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Full Length Research

Materials for M.Tech Students: A Citation Analysis of Collection Development Electrical & Power Engineering Materials from 2018 to 2023 GNDEC

Manpreet Singh

Library Guru Nanak Dev Engineering College
E-mail: lib.msc@gmail.com

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This study applied the citation analysis method to examine the use of information resources by M. Tech in Electrical& Power Engineering in preparing their theses at the GNDEC, Library. A total of 2394 citation theses submitted newline during the period were cited by the students of the Electrical & Power Engineering Department of GNDEC, Ludhiana. These references include Books, Journals, Conference Proceedings, Transactions, Symposiums, Theses, Ph.d These sand Links etc. The applicant has submitted their application for a master's degree in Electrical Engineering 2093 and Power Engineering 1985.

Keywords: Citation Analysis, M. Tech Student, Electrical Engineering, Power Engineering, GNDEC.

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INTRODUCTION

The citations provided by the newline Thesis student were selected as a sample of the study. Each citation's material format was recorded as Book, Conference, Journal, Transaction, Symposium, Thesis, Ph.d, Link, other. A citation is a process of documentation in which the author gives credit to other authors for the documents published by them and refers him to the completion of their documents.1E. Garfield, 1979 refer to previous material to support, illustrate, or elaborate on a particular point, act citing is an expression of the importance of the material. The total number of such expressions is about the most objective measure there is of the material's importance to current research. The number of times all the material in a given journal has been cited is an equally objective and enlightening measure of the quality of a journal as a medium for communicating research results.2

Citation Analysis

Citation analysis is the analysis of the citation or bibliographical references that is appended with the research communication. Information about the authorship pattern amongst fields or the relative use of different kinds of documents, include books, journals, conference proceedings, reports, theses & so be useful etc. Citation analysis is one of the most popular techniques employed in recent years for the identification of core documents and the complex relationship between citing and citing documents for a particular scientific community in a particular geographical area.3

Definition of Citation Analysis

Citations provide us bibliometric data about the used in documents. These data can be better utilized for bibliometric studies in many respects.

According to E. Garfield " A frequency with citations is made is a measure of research activity or of communication about research activity".4 Wikipedia defines "citation analysis" refers to a form of bibliographic database. According to E.C.White 1985 "The Citation analysis plays a prominent role for easy identification of earlier research".5

Literature Review:

A review of the literature means the study of the same logic has already been done by other authors. Garfield, E. (1977) states that citation frequency can determine journal selections for core collections, but is insufficient for determining all selections.6Sangwal (2013) orated that investigation of distribution of authors, citations and publications is an active research area in informetrics."5K. Kumar and Reddy, T. R. (2012) The study on citations in master's degree theses submitted to the Department of Library and Information Science, Sri Venkateswara University, Tirupathi, during the period 2000–2007 was analyzed to find possible relationships between citations, citing articles, and bibliographic forms. Frequency and percentage distributions (charts, tables and graphs) and measures of central tendency were used to analyze the data. Findings showed that journals were the most utilized reference materials in the thesis.7

Guru Nanak Dev Engineering College:

Guru Nanak Dev Engineering College was established in 1956. The trust deed was resisted on 24th February 1953 with a commitment by the Nanakana Sahib Education trust to uplift the vast weaker section of Indian polity comprising rural India by admitting 70% students every year from rural areas. The commitment was made to the nation on 8th April 1956. The College is affiliated with Punjab Technical University, Jalandhar to run B.Tech, M.Tech. (Regular & Part time) MBA & MCA. One of six faculties at GNDEC the Faculty of Engineering is made Applied Science, Civil Engineering, Computer Engineering, Electoral Engineering, Electronics & Commination Engineering, Information Engineering, Mechanical Engineering, Production Engineering, and MBA & MCA.8 The institution has a well-established Air Conditioned Central Library having rich collection of books, online books, print Journals, online journals, online journals, back volume journals. The books are classified according to DDC 23rd latest edition through Web Dewey service. Library is fully computerized with E-Granthalaya software package which is an integrated multi-user library management system those supports all in-house operations of the Library. Library collection can also be accessed through Web OPAC at any terminal on the Campus Network. Library is also connected with DELNET for inter library loan and document delivery services. Library resources which include some of the leading IEEE, ASCE, ASME, Science Section, J-Gate Engineering, springer Engineering, Wiley eBook, Pearson Education Book, McGraw Hill Book & EBSCO.

