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# Awareness and Usage of e-resources by faculty members at Vardhaman College of Engineering (Autonomous), Hyderabad: A Study

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#### **Abstract**

The present study is an attempt to examine the awareness and use of e-resources by the faculty members of Vardhaman College of Engineering (Autonomous), Hyderabad and also focuses on the various types of their availability in the Library. The structured questionnaire was designed and distributed among the faculty members with different cadres across the departments seeking their opinion on e-resources subscribed by the Central Library. The questionnaire was tagged on 192 faculty members who were randomly selected for the study.

# **Keywords**

E-Resources, e-Journals, e-Books, awareness and usage, Vardhaman College of Engineering Library, faculty members and Hyderabad

#### Introduction

As said by *Dr. S. Radhakrishnan*, *former President of India* – "Library is a heart of an institution" made the presence of a library inevitable in all the institutions and when it comes to an academic institution library plays a vital role as an indispensable tool of learning process.

Library is an important intellectual resource of academic and research community. It helps to an academic and research organization students and faculty members for their 'self development' to fulfill the curriculum requirements and to promote studies and as well as research. Especially, academic libraries at present are moving to have access towards and added e-resources in their collection as they form major educational output to support teaching, learning process and research activities of the academic community.

#### **Importance of the study**

The purpose of the present paper is to know the state of awareness and utilization of available eresources by the faculty members in Vardhaman College of Engineering (Autonomous) Library,
Hyderabad. This would help the college library authority to identify the difficulties faced by the
students and faculty members while accessing to the e-resources and try to put into practice out
the suggestions put promote by the library user community for the improvement of library
resources and services.

# **Concept of e-resources**

Due to accessibility of Information and Communication Technology (ICT), the librarians could think of e-resources to satisfy the information requirements of users. Nowadays e-resources contain become part of every academic and research library. E-resource is an electronic information resource which can access from anywhere, anytime without time and geographical limit. These resources can have access through online or offline. E-resources include various types of electronic documents like e-books, e-journals, e-databases, scholarly web resource, patents, etc. E-resources have same nature and content like printed document but its present information or contents in the various flavours like image, audio, video, and multimedia formats, which are commercial as well as free of cost available for the library users.

#### **Need of e-resources**

The evolution of Internet has facilitated the approach of retrieving and dissemination of information among the users. E-resources, especially e-journals, e-databases and e-books are important sources of information. E-resources are systems in which information is stored electronically and made accessible through electronic systems and computer networks. These resources include e-journals, e-books, e-magazines, e-databases, OPAC, CD-ROMs and Internet.

With advance of expertise the libraries are affecting towards e-resources, which are set up to be less expensive and further helpful for easy access of information available 24×7 for the library users. E-resources are considered as significant resources of teaching, learning, research, and training. Therefore, the majority of academic libraries of the present day provide e-resources for higher education and research purpose.

Technology has transferred the world and instrumental as an important tool for retrieving information. Now a day, library collections are not exhaustive post to printed documents alone but they are good e-resources and they have become the inseparable part of human life in post 21<sup>st</sup> century.

#### Vardhaman College of Engineering (Autonomous), Hyderabad

The prime objective of Vardhaman College of Engineering (Autonomous), Hyderabad is to update and modernize the quality of professional education. Its aim is to employ innovative teaching methods which carry emphasis on rapidly changing trends in technology. This is to integrate classroom learning with actual work experience in the industry concerned or in any related professional field. It aims to encourage students from the first year B.Tech., the inceptive year itself, to identify suitable work areas and to execute projects of their own choice and interest. The teaching-learning process is carried-out through the best implement like Internet facility. Vardhaman boosts best programmes of an extensive computer centre, library, advanced lab for communication skills, internet centre and spacious seminar halls and Electronic classrooms<sup>1</sup>.

Established in 1999, Vardhaman College of Engineering is affiliated to Jawaharlal Nehru Technological University (JNTU), Hyderabad, approved by the All India Council for Technical

Education (AICTE), New Delhi. The College has been accredited with a CGPA of 3.24 on a four point scale at 'A' Grade by National Assessment and Accreditation Council (NAAC) for a period of Five years from 05/05/2014. The College is accredited by National Board of Accreditation (NBA), New Delhi for four branches of Engineering viz. Computer Science and Engineering, Information Technology, Electronics and Communication Engineering, Electrical and Electronics Engineering and Mechanical Engineering, which is recognized by UGC as "Centre with Potential for Excellence (CPE)" in the state of Telangana.

The Jawaharlal Nehru Technological University, Hyderabad has awarded "autonomous status" to Vardhaman College of Engineering in the academic year 2011 - 2012 onwards. All the 7 UG Courses - CSE, IT, ECE, EEE, Mechanical, Aeronautical and Civil and 10 PG Courses - M.Tech (CSE), M.Tech (SE), M.Tech (PEED), M.Tech (DECS), M.Tech (WMC), M.Tech (Embedded Systems), M.Tech (Engg. Design), M.Tech (Structural Engineering), MBA are under autonomous status.

# **VCE Library**

VCE Library and Information Centre is a state of the art at par with any other colleges of engineering have across the Telugu states of Telangana and Andhra Pradesh. It started functioning with a vision to serve the information needs of its users and it mainly holds books related to engineering and allied subjects.

The Library and Information Centre plays vital role in academics and research through making use of the available e-resources. The library remarkably has huge collection of 64,429 volumes including text books, reference books, book bank scheme books and back volumes of periodicals.

The Library subscribes 171 print periodicals (technical journals & magazines) including National, International subscribing full text online database like IEEE, Elsevier (ScienceDirect), ASCE, ASME, N-LIST e-resources (through INFLIBNET), McGraw-Hill e-Books. In addition, library enrolled Institutional Membership of DELNET (Inter-library Loan) for resources sharing and also member of National Digital Library of India in order to avail the benefits e-Learning

resources (through IIT Kharagpur). It has become the institutional member (10 Library Identity Cards for 30 documents) of British Council Library, Hyderabad. We can access as well borrow the entitlements like books, magazines DVDs/CDs and get access to world class resources from this library for the benefit of students and faculty members.

Central Library offers a fully integrated and self-motivated environment for conducting academic and research activities. Multiple copies ensure that resources are easily available in reference and stack area as well. Central Library is Wi-Fi enabled and has CCTV surveillance. It provides categorical information and intellectual requirements to its students and faculty members with user-friendly approach.

Air-conditioned digital library with 30 systems to access the e-Journals, e-books, e-learning and CD/DVD's are available in the library. Discussion rooms and photocopying are made available for the convenience of the users, as part of easy facilitation.

The library also provides free Internet service to the students and faculty members besides the collection of the library is computerized issue/return/renewals are automatically taken care by using library automation software NewGenLib with barcode system. Computer user terminals On-line Public Access Catalogue (OPAC) facility is also available in library to search the books author-wise, title-wise and by keyword. Facility to adopt the new products and services with new technology to satisfy the needs of user community is the unique feature of the library. The link to all the e-resources is available at home page of VCE Library webpage.

The Central Library has a DTH antenna to receive the SWAYAM PRABHA group of 32 channels devoted to telecasting of high-quality educational programmes on 24X7 basis using the GSAT-15 satellite. The channels are uplinked from BISAG, Gandhinagar. The contents are provided by NPTEL video courses, IITs, UGC, CEC, IGNOU, NCERT and NIOS. The INFLIBNET Centre maintains the web portal. Students and staff members can watch the offering MOOCs courses through SWAYAM.

# **Scope of the study**

The study is restricted to the faculty members of College of Engineering (Autonomous) Library, Hyderabad.

# **Objectives**

The present study is confined to the faculty members of Vardhaman College of Engineering (Autonomous), Hyderabad. The aim of this study is to investigate the frequency and purpose of using the e-Resources, place of access and sources of information on e-Resources, awareness and use of different types of e-resources, benefits for using e-resources, problems faced while using e-resources to overall satisfaction levels of availability of e-resources in the Library.

The specific objectives of the study are:

- 1. To find out the frequency, awareness, and purpose of using the e-resources among the faculty members about the different types of available e-Resources in this study.
- 2. To identify the place for accessing and sources of information on e-resources, benefits of e-resources and problems faced by the faculty members while using e-resources.
- 3. To know the levels of overall satisfaction among the faculty members of e-resources in the library.

# Methodology

The questionnaire method was used for the collection of data in the present study. A well-structured questionnaire was designed and distributed personally among the faculty members in different departments of Vardhaman College of Engineering (Autonomous), Hyderabad. Total 192 faculty members were selected and their response was obtained with the help of questionnaire.

