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An Index to Quantify global world educational's Engineering and medical Scientific Research Output

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Abstract

The concept of new knowledge were analyzed based in the citation , impact factor, cited and un cited papers and h-index were basis of a contemporary tendency of parameterization of everything and the potential measure of the knowledge progress, which recognizes individuals, institutions, national and international university in Engineering sub-disciplines such civil engineering, mechanical engineering, automation, mining, transport, environmental etc were quantify h-index for prediction of gross domestic productive and unproductive of the research output over the world in which the highest index in the world was US and UK.

It has been found that the population of the best keeps basically the same relations between the h-index and a number of publication, and between the h-index and a citation number. However, even the best in Engineering should publish 2-3 times a year or more papers to receive the same h-index as top scientists or Professor or best Engineer or Doctor in Engineering or medicals sciences in overall domains.

The Author Dr Sanjay Gupta made emphasis over the slope of the number of publication and impact factor of the technical manuscript as per the world Scale. The numerical value after analysis of the slope existing in between or less than 1,2,3 , the output of the international or national university can be categorized on the individual Professor research output and minimum h-index for the professor .All three categories gave a nation best gross domestic product research output. Out of all three categories less than 3 , gave the excellent performance of the individual , university and international university .The Author elaborated slope based on their own research output and giving a scale of approximately 3. The Author Dr Sanjay Gupta has achieved an excellent research output in Civil Engineering in world scale. The Nobel prizes achieved all over the world were also represented with world scale of Hrich index based on the Hi index starting from 15 to 75 for a non technical physics papers. Keeping the view of the world scale the Author Dr Sanjay Gupta achievement during the entire career varying H-Index in between 20-30 In Civil Engineering.

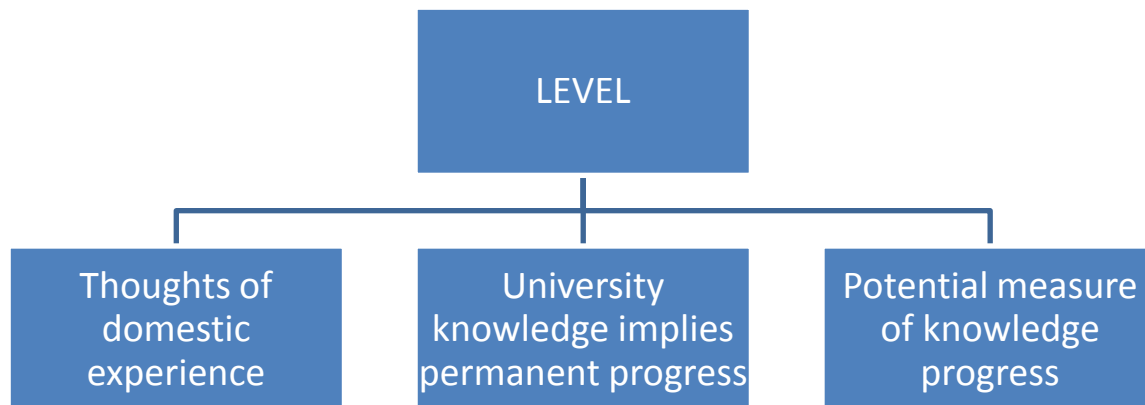
The mechanism how to increase the h-index has been presented based on the WOS, scoupos or DOI as well as Google. Some similarities between H-index and the journal impact factor (JIF) have been stressed. Also the universal role of H-index in ranking countries in all areas and in Engineering and medical sciences.

Key words: Bibliometric indicators, citations, citation metrics, h-index, country rank, SCImago indicator, disciplines, domestic Engineering sub-disciplines, statistics.

1.0 Introduction: The author Dr Sanjay Gupta preliminary examine the index and the new concept has been brought. