics and Biochemistry - Lab Manual

Author : Dr.D.Shalini & Dr.B.Sangeetha

Department : Biotechnology

Year of Publication: 2021

## ABOUT THE AUTHORS



**Dr.D.Shalini**, is an Assistant Professor, Department of Biotechnology, KG College of Arts and Science, Coimbatore. She has more than ten years in teaching and three years of research experience. She has sound knowledge in research and acts as reviewer in various reputed journals. She has published more than twenty journals in peer reviewed internal and national journals. She has presented more than eight papers in various conferences and also acts as rapporteur in international conferences organized by KGCAS. She is an environmentalist and convener of Eco club, KGCAS



**Dr.B.Sangeetha**, M.Sc., M.Phil., Ph.D., Assistant Professor, Department of Biotechnology, KG College of Arts & Science, Coimbatore, Tamil Nadu. She has Seven years of Research experience in research & Four years of experience in teaching. Plant metabolomics is her research specialization. She has published four research papers in various national, international and conference proceedings



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## DEPARTMENT OF BIOTECHNOLOGY

# LAB MANUAL GENETICS AND BIOCHEMISTRY



978-93-92293-29-0

Dr. D. Shalini  
 Dr. B. Sangeetha



Title : Recent Research in Biosciences and Biotechnology – Book Chapter

Author : Dr.D.Shalini

Department : Biotechnology

Year of Publication: 2021



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Munthirithoppu, Annanagar,  
Madurai – 20, Tamil Nadu, India.  
E-mail: narennarayanamy@gmail.com





**Recent Research in Biosciences and Biotechnology**

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**Volume -1 Edition-1-2022****Contents**

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**Recent Research in Biosciences and Biotechnology****Somatic Embryogenesis and Artificial Seed germination****Shalini. D<sup>1</sup>, Shanmugavadivu.M<sup>2</sup> and Sangeetha.B<sup>3</sup>**<sup>1,2,3</sup> Assistant Professor, KG College of Arts and Science,  
KGiSL Campus, Saravanampatti, Coimbatore 641035,  
Tamil Nadu, India.**Introduction**

The act of fertilization triggers the egg cell to divide and develop into an embryo. However, fertilization is not always essential to stimulate the egg to undergo embryogenesis. In angiosperms, ovules are developed within the ovary. Within the ovule, a sac-like structure known as embryo sac lies embedded into the nucleus. The embryo sac represents the female gametophyte of angiosperms. The ovule contains a haploid egg cell or ovum which is the female reproductive cell or female gamete. During fertilization, the male gamete fuses with the egg cell or female gamete resulting in the formation of a unicellular zygote or oospores. The zygotes gives rise to a multicellular embryo, cells or with are diploid. An embryo derived in this sexual process of embryo development is called embryogenesis. Sometimes, embryos are formed by the unfertilized egg and such embryos are called somatic embryogenesis. Again, sometimes, any cell of the female gametophyte (embryo sac) or the sporophytic tissues around the embryo sac may give rise to an embryo and such embryos are called non-zygotic embryos.

According to S.S. Bhojawani and S.P.Bhatnagar, in nature there is no instance of ex-ovule embryo development. Therefore, there is no evidence of embryo development in vivo from any somatic cells for the plant. That means, in vivo somatic plant cells do not express any embryogenic potential to form embryo. In plant tissue culture, totipotency of the somatic cell has been well-established. In modern genetic terms this means that the nucleus of every living somatic cell contains all the genetic information necessary to direct the development of the entire plant.

Haberl believed that single cultured somatic cells would develop in the same way as the fertilized egg, namely the developmental pathway of embryogenesis. This idea did not find many supporters and it was achieved much later by J. Reinert a German botanist, in 1958. He found organized small bipolar structures bearing cotyledons and otherwise, resembling zygotic

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Author : Dr.D.Shalini

Department : Biotechnology

Year of Publication: 2021

## ABOUT THE AUTHORS



**Dr.D.Shalini**, is an Assistant Professor, Department of Biotechnology, KG College of Arts and Science, Coimbatore. She has more than ten years in teaching and three years of research experience. She has sound knowledge in research and acts as reviewer in various reputed journals. She has published more than twenty journals in peer reviewed internal and national journals. She has presented more than eight papers in various conferences and also acts as rapporteur in international conferences organized by KGCAS. She is an environmentalist and convener of Eco club, KGCAS



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## DEPARTMENT OF BIOTECHNOLOGY