METHODOLOGY

The theses used in this study are arranged on accession numbers from 2018 to 2024 and are from the Guru Nanak Dev Engineering College's Central Library in Ludhiana. Electrical Engineering & Power a total of theses selected for the sample. Two-three seven 23 and Seven one 58 theses, with a total of 2394 represented eight engineering. The material cited was categorized as Journals, Books, Conferences, Transistors, Symposiums, Thesis, Ph.D., Link, and others.

Objectives of the Study

The objectives of the present study are –

1. To study different information sources consulted by research scholars of the Electrical Engineering Department of GNDEC Library during their research work.
2. To study most cited sources, age of cited items, frequently cited Journals.
3. To prepare the ranking of Journals consulted by the research scholars under the purview of the present study.
4. To study the Electrical Distribution of Information.
5. To study the Power Engineering.
6. To identify the average number of references cited per thesis.

Department of Electrical& Power

Table 1 shows the thesis distribution by year in the department of Electrical Engineering & Power Engineering for each of the 2394 Journals published by the Journal from 2018 to 2023.

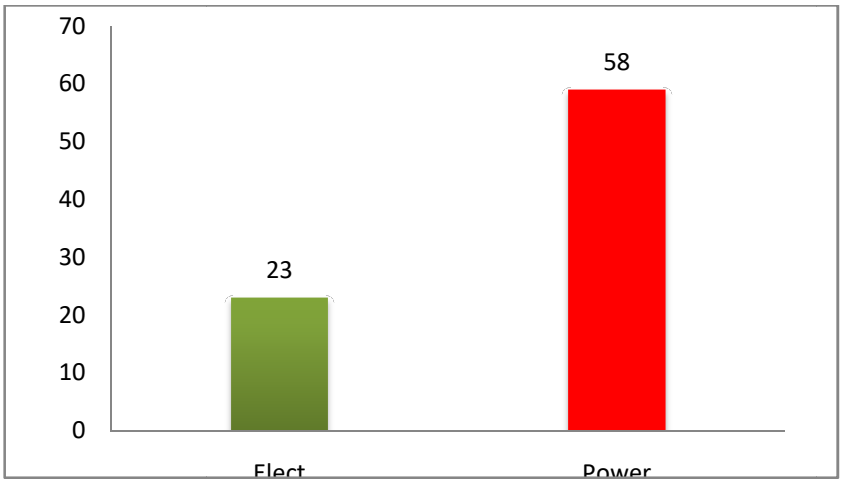


Figure 1. Form wise Distribution

Data Analysis

Table 1. Form wise Distribution

S. No.	Year	Electric	Citation	Age%	Age%
1.	Book	58	58	2.42	2.42
2.	Journal	410	468	17.12	19.54
3.	Conference	512	980	21.38	40.93
4.	Symposium	47	1027	1.96	42.89
5.	Transaction	179	1206	7.47	50.37
6.	Thesis	13	1219	0.54	50.91
7.	Ph.d	03	1222	0.12	51.04
8.	Link	63	1285	2.63	53.67
9.	others	1109	2394	46.32	100
		2394		99.96%	

Table 1 shows the distribution of these submitted for the master's degree in Electrical & Power Engineering at Guru Nanak Dev Engineering College, Ludhiana, during the period of 2018 to 2023. During the years 2018 to 23, the Conferences 512 (21.38%), Journal 410 (17.12%), Transistors 179 (7.47%), Link 63 (2.63%), Book 58 (2.42%), Symposium 47 (1.96%), Thesis 13 (0.54%), and others 1109 (46.32%) received.

