

Institutional Repository using DSpace and Cloud Hosting

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INFLIBNET CENTRE

What is Institutional Repository ?

“Institutional repositories (IRs) are a development in managing digital objects for effective utilization. IR establishment is a challenge as well as an opportunity for information professionals. It may include a variety of research output of any organization. An IR is a means to ensure that the published work of scholars is available to the academic community even after increases in subscription fees or budget cuts within libraries.”

(Source :Wikipedia)

Institutional repositories [are] ... digital collections capturing and preserving the intellectual output of a single or multi-university community. The contents mainly created by institutes members.

It is most essentially for long term preservation.

Institutional Repositories are.

Centred around a university (or academic institution) and contain items which are the **scholarly output of that institution**

- A **collection of (digital) objects**, in a variety of formats
- Include works of **various degrees of scholarly authority** and from various stages in the process of scholarly inquiry.
- In addition to published works, an IR may include preprints, theses & dissertations, images, data sets, working papers, course materials, or anything else a contributor deposits
- Typically motivated by a commitment to **open access**

Open Access : Philosophy



In India Government Funds for approximately 75% of education and 95% of research.

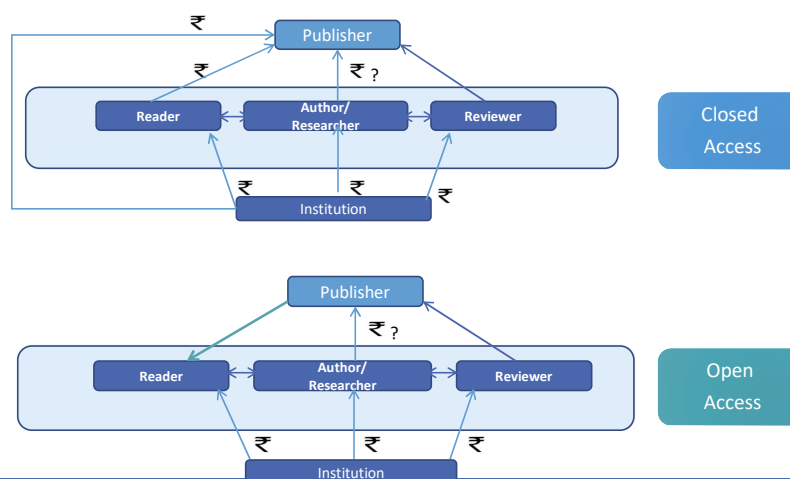
The results of research funded by government should ideally be accessible in **open access** to the society at large.

Articles in open access have greater impact in terms of citation rates than those published in subscription-based journals;

Funding agencies like NIH in US & Wellcome Trust in UK have already mandated submission of results of research funded by them in open access journals or make them available in open access .



Open Access : Publishing Cycle



IR & DL

Institutional Repositories

Are organized around a particular **institutional community**

Often are dependent upon the **voluntary contribution** of materials by scholars for the content in their collection

Are mainly repositories and therefore may only offer **limited user services**

Digital Libraries

May be built around any number of organizing principles (often **topic, subject, or discipline**)

Are the product of a **deliberate collection development policy**

Typically include an **important service aspect** (reference and research assistance, interpretive content, or special resources.)

IR : Services

Institutional Repositories (Services and Related Works)

Organization
of digital
information

Information
retrieval

User
interface

Archiving
and
preservation

Services and
social issues

Evaluation
and
applications
to specific
areas

Starting IR

Justify the relevance to the **institution and contributors**

Develop a policy framework. **How will we find this content and what will we do with it?**

Build the **infrastructure**

Bonus: Get institutional support and a mandate.

Justify the purpose

Justify the relevance to institution and contributors The justification for a repository must be made to the institution that will own and sustain it.

It is critical to work out a case which is in line with the priorities of the institution.

This means provision of tool to increase visibility, usage and impact of the research output of an institution.

The MIS data derived from a repository will also helpful to present the case before assessment bodies like NAAC

Define the purpose

The primary purpose of any repository is to provide open access to research outputs.

