

## **ICT Components in MLIS Curriculum in North India: A Content Analysis**

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**Abstract:-**This study analyses the Information and Communication Technology (ICT) course contents of Master's Level Library and Information Science (MLIS) course being conducted in university / departments of north India. The ICT components are identified with the help of University Grants Commission's (India) Model Curriculum report. Universities offering MLIS courses in north India were identified from UGCs complete list of recognized universities. This study is limited to the regular MLIS courses being offered in north India. The skewness in the mentioned objective of ICT components in curriculum is measured using Weighted Average Score. Maximum of the ICT components are offered in theory papers in the selected universities whereas Internet Applications, Website Designing, Multimedia applications, etc. are offered more as practical components. There is a major gap between Theory and Practical approach for the identified ICT components, i.e. more emphasis is given to Theory than Practical. This study gives a content analysis of ICT Components of MLIS curriculum and thus provides the current status of LIS education in north India which adds up to the existing literature of LIS education.

**Keywords:-** LIS education, ICT components, Information and communication technology, Digital library education, MLIS curricula, North India, MLIS, ICT, Curriculum gap

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### **I. INTRODUCTION**

The objectives of Library and Information Science (LIS) education have been revolutionized with the E-concept. Traditional services are changing towards e-generated library services [1]. The library and information scenario is changing at a dynamic pace; there is a paradigm shift from print media to web media; from ownership of documents to access to information; intermediary to end-user model of services; and from location of specific libraries to digital/virtual/hybrid libraries [2]. The developments and innovations in ICT have facilitated changes in the development of curriculum in Library and Information Studies.

"A curriculum of LIS education usually mirrors what is being offered to train librarians and information professionals who will not only acquire the essential knowledge and skills to become qualified personnel in the field but also meet challenges the ever changing information society brings." It is essential to equip the professionals and provide them a state of art eco-system where they can perform according to the need of time and hence the responsibility of departments and curriculum developers is very significant. It is necessary to keep the curriculum flexible to match with the varying dimensions of the discipline. [3]

### **II. LIS EDUCATION AND UGC EFFORTS IN INDIA**

After India's independence in 1947, [4] the University Grants Commission (UGC) controls mainly the general course structure of various curricula. The UGC constituted Curriculum Development Committee (CDC) on LIS under the chairmanship of Prof. P.N. Kaula in 1993. The report of this committee was published under the title "Report of the curriculum development committee on Library and Information Science". The publication of this curriculum helped the university departments to update their syllabi as per the requirement in the profession during these periods. Soon after this, many changes occurred in ICT sector, which had a direct impact on the libraries. This made the UGC to undertake a study on the previous report of CDC on LIS. Finally, a modular syllabus was proposed for Indian Universities. This report was published in 2001 under the title "UGC Model Curriculum, Library and Information Science" by Prof. C. R. Karisiddappa being the chairman.

Recommendations of CDC 2001 are quoted as –

- In view of the
- Emerging network environment
- Fundamental shift in the goals of the library
- Changes in information storage and delivery mechanisms,

The education programs should cater the needs of these changed settings by including in their course content, the knowledge and skills required to function effectively in such a view”.

The shift from the traditional environment has forced LIS education and training to attempt to improve the quality of programs and hence, LIS curricula need to consolidate ICT concepts, knowledge, skills and proficiency into core competencies, and LIS schools need to provide adequate content and practice that will enable the professionals to use ICTs effectively.

India today stands poised to reap the benefits of a rapidly growing economy and a major demographic advantage that will see the country having the largest source of young people in the world in the next few decades. The challenge and the opportunity are to galvanize our national potential into a dynamic resource: an informed, enlightened and capable young Indian citizenry would not enhance and enrich the process of natural development, but could be a positive force in the world [6].

An analysis of ICT components in LIS Curriculum is relevant in present date to access the utility of the current curriculum. In India, most of the universities follow UGC Model curriculum 2001 for Library and Information Science programs specifically on Master’s level. This paper analyses the ICT components in Master’s Level LIS Curriculum in northern region of India.

Education system in India is one of the largest and oldest of its own kind. LIS Education in India completed its 100 years in 2011. At present, LIS education in India is offered at different levels, namely:

- Certificate course in Library and Information Science (C.Lib.Sc.)
- Diploma in Library and Information Science
- B.Lib.Sc. /BLIS (Bachelor Degree in Library and Information Science)
- M.Lib.Sc. /MLIS (Master Degree in Library and Information Science)
- MS-LIS(Master of Science in Library and Information Science)
- AIS (Associateship in Information Science)
- PGDLAN (Post Graduate Diploma in Library Automation and Networking)
- M.Phil. (Master of Philosophy) in Library and Information Science
- Ph.D. (Doctor of Philosophy) in Library and Information Science
- D.Litt. in Library and Information Science

According to Geographical Survey of India [7], India has a vast diversity in democracy, climate, culture, language and ethnicity. It is the 7<sup>th</sup> largest country by area in the world, with a total area of 3,166,414 square kilometers, and consisting of 29 states and 7 union territories. India is divided into six major regions namely, North, South, East, West, Central and north-east. North India is a loosely defined region consisting of the northern part of India. The term North India officially refers to the seven states and one union territory:

- Chandigarh (Union Territory),
- Delhi,
- Haryana ,
- Himachal Pradesh,
- Jammu & Kashmir,
- Punjab,
- Uttar Pradesh,
- Uttarakhand

### **III. SCOPE AND METHODOLOGY**

The scope of this paper is limited to the regular Library and Information Science post graduate courses, specifically M.L.I.Sc. and equivalent, conducted by LIS Schools of central or state university departments / institutions recognized by University Grants Commission (UGC) in North India.

First step of collecting data for this research involves identification of UGC recognized universities offering M.L.I.Sc. or equivalent program in north India. Institutes were categorized by searching from UGC’s list of Central, State and Private Universities. Course contents and other relevant information were hence gathered from the respective websites of the institutions. Some data was gathered through personal visit to university departments also. Universities’ details with their respective curriculum/department link is given in the Appendix of this paper.

There are in total 26 institutions at present offering M.L.I.Sc. course, further details are given in following sections.

**Table 1. Universities offering M.L.I.Sc. Course in North India**

Type of University	No. of Institutions
Central	6
State	15
Private / Deemed	5
<b>Total</b>	<b>26</b>

Departments/schools offering post-graduate course in Library and Information Science (M.L.I.Sc. or equivalent) were recognized from the categorized universities in north India and it was found that in the northern region of India – 6 central universities, 15 state universities and 5 Private / Deemed universities are offering at present Master’s level Library and Information Science Program as described in Table 1.

For further analysis, this paper limited the scope up to central and state universities recognized by University Grants Commission (UGC) excluding private universities, which leaves total universities to be examined in North India to be 21 (6 central and 15 state) out of which data from only 17 universities (5 central and 12 state universities) was collected due to unavailability of the curriculum information both on the website and low response from the departments themselves. State and university category wise distribution of selected sample of 17 universities is categorized in Table 2 as follows.

**Table 2. State and category wise distribution of select Universities offering M.L.I.Sc. course in North India**

State/Union Territory	Name of University	University Category
<b>Chandigarh*</b>	Panjab University (PU Chd)	State
<b>Delhi</b>	University of Delhi (DU)	Central
<b>Haryana</b>	Kurukshetra University (KUK)	State
	MaharshiDayanand University (MDU)	State
<b>Himachal Pradesh</b>	Central University of Himachal Pradesh (CUHP)	Central
<b>Jammu &amp; Kashmir</b>	University of Jammu (JU)	State
	University of Kashmir (UoK)	State
<b>Punjab</b>	Guru Nanak Dev University (GNDU)	State
	Punjabi University, Patiala (PU Pat)	State
<b>Uttar Pradesh</b>	Aligarh Muslim University (AMU)	Central
	BabasahebBhimraoAmbedkar University (BBAU, LKO)	Central
	Banaras Hindu University (BHU)	Central
	ChhatrapatiShahujiMaharaj University (CSJMU)	State
	Chaudhary Charan Singh University (CCSU)	State
	Dr. Ram ManoharLohiaAwadh University (Dr.RMLAU)	State
	University of Lucknow (UoL)	State
	M.G. KashiVidyapeethVaranasi(M.G.K.V.P.)	State

\*UT

It is also evident from the Table 2 that there isn’t any Master’s Level Library and Information Science program being offered in the state of Uttarakhand of north region at present.