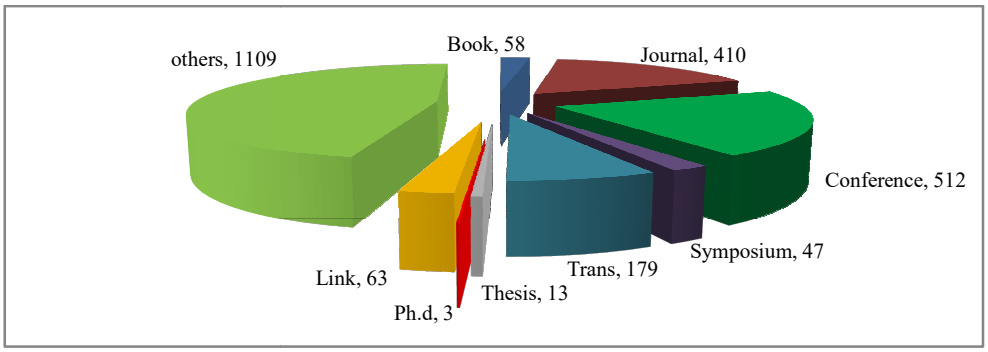


Figure 2. Form wise Distribution

Table 2. Form wise Distribution Electrical Engineering

Year	Book	Journal	Confere.	Transa.	Sympo.	Thesis	Ph.d	others	Link	
2018-18	24	173	164	74	04	11	03	323	23	799
2019-19	09	76	64	04	28	00	00	88	11	280
2020-20	08	52	73	25	02	00	00	86	03	249
2021-21	08	50	71	27	05	00	00	220	18	399
2022-22	05	45	106	30	08	02	00	166	04	366
2023-23	00	00	00	00	00	00	00	00	00	00
	54	396	478	160	47	13	03	883	59	2093

Conference, Transaction, Symposium

Table 2 shows the distribution of these submitted for the master's degree in Electrical & Power Engineering at Guru Nanak Dev Engineering College, Ludhiana, during the period of 2018 to 2023. The shows the distribution of different forms of cited literature used by the Electrical Engineering M.Tech in their type.

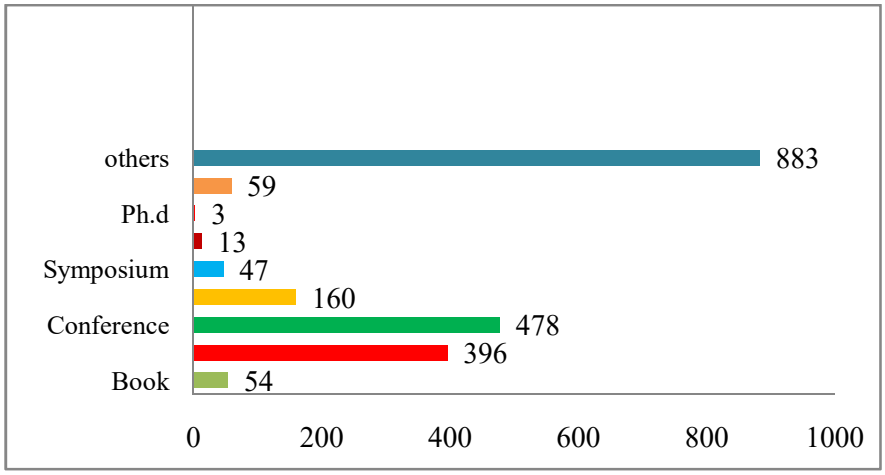


Figure 3

Table 3. Form wise Distribution Power Engineering

Year	Book	Journal	Confere.	Transa.	Sympo.	Thesis	Ph.d	others	Link	
2018-18	22	136	143	56	05	12	03	293	43	713
2019-19	06	36	41	11	01	00	00	42	05	142
2020-20	00	14	30	02	00	00	00	28	00	74
2021-21	06	71	90	33	03	00	00	237	18	458
2022-22	04	24	68	26	04	00	00	101	04	231
2023-23	05	70	35	29	02	00	00	226	00	367
	43	351	407	157	15	12	03	927	70	1985

Table 3 shows the distribution of these submitted for the master's degree in Electrical & Power Engineering at Guru Nanak Dev Engineering College, Ludhiana. During 2018 to 2023, Conferences 407 (20.50%), Journal 351 (17.68%), Transistors 157 (7.90%), Link 70 (3.52%), Book 43 (2.16%), Symposium 15 (0.75%), Thesis 12 (0.60%), and other 927 (46.70%) received.

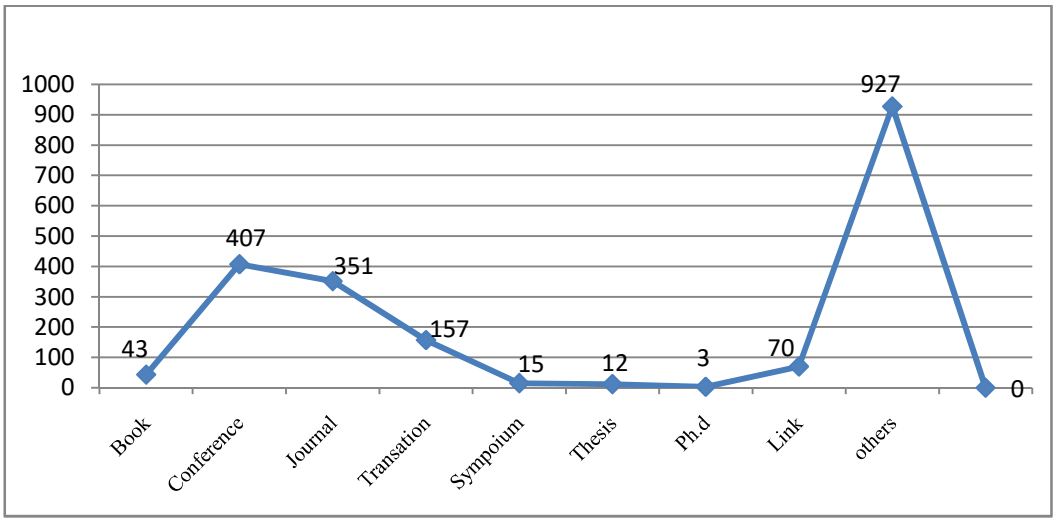
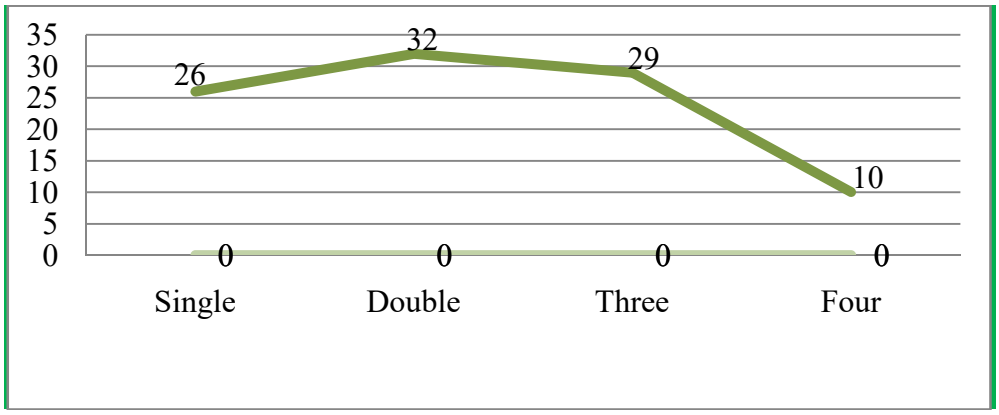


Table 4. Authorship Pattern of Title

S.No	Author	No of Citation	Age%	C. Citation
1.	Single	26	26.80	26
2.	Double	32	32.98	58
3.	Three	29	29.89	87
4.	Four	10	10.30	97
	Total	97	99.97%	

From the above table, the minimum of 29 out of 97 (29.89%) and maximum of 32 out of 97 (32.98%) used citation from double author authors. Only the book's authorship pattern has been used in this analysis and authorship.As a result, the most of cited documents have a Double authorship pattern.



Research Guides

Research Guides 18 assisted in guiding the research studied in this guide.

Table 4. Form wise Distribution

S. No.	Guide	Year	Age%	Cumulative Citations	Year	Age%	Cumulative Citations
1.	ArvindDhingra	09	39.13	9	06	10.34	6
2.	Harmeet S. Gill	04	17.39	13	04	6.89	10
3	Kanwardeep Singh	--	--	--	08	13.79	18
4.	Navneet S. Bhangu	03	13.04	16	04	6.89	22
5.	Baljeet Singh	01	4.34	17	05	8.62	27
6.	Rupinderjit Singh	01	4.34	18	05	8.62	32
7.	Gagandeep S. Sodhi	--	--	--	04	6.89	36
8.	ShivaniAbrol	--	--	--	04	6.89	40
9.	Jaswinder S. Sra	02	8.69	20	01	1.72	41
10.	Preetinder Singh	--	--	--	03	5.17	44
11.	Khushdeep S. Salona	01	4.34	21	02	3.44	46
12.	RavinderKaur	--	--	--	03	5.17	49
13.	Kuldeep Singh	--	--	--	03	5.17	52
14.	SamreetKaur	01	4.34	22	02	3.44	54
15.	Sonia Grover	--	--	--	02	3.44	56
16.	ArshdeepKaur	01	4.34	23	00	--	--
17.	Amandeep S. Ghatora	--	--	--	01	1.72	57
18.	Karantir Singh	--	--	--	01	1.72	58
	Total	23	99.95%	23	58	99.92%	58

Arvind Dhingra got top place in the above table with 9 (39.13%) successful candidates, followed by Harmeet s. Gillwith 4 (17.39%), N. S. Bhanguwith 3 (13.04%)&Jaswinder S. Sra 2 (8.69%).

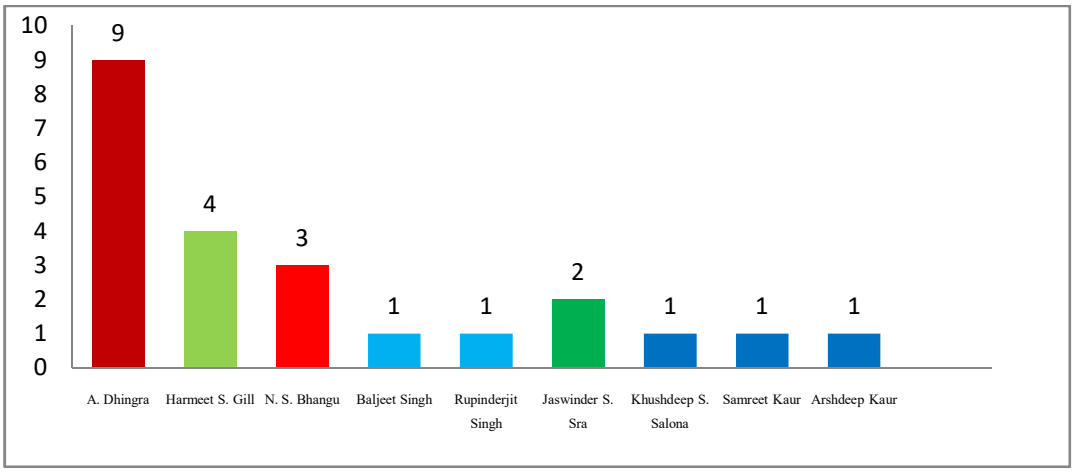


Figure 4. Form wise Distribution

S. No.	Guide	Year	Age%
1.	ArvindDhingra	9	39.13
2.	Harmeet s. Gill	4	17.39
3.	N. S. Bhangu	3	13.04
4.	Jaswinder S. Sra	2	8.69