However, it can be also used for encouraging digital publishing initiatives.

The digital preservation can also be a purpose.

Repository services should be developed with a clear idea of the purpose of the repository.

The most successful repository collections are the ones that support the needs of the community

Advantages IR

Institutional repositories collect and curate digital outputs

Institutional repositories open up the research outputs of the university or institution to the world, along with intensification of the visibility and impact of these outputs as a result

Publicly accessible institutional repositories showcase the university to interested communities – prospective staff, prospective students and other stakeholders

Manages and measures research and academic activities

Advantages IR

Provides a workflow system for collaborative or large-scale projects

Enables and encourages interdisciplinary approaches to research

Facilitates the development and sharing of digital teaching materials and aids

Supports student endeavours, providing access to theses and dissertations and a location for the development of e-portfolios

IR Service Expectations

What is the service's mission?

What kinds of content will you accept?

Who are the key users?

Who are the key stakeholders?

What responsibilities will the library bear versus the content community?

What are your top service priorities?

What are the short-term priorities and long-term priorities?

IR : Policies

Collection

- What types of contents can be submitted to the repository?
- Who will be able to submit in the repository?
- Criteria for determining a collection in the repository. Who regulates, sets, and authorises membership?
- What will be the structure of repository – around individual contributors, or by department, research division, etc.?
- How the content will be deposited? (mediated deposit or by contributor)

IR : Policies

Management

- General rights and responsibilities of libraries and those who create collections of digital content.
- The type of metadata to be used.
- Curation and preservation tasks. Access
- Privacy policy for registered users of the system

Access

- Privacy policy for registered users of the system.
- Possibility of restricted access to content based on request of contributor
- Possibility of providing embargo periods for content

IR : Manpower Requirements

Repository Manager-

- manages the 'human' side of the repository including content policies, advocacy, user training and a liaison with a wide range of institutional departments and external contacts.

Repository Administrator-

- manages the technical implementation, customisation and management of repository software, manages metadata fields and quality, creates usage reports and tracks the preservation issues

Advocacy :Promoting your IR

Profiling:

- This is related to positive branding of repository, it involves the use of brochures, newsletters and web sites that discuss the benefits of repositories.

Pull Approach:

- In this approach the contributor is encouraged by reward for depositing the work. There can be specific incentives for researchers who deposit.

Push Approach:

- The contributor can be demonstrated the positive effects of the repository after submission of content. For example usage statistics for authors whose downloads are very high can be displayed.

Consultation Approach:

- This involves direct communication and consultation with faculty to involve contributors in developing the repository to meet their needs.
- This can be done through surveys, meetings, informal conversations. This can be most effective approach as contributors can campaign their peers (other potential contributors) about the value of the repository.

IR – Key Issues

Faculty buy-in

Submission policies

Intellectual Property issues

Mediated deposit

Metadata

OAI-PMH compliant systems

Specialized staff

Outreach and Liaison services

Expectations from Institutional Repository Solution

Cost Effective (Hardware, Software and Maintenance)

Technically simple to install and manage

Robust

Scalable

Open and inter-operable

Modular

User Friendly

Multi-user (Both Aspects User and Administration)

Platform independent

Capable of handling multimedia digital objects

Widely Used Systems



Produced by Berkeley Electronic Press (bepress), focused on maintaining scholarly output. Not open source.



Developed at the University of Southampton (UK). Widely considered to be the least complex of the major repository software platforms.



Developed at Cornell and University of Virginia. Based on a framework known as the Flexible Extensible Digital Object and Repository Framework.



Designed by MIT and Hewlett-Packard to manage the intellectual output of research institutions and provide for long-term preservation.

What is DSpace

DSpace is a platform that

- **capture** items in **any format** – in text, video, audio, and data.
- It **distributes it over the web**.
- It **indexes** digital items, so users can **search** and **retrieve** items.
- **preserves** digital content over the long term.

DSpace is typically used as an institutional repository or digital library. It has three main roles:

- Facilitate the **capture** and **ingest** of materials, including **metadata** about the materials
- Facilitate **easy access** to the materials, both by **listing** and **searching**
- Facilitate the **long term preservation** of the materials

DSpace is a joint project of MIT Libraries and Hewlett-Packard Labs. It is being handled by DuraSpace which is recently merged with LYRISIS.

Dspace History

The beginning: 2000

- The DSpace project was initiated in July 2000 as part of the HP-MIT alliance.

Software releases:

- Version 1.0 – 8th November 2002
- Version 1.1 - 8th May 2003
- Version 1.2 – 13th August 2004
- Version 1.3 – 3rd August 2005
- Version 1.4 – 26th July 2006
- Version 1.5 – 25th March 2008
- Version 1.6 – 2nd March 2010
- Version 1.7 - 17th December 2010 (End of Life JAN 2014)
- Version 1.8 - 4th November 2011
- Version 3.0 - 30th November 2012
- Version 3.1 - 30 Jan 2013
- Version 3.2 -24 July 2013
- Version 4.0 - 16 December 2013 >> 4.1 on 3rd March 2014
- Version 5.0 – January 2015
- Version 6.0 - October 2016 >> **6.3 is the latest stable version and DSpace 7 is under development.**

DSpace Development Model

Open source software (www.dspace.org)

- BSD licence

Community development model

- Source code control repository (SVN)
- Committers
- Community welcome to submit bug reports, patches, feature requests
- Email lists for support

The DSpace Information Model

DSpace Information Model

Communities

- Research units of the organization

Collections (in communities)

- Distinct groupings of like items

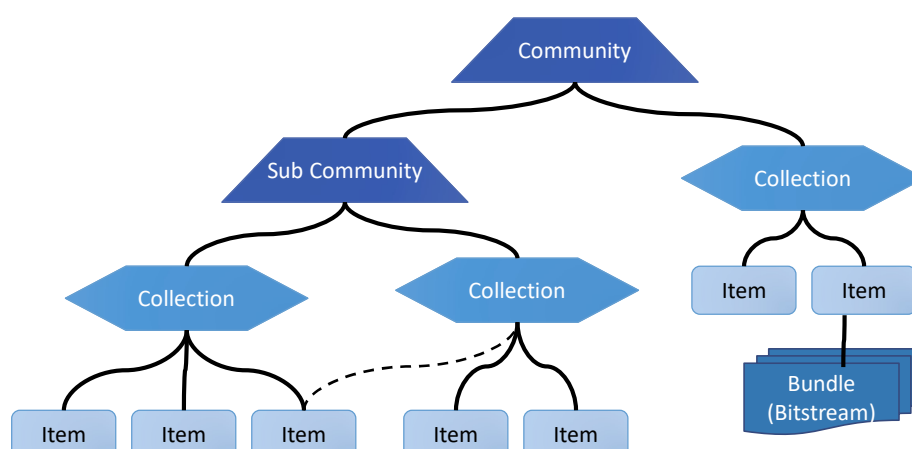
Items (in collections)

- Logical content objects
- Receive persistent identifier

Bitstreams (in items)

- Individual files
- Receive preservation treatment

Community & Collection Relationships



Communities & Collections

Collections and Communities organize items into a hierarchical form

Metadata:

- Limited descriptive metadata available
- Name, description, license, etc...

Example:



Items

Items are logical units of content

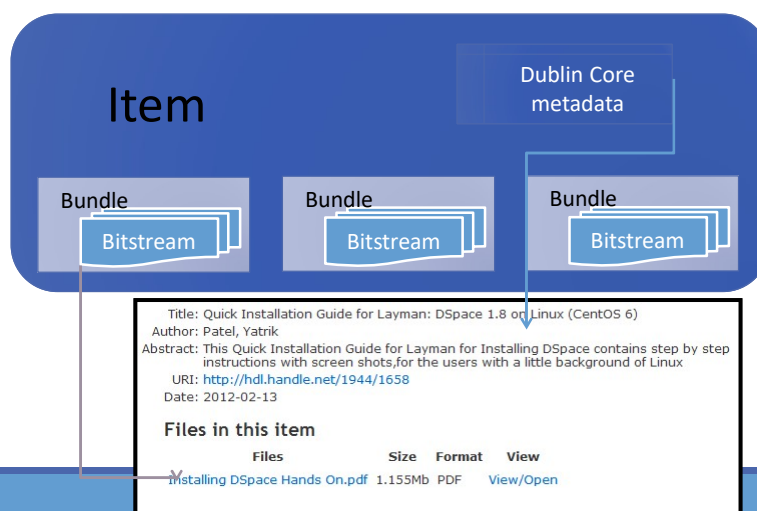
Metadata:

- All items have qualified Dublin Core metadata
- May contain metadata in other formats encoded as a bitstream

Example:

- E thesis
- Book
- Web page (Images, CSS, HTML)
- Photographs

Item Composition



Item Metadata

Descriptive

- Qualified Dublin Core
- Non Dublin Core is also supported
- Any other format may be added as a bitstream
 - However, it will not be searchable

Administrative

- Who can access, remove, or modify an item
- Stored in the database, no standard format used

Structural

- Very basic
- What bitstreams are contained in an item
- What collections and communities does an item belong too

Bitstreams

Bitstreams are Individual Digital files

Metadata:

- Limited descriptive metadata available
 - name, file format, size, etc...

Example:

- PDF file
- Word document
- JPEG picture
- Executable program
- HTML file
- CSS file

Bundles

Bundles group related bitstreams together

Metadata:

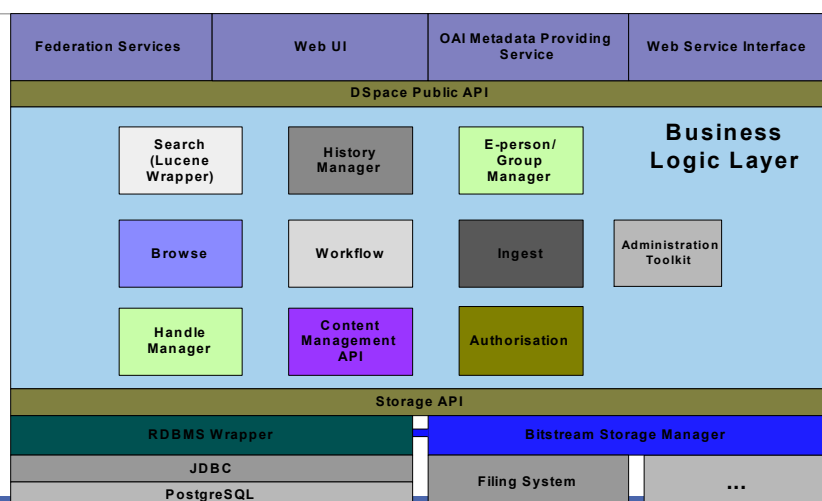
- No metadata

Example:

- HTML files and images that compose a single HTML document may be organized into a bundle
- Typical bundles are:
 - ORIGINAL
 - THUMBNAILS
 - TEXT
 - LICENSE
 - CC_LICENSE

Components & Features of DSpace

Dspace Architecture



Source : www.dspace.org (Dspace Documentation)

Metadata registry

Maintain what metadata fields may exist for an item in DSpace.

Three components

- Schema
- Element
- Qualifier
- Scope Note

ID / Element / Qualifier / Scope Note				
2	contributor	advisor	Use primarily for thesis advisor.	Update Delete...

File Format Registry

Maintain a registry of file formats

Three levels:

- Supported
- Known
- Unknown

ID	MIME Type	Name	Long Description	Support Level	Internal?	Extensions
1	application/octet-str	Unknown	Unknown data format	Unknown	<input type="checkbox"/>	Update
2	text/plain; charset=	License	Item-specific license agre	Known	<input checked="" type="checkbox"/>	Update Delete...

E-People

DSpace user accounts are called E-people

If permitted, an e-person may:

- Login to the site
- Sign up to receive notifications about changes to a collection
- Submit new items to collections
- Administer collections/communities
- Administer the DSpace site.

Authorization

The DSpace authorization system enables administrators to give e-people the ability to perform the following operations on an object.

- Add / Remove
 - Enable an e-person to add or remove any object (community, collection, item)
- Collection Administrator
 - Enable an e-person to edit an item's metadata, withdraw items, or map items into the collection.
- Write
 - Enable an e-person to add or remove bitstreams
- Read
 - Enable an e-person to read bitstreams

Ingestion

Ingestion = getting contents into DSpace

Batch import

- Many at a time
- Needs to be in a specific format
 - XML encoded metadata
 - Bitstreams

Web based submission

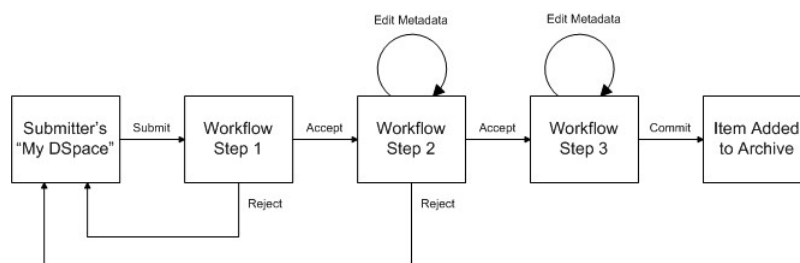
- One at a time
- Workflow processes

Workflow

Step 1: May reject the submission

Step 2: Edit metadata or reject

Step 3: Edit Metadata



Source : www.dspace.org (Dspace Documentation)

Search & Browse

Users may browse any item in DSpace

- Title
- Author
- Date
- Community / Collection
- Subject

Users may search for any item in DSpace based upon any Dublin Core value or a full text search.

Handle System

Provides a persistent identifier

Standard URL's change

- Hardware or software changes
- Political changes
- Network changes

Handles attempt to address these problems by creating a permanent URL independent of the repository.

Example:

- <http://hdl.handle.net/1944/225>

OAI-PMH

Enables other sites to harvest metadata from a DSpace repository

Collections are exposed as OAI sets

Only Dublin Core metadata is available

Statistics

Analyses the DSpace logs to generate a set of statistics on how DSpace is being used.

Metrics collected:

- Number of items archived
- Number of bitstream views
- Number of item page views
- Number of collection page views
- Number of community page views
- Number of user logins
- Number of searches performed
- Number of license rejections
- Number of OAI Requests

Presented in a by-month form or in-total form.

Areas one can customize

Submission process- one can configure the submission steps to suit organization

Browse and search terms- can set what fields and files you choose to index and display in the browse interface

Database- can choose Postgres or Oracle

Extend DSpace to work with other web services- using Light Network Interface you can pull or push content to/from DSpace

User interface- you can create your own user interface

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Cloud Service Models

Cloud Software as a Service (SaaS)

- Use provider's applications over a network

Cloud Platform as a Service (PaaS)

- Deploy customer-created applications to a cloud

Cloud Infrastructure as a Service (IaaS)

- Rent processing, storage, network capacity, and other fundamental computing resources

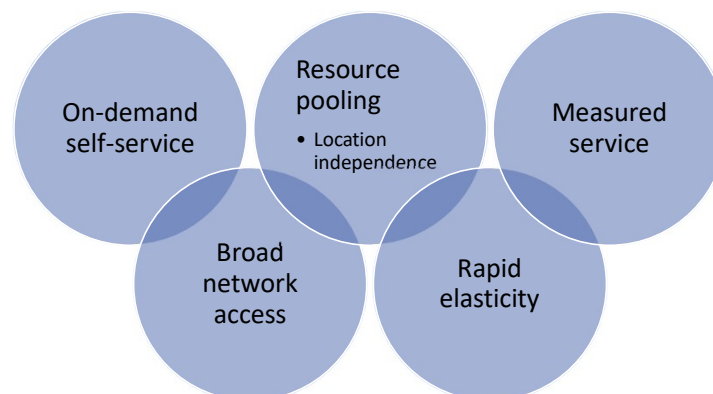
To be considered "cloud" they must be deployed on top of cloud infrastructure that has the key characteristics

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Key Characteristics

- Cost savings for resources
 - Cost is greatly reduced as initial expense and recurring expenses are much lower than traditional computing
 - – Maintenance cost is reduced as a third party maintains everything from running the cloud to storing data
- Platform, Location and Device independency
 - Adoptable for all sizes of businesses, in particular small and mid-sized ones

5 Essential Cloud Characteristics



Cloud service: Potential Benefits

Enhanced Service Accessibility

- Access to Services that are otherwise unavailable
- Access to Services from multiple access devices
- Access to Services from scaled-down devices
- Access to Services from multiple device-types

Other Technical Benefits

- Professionalised backup and recovery
- Scalability
- Collaboration convenience
- Copyright convenience

Financial Benefits

- Lower Investment / up-front cost
- Lower Operational Costs
- Lower IT Staff Costs

CLOUD for Libraries

Libraries have been adopting cloud-based solutions services like electronic journal access management, statistics tracking, digital library hosting and now trend is coming up for hosted library management systems, Institutional Repository, Access Management and many more

.....

CLOUD for Libraries

As libraries are having service-oriented mission they are in a position to adopt cloud computing.

Libraries (or librarians) are in constant search of finding proper solution within limited resources, moreover the outreach of service is quite dependent on support of external or internal computing (IT) support staff.

There are very few libraries or which are having IT support staff with expertise on advance IT management.

This situation makes SaaS, PaaS or IaaS approach tempting to move towards cloud computing for providing better library services.

Cost Implications (In House Setup)

Sr. No.	Component (Capital)	Amount	Sr. No.	Recurring Components	Rs.
1	Server	3,50,000	1	Power Consumption Server (800 watt, Avg) , will consume 0.8 units in 24 Hours x 365 = 7008 Unit x 10 Rs.Per Unit	70,080
2	Networking/Cabling/Others	50,000	2	AirConditioning Power Requirement 1800 Watts + 200 Watts for lighting and other = 2000 watts per hour will consume 48 Units in 24 Hours x 365 = 17520 Unit x 10 Rs. Per Unit	1,75,200
	Total:	4,00,000	3	Manpower to Administer Server @ Rs. 10,000 per month	1,20,000
				Recurring Approx Total (Rounded off) Per Annum	3,65,000

Bandwidth
Cost Not
Counted

INFLIBNET Provides Hosting Services

Virtual Machine Hosting	Dedicated Linux Virtual Machine (50GB), with dedicated IP Address and domain name with root credentials. Unrestricted Access on NKN	₹ 42,000.00 (Per Annum)
Additional Storage Space	50 GB	₹ 10,000.00 (Per Annum)
Server Hosting	Hardware to be supplied by client with requisite OS Licences, Unrestricted Access on NKN	₹ 75,000.00 (Per Annum Per Rack U)

INFLIBNET also helps you to install and maintain...

The Rate Structure is Effective from 19 th June,2019			
	Service	Deliverables	Rate*
A	DSpace Installation Service (Plain)	Latest stable version of DSpace installation in pre-installed Operating System (Windows/Linux) along with all pre-requisites (PostgreSQL, JDK, Maven, Ant, Tomcat)	₹ 7500.00
B	DSpace Basic Customization (Layout)	Layout Customization (Logo, Sidebar News, Header, Footer, Color-Fonts)	₹ 12500.00
C	DSpace Advance Customization and Data Import	Search Parameters, e-mail templates, OAI Interface, Localization, Branding, Custom Indexes, Custom Item display, Custom Input forms, Facets, Controlled Vocabulary, Data Import from compatible formats etc.	Will be Based on Complexity of Requirement.
D	DSpace Maintenance	<ol style="list-style-type: none"> 1. Backup (Monthly) 2. Log Maintenance 3. Version upgrade with client's consent (once per annum) 4. Statistics Generation (Monthly) 	₹ 20,000.00 (Per Annum)

Choice is yours!!!



OR



<http://www.currenttriggers.com/business/market/milk-production-registers-growth-4-7/>

Hosted Service Example (sampada.inflibnet.ac.in)

Home Browse Help
Search DSpace Sign on to

SAMPADA @ Gujarat University
Institutional Repository of Gujarat University.

SAMPADA at Gujarat University

Welcome to SAMPADA: Institutional Repository of Gujarat University


<p>Communities in DSpace Choose a community to browse its collections.</p> <ul style="list-style-type: none"> B. K. School Of Business Management Centre for development Communication Department Of Animation, Mobile Application and ITIMS Gujarat University Gujarat University Library 	<p>Discover</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Author</th> <th></th> </tr> </thead> <tbody> <tr><td>M.Sc Sem-II Botany</td><td>6</td></tr> <tr><td>M.Phil Education</td><td>3</td></tr> <tr><td>M.Phil Gujarati</td><td>3</td></tr> <tr><td>M.Phil Hindi</td><td>3</td></tr> <tr><td>M.Phil History</td><td>3</td></tr> <tr><td>M.Phil Indian Diaspora</td><td>3</td></tr> <tr><td>M.Phil Life Science</td><td>3</td></tr> </tbody> </table>	Author		M.Sc Sem-II Botany	6	M.Phil Education	3	M.Phil Gujarati	3	M.Phil Hindi	3	M.Phil History	3	M.Phil Indian Diaspora	3	M.Phil Life Science	3	<p>Subject</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Subject</th> <th></th> </tr> </thead> <tbody> <tr><td>ALL SUBJECTS</td><td>151</td></tr> <tr><td>Sociology</td><td>120</td></tr> <tr><td>Psychology</td><td>110</td></tr> <tr><td>Gujarati</td><td>107</td></tr> <tr><td>English</td><td>104</td></tr> <tr><td>Economics</td><td>92</td></tr> <tr><td>Hindi</td><td>82</td></tr> </tbody> </table>	Subject		ALL SUBJECTS	151	Sociology	120	Psychology	110	Gujarati	107	English	104	Economics	92	Hindi	82	<p>Date issued</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Date issued</th> <th></th> </tr> </thead> <tbody> <tr><td>2010 - 2019</td><td>7948</td></tr> <tr><td>2000 - 2009</td><td>434</td></tr> <tr><td>1990 - 1999</td><td>147</td></tr> <tr><td>1980 - 1989</td><td>45</td></tr> <tr><td>1970 - 1979</td><td>50</td></tr> <tr><td>1960 - 1969</td><td>27</td></tr> </tbody> </table>	Date issued		2010 - 2019	7948	2000 - 2009	434	1990 - 1999	147	1980 - 1989	45	1970 - 1979	50	1960 - 1969	27
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Hosted Service Example (dlkkhsou.inflibnet.ac.in)


Home Browse Help Search Digital Library Sign on to

Digital Library at KKHSOU

The Digital Library at Krishna Kanta Handiqui State Open University is an online locus for collecting, preserving, and disseminating the institute's output to the Global community








Digital Library at KKHSOU



Digital Library Materials

Choose a community to browse its collections.

-  Administrative Documents
-  Conference/Seminar Proceedings/Workshop Presentations
-  Faculty Publications
-  Journal of Open Learning and Research Communication
-  KKHSOU in News and Media

Search by

Author	Count
Das, Prasenjit	23
Bordoloi, Ritimoni	19
Phukan, Neeva Rani	17
Sarma, Gautam Kumar	14
Sarmah, Bhaskar	12
Gogoi, Pallavi	11
Choudhury, Arupjyoti	8
Deka, Hitesh	8

Subject	Count
Minutes	62
BoM Proceedings	43
Open and distance learning	32
Newsletter	23
Assam	16
Krishna Kanta Handiqui National F...	12
Krishna Kanta Handiqui Award	11

Date issued	Count
2010 - 2020	451
2007 - 2009	10

Items with Attachment(s)

true 461

Hosted Service Example (mzuir.inflibnet.ac.in)

Digital Repository Mizoram University

DSpace preserves and enables easy and open access to all types of digital content including text, images, moving images, mpegs and data sets

[Learn More](#)



Digital Repository of Mizoram University

Communities in DSpace

Choose a community to browse its collections.