# LAB MANUAL ALLIED CHEMISTRY



978-93-92293-08-5



Dr. D. Shalini

Title : Immunology and Plant Tissue Culture - Lab Manual

Author : Dr.M.Shanmugavadivu

Department : Biotechnology

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### ABOUT THE AUTHORS



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### DEPARTMENT OF BIOTECHNOLOGY



**Dr. M. Shanmugavadivu**, M.Sc., M.Phil., Ph.D., SET, Assistant Professor, Department of Biotechnology, KG College of Arts and Science, Coimbatore, Tamil Nadu. She has 14 years of experience in teaching field. Her areas of specialization are Nanotechnology and Molecular Biology. She has published twenty two research papers in various national, international and conference proceedings. She has published two book chapters.

## LAB MANUAL IMMUNOLOGY AND PLANT TISSUECULTURE



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Dr. M. Shanmugavadivu



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## ABOUT THE AUTHORS



**Dr. M. Shanmugavadivu**, M.Sc., M.Phil., Ph.D., SET, Assistant Professor, Department of Biotechnology, KG College of Arts and Science, Coimbatore, Tamil Nadu. She has 14 years of experience in teaching field. Her areas of specialization are Nanotechnology and Molecular Biology. She has published twenty two research papers in various national, international and conference proceedings. She has published two book chapters.



**Dr. B. Sangeetha**, M.Sc., M.Phil., Ph.D., Assistant Professor, Department of Biotechnology, KG College of Arts & Science, Coimbatore, Tamil Nadu. She has Seven years of Research experience in research & Four years of experience in teaching. Plant metabolomics is her research specialization. She has published four research papers in various national, international and conference proceedings



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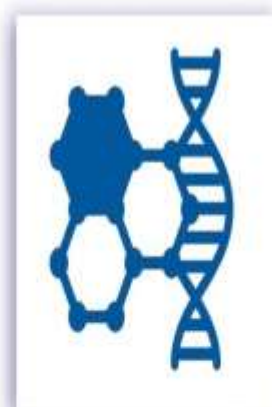
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## ABOUT THE AUTHORS



**Dr. M. Shanmugavadivu, M.Sc., M.Phil., Ph.D.,**

SET, Assistant Professor, Department of Biotechnology, KG College of Arts and Science, Coimbatore, Tamil Nadu. She has 14 years of experience in teaching field. Her areas of specialization are Nanotechnology and Molecular Biology. She has published twenty two research papers in various national, international and conference proceedings. She has published two book chapters.



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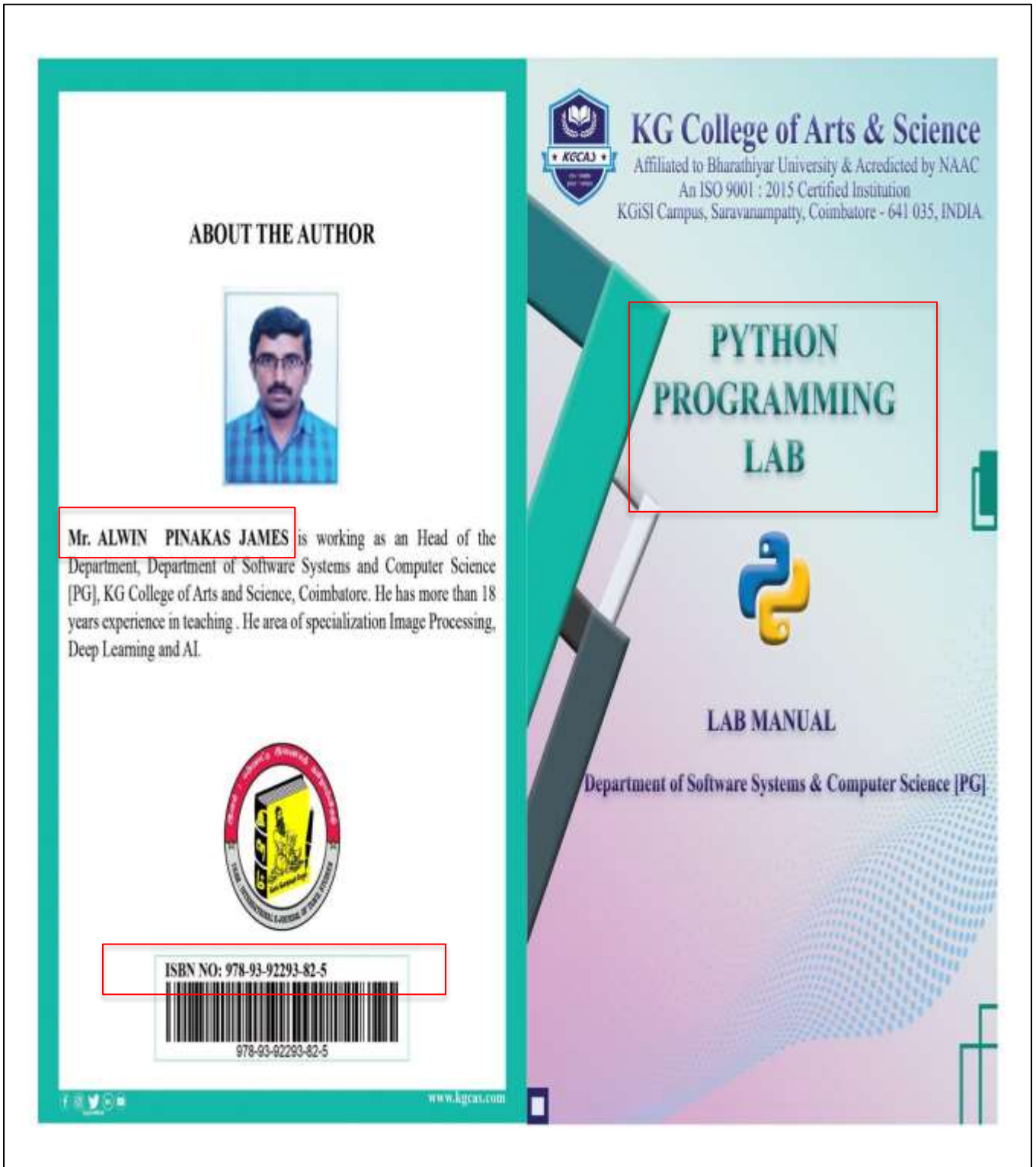