#### **Review of Literature**

*Nanda*, *A.* (2017)<sup>2</sup> study aims to analyze the use and knowledge of e-journals by the faculty members and research scholars of Veer Surendra Sai University of Technology (VSSUT) and also intends to determine the purpose of practicing of e-journals, access place for searching e-journals, preferred format for accessing it and suggestions for promoting the use of e-journals.

Questionnaire method was adopted to elicit data from faculty and research scholars of VSSUT. Out of a total of one hundred fifteen respondents participated in the survey from which 56 are faculty members and 59 are research scholars. The study reveals that faculty and research scholars are aware about e-journals and online database subscribed by their library. Majority of faculty and research scholars using e-journals for research purpose and Department is the most preferred location for accessing e-journals. Khan, J.  $(2016)^3$  concludes the study confirmed that respondents were aware of the e-resources and various types of e-resources, e-database, and ejournals. The study recommended the improvement in the access facilities with high internet speed and subscription to more e-resources. Mirza, M. S., & Mahmood, K. (2012)<sup>4</sup> evaluate the effectiveness of electronic resources and services in Pakistani university libraries on the basis of users' satisfaction. A survey method was employed to conduct the research. The total population (i.e., 40,236) of library users was very large; therefore, a reasonable, manageable and convenient sample of 800 library users, including 100 users each from the eight libraries was selected. The study concluded that Pakistani university libraries are offering effective electronic resources and services to their users. Mulla, K. R. (2011)<sup>5</sup> evaluates the use of library at the HKBK College of Engineering (HKBKCE) in Bangalore (Karnataka). A survey of 60 faculty members was conducted through a questionnaire. The analysis of the collected data covers the use of electronic resources and how the electronic resources are responsible for the improvement of academic careers of the faculty and familiarize problems that computer while using the electronic resources. It concludes that the main intention of the usage of electronic resources have been the academic interest of the users. Verma, S., Bhatnagar, T., Mahawar, K. L., & Bhatnagar, R. (2009)<sup>6</sup> focused on use of electronic resources in the library of Sikkim Manipal Institute of Technology Library. It highlights the use of e-resources by faculty members of Computer Science Department in SMIT Library. The purpose of seeking information, formal and informal sources used by faculty in searching the relevant information is studied in the paper. It also discusses frequency of their visit to the library and tools used for searching the information. The role of library professionals in helping faculty for finding information is also touched upon. The suggestions given by faculties are also discussed. Kaur, B., & Verma, R. (2009)<sup>7</sup> described the use of electronic resources and services provided at the central library of Indian Institute of Technology, Delhi, which is focused to know who these electronic information services users are? how often they use the services and the place where the information is accessed. It has been

found that usage of e-journals is increasing; this is due to knowledge among the users about the library e-resources and services. Owing to an easy access available at various places in the institute, users are accessing these resources at hostels and departments more as compared to the library. Frequency of visiting the library has been decreased. Galyani Moghaddam, G., & Talawar, V. G. (2008)8 investigate the use of scholarly electronic journals at the Indian Institute of Science. The paper examines the methodology and results from a questionnaire-based survey of networked electronic services in India at the Indian Institute of Science (IISc) libraries serving a variety of disciplines. The results showed a growing interest in electronic journals among the users at the IISc. The electronic journals were mostly used for research needs and PDF format was the most preferred one. The fact that users have free access to electronic journals at all hours from their own computers seems to be the most appealing feature. Shuling, W. (2007)<sup>9</sup> carried out the readers' present conditions, difficulties and requirement of using e-recourses, The Library of Shaanxi University of Science and Technology, carried out sampling, questioning and investigating of all teachers and students at campus. This paper analyses the consciousness of using e-resources, and the ability of obtaining literature for university readers, by investigating some readers' utility of e-resources at Shaanxi University of Science and Technology, Xianyang, Shaanxi, People's Republic of China and the result from one side reflects every unit and layer personnel's utilizing condition and difficulty of e-literature at the whole university. Nikam, K., & Pramodini, B. (2007)<sup>10</sup> attempt to study the use of e-journals and databases (subscribed by UGC-InfoNet consortium) by the users of University of Mysore. Nearly 200 responses to a survey based on questionnaire have been analyzed and presented. Besides studying the use of e-journals and databases, the paper also examines the utilization and satisfaction levels of users with respect to the e-resources. The role of Information Communication Division (ICD) of the University of Mysore in informing the users about the availability of these resources is also discussed. Use of Internet as an alternative to UGC InfoNet consortium resources is presented. Bar-Ilan, J., Peritz, B. C., & Wolman, Y. (2003)11 conducted a study and the results of an extensive survey of the senior academic staff of the Israeli universities on their use of electronic journals and databases are presented. The major findings are that the use of electronic sources is already widespread among the respondents and more than 50% found the electronic services indispensable. Disparities were found between the usage patterns in the different disciplines.

### **Data Analysis and Interpretation**

Total 192 questionnaires were randomly distributed among the different designations of faculty members namely Professors 42 (21.87%), Associate Professors 59 (30.73%), and Assistant Professor 91 (47.39%) respectively.

# Distribution of respondents by faculty designation

Table 1 Designation-wise distribution of respondents

Sl. No.	Faculty designation	No. of respondents	Percentage (%)
1	Professor	42	21.87
2	Associate Professor	59	30.73
3	Assistant Professor	91	47.39
Total		192	100

Table 1 indicates that the designation-wise distribution of respondents. It could be noted that out of the total 192 respondents, 21.87% are Professors, 30.73% are Associate Professors and the remaining 47.39% respondents are Assistant Professors. It is concluded that amore Assistant Professor followed by Associate Professors are the respondents in the study.

# Distribution of respondents by gender

Table 2 Gender-wise distribution of respondents

Sl. No.	Gender	No. of respondents	Percentage (%)
1	Male	136	70.83
2	Female	56	29.17
	Total	192	100

Table 2 reveals that the data taken from male and female of faculty members in Vardhaman College of Engineering (Autonomous), Hyderabad. Out of the total 192 respondents, majority of the respondents (70.83%) belong to the male faculty members while the remaining 29.17% are female faculty members. It is concluded that male respondents constitute more in number than female respondents.

# Distribution of respondent's frequency of using the e-Resources

Table 3 Frequency of using e-Resources distribution of respondents

Sl. No.	Frequency	No. of respondents	Percentage (%)
1	Daily	177	92.19
2	Two to three times a week	150	78.12
3	Weekly	115	59.89
4	Monthly	11	5.73
5	Occasionally	17	8.85

**Note:** Respondents were permitted multiple answers.

In the Table 3, majority of the respondents (92.19%) are using the e-resources on regular basis. Whereas, 78.12% of the respondents declared that they used the e-resources two to three times a week while 59.89% of them used weekly while the e-resources used occasionally by 8.85% of the respondents and 5.73% of the respondents used just monthly.

# Distribution of respondent's place of access the e-Resources

Table 4 Place of access the e-Resources distribution of respondents

Sl. No.	Place of access to e-resources	No. of respondents	Percentage (%)
1	Central library	171	89.06
2	Department	125	65.10
3	Computer lab	88	45.83

Note: Respondents were permitted multiple answers.

Table 4 indicates that the respondents were asked to indicate the place from where the faculty members access e-resources. Majority of the respondents (89.06%) are accessing e-resources from central library, 65.10% of accessing the e-resource from the department and 45.83% of them accessing e-resources from Computer lab. This analysis indicates that most of the respondents 89.06% depending central library for accessing e-resources.

#### **Sources of information on e-Resources**

Table 5 Sources of information on e-Resources distribution of respondents

Sl. No.	Sources	No. of respondents	Percentage (%)
1	Library personnel/Library Circulars	142	73.96
2	Colleagues/Friends	75	39.06
3	Library website	113	58.85

**Note:** Respondents were permitted multiple answers.

Table 5 exhibits that the majority of the respondents (73.96%) are preferable for getting source of information on e-resources from Library personnel/Library Circulars, 58.85% of them are from library website and 39.06% of them from Colleagues/Friends.

