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Technology

टैक्नोलॉजी फोकस



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DESIDOC: In Support of DRDO's Academic Pursuit





Technology

टेक्नोलॉजी फोकस

FOCUS





डॉ. एस. क्रिस्टोफर
सचिव, रक्षा अनुसंधान तथा विकास विभाग एवं
महानिदेशक डी आर डी ओ

Dr. S Christopher
Secretary, Department of Defence R&D and
DG DRDO



भारत सरकार
रक्षा मंत्रालय
रक्षा अनुसंधान तथा विकास विभाग
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Ministry of Defence
Department of Defence Research & Development
DRDO Bhawan, New Delhi - 110 011



Foreword

As Secretary DDR&D and DG DRDO, I have been interacting with DESIDOC regularly on matters related to publications, library & information science; digital and print media; DRDO Website and DRDO Intranet. I found DESIDOC to be a very progressive, innovative and enterprising organization which is full of energy, excitement, innovative ideas with a sense of commitment to do good things for DRDO. Their focus is to bring visibility, acceptability and brand building of DRDO through an all round academic pursuit.

2. I am writing this "Foreword" to introduce DESIDOC's publication, the *Technology Focus* to the R&D community of DRDO and outside. *Technology Focus* is a very informative magazine which highlights DRDO's achievements and technology breakthrough. I encourage DRDO laboratories to use *Technology Focus* to communicate with S&T community about indigenous design and developmental efforts carried out by DRDO labs. I also suggest that DRDO laboratories continue their support to *Technology Focus* by contributing in the magazine and providing an authentic and constructive feedback to help improving it further.

3. DESIDOC has taken upon itself the responsibility to develop a strong knowledge and information driven community in the DRDO. It is supporting DRDO with online database, print and e-journals; reference and library services; documentation and web based IT services. It is documenting the results and outcome of DRDO sponsored research and providing them in a manner that would maximize the availability of research to DRDO scientists.

4. This issue of *Technology Focus* is dedicated to DESIDOC strategic intent in the service of DRDO. I congratulate DESIDOC on its good work and wish them good luck for all their future endeavours.

Jai Hind!

New Delhi
18 August 2016



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उत्कृष्ट वैज्ञानिक एवं
मुख्य नियंत्रक, अनुसंधान एवं विकास (टी एम)

M. H. RAHAMAN
Outstanding Scientist &
Chief Controller (TM)



सत्यमेव जयते



एक कदम स्वच्छता की ओर

रक्षा मंत्रालय
MINISTRY OF DEFENCE
रक्षा अनुसंधान तथा विकास संगठन
DEFENCE RESEARCH & DEVELOPMENT ORGANISATION

CCR&D(HR)/01/01/DESIDOC/2016

19 Aug 2016



Preface

DESIDOC as the hub of DRDO's scientific and technical information programs has taken upon itself the responsibility to develop, coordinate and enable a strong partnership with DRDO labs and externally with academic institutions, library community and knowledge agencies. DESIDOC has a vision to empowering DRDO scientists with greater efficiency, effectiveness and agility by accelerating the delivery of information and in this effort DESIDOC is evolving continuously to keep pace with the ever changing technology landscape and the revolutionary needs of the DRDO.

2. This issue of Technology Focus is a special issue dedicated to various services of DESIDOC implemented through the single window platform or otherwise and complementing them with the rich collections of knowledge and institutional repositories to provide and integrated seamless information space to help scientists to search topics collaborate, and share knowledge. I take this opportunity to suggest that DRDO labs pro-actively work with DESIDOC to reserve issues of technology focus for highlighting their developmental activities and to remain connected with the world outside DRDO. Technology Focus is a regular publication of DESIDOC which is maintaining a very high quality of standards of technical contents, printing and adherence to pre-scheduled release dates.

3. DESIDOC with its excellent, appreciable and motivated team are exploring fresh concepts to enhance its position to leverage DRDO's technology. DESIDOC has taken many new initiatives in the recent past and working for new projects and facilities. I acknowledge the untiring efforts of DESIDOC team and wish them good luck for all their new projects. I am also pleased to thank the editorial team of Technology Focus and all the correspondents from DRDO labs for their contributions in upbringing DRDO as the knowledge society.

Yours sincerely,

M. H. Rahaman

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From the Editor-in-Chief



With immense pleasure and sense of responsibility, I am writing this column to present this special issue of *Technology Focus* which has covered the entire spectrum of DESIDOC's services, innovations and intent.

Technology Focus (TF) is an in-house S&T magazine which is a culmination of excellent team work encompassing DESIDOC, DRDO labs and honest readership. In its 24th year, TF is DESIDOC's endeavour to highlight an outstanding science, technology activities and the state-of-the-art and indigenously development of cutting-edge defence technologies by DRDO labs. Each issue of TF covers the interest of both a core defence scientist and a science enthusiast.

As we had promised in the beginning of the year, TF is qualitatively a much improved magazine now. The editorial team and all those involved are determined to maintain and enhance the status of the magazine and its position. The magazine has increased the number of pages and adopted a new and easier-to-read format. Each issue is now available in e-format which is adaptable to any readable device. I, on behalf of DESIDOC promise to do our best not only to maintain the scientific excellence of the magazine, but to continue the work in improving TF as it enter into 25th year in a few months.

The success depends on the equal partnership, which I seek from DRDO labs to improve and promote this home production of DRDO. TF belongs to you as much as it belongs to us. I am sure that DRDO labs will come forward to reserve TF issues for specialised coverage to focus on specific technology/products which these laboratories are developing.

Finally, once again, I want to thank the entire editorial team as well as to our contributors for their dedication and vision. They make it all happen. Still, lots of things bound to happen. We are committed towards the status and maintenance of DESIDOC. As sky is having no limit so as the ideas of my dedicated team. Views of our readers are always welcome, they made us more enthusiastic to scale the heights of success. *Technology Focus* is working as a body of different souls who have combined themselves to bring the laurels to the dignity.

Gopal Bhushan
Director, DESIDOC



Technology

टेक्नोलॉजी फोकस





DESIDOC: In Support of DRDO's Academic Pursuit

Defence Scientific Information and Documentation Centre (DESIDOC) has its beginning as Scientific Information Bureau (SIB) which was established in 1958 as division of the Defence Science Laboratory, which later became Defence Science Centre and subsequently now known as Laser Science & Technology Centre (LASTEC). It became a self-accounting establishment 29 July 1970.

In pursuit and promotion of science, DESIDOC acts as a science and society interface of DRDO and plays a very important role in promoting S&T, and bringing public awareness and understanding of science in the scientific and civil society. DESIDOC has the vision, "to provide essential science and technical research, development information rapidly, accurately and reliably to support DRDO's scientists' needs". The academic pursuit of DESIDOC's through its in-house publications is a step towards contributing in the knowledge economy of the country and improving

DRDO's connectivity with the outside world and the common man. DESIDOC collaborates with librarians, academicians, researchers and scholars to popularise science and technology and bringing knowledge to life in meeting with the needs of varied user communities. DESIDOC disseminate knowledge through online platforms with intuitive user interface and works for enhanced discoverability for journals and reference work.

DESIDOC publications are covered in major S&T abstracting and indexing databases and are available full-text on Internet and Intranet. DESIDOC supports DRDO labs, national S&T organisations, academia/institutions, Armed Forces, MoD, and Indian Missions in foreign countries. These endeavours have seen a widespread and growing recognition of DRDO and help DRDO in its global outreach.

This issue of *Technology Focus* is dedicated to DESIDOC's activities, services, and facilities in support of DRDO labs.



Single Window Services

PUBLICATIONS	NEWS UPDATE	LIBRARY SERVICES
Defence Science Journal	Newspaper Clipping	Online Public Access Catalogue
Defence Life Science Journal	DRDO Blog	Digital Reference Desk
DRDO Newsletter	Telephone Directory	E-journals
DESIDOC JI. of Library & Inf. Technology	Forthcoming Int. Conferences	DRDO Current Periodicals
DRDO Samachar		New Books
Technology Focus	REPOSITORIES	New Technical Reports
Prodvoogiki Vishesh	Institutional Repository	Supply of Full-text Information
DRDO Science Spectrum	DRDO Knowledge Repository	DESIDOC Journal Search
DRDO Technology Spectrum	Archives of E-journals	SPIE Database
DRDO Monographs	PHOTO GALLERY	Translation Database
Annual Reports	DRDO Photogallery	Union Catalogue of Periodicals
		Union Catalogue of Books

Single Window Services on DRDO Intranet



Defence Science Library

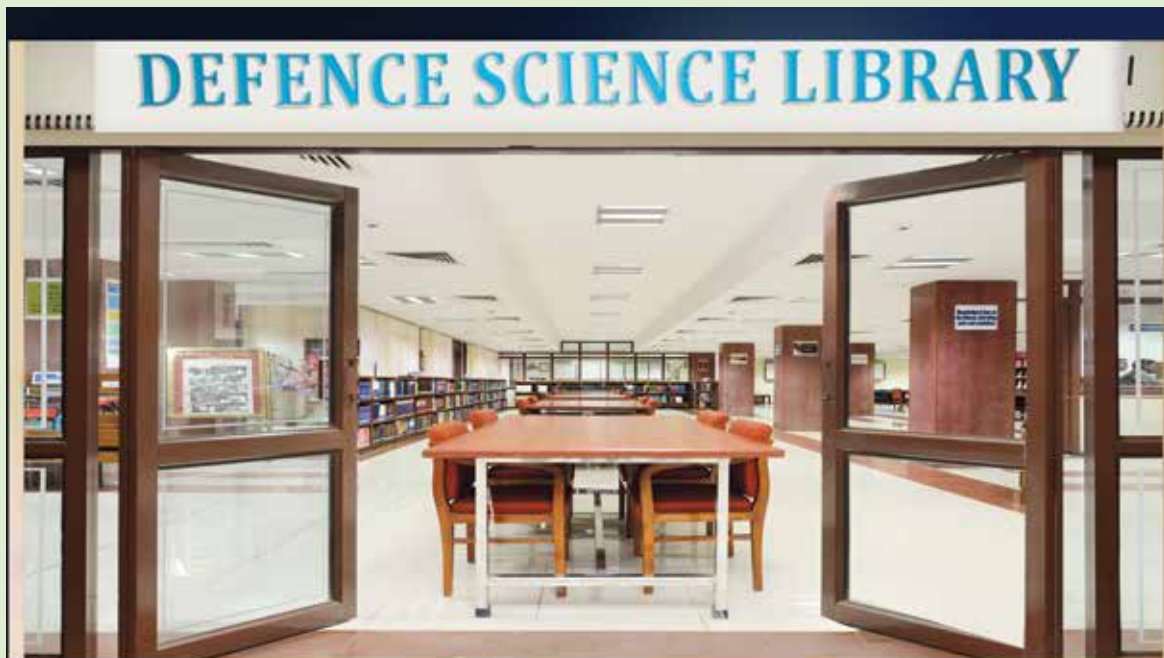
Defence Science Library (DSL) is a fully automated nerve centre to provide information on defence, science, technology to the research community of DRDO.

Library has a very rich collection of books in physics, chemistry, materials, electronics, aerospace, life sciences, computer science, mathematics, remote sensing, and defence science technology, etc. DSL subscribes scientific and technical journals, print and e-journals, reports, conference proceedings, books and CD-ROM databases. It has a special collection on Jane's publication, SPIE Proceedings, IEE/IEEE publication and databases on specialised subjects. DSL also supports other labs of DRDO. DSL is fully automated and use integrated library management system to cater administrative and management of library functions. Common bibliographic database is used for raising user demand, placement of supply order, acquisition of books, subscription of serials, technical processing, Online Public Access

Catalogue (OPAC), circulation of documents, new arrivals, RSS feeds and e-mail alerts. Users can use online facilities to reserve their books.

Radio Frequency Identification (RFID) system is used in DSL which operates at a frequency of 13.56 MHz. The chips are inserted in the book for enabling the issue, return, renewal and stock verification of books. Through RFID a user can also get the books issued/returned by their own self. An electronic article surveillance system is also deployed at the main entrance of the DSL.

Services of DSL revolves around the specific and general needs of scientist, officers, and staff of DRDO. DSL's efforts are aimed at strengthening the information and electronic resources for supply of information on demand as well as in anticipation. The DSL provides a range of services in digital and print form including document supply service, CD-ROM and internet searching, as well as profile-based specialised services for projects.



Defence Science Library : Inside View



Online Public Access Catalogue

Online Public Access Catalogue (OPAC) is accessible through Intranet. It covers bibliographic details of books, Conference Proceedings and technical reports held by the DSL. Users can search the OPAC by simple and advanced searches using boolean operators. Search can also be performed by author/editor, title, accession number, descriptors, subject, ISBN, report number and any word occurring in the title.

Digital Reference Desk

This service was started for the DRDO scientific community who needed information that was not available in their laboratory. The users send their requirements to DESIDOC which are generally fulfilled within two working days if available with DESIDOC. The non-available documents are obtained from national and international organisations and delivered. Users can look for information on this page for printing or downloading. Referred article section lists article/documents provided by DESIDOC to users.

This service is fully automated using PHP and MySQL. Once the demand is uploaded, an automatic e-mail alert is sent to the user. The database also has search facility to find out the documents uploaded earlier.

New Books and Reports

This service provides list of new collection held at DSL on books, SPIE Conference Proceedings, etc.. Each record contains the name(s) of author(s)/editor(s), title, place of publication, name of publisher and year of publication, accession number and ISBN.

Current Periodicals

DESIDOC subscribes to a number of journals in the fields of science and technology. The current journal search option allows searching of a current journal and old issues. The database provides bibliographic details of around 200 S&T journals

subscribed by DSL. The search options, simple and advanced, help users in searching the database on title, subject or keyword and allow sorting on different fields to know their availability for issue.

Union Catalogue of Periodicals

It is a database developed by using PHP and MySQL as tool to access journal holdings information across all DRDO libraries. Its collection covers all the periodicals subscribed by the labs from various publishers. The labs can also update their titles after receipt of the new issues. Using this database, users can check the availability of the journals from sister labs and can send the demand to the lab directly.

Union Catalogue of Books

The software system has been developed for unified online library catalogue of books available in all DRDO libraries. The union database contains bibliographic description, location and holdings information for books in all subject areas available in DRDO libraries across the country. A web-based interface is designed to provide easy access to the merged catalogues. This catalogue is a major source of bibliographic information that can be used for inter-library loan, collections development as well as for copy cataloguing and retro-conversion of bibliographic records.

Translation Database

This is the one of the important databases maintained by DSL covering French, German and Japanese language articles translated into English language. The articles translated nearly 25 years back were all digitised and made available in a digital library. A user can search the articles on title, author, and language.

Strategic Information Service (SIS)

To keep the project leaders of high priority projects up-to-date about the latest trends in their subject areas, SIS identifies and collects information from print, electronic, web and databases and compile them in a document form and send to users.



Union Catalogue of Books on DRDO Intranet

Newspaper Clipping Service

This service is one of the highly used and appreciated services by the DRDO research community. It is a compilation based on daily newspapers (covering 17 newspapers) on topics related to DRDO, defence, science and technology, etc.. This service is available on DRDO Intranet and Internet. The end user can search/browse the contents on the said topics. (<http://www.drdo.gov.in/drdo/English/index.jsp?pg=newsclipping.jsp>)

- ✘ Browsing of e-journals by title, publisher and lab
- ✘ Remote access facility to access e-journals anytime, anywhere
- ✘ Extension of access to HQrs, DG's office and remotely located units
- ✘ Perpetual access
- ✘ All subscribed contents of IEEE and ACS is available on intranet
- ✘ All circulars and information are available on website on DRDO Intranet

DRDO e-journals Service

The DRDO e-journals service (consortium) came into being on 01 January 2009. Its aim is to build a digital environment for DRDO's scientific community. DESIDOC administers the access of e-journals through a consortium approach. Online access of e-journals is available to scientists/officers on 24x7 basis by using RemoteXs authentication. Monthly usage statistics of all DRDO labs and useful information related to e-journals are prepared and uploaded on website. Some of the key features of consortium are:



Publications

DESIDOC is the central publishing agency of DRDO. It brings out number of regular and ad-hoc/special publications to disseminate information on research and development activities carried out by various DRDO labs/esstts. DESIDOC is involved in editing, designing, press work and digital printing of publications. Many ad-hoc publications/books/proceedings of the DRDO HQrs and other DRDO laboratories/establishments are brought out by DESIDOC from time to time besides DESIDOC's regular publications. In a year DESIDOC publishes about 200 documents.

Defence Science Journal



Started in 1949, *Defence Science Journal* is a bimonthly peer-reviewed, research journal in the area of defence science and technology. Major subjects covered include: aeronautics, armaments, combat vehicles and engineering, biomedical sciences, computer sciences, electronics,

material sciences, missiles, naval systems, etc.. It is covered by Science Citation Index Expanded (Web of Science), Cambridge Scientific Abstracts, Chemical Abstracts, Elsevier databases (EMbase, Compendex, Geobase, EMBiology, Elsevier Biobase, Fluidex, World Textiles, Scopus), Scimago Journal Ranking, Indian Science Abstracts, International Aerospace Abstracts, ProQuest, Google Scholar, DOAJ, Indian Science Citation Index, Omnifile Full-text Mega, Omnifile Full-text Select, and NTIS database (World News Connection), Ulrich's International Periodical Directory, Web of Science, Open Academic Journals Index (OAJI), Bielefeld Academic Search Engine (BASE).

The Impact Factor in 2015 was 0.428 and Source Normalised Impact Factor in 2015 was 0.655. (<http://publications.drdo.gov.in/ojs/index.php/dsj>)

Defence Life Science Journal



Defence Life Science Journal caters to the needs of scientists, researchers, academicians of life sciences and allied disciplines like toxicology biotechnology, bio-medicine, pharmacology bio-engineering, bio-electronics, non-invasive life imaging, and physiology, NBC warfare, food technology, and psychology. It publishes original research to feature recent progress in the field of defence/military life support system. Its first issue was released in May 2016. It is a quarterly journal.

DRDO Newsletter



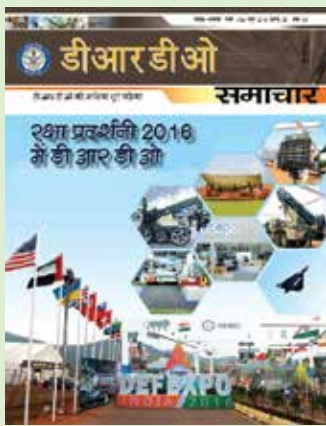
DRDO Newsletter started in 1980, as a four-page bimonthly and since then it has evolved as a full-fledged monthly magazine. A number of columns were added to give holistic coverage to the various events taking place in DRDO labs. Since 2000, all volumes are available in electronic version on

DRDO website and intranet. *DRDO Newsletter* cover nearly all events that took place in DRDO labs in the preceding month.



In pursuit of its objective to increase the connectivity of DRDO with the general public, *Newsletter* has started new features like 'History of DRDO' and popular articles on S&T to bring to forefront the opinions/views on scientific events, policies and latest developments. The designing and pre-press is being done in-house. (<http://drdo.gov.in/drdo/English/index.jsp?pg=newsletter.jsp>)

DRDO Samachar (Hindi)



This is a Hindi version of *DRDO Newsletter*. The *DRDO Samachar* highlights the achievements of the Organisation, future plans, news pertaining to human resource development, personnel news, etc., (<http://drdo.gov.in/drdo/English/index.jsp?pg=samachar.jsp>)

DESIDOC Journal of Library & Information Technology



DESIDOC Journal of Library & Information Technology (DJLIT) is a peer-reviewed, open access journal. It is a bimonthly journal that publishes original research and review papers related to IT applied to library activities, services, and products. It is meant for librarians, documentation and information professionals, researchers and students. It is covered by Scopus, LISA, LISTA, EBSCO Abstracts/Full-text, Library Literature and Information Science Index/Full-text, The Informed

Librarian Online, DOAJ, Open J-Gate, Indian Science Abstracts, Indian Citation Index, Full text Sources Online, WorldCat, Proquest, Google Scholar, Ulrich's International Periodical Directory, Index Copernicus, and OCLC. (<http://publications.drdo.gov.in/ojs/index.php/djlit>)

Technology Focus



Through *Technology Focus* (TF) DESIDOC endeavours to highlight the state-of-the-art and cutting-edge defence technologies indigenously developed by DRDO. An initiative of Dr Kalam in the year 1992, the magazine has completed 23 years in 2015. The bi-monthly S&T magazine TF highlights the

products, processes, and technologies developed by DRDO labs. The TF besides available in the PDF format, is also available in .epub and flipbook format. The magazine has been made mobile ready and with reflowable format and can be read on any ebook reader/device. With its wide readership and global outreach, the magazine receives suggestions which are included promptly. Every issue of the TF is made vibrant, thematic and has dynamic design. (<http://www.drdo.gov.in/drdo/English/index.jsp?pg=techfocus.jsp>)

Prodhyogiki Vishesh



It is the Hindi version of *Technology Focus* brought out quarterly. It highlights the technologies, processes and products developed by DRDO. It was started in January 2013. (<http://www.drdo.gov.in/drdo/English/index.jsp?pg=prodhyogikiVishesh.jsp>)

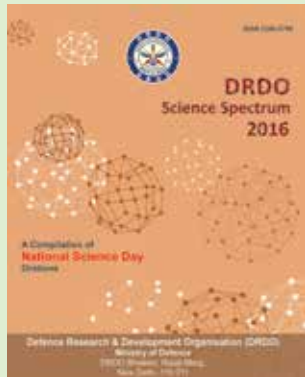


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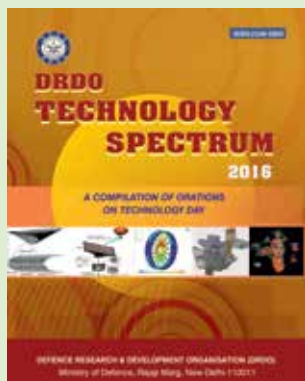
DRDO Science Spectrum



DRDO Science Spectrum is an annual compilation of orations of DRDO scientists on the occasion of National Science Day, i.e., 28 February. The day celebrates the discovery of Raman effect. The compilation is a reflection of research and scientific progress made in various

DRDO labs.

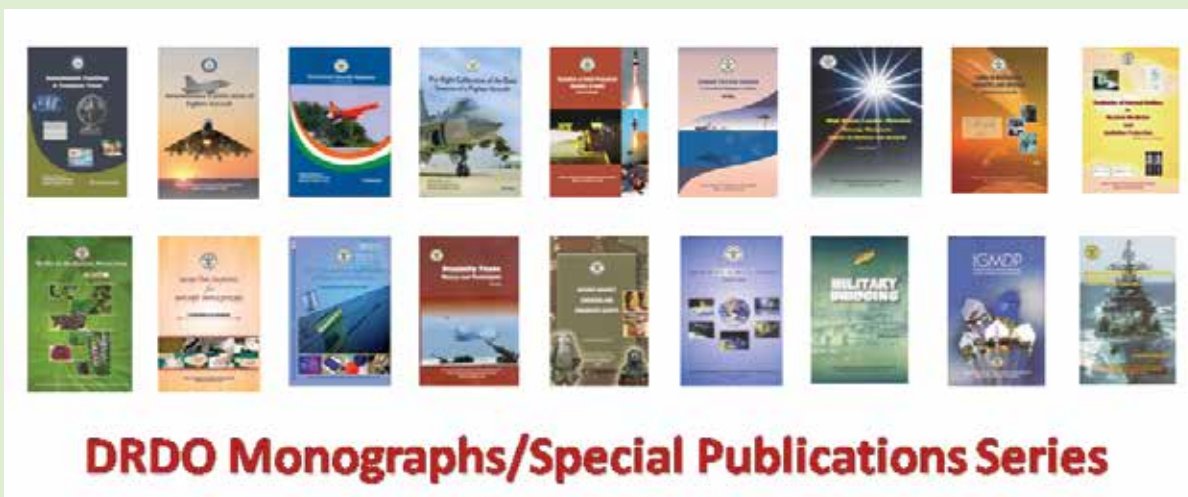
DRDO Technology Spectrum



It is a compilation of orations of DRDO scientists delivered on the National Technology Day, i.e., 11 May. On 11 May 1998 India successfully tested its nuclear devices. It is also reflection of technological progress made in various DRDO labs. It is a yearly publication.

DRDO Monographs

DESIDOC has started the DRDO's Monograph series in 1994 with an aim to promote the collection of specialised literature in S&T having direct relevance to defence. Each monograph covers detailed and up-to-date information on the subject identified by DESIDOC. The subjects selected for publication in this series are the ones for which there is sufficient demand in S&T community. Monograph are very popular among researchers and higher education students. Proposals are invited from retired DRDO scientists and who have 25-30 years of rich experience in a specialised subject. Books are printed in hard cover and e-books. (<http://monographs.drdo.res.in/>)



DRDO Monographs/Special Publications Series

DRDO Monograph Series

Institutional Repositories

In 2010, a DRDO knowledge management activity was initiated for keeping and maintaining different types of scholarly content (reports and articles) prepared and published by DRDO labs/ estts. The activities include collection and distribution of information and to look after the quality aspects of the product, publication and allied issues.

The work involves scanning, incorporation of metadata and uploading of full-text in customised software.



High-end Digitisation Service

Gyansrota: An Institutional Repository of Research Papers/Articles

Gyansrota is an Institutional Repository of research papers/articles in a digital archive form of the knowledge capital of DRDO which is accessible on DRDO Intranet. The repository aims to capture, store, preserve and access of the research output. The repository is hosted on DRDO Intranet under “Institutional Repository” on the Single Window Services of DESIDOC. It contains full-text of all the documents. This includes all published material like research papers, articles, orations, biographies, book chapters, etc,. The repository can be browsed/ searched by Year, Title, Author, Keywords and Citation. Total 6715 (DRDO HQrs: 107; DRDO labs/

estts: 6608) research papers/articles, orations, books and book chapter published by DRDO Scientists/ Staff have already been made available to DRDO users through this repository.

DRDO Knowledge Repository of DRDO Technical Reports

DRDO Knowledge Repository is an online repository of DRDO technical reports. This is an online tool which enables DRDO scientists to have an easy and seamless access to the information contained in the technical reports brought out by the various labs/estt. of DRDO over the years. It is available on Intranet and has been created using DSpace open source software. Digitisation of 27716 unclassified/ restricted technical reports (Labs/estts. 25939; DRDO Hqrs: 1210) has already been completed.



DRDO Knowledge Repository on DRDO Intranet



Network Services

Advancement in information and communication technologies had a multiplier effect on the exponential growth of information and its availability at the click of the mouse. DESIDOC being the hub of information caters to the variety of users and provides access to its services through Internet and Intranet.

DESIDOC is Sub-Main Routing Centre of DRONA and is responsible for taking care of Intranet network for all DRDO labs in Metcalfe House complex. It is also responsible for live webcasting of all major events taking place in DRDO. DESIDOC is responsible for design, development, hosting, and maintaining DRDO website on Internet.

DRDO Intranet:DRONA

A bilingual DESIDOC website on DRDO Intranet covers information on DESIDOC achievements, Director's profile, activities of various divisions, services provided under Single Window Service and

features such as video and photo coverage of various functions held at DESIDOC.

DESIDOC has also developed a federated search facility to facilitate searches among all the databases of DESIDOC. DESIDOC's DESINET is an Intranet of DESIDOC employees to upload circulars, forms, exchange information and share knowledge.

DRDO Website on Internet

As the internet website of DRDO is viewed globally, maintaining its smooth operation, timely updation and above all its security from imminent cyber attacks, have been a major responsibility of DESIDOC. The website records more than 1 crore hits annually. The average visits per day is nearly 23,000. The website has maintained an 99.8 per cent uptime. The website is hosted in a completely secure environment with continuous filtering of user-requests by IDS/IPS, Gateway Antivirus, UTM, WAF



Network Services



DRDO Website on Internet

and LLB. The log reports collected by UTM and WAF are regularly analysed to understand the trends and nature of attack, and preventive measures are taken. Keeping in view the users' feedback and new guidelines issued by Govt. of India, DESIDOC is in process for revamping of DRDO's website .

DESIDOC support the recruitment process of Centre for Personnel Talent Management (CEPTAM) by providing facilities like online application submission, online downloading of admit cards, information of provisionally shortlisted candidates etc,. This facility has provided a great boost to the recruitment process conducted by CEPTAM.



Printing Services

DESIDOC has high-end digital and offset machines to handle printing of both regular and ad-hoc DRDO publications and materials like booklets, pamphlets, brochures, posters, etc., from DRDO HQrs, Delhi-based and on demand from DRDO Labs.

DESIDOC has facility for the preparation of positives, Pre-sensitised (PS) and Metijet printing plates, offset and digital printing. It is also equipped with Computer-to-Plate (CtP) system for preparation of CtP plates, computerised printing down frame for exposing the offset plates, punch registration system

with pin bars for correct registration of the colour jobs.

For digital and offset printing, DESIDOC has high-end colour digital printer, single colour offset printing machine, and dampening auto roller cleaning machine for washing and cleaning of dampening rollers to expedite the printing jobs. Facilities like auto creasing cum perforation machine, lamination machine, paper folding machine, paper cutting machine and stitching machine for binding and finishing are also available.



Offset and Digital Printing Facilities

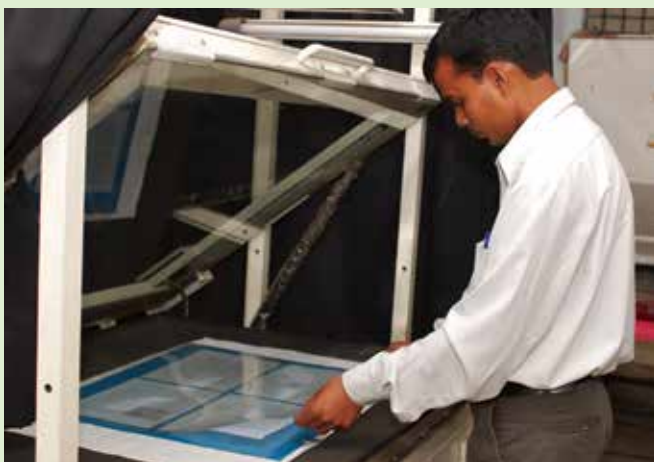


Plate Processing for Offset Printing



In-house Printing of DRDO Publications

Multimedia Services

DESIDOC is equipped with state-of-the-art latest photography equipments and digital imaging and video editing software. Photography and videography services of DESIDOC has been transformed from conventional to digital by adopting latest tools and technology.

The multimedia services provided by DESIDOC include:

- ❖ Media coverage of events in DRDO
- ❖ Live web streaming of DRDO events through Intranet
- ❖ Digital archival of audio, video, photographs and photo negatives
- ❖ Dissemination of images of recent events on DRDO photogallery on DRONA and DRDO website and provides photographs of products, events, portraits, etc., for print and e-media
- ❖ Audio-visual and multimedia presentations designing and production of video magazines, short films and documentaries on various subjects related to Defence R&D

DRDO Photogallery

Photographs and video of the events covered are available on DRDO Photogallery on DRDO Intranet and DRDO Website. Images and videos are converted into web enabled compressed JPEG images and WMV videos file formats before uploading. The downloadable uncompressed printable quality images of selected events, personalities, products, etc., are also available.

Approximately 8000 photographs and 28 videos of different events have been uploaded.



Multimedia Services



DRDO Photogallery on DRDO Intranet



Webcasting of DRDO Events



New Initiatives

Marketing Wing

DESIDOC has taken a new initiative for the promotion and sale of its publications and to increase visibility and credibility of DRDO. A new promotion and exhibition hall, 'Gyan Sanchar', was established at DESIDOC which was inaugurated by Secretary DDR&D and DG DRDO.

The distribution cell of DESIDOC is entrusted with the task of marketing and distribution of all priced and un-priced publications of DRDO. It maintains a database of subscribers for journals and regular mailing of DRDO publications. Dedicated efforts to enhance DESIDOC's visibility and circulation of in-house publications are being done using publicity

material—brochures, banners, posters, bookmarks, bags, calendars, etc.

DESIDOC also participates in the exhibitions on regular basis to promote and popularise DRDO intellectual output to the public by displaying in-house publications, aesthetically designed information brochures, desktop organisers, calendars, carry bags, subscription forms, book marks, etc. DESIDOC's Monographs are a huge source of academic interest across researchers, scientists, and students communities. Some of the recent endeavors of DESIDOC were its participation in Indian Science Congress, World Book Fair, and DefExpo 2016.



Inauguration of 'Gyan Sanchar' Division by Secretary DDR&D and DG DRDO



'Gyan Sanchar' : Marketing Wing of DESIDOC

Special Publications Series

Under the special publications series of DRDO, DESIDOC brought out a book, "Memories:Incredible Kalam", which was released by Hon'ble Prime Minister at DRDO HQrs in the event held on 15th October 2015 to commemorate the Birthday Celebrations of Dr APJ Abdul Kalam. The book has captured many dimensions of Dr Kalam's personality as a scientist and as a statesman to inspire every Indian. It is an emotional, a very honest tribute and testimony of personal experiences of DRDO's several greats who worked with Dr Kalam.

This initiative was in line with the belief that stories of great scientists and achievers resonate with individuals, who wanted to see their own lives in the same way. The book has been distributed to all labs and Hon'ble Parliament Members, Ministers and in the GOI Ministries/Depts and being reprinted to meet the popular demand. DESIDOC is also preparing a Coffee Table Book on Dr Kalam for release on his next birth anniversary.

Another initiative was DRDO's Coffee Table Book—"In Pursuit of Strengthening the Nation" which was released on 1 January 2016 by the Secretary DDR&D and DG DRDO. It is a pictorial tribute to scientists of DRDO who toil very hard to give security to the nation and arms to the Indian Armed Forces.

It is a collection, a 57 year retrospective of DRDO which has grown from a technical inspection agency to a powerhouse of technology generator and system developer. Each section of the book has portrayed a very comprehensive overview of technology and corporate cluster of DRDO as introduced by respective Director Generals and Chief Controllers. The book will inspire conversation on DRDO's products and achievements and showcase DRDO's S&T prowess and help connecting DRDO with the society by a common scientific interest.



Hon'ble Prime Minister Releasing the Book "Memories: Incredible Kalam"



Annual Issue of DRDO Publications Released by Secretary DDR&D and DG DRDO on 1 January 2016



Feedback for Technology Focus

Many of you have been writing back to us your generous words of praise and encouragement, for which we give our deepest thanks. Your feedback keep us motivated to keep honing our output every time.

So, let keep your feedback coming. we would like to hear from you on what else you would like to see in the Technology Focus so that we can make it even more relevant to you.*

Rate the **Technology Focus** as a medium to present DRDO's technology and product developments ?

Excellent Good Satisfactory Needs improvement

Is **Technology Focus** highlighting developments of DRDO appropriately ? If no, kindly suggest ?

Yes No

How do you rate the quality of photographs in the **Technology Focus** ?

Excellent Good Satisfactory Needs improvement

Optimal number of pages you would like for the **Technology Focus** ?

16 Pages 20 Pages 24 Pages 28 Pages

Preferred medium of **Technology Focus** ?

Print Online (PDF) E-pub Video Magazine

Whether magazine is delivered on time ?

Yes No

What should be the frequency of **Technology Focus** ?

Bimonthly Quarterly Half-yearly

For updates of **Technology Focus**, Kindly provide your e-mail id ?

E-mail :

Suggestions, to further improve the **Technology Focus** ?

Signature

Name :

Address :

**This form may be circulated for wider awareness and feedback. The feedback form also available on our website*

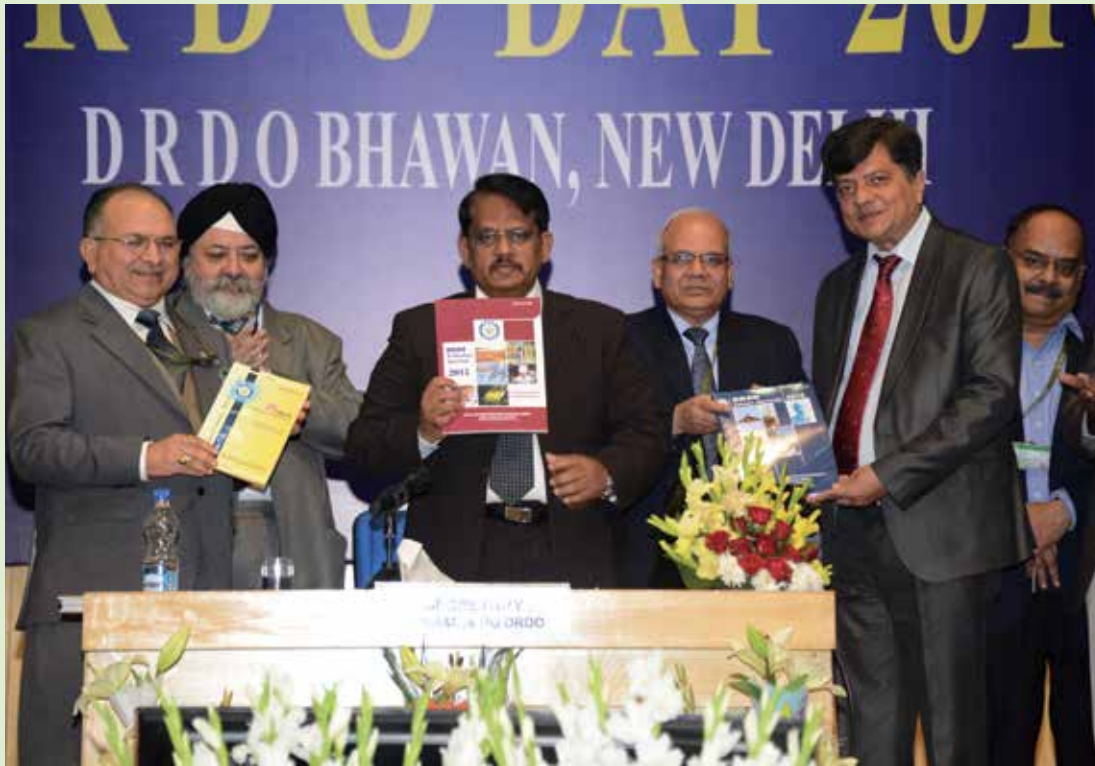
Your feedback is valuable for us.
Kindly fill the feedback form and send it to

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Annual Issue of DRDO Publications Released by Secretary DDR&D and DG DRDO



Interactive Kiosk Terminal at DSL

A touch screen kiosk terminal has been established at DESIDOC. It provides instant information on books, journals, and periodicals available at DESIDOC. Users can access Online Public Access Catalogue (OPAC) through this Kiosk and search for books of their interest. The Single Window Service can also be accessed. A similar set-up is also planned at DRDO Knowledge Centre at DRDO HQrs.



Secretary DDR&D and DG DRDO Inaugurating Kiosk Terminal



OS & CCR&D (HR) using Kiosk Terminal

e-publishing Facility

To reach globally to our readers and to make publications ready for mobile devices, an e-publishing activity has been initiated at DESIDOC. Since January 2016, most of the publications have been converted into e-pub, HTML5 and in flipbook forms. The e-pub format is downloadable and ready to use on kindle and other e-readers. HTML5 is device independent reflowable format and flipbook is ready to read book format for desktop and mobile devices.

DESIDOC has coordinated with MyGov portal and uploaded DRDO Annual Report of 2015 in the e-book blog of Govt. of India. This is being followed by other such documents uploaded on MyGov website for public shortly.



Flipbook for DRDO Coffee Table Book



e-books on MyGov Portal

DRDO's e-learning Portal

To transform classroom learning into e-learning; this portal provides an easy access to talks/speeches/training sessions held through out DRDO. Users can choose/view any particular lesson/lecture as per their need or interest. A video repository of various historical lectures/events/courses is being built up. At present, the product is developed and beta version is undergoing post deployment testing on DRDO Intranet. In addition to videos, the course materials in various data formats such as pdf, doc, ppt, etc., have been uploaded.



e-learning Portal on DRDO Intranet

DRDO Shodhkosh: Repository of Electronic Thesis & Dissertations

DRDO Shodhkosh is the repository of thesis and dissertations of DRDO scientists who submitted their doctoral and postgraduate degrees. Keeping in view the importance of such intellectually rich scholarly documents, DESIDOC has initiated a project to create and establish a “DRDO Shodhkosh: Repository of Electronic Thesis & Dissertations”. Shodhkosh has the primary aim to collect, collate, index and make all reports accessible digitally at one place (DRDO Intranet). This will help in creating wider visibility and usability of research done by DRDO researchers in pursuance of their academic pursuit. The other objective is to preserve/archive these vital knowledge assets for better use in future.



Interaction/Awareness Programme on DESIDOC Services

To create mass awareness as well to showcase the DESIDOC's services, the first roadshow was organised at ARDE, Pune for the labs in Pune and vicinity. Scientists from DESIDOC visited Pune to demonstrate the DESIDOC services. An exhibition was also organised as part of the show where products and various publications of DESIDOC were displayed and distributed to the DRDO scientists.

This roadshow was very well received and appreciated by the participants. Similar roadshows are planned in ITM, Hyderabad & Delhi in the near future.



Interaction/Awareness Programme on DESIDOC Services



NDSAP-2012

Under National Data Sharing and Accessibility Policy (NDSAP-2012), DESIDOC is a pivot to link DRDO from and to with other national S&T departments to share unrestricted data for its greater re-use and re-purposing for the benefit of country's civil society. DESIDOC is also examining ways of harnessing the potential of data citation for S&T knowledge acquisition and sharing. An International Conference is planned to bring together defence research scientists for evolving data science standards, data citation practices, and policies to capture the unprecedented deluge of data (big data) that offers opportunities and profound challenges.

Membership to Retired DRDO Scientists

DESIDOC has launched a new scheme to offer membership of DSL to the retired DRDO scientists. This is an approach to outreaching to the former DRDO scientists and made them feel of belongingness and continued association with DRDO.

Future Endeavours

DESIDOC is collaborating with similar organisations to share concerns, finding new ways and adopting good practices. It has started thinking like a customer, and embedding his feelings into its products and services for improvement and better customer satisfaction. DESIDOC, promise to do best not only to maintain the scientific excellence of the magazines and journals but to continue to work in improving the impact factor. DESIDOC is moving forward to new standards of excellence.

DESIDOC has complete support of DRDO leadership and management who is very supportive of DESIDOC's ambition of becoming a truly innovative establishment. However, as true in the present globalised world, the libraries are facing downwards pattern and DESIDOC is not alone in its dwindling trend, world over fewer people are coming to libraries. We therefore have to make distinction between those who read online and the ones who come to the reading rooms. Time has come to rethink, innovate and evolve. DESIDOC has to embrace itself with advanced technology, and build better infrastructure with scalability and upwards technology integration to see through for decades.

"We need to believe in the impossible and explore the improbable" - Oscar Wilde.



Technology

टेक्नोलॉजी फोकस



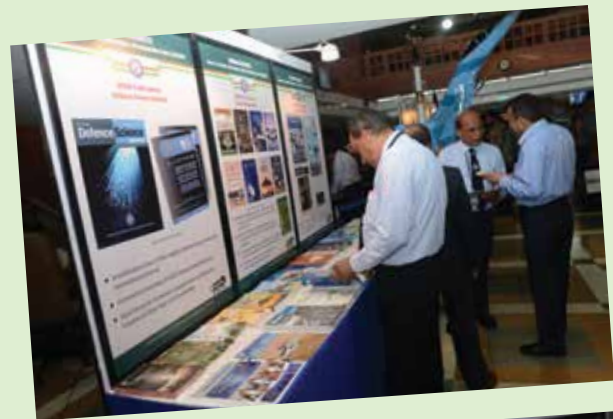
DefExpo 2016 (28-31 March 2016)



103rd Indian Science Congress-2016 (03-07 January 2016)



World Book Fair-2016 (09-17 January 2016)



Exhibition at Parliament House (03-05 August 2016)



Local Correspondents

Agra: **Shri S.M. Jain**, Aerial Delivery Research and Development Establishment (ADRDE)

Bengaluru: **Smt Faheema A.G.J.**, Centre for Artificial Intelligence & Robotics (CAIR); **Shri R. Kamalakannan**, Centre for Military Airworthiness & Certification (CEMILAC); **Shri Kiran G**, Gas Turbine Research Establishment (GTRE); **Dr Sushant Chhatre**, Microwave Tube Research & Development Centre (MTRDC)

Chandigarh: **Shri Neeraj Srivastava**, Terminal Ballistics Research Laboratory (TBRL)

Chennai: **Shri P.D. Jayram**, Combat Vehicles Research & Development Establishment (CVRDE)

Dehradun: **Shri Abhai Mishra**, Defence Electronics Applications Laboratory (DEAL); **Shri J.P. Singh**, Instruments Research & Development Establishment (IRDE)

Delhi: **Dr Rajendra Singh**, Centre for Fire, Explosive & Environment Safety (CFEES); **Dr K.P. Mishra**, Defence Institute of Physiology & Allied Sciences (DIPAS); **Shri Ram Prakash**, Defence Terrain Research Laboratory (DTRL); **Shri Navin Soni**, Institute of Nuclear Medicine and Allied Sciences (INMAS); **Smt Anjana Sharma**,

Institute for Systems Studies & Analyses (ISSA); **Dr D.P. Ghai**, Laser Science & Technology Centre (LASTEC); **Dr Mamta Khaneja**, Solid State Physics Laboratory (SSPL)

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Haldwani: **Shri A.S. Bhoj**, Defence Institute of Bio-Energy Research (DIBER)

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Jodhpur: **Shri Ravindra Kumar**, Defence Laboratory (DL)

Kochi: **Ms M.M. Letha**, Naval Physical Oceanographic Laboratory (NPOL)

Leh: **Dr Tsering Stobden**, Defence Institute of High Altitude Research (DIHAR)

Pune: **Dr (Mrs) J.A. Kanetkar**, Armament Research and Development Establishment (ARDE); **Dr Himanshu Shekhar**, High Energy Materials Research Laboratory (HEMRL)

Technology Focus focuses on the technological developments in the organisation covering the products, processes and technologies.

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