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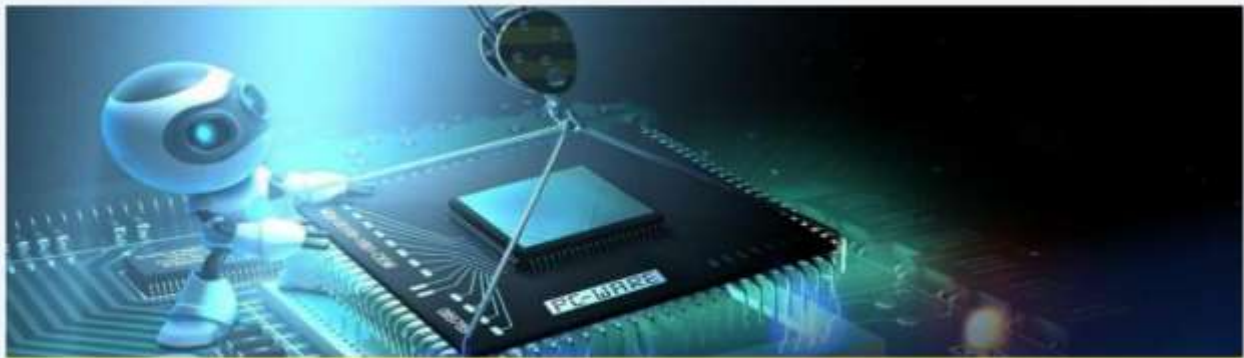


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**E-Freshness by Using IoT with  
Arduino UNO****<sup>1</sup>Dr. C. Daniel Nesa Kumar, <sup>2</sup>Mrs. Viba Mary J., <sup>3</sup>Mr. Vijaya Kumar  
and <sup>4</sup>Mr. Vasanth Rajamani**<sup>1,2</sup>Assistant Professor, <sup>3,4</sup>Final MCA Students<sup>1,3,4</sup>PG and Research Department of Computer Applications (MCA), Hindusthan College of Arts and Science (Autonomous), Coimbatore, India<sup>2</sup>PG Department of Computer Science, KG College of Arts and Science, Coimbatore, India**ABSTRACT**

Every year, meals, amounting to 1.3 billion heaps is being wasted around the globe. In addition, consistent with a have a look at via NRDC, supermarkets throw away 43 billion kilos of food in keeping with 12 months. Another record by The Food Trust suggests that as much as 50% of the produce is thrown out while nevertheless safe to eat. Imagine, even if a fraction of such meals waste can be saved, it is able to advantage nearly 9 million people who die of starvation and starvation-related sicknesses each 12 months.

With IoT, AI and laptop vision techniques in an agriculture or meals control device, the Smart Food Monitoring answer analyzes numerous variables and gives actionable metrics. The solution impacts different areas which include harvesting, processing, distribution channels and shelf lifestyles in retail grocery shops. In addition, with temperature manage in freezers and refrigeration systems, agencies can save you food spoilage and follow food protection rules. Food safety is vital to keep away from meals borne sicknesses and to ensure the public health. Monitoring of perishable food merchandise and early detection of decay will keep away from loss because of food wastage and also guarantees the freshness of meals. In this state of affairs, faraway monitoring of fruits during transportation from area to shelf can ensure the high-quality of fruit. In this work, a wireless sensor network turned into designed for monitoring of end result for the duration of transportation or even after storage. Internet of things became extensively utilized for facilitating online monitoring of end result from any faraway vicinity. It has done the fusion of sensor information including temperature, humidity and moisture to avoid redundant data garage and boom the performance of choice making.

**Introduction**

Food monitoring is of high interest to make certain the freshness and pleasant of the food. Tracking refers to supplying information about the food trough out there

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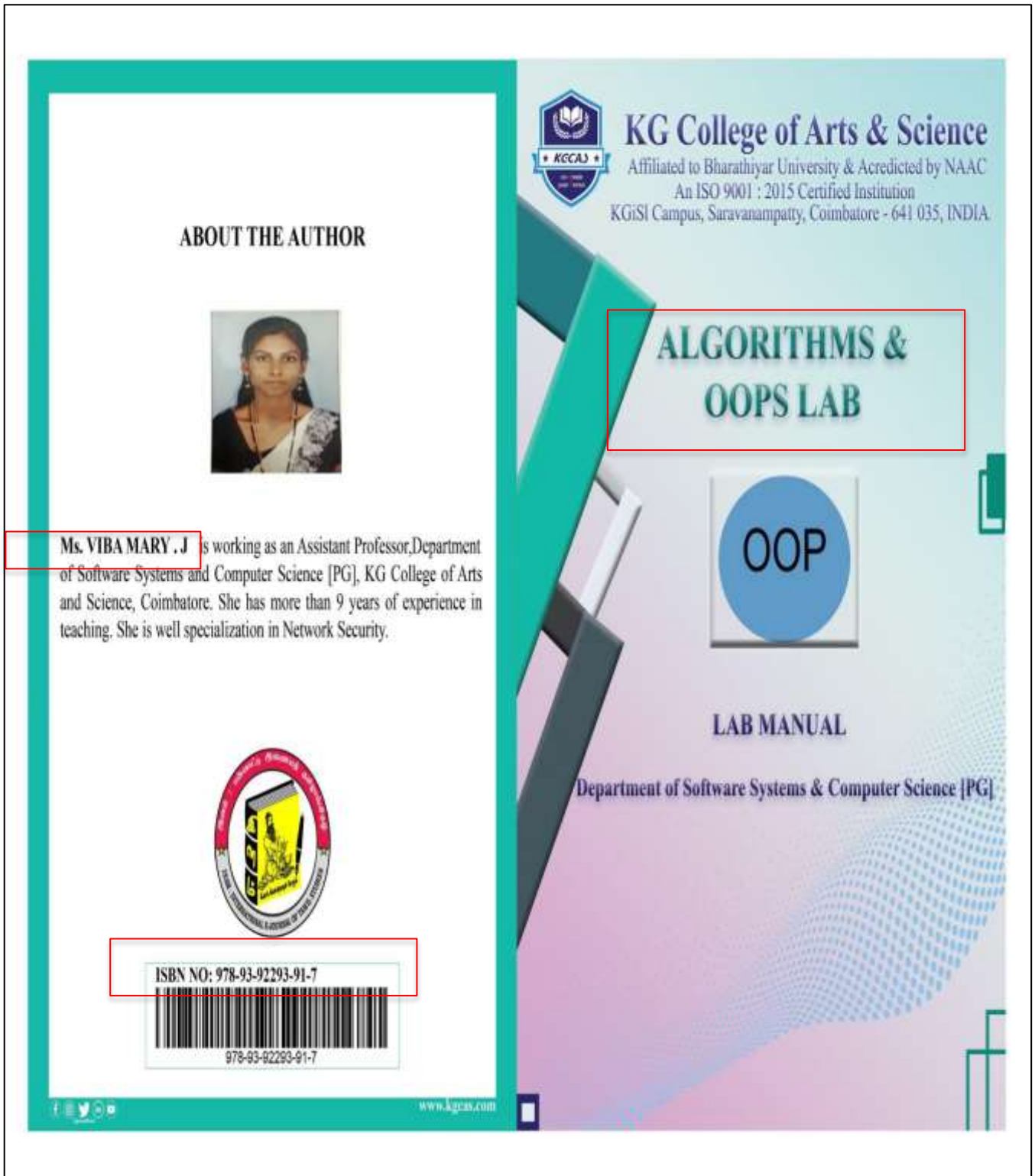
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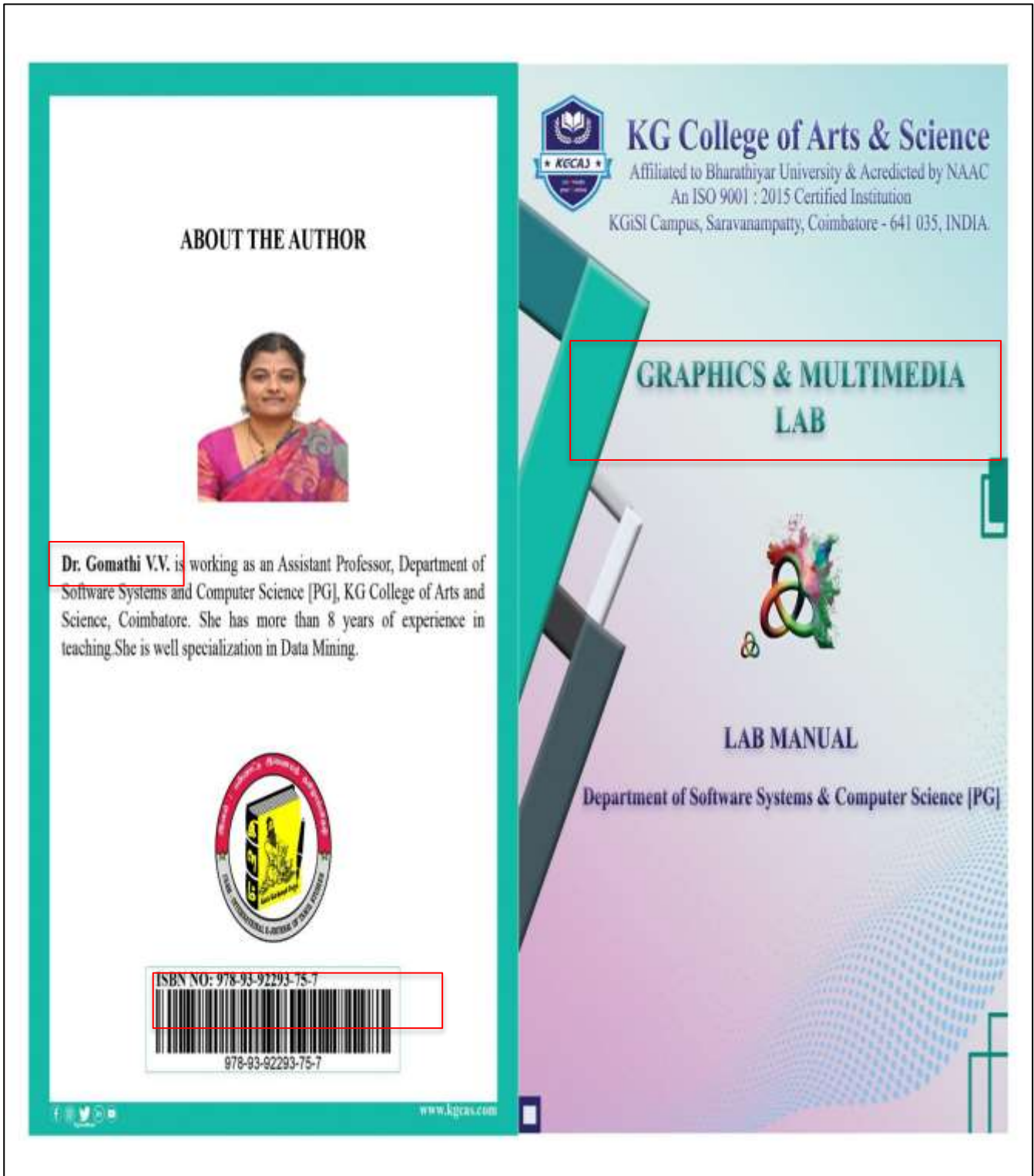




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