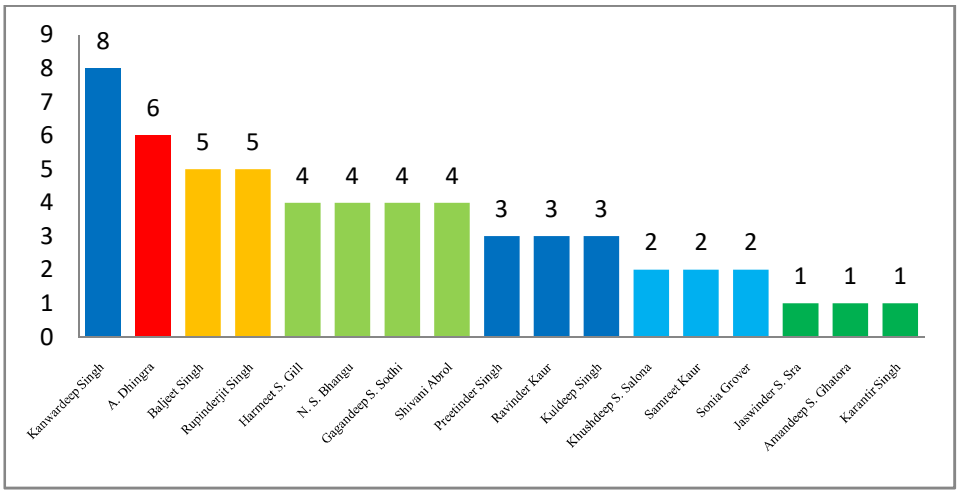


Figure 5: Form wise Distribution

Kanwardeep Singh got top place in the above table with 8 (13.79%) successful candidates, followed by ArvindDhingra with 6 (10.34%), Rupinderjit Singh & Baljeet Singh 5 (8.62%) & N. S. Bhanguwith 3 (13.04%), Gagandeep S. Sodhi & Shivani Abrol 4 (6.89%), successful candidates Preetinder Singh, Ravinder Kaur & Kuldeep Singh 3 (5.17%), Khushdeep S. Salona, Samreet Kaur & Sonia Grover 2 (3.44%).

S.No	Guide	Year	Age%
1.	Kanwardeep Singh	8	13.79
2.	ArvindDhingra	6	10.34
3.	Rupinderjit Singh	5	8.62
4.	Baljeet Singh	5	8.62
5.	Gagandeep S. Sodhi	4	6.89
6.	ShivaniAbrol	4	6.89

Kanwardeep Singh got top place in the above table with 8 (13.79%) successful candidates followed by ArvindDhingra with 6 (10.34%).

Suggestions

One of the oldest engineering colleges in India's east is the Guru Nanak Dev Engineering College (Lhd). The result of this study is helpful for other institution in the field of Engineering, MCA & MBA to know the research pattern core journals, and other important resource collaborations, etc., in the field of Electrical Engineering.
Based on the study, the following recommendations have been made, which GNDEC may adopt in their research.

1. M.Tech students submitted to the central library may be uploaded on E-Grathalaya an
. Institution for wide accessibility of the research output.
2. Institution may introduce a standard format for referencing in the thesis.

CONCLUSION

The theses used in this study are from the Central Library the Guru Nanak Dev Engineering College, Ludhiana, and are arranged to accession numbers from 2018 to 2023. The study analyzed the value of citations, publications, and publications in Electrical & Power Engineering from 2018 to 2023. Average number of citations in the Conference is around Electrical 512 & Journal 410. Theses which are the products of research activity, have been examined through citation analysis finding how beneficial are a library's collection development. Journal is one of the most important sources of information. A total of 410 citations were taken from the Journal of various publishers in the field of Electrical Engineering. Arvind Dhingra got top place in the above table with 9 (39.13%) successful candidates, followed by Harmeet s. Gillwith 4 (17.39%) & N. S. Bhanguwith 3 (13.04%). Kanwardeep Singh got top place in the above table with 8 (13.79%) successful candidates, followed by Arvind Dhingra with 6 (10.34%), Rupinderjit Singh & Baljeet Singh 5 (8.62%), & N. S. Bhangu with 3 (13.04%).

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