**Table 3. Distribution of select Universities, their Schools and Departments, Year of Establishment of LIS Department, Nomenclature of Master’s Level Program, and Duration**

Name of University	School / Faculty	Department	Established	Nomenclature	Duration
AMU	Faculty of Social Science	Department of Library & Information Science	1950	M.L.I.Sc.	1 year
BBAU, LKO	School of Information	Department of Library and Information	1997	M.L.I.Sc.	2 year

	Science Technology	Science			
BHU	Faculty of Arts	Department of Library and Information Science	1941	M.L.I.Sc.	2 year
CUHP	School of Mathematics, Computers and Information Science	Department of Library Science	-	M.L.I.Sc.	2 year
CCSU	Faculty of Arts	Department of Library & Information Science	2004	M.L.I.Sc.	1 year
CSJMU	-	Department of Library & Information Science	2002	M.L.I.Sc.	1 year
Dr. RMLAU	-	Department of Library Science	-	M.Lib.I.Sc.	1 year
GNDU	Faculty of Arts & Social Science	Department of Library & Information Science	1970	M.L.I.S (Hons.)	1 year
KUK	Faculty of Arts & Languages	Department of Library and Information Science	1969	M.Lib.& Inf. Sc.	1 year
M.G.K.V.P.	Faculty of Humanities	Department of Library and Information Sciences	1987	M.Lib.I.Sc.	1 year
MDU	Faculty of Social Science	Department of Library and Information Science	-	M.L.I.Sc.	2 year
PU Chd	-	Department of Library & Information Science	1960	M.L.I.Sc.	2 year
PU Pat	Faculty of Education & Information Sciences	Department of Library & Information Science	1969	M.Lib.Sc.	1 year
DU	Faculty of Arts	Department of Library and Information Science	1946	M.L.I.Sc.	1 year
JU	-	Post Graduate Department of Library and Information Science	1971	M.L.I.Sc.	1 year
UoK	Faculty of Arts	Department of Library and Information Science	1970	M.L.I.Sc.	2 year
UoL	Faculty of Arts	Department of Library & Information Science	1972	M.L.I.Sc.	2 year

In north India, most of the departments have nomenclature of Master's level course as M.L.I.Sc. whereas some departments have kept the nomenclature as M.Lib. or M.Lib.I.Sc. etc. Department of Library and Information Science, Guru Nanak Dev University, Amritsar, offers M.L.I.Sc. (Hons.) course of 1-year duration consisting of 2 semesters. From the selected sample 10 Departments of Library and Information Science offer 1 year (two semester) Master's Level program of Library and information Science whereas 7 Departments offer 2 year integrated (four semester) Master's Level program of Library and information science. Department of

Library and Information Science, University of Delhi established in 1946 which is credited for being the first department to offer the Master's Level course in Library and information science.

Another pattern is that the Faculty or Schools in which the Departments of Library and Information Science are established vary in their discipline, i.e., as most of the departments are established under either Faculty of Arts or Faculty of Social Science, but some Departments are categorized under School of Information Science Technology, School of Computer Science and Informatics, School of Mathematics, Computers and Information Science, etc. This pattern shows that where majority universities consider Library Science as a discipline of Social Science/Arts/Humanities, at the same time there are universities which have categorized the Library Science discipline into the Computer Science or Mathematics stream. This obscurity sometimes prevents the entry of more brilliant students into the fold of LIS.

#### IV. IDENTIFICATION OF ICT COMPONENTS IN MLIS CURRICULA

ICT components in Master's level Library and information science curriculum can be categorized into three categories:

1. Information Technology: Basics
2. Information Technology: Advanced
3. Applications of ICT in Library and Information Science: Digital Library, Library Automation, Information Retrieval, etc.

UGC Model Curriculum Report, 2001 has described one Module for Information Technology in two-year Master's Level curriculum of LIS. The report was taken as the reference and further according to current trends, the ICT components have been modified and identified as follows:

1. Information Technology
2. Operating Systems and Programming
3. Networking
4. Internet: Basic Features and Tools
5. Database Management System
6. Library Automation
7. Digital Libraries
8. Current Trends in Information Technology
9. Information Storage and Retrieval
10. Computer Applications / MS Office

Further classification of above identified ICT components into sub-components is given in Table 4.

**Table 4. Identification of ICT Components w.r.t UGC Model Curricula**

S. NO.	Components	Sub-Components
1	<b>Fundamentals of ICT</b>	Definition , Scope and Objectives
		Historical Background of Computers
		Generation of Computer
		Computer Architecture : CPU, I/O Devices, Memory
		Hardware and Software
2	<b>Operating Systems &amp; Programming</b>	MS Windows
		LINUX / UNIX
		Programming Languages
		Algorithms
		Flowcharting
		Search & Sorting Algorithm, Data Structures
3	<b>Networking</b>	Types of Networks - LAN / MAN / WAN
		Network Protocols - TCP/IP
		Basic Elements of Data Communication system
4	<b>Internet : Basic Features and Tools</b>	Connectivity - Dialup, ISDN, Cable Modem, etc.
		E-mail, SMTP, POP3, etc.

		Protocols : Telnet, FTP, HTTP
		Web Browsers
		Web Servers
		Search Engines, Meta Search Engines
		Internet Security - Firewalls and Proxy
5	<b>Database Management Systems</b>	Models - Hierarchical , Network, Relational, Object Oriented
		Software - Oracle, Postgress SQL, MSSQL, CDS/ISIS
		SQL
		Common Interface standard Z39.50
6	<b>Library Automation</b>	Planning and Implementation
		Automation of In-house operations
		Retro-conversion, Barcoding, RFID
		Bibliographical Databases
		Library Automation Software : Selection Criteria & Evaluation
		Case study of Library Automation Software
		Library Networks and Information Systems
		Current Trends (Virtual Library / Hybrid Library , etc.)
7	<b>Digital Libraries</b>	Genesis, Meaning, Need, Importance
		Access Methods
		Digital Library Models
		Open Source Software
		Digital Library Collection Development
		Interoperability Standards
		Retrieval, Interface and Evaluation
		Digital preservation and archiving
8	<b>Current Trends</b>	Web2.0
		Web 3.0
		Web OPACs
		Web Directories
		Subject Gateways, Library Portals, etc.
		Blogs, Podcasts, RSS Feeds, IM, Wiki, etc.
		Artificial Intelligences and Expert Systems in Libraries
9	<b>Information Storage and Retrieval</b>	Bibliographic description, Bibliographic record formats
		Metadata - Dublin Core, etc.
		Online Search Strategies
		Content Creation - HTML/XML ,
		Bib record formats - MARC , CCF, etc.
10	<b>Computer Applications</b>	MS OFFICE

Further sections give a detailed analysis of the ICT components and sub-components being identified in Table 4 and their inclusion and implementation in the selected sample of North Indian Universities' Departments of Library and Information Science.

#### V. ICT COMPONENTS IN MASTER'S LEVEL LIS CURRICULA

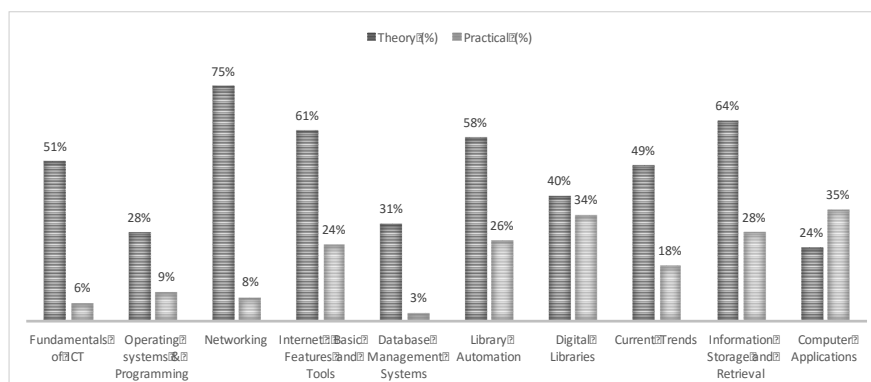
As described in the previous sections, a sample size of 17 universities was taken. ICT components were identified and were further categorized into sub-components. For each sub-component the number of LIS

Departments that have included that particular sub-component into their curricula both in theory as well as practical, is determined. Finally, for each ICT component, an average of LIS schools (or departments) is calculated, for Theory and Practical content, from the sub-components of ICT. Table 5 shows the findings.

**Table 5: Average (%) of select LIS schools, in north India, including identified ICT components in Theory and Practical content (n=17)**

ICT Components	Theory (%)	Practical (%)
Fundamentals of ICT	51%	6%
Operating systems & Programming	28%	9%
Networking	75%	8%
Internet : Basic Features and Tools	61%	24%
Database Management Systems	31%	3%
Library Automation	58%	26%
Digital Libraries	40%	34%
Current Trends	49%	18%
Information Storage and Retrieval	64%	28%
Computer Applications	24%	35%

Table 5 can be easily understood with the pictorial representation in Figure 1 as follows:



**Figure 1: Average (%) of select LIS schools, in north India, including identified ICT components in Theory and Practical content (n=17)**

Theory(%) indicates the percentage of select LIS schools (departments) out of the sample size (i.e., n = 17) offering respective ICT component in theory content, similarly, Practical(%) indicates the percentage of LIS Schools (or departments) offering respective ICT component in Practical content.

It can be observed that “Networking” is included in maximum 75% of select LIS schools as Theory content whereas in Practical content “Digital Libraries” is included in 34% of select LIS Schools. There is a visible imbalance between Theory and Practical content in the course curricula of Master’s Level LIS program in select LIS schools in North India. And only less than 50% of the selected sample has practical content of identified ICT components.

Further, university wise detailed analysis of both Theory and Practical ICT components, semester (or year) wise has been conducted. To get the relative understanding of what is actual scenario based on the curriculum content analyzed by this paper, a Weighted average score is calculated, on the basis of analyzed Theory and Practical weightage of ICT components of each M.L.I.Sc. program from selected LIS Schools.

Weighted Average Score – Analyzed ( $W_a$ ) for both Theory(Th) and Practical(Pr) is calculated as follows :

$$W_a (Th) = \sum \frac{Th(i)}{Total\ Score}, \text{ and } W_a (Pr) = \sum \frac{Pr(i)}{Total\ Score}$$

Where, i denotes the number of semester, i.e., i = 1,2,3,4. (since maximum semester are 4)

The above formula is nothing but the summation of number of Theory components per semester divided by the Total Score and similarly for the Practical components.

Following Table 6 gives detailed analysis of Theory and Practical components being taught in each semester of selected departments of universities offering M.L.I.Sc. course in north India. Total score is calculated on the basis of total Theory and Practical ICT components in the curriculum which are exhaustively analyzed as mentioned in above sections. Based on the number of theory and practical components and the Total Score and  $W_a$  for each selected university as described above.

**Table 6. Detailed analysis of Theory (Th) and Practical (Pr) components of ICT in MLIS curriculum semester wise and Weighted Average Score (%) for Theory and Practical content.**

Semester	I		II		III		IV		Total Score	$W_a$ (%)	
	Th	Pr	Th	Pr	Th	Pr	Th	Pr		Th	Pr
Name of university											
AMU	12	6	20	5	-	-	-	-	43	74	26
BBAU, LKO	15	15	0	0	13	13	18	18	92	50	50
BHU	18	0	4	2	11	0	0	6	41	80	20
CUHP	24	0	21	0	14	8	0	5	72	82	18
CCSU*	22	8	-	-	-	-	-	-	30	73	27
CSJMU*	25	9	-	-	-	-	-	-	34	74	26
Dr.RMLAU	5	4	15	0	-	-	-	-	24	83	17
GNDU	0	0	28	12	-	-	-	-	40	70	30
KUK	15	4	13	7	-	-	-	-	39	72	28
M.G.K.V.P	0	0	22	7	-	-	-	-	29	76	24
MDU	19	0	4	5	20	0	0	11	59	73	27
PU Chd	19	0	0	0	23	21	0	0	63	67	33
PU Pat <sup>+</sup>	20	0	-	-	-	-	-	-	20	100	0
DU	17	1	5	13	-	-	-	-	36	61	39
JU* <sup>+</sup>	12	0	-	-	-	-	-	-	12	100	0
UoK	17	0	7	0	6	5	7	12	54	69	31
UoL	22	0	0	7	-	-	-	-	29	76	24

(\* Annual programs (not semester wise), <sup>+</sup>No practical for ICT components)

The above table can be understood as follows: For Aligarh Muslim University (AMU), total 12 identified ICT sub-components are included in Theory content of First Semester and 6 ICT sub-components in Practical content of First Semester. Further, in Second Semester, total 20 ICT sub-components are included in Theory whereas 5 ICT sub-components in Practical content. Since, AMU has 1 year MLIS course, hence third and fourth semester are left blank. Total Score is calculated as the sum of all respective numbers. Then  $W_a$  (Th) =  $(12+20)/43$  and  $W_a$  (Pr) =  $(6+5)/43$ .  $W_a$  (Th)% of AMU is 74 which means 74% of the identified ICT components are included in MLIS Theory course content of the university and 26% in Practical content.

**Figure 2** illustrates a pictorial distribution of Total Theory and Practical components of ICT in the curriculum of selected LIS departments of universities. The ratio between Theory and Practical Components is still uneven where Theory is way more than Practical Components. Punjabi University Patiala and Jammu University do not have Practical Components in the M.L.I.Sc. curriculum. And the highest practical components are being included in BBAU Lucknow followed by Panjab University, Chandigarh.

**Figure 3** shows the Trend of Weighted Average Score, calculated in Table 6, for the Theory and Practical ICT components in the selected universities. In the graph the Intersection point of Value 50 may also be considered as the Balanced Point, i.e., at this point the Theory and Practical Components are equally distributed in the curricula. In the selected universities such scenario is only seen in one university, i.e. BBAU Lucknow. This analysis shows that even though much emphasis has been given to the inclusion of ICT



components in the curricula, but we are still lagging in the practical aspects of the same and which questions the skills of the fresh outcomes from the universities.

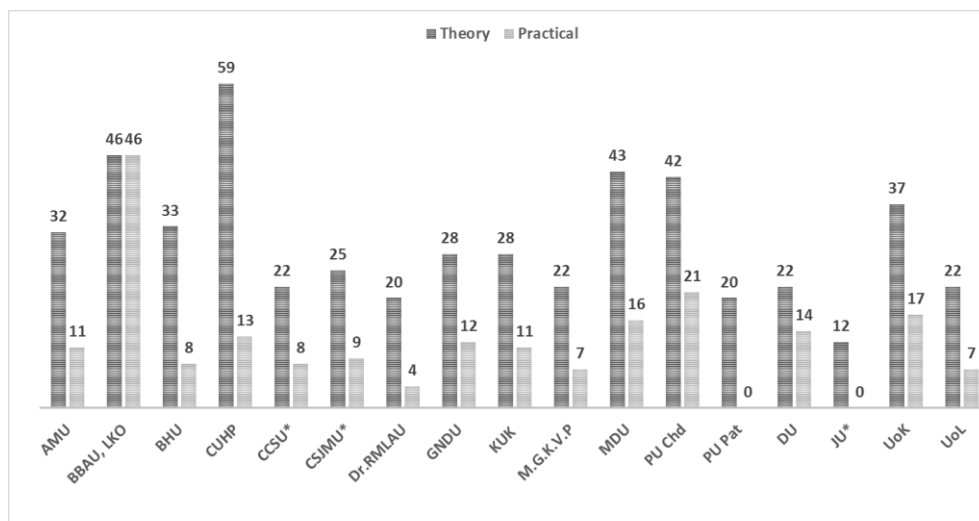


Figure2. Distribution of Total Theory and Practical ICT components in the curricula of selected universities

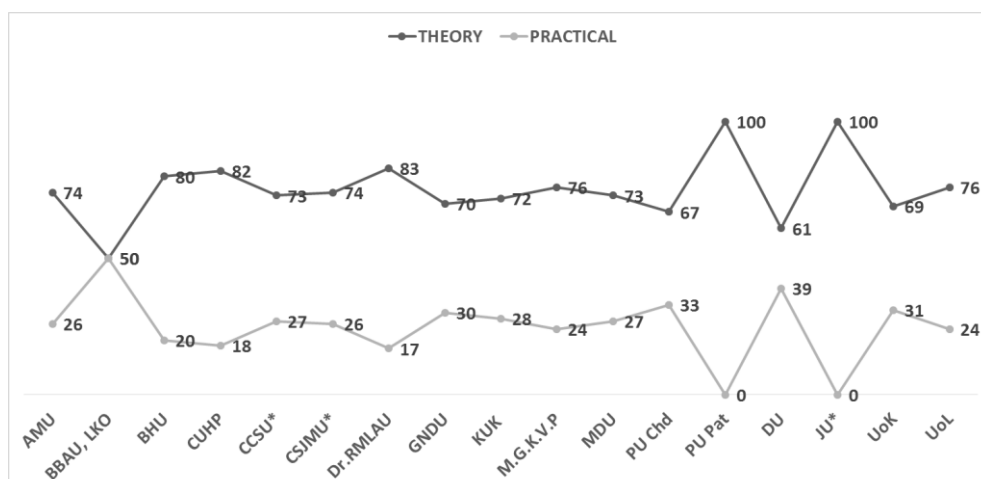


Figure 3. Weighted Average Score (%)

## VI. OBSERVATIONS AND LIMITATIONS

- Most of the universities have adopted the UGC Model Curriculum 2001 model for the curriculum development of Library and Information Science curricula, but still there are 1-year Master’s in Library and Information Science Programs being offered instead of 2 year programs. In north India, as analyzed by this paper, approx. 59% universities offer 1-year Master’s level program in Library and Information Science whereas 41% offer 2 year programs for the same. One-year duration programs do not offer sufficient components for the advanced training of the learners and thus not providing enough hands on experience for the graduating professionals who will be entering the job market.

- A major observation is that not even a single ICT component is uniformly added to curriculum amongst the curriculum of all the listed 17 universities. Maximum of 15 universities is recorded to have same or similar kind of ICT components in the curriculum.

- Even if we analyze the ICT components of every curriculum being offered in the select universities of North India, and even if every latest/current ICT component is being included in the curriculum, it doesn’t make much difference until there isn’t hands-on enough practical experience for the same.

- Though Library and Information Science as a course is now being considered among the professionals as being equivalent to the Computer Science course, but it is very important to determine that

which components are supposed to be emphasized from the core Computer Science discipline and which components should be molded according to their application in the Library and Information Science Profession. For example, the Programming Languages component of ICT which is being included in the Library and Information Science Curriculum, what utility does it have in the actual professional path of a Library and Information Science graduate? Though Programming Languages is included as theory in only 6 universities and as practical in 4 universities from the select universities offering post graduate M.L.I.Sc. Program in north India.

- A major problem that is being faced by many universities in the region that act as barriers and are confronting the use of ICT in the training and education of LIS in India:

- Lack of infrastructure facilities available at the disposal of LIS departments
- Lack of ICT access to LIS learners and teachers
- Lack of financial resources to adopt the latest innovative means
- Lack of proper perspective and policy development by the top management of LIS institutions
- Lack of perception on the part of LIS learners
- Lack of well-connected telecommunication facilities to explore and exploit the latest innovations in the information delivery and consumption
- Lack of interest on the part of faculty (in most cases) due to obvious reasons

## **VII. CONCLUSION**

- It can be concluded that LIS education in India is in the mainstream of ICT exploitation and consumption, even if there is slight resistance. Market demand of ICT skilled LIS graduates and broad perspective of information management has expanded. Thus role of ICT will always keep increasing. In current age, more graduates are coming from versatile backgrounds (applied courses) and they have computer knowledge embedded in their primary education, thus universities need to focus more on the practical sessions and hands on experience for the students to handle the technicalities and difficulties associated with the profession and to deal with the day to day problems in the operations and functions of the Library and information centers. There is a requirement to design the skill centered curriculum to ensure the methods to imbibe these skills to professionals.

- It is important to understand the meaning of Information and Communication Technology (ICT) in context of Library and Information Science. Whether how much of computer science core components should be included in the curriculum is a debating topic since decades. LIS education in India is being pushed ahead of the actualities by implementing computer applications and other areas of information technology.

- A balance between theory and practice can be considered the best approach because it enables the curriculum to respond to the need for extensive knowledge in information systems and technology, while at the same time addressing market needs for practical skills [8].

- ICT components offered in MLIS curricula should be aligned towards their application in Library and Information Science in a structured way and less emphasis should be given to the core form of advanced information technology components in particular.

- Though it is observed that Information Technology has influenced the Library and Information Profession the most and the new personnel entering the profession should be proficient with the latest technology and in-house operations of the field, but the curriculum should be a heterogeneous mixture of both traditional and ICT components and not aligned more towards ICT components in particular.

- Most important point to understand is that referring to current context and technological infrastructure of India, every field of work needs to be equipped with technical ICT driven tools and methods. Majority of the LIS professionals in India come from the background which does not give them the kind of exposure which they require to deploy in their professional activities.

- The medium of teaching plays a vital role in imbibing these soft skills in existing and potential work force in the field of Library and Information Science. This study proclaims the need to emphasize equal weightage to medium of teaching (theory as well as practical) rather than only designing curriculum and its relevance with the need of professional skills.

- LIS schools in India must harness the opportunities offered by ICTs in teaching and learning, for market-driven curricula, acquiring of relevant, up-to-date educational technologies and resources, and the use/application of state-of-the-art educational methods and techniques.[9]It is important that LIS schools

continue to increase the use of achieving greater effectiveness, especially since the field of LIS has become essentially ICT-oriented.

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### APPENDIX

Name of University	Department	Website link
Aligarh Muslim University	Dept. of Library & Information Science	<a href="http://www.amu.ac.in/departmentspage.jsp?did=80">http://www.amu.ac.in/departmentspage.jsp?did=80</a>
BabasahebBhimrao Ambedkar University, Lucknow	Department of Library and Information Science	<a href="http://www.bbau.ac.in/SIST/DLIS/Dept_Library.aspx">http://www.bbau.ac.in/SIST/DLIS/Dept_Library.aspx</a>
Banaras Hindu University	Department of Library and Information Science	<a href="http://www.bhu.ac.in/arts/lis/index.html">http://www.bhu.ac.in/arts/lis/index.html</a>
Central University of Himachal Pradesh	Department of Library Science	<a href="http://www.cuhimachal.ac.in/library_science_mcis.aspx">http://www.cuhimachal.ac.in/library_science_mcis.aspx</a>
Chaudhary Charan Singh University, Meerut	Department of Library & Information Science	<a href="http://www.ccsuniversity.ac.in/new/Department-Library-Info-Sc.htm">http://www.ccsuniversity.ac.in/new/Department-Library-Info-Sc.htm</a>
ChhatrapatiShahuji Maharaj University, Kanpur	Department of Library & Information Science	<a href="http://www.kanpuruniversity.org/library_information_science.htm">http://www.kanpuruniversity.org/library_information_science.htm</a>
Dr. Ram ManoharLohiaAwadh University	Department of Library Science	<a href="http://www.rmlau.ac.in/lib_sc.aspx">http://www.rmlau.ac.in/lib_sc.aspx</a>
Guru Nanak Dev University	Department of Library & Information Science	Searching Mechanisms

Kurukshetra University	Department of Library and Information Science	<a href="http://www.kuk.ac.in/information.php?action=showContent&amp;L01_id=OA==&amp;L01_direction=H&amp;L03_id=Mzk=&amp;L02_id=MjE=&amp;sublevel=y">http://www.kuk.ac.in/information.php?action=showContent&amp;L01_id=OA==&amp;L01_direction=H&amp;L03_id=Mzk=&amp;L02_id=MjE=&amp;sublevel=y</a>
M.G. Kashi Vidyapeeth, Varanasi	Department of Library and Information Sciences	<a href="http://mgkvp.ac.in/pgsyllabin/mlibs4715.pdf">http://mgkvp.ac.in/pgsyllabin/mlibs4715.pdf</a>
Maharshi Dayanand University, Rohtak	Department of Library and Information Science	<a href="http://www.mdurohtak.ac.in/info/acad_fac_socscie_libraryinformatics.html">http://www.mdurohtak.ac.in/info/acad_fac_socscie_libraryinformatics.html</a>
Panjab University	Department of Library & Information Science	<a href="http://libraryscience.puchd.ac.in">http://libraryscience.puchd.ac.in</a>
Punjabi University, Patiala	Department of Library & Information Science	<a href="http://punjabiuniversity.ac.in/pbiuniweb/pages/departments/newlibrary.html#coursesoffered">http://punjabiuniversity.ac.in/pbiuniweb/pages/departments/newlibrary.html#coursesoffered</a>
University of Delhi	Department of LIS	<a href="http://www.dlis.du.ac.in">www.dlis.du.ac.in</a>
University of Jammu	Post Graduate Department of Library and Information Science	<a href="http://www.jammuuniversity.in/departments/lib%20science/program.asp">http://www.jammuuniversity.in/departments/lib%20science/program.asp</a>
University of Kashmir	Department of Library and Information Science	<a href="http://lis.uok.edu.in/Coursesoffered.aspx">http://lis.uok.edu.in/Coursesoffered.aspx</a>
University of Lucknow	Department of Library & Information Science	<a href="http://www.lkouniv.ac.in/arts_libraries.html#Courses-tab">http://www.lkouniv.ac.in/arts_libraries.html#Courses-tab</a>