Information and Communication Technology

Textbook for Class IX

विद्यया ऽमृतमश्नुते
एन सी ई आर टी
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FOREWORD

Information and Communication Technology (ICT) has influenced our life in a great way. ICT has literally made inroads into almost all major disciplines across science, social sciences, languages, arts and medicine, etc. It has the potential to create newer avenues for employment, help us communicate and collaborate better, learn, and understand the nature and phenomena as well as improve our skills and standards of living. Policymakers across the globe today agree with the potential of ICT in the teaching-learning process and recommend ICT to be a part of school and teacher education curriculum.

Rapid advancements in Information and Communication Technology (ICT) have created unprecedented opportunities in the field of education and school education in particular. Mastering ICT skills and utilising ICT is of utmost importance for teachers and learners for creating a new learning culture.

ICT is stated to have motivational power. It enables students to enjoy learning as an active participant, such as by bringing the outside world into the classroom or by enhancing one-to-one, one-to-many and many-to-many interaction, among peers, teachers, experts and others. Furthermore, ICT has also helped the students in learning new skills, such as searching and locating appropriate information, making informed choices, learning to recognise the authenticity of sources and collaborating with other learners.

Today, we are living in an interconnected world where ICT-based applications influence the way we learn, communicate, commute or even socialise. Developments in the twenty-first century skills, such as communication, creative and critical thinking, problem solving, collaborative learning, etc., are essential at the school level. ICT plays a key role in developing these skills.

This book aims to introduce the world of ICT and its applications. It will help students to learn, prepare, present and communicate their thoughts, ideas and content through various digital formats, i.e., text, image, audio and video, etc.

The book will also help students to understand the potential of Internet as well as the safety and security issues related to it, and the ways in which one can safeguard themselves against malicious activities and incidents happening in the cyber world.

As an organisation committed to systemic reform and continuous improvement in the quality of its products, NCERT welcomes comments and suggestions from all the stakeholders, which will enable us to revise the content of the textbook.

HRUSHIKESH SENAPATY
Director
National Council of Educational
Research and Training

New Delhi
March, 2018

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PREFACE

It is well accepted that Information and Communication Technology (ICT) has an immense potential to impact learning. Also understanding the basics of ICT and mastering the skills is essential and must be regarded as a core part of education, along with reading, writing and numeracy. The recent efforts of the Government of India (GoI) seeks to deepen the use of ICT in almost every sphere of life. The Digital India Campaign (2015) strives to transform India into a digitally empowered society and knowledge economy by focussing on three vision areas — Digital Infrastructure as Core Utility to Every Citizen, e-Governance and Service on Demand and Digital Literacy and Empowerment of Citizens. The three cardinal principals of the draft New National Education Policy (2016) viz., access, equity and quality could be served well by harnessing the huge potential of ICT. The National Curriculum Framework (2005) recommends to recognise that given the space, time and freedom, children generate new knowledge by engaging with the information passed on to them by adults. The curricula for ICT in education lays an emphasis on empowering the students in a way so that they may get an access to a variety of resources, learn to critically appraise information and resources, and make safe, productive, ethical and legal use of resources.

The Present Class IX Textbook of ICT takes into account goals of the New Education Policy, the recommendations of National Curriculum Framework (2005), the Curricula for ICT in Education and visions of Digital India Campaign (2015). This textbook is an attempt to foster creativity, problem solving and to introduce students to the world of Information and Communication Technology (ICT), which may also shape their future career pursuits.

The textbook contains eight chapters under four learning strands viz. 'Connecting with the World', 'Connecting with Each Other', 'Creating with ICT' and 'Interacting with ICT'. It has been carefully designed with meticulous efforts of the Textbook Development Team comprising School teachers, subject experts, academicians and technical experts from government, non-government and private entities. Some of the members worked at the advisory level while others contributed towards the actual development activity as core team members and members of the textbook development committee. It is hoped that the students will appreciate the immense potential of ICT and will be encouraged to explore and learn further. The textbook writing team has tried to bring a conceptual

coherence. The pedagogy and the use of easily understandable language are at the core of the efforts without sacrificing the technical aspects of the subject.

This book has some features which are earnestly expected to enhance its usefulness for the students and teachers. The book contains nine Quick Response (QR) codes linked to relevant digital resources (text, audio, video, and interactive content, etc.). The first QR code is to access the complete digital textbook. The subsequent QR codes will help to access the relevant digital resources linked to each chapter. There are some questions which require critical thinking which would make students think about real-time applications of ICT. The textbook also includes a large number of examples in order to clarify the concept and to relate these concepts to everyday real-life situations. The inside box in the chapters are introduced to highlight the special features of the concepts covered, which require additional attention of the students.

Completion this book has only been possible due to the continuous support of many professionals and experts. We express our gratitude to Director, NCERT, for entrusting us with the task of developing this textbook as part of a national effort for improving school education.

The draft received excellent academic inputs from students, experts and other practitioners who sincerely suggested improvement during the development of this book. We are thankful to all those who provided these inputs to CIET, NCERT. We are also thankful to the all the members of development and review workshops, language editors and to team DIKSHA for rendering technical support for developing QR codes.

We welcome suggestions and comments from our valued users, specially students and teachers. We wish our young readers of Class IX have an exciting and enjoyable engagement with the world of ICT.

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THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a [1]**[SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC]** and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the [2][unity and integrity of the Nation];

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949 do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

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1. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
2. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Unity of the Nation" (w.e.f. 3.1.1977)