#### **Purpose of using the e-Resources**

Table 6 Purpose of using the e-Resources

Sl. No.	Purpose	No. of respondents	Percentage (%)
1	Research (thesis/dissertation/projects)	165	85.94
2	Publishing articles/books	175	91.14
3	Academic/Teaching	135	70.31
4	To access professional societies and organizations	97	50.52
5	Current awareness	126	65.62
6	For getting significant information in the area of	146	76.04

	specialization		
7	Career information	86	44.79

**Note:** Respondents were permitted multiple answers.

Table 6 reveals that the various purposes for which the faculty members used the e-resources. Majority of the respondents (91.14%) used the e-resources for writing/publishing articles / About 85.94% of the respondents books. using the e-resources for research (thesis/dissertation/projects), 76.04% respondents used it for getting significant information in the area of specialization, 65.62% used it to current awareness, while 70.31% used it as academic/teaching, 50.52% using to access professional societies and organizations and 44.79% of the respondents used the e-resources for career information.

# Use of different types of e-Resources

Table 7 Accessing different types of e-Resources

Sl. No.	Types of e-Resources	No. of respondents	Percentage (%)
1	e-Journals/e-Books	186	96.87
2	e-Databases	165	85.94
3	e-Theses/dissertation	119	61.98
4	e-Magazine/Newspaper	126	65.62
5	Conference Proceedings	94	48.96
6	Technical reports	81	42.18
7	Standards & Patents	63	32.81
8	e-Audio Video Lectures/NPTEL content	171	89.06
9	Open and free access resources	79	41.14

**Note:** Respondents were permitted multiple answers.

Table 7 reveals that the using different types of e-resources among the faculty members. The analysis shows that (96.87%) of the respondents were using e-journals/e-books, while 89.06% of the faculty members are used e-Audio Video Lectures/NPTEL content, followed by 85.94% of them were found that they were used e-Databases for their respective information. Further, the remaining 65.62% faculty members are accessed e-Magazine/Newspaper, 48.96% of them are searching Conference Proceedings, followed by 42.18% faculty members used for Technical Reports. Whereas 41.14% of the faculty members used Open and free access resources and 32.81% of the respondents were used Standards & Patents.

#### Awareness on e-Resources

Table 8 Awareness on e-Resources

Sl. No.	Response	No. of respondents	Percentage (%)
1	Yes	179	93.22
2	No	13	6.77
Total		192	100.00

Table 8 clearly indicates that the most of the respondents (93.22%) were aware of electronic resources and 6.77% were not aware of electronic resources. The result implies towards a positive sign regarding use of electronic resources by the faculty members of Vardhaman College of Engineering (Autonomous), Hyderabad.

# Awareness and Use of e-Resources available in the Library

Appearance of e-Resources has significantly changed the way in which information is access and used. Therefore, e-Resources have take place to an essential part in the library's collection.

Table 9 Awareness and Use of e-Resources available in the Library

S. No.	e-Resources	No. of respondents	Percentage (%)
1	IEEE	181	94.27
2	Elsevier (ScienceDirect)	145	75.52
3	ASME	94	48.96
4	ASCE	73	38.02
6	ASTM Digital Library	113	58.85
7	McGrawHill access engineering (e-books)	142	73.96
8	J-Gate: Engineering & Technology	108	56.25
9	J-Gate: Social & Management Sciences	107	55.73
10	DELNET	59	30.73
12	National Digital Library of India	71	36.98

**Note:** Respondents were permitted multiple answers.

The usability of e-resources by their library depends upon its awareness. It can be specifies from the Table 9 that the majority of the respondents (94.27%) are aware and use of IEEE resources, 75.52% of them are awareness and using the Elsevier (ScienceDirect) and 73.96% faculty members were aware and used the McGraw-Hill access engineering (e-books). Whereas 58.85% faculty members were aware and usage of ASTM Digital Library, 56.25% of them are aware and use of J-Gate: Engineering & Technology, 55.73% of the respondents are aware and use of J-Gate: Social & Management Sciences. The followed by 48.96% of the faculty members are aware and use of ASME, 38.02% of them are aware and use of ASCE, 36.98% of the

respondents are aware and use of National Digital Library of India and 30.73% of the faculty members are awareness and using DELNET resources in their library.

## **Benefits for using e-resources**

Table 10. Benefits for using e-Resources

S. No.	Benefits	No. of respondents	Percentage (%)
1	Time saving	176	91.67
2	Easy to use	161	83.85
3	More informative	183	95.31
4	More useful	149	77.60

Note: Respondents were permitted multiple answers.

The benefits derived by the faculty members from the use of e-resources are varied and are indicated in the Table 10 most of the respondents (95.31%) affirmed that they have more informative, 91.67% respondents indicated time saving, 83.85% respondents indicated easy to use and 77.60% of the respondents reported that the use of e-resources more useful.

# **Problems faced while using e-Resources**

Table 11 Problems faced while using e-Resources

S. No.	Problems	No. of respondents	Percentage (%)
1	Internet access low speed	43	22.39
2	Difficulty in finding relevant information	55	28.64
3	Too much information retrieved	62	32.29
4	Time consuming to download	39	20.31
5	Lack of time	111	57.81
6	Lack of IT knowledge/ Lack of training	16	8.33

Note: Respondents were permitted multiple answers.

Table 11 describes the various factors that problems the use of e-resources by the faculty members in Vardhaman College of Engineering (Autonomous), Hyderabad. Among these factors, lack of time was a problem of (57.81%) response rates. Following this is the too much information retrieved with 32.29% of the respondents agreed, and difficulty in finding relevant information of which 28.64% of the total respondents agreed, Internet access low speed with 22.39% of the respondents agreed, time consuming to download with 20.31% of the respondents agreed, as well as lack of IT knowledge/ lack of training which had 8.33% respondents agreed.

#### Overall satisfaction level of e-Resources

Table 12. Overall satisfaction level of e-Resources

S. No.	Satisfaction level	No. of respondents	Percentage (%)
1	Highly satisfied	139	72.39
2	Satisfied	27	14.06
3	Partial satisfied	16	8.34
4	Dissatisfied	10	5.21
Total		192	100

Data presented in Table 12 indicates that most of the respondents (72.39%) are highly satisfied with e-resources and 14.06% of them are satisfied with e-resources available in their library. It is also evident from the table that 8.34% of them are partial satisfied and 5.21% of the respondents are dissatisfied with e-resources.

# **Findings**

Based on the analysis of the data collected, major findings of the present study are stated below.

- The majority of the respondents (92.19%) were using e-resources daily.
- Most of them (93.87%) were aware about the available e-resources in their library.
- (89.06%) of the respondents preferred central library for accessing e-resources.
- Majority of the respondents (73.96%) were getting source of information on e-resources from library personnel/library circulars.
- Most of the faculty members (91.14%) responded that the purpose of using the e-resources for publishing articles/books.
- Majority of the respondents (96.87%) responded that they have accessing e-resources/e-books.
- Majority of the respondents (94.27%) were aware and use of IEEE resources in their study.
- Most of the faculty members (95.31%) declared that they have acquainted with more information by using e-resources.
- (57.81%) of the faculty members expressed the view that the lack of time was a problem while using the e-resources.
- Majority of the faculty members (72.39%) opined that they were highly satisfied with overall usage of e-resources.

#### Recommendations

Based on the findings, the following recommendations have been made for awareness and maximum utilization of e-resources.

- The study brings out impact in terms of awareness and effective use of the available eresources with negligible constraints by the faculty members of Vardhaman College of Engineering (Autonomous), Hyderabad.
- The library authorities should be provided high bandwidth Internet access for quick access and effective retrieval of e-resources.
- The incumbents of the library and information centre should be imparted with training to become skill oriented. They in turn provide orientation to the users (faculty members and students) and authorities should send alerts about the available resources for effective retrieval and utilizing the e-resources.

#### **Conclusion**

Currently the availability and accessibility of e-resources in academic college libraries is quite common for user community. The present study conclude that the awareness and use of e-resources by faculty members of in Vardhaman College of Engineering (Autonomous) Library, Hyderabad and the majority of the faculty members depend the use of e-resources to enhance teaching and research activities in their areas. The study also has been noticed that the e-resources of library are playing important role of functioning of any academic and research institution. The major findings of the present study are evidently indicates that the faculty members of the Vardhaman College of Engineering (Autonomous) Library, Hyderabad is profoundly using the e-resources for the purpose of their research and academic activities.

It is important for the VCE Library to improve the awareness of e-resources by the faculty members and students so as to increase the usage of e-resources. Library orientation should be a continuous process in academic libraries for teaching and research activities. E-resources information is highly useful for academic, research and learning processes in the present study and makes it successful and best use of the available e-resources in the study. Library orientation

should be organized from time to time to maximize the use of e-resources of information more effectively and efficiently.

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