Annual Reports
M. Phil Dissertations
Ph.D Theses

Discover

Author

Chhangle, Lalthuaituangi	2
Das, Shima	2
Haokip, Letkholon	2
Lalchhanhimi	2
Lalchhuanmawii	2
Laldinpua	2
Lalengkima	2
Lalmuanpui, Rebecca	2
Lalmuanzuali	2

Subject

Mapping of library and Informatio...	2
16S rRNA Gene Profiling of Phosph...	1
A case study of the Bethany Sisters	1
A Comparative Study of Khasi and ...	1
A Comparative Study Of Psychologi...	1
A comparative study on E-learning...	1

Date issued

2010 - 2019	735
2000 - 2009	31
1996 - 1999	1

Has File(s)

true 767

Hosted Service Example (gukir.inflibnet.ac.in)

Home Browse Help Search DSpace Sign in

GULBARGA UNIVERSITY, KALABURAGI Institutional Repository

IR @ Gulbarga University

Institutional Repository of Gulbarga University is a showcase of its academic and research output in pursuance of Learning, Teaching and Research and comprise of Institutional Reports, Library Events, Library Bulletins, Question Bank, Convocation Address, Faculty Publications, Rare Collections, PhD Thesis, Electronic Resources and Learning Course Materials for the benefit of academic and research community. For more information, Please Contact University Librarian.

Communities in DSpace
Choose a community to browse its collections.

- Administrative Documents
- Convocation Address
- Electronic Resources
- Faculty Publications
- Learning Course Materials
- Library Bulletins
- Library Events
- PhD Thesis
- Question Bank
- Rare Collections

Discover

Author

Umavathi J.C	60
Naduvainamani N.B	67
Hunagund P.V.	67
Malashetty M.S.	68
Hiremath P.S	49
Vani R.M	46
Venkataraman A.	42
Patil S.B.	34
Sankarappa T	34
Karegoudar, TB	33

next >

Subject

MHD	39
Porous medium	34
Antimicrobial activity	31
Antioxidant	29
Stretching sheet	29
Viscous dissipation	29
Nanofluid	26
Surface roughness	24
Antimicrobial	23
Conductivity	23

next >

Date issued

2010 - 2020	1855
2000 - 2009	693
1990 - 1999	240
1981 - 1999	64

Has File(s)

false	3554
true	40

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Customization Service Example (Shivaji University, Kolhapur)

Home Browse Help Search in Shiv Dnyansagar Sign out

Welcome to SHIV DNYANSAGAR: Institutional Repository of Shivaji University

SHIV DNYANSAGAR is an institutional repository for dissemination of variety of publications such as Annual Reports, Convocation Addresses, Ph.D. Theses, Dissertations, Patents, Research Papers, Conference Proceedings, Newsletters, Publications of Faculty and other publications of Shivaji University, Kolhapur etc. The repository has ability to capture, index, store, disseminate and preserve publications submitted. It is a useful e-resource collection for the e-users community of Shivaji University as well as society.

Shiv Dnyansagar @ Shivaji University



Communities in Shiv Dnyansagar
Choose a community to browse its collections.

- 01_Shivaji University, Kolhapur
- 02_Departments/ Centres/ Sections of Shivaji University

Discover

Subject

Annual Report of Library	14
Shivaji University Foundation Day	6
50th Foundation Day of Shivaji Un...	1
50th Foundation Day of Shivaji Un...	1
Shatakall	1

Date issued

2010 - 2019	12
2006 - 2009	6

Has File(s)

true	10
false	1

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Acknowledgement

<http://www.dspace.org>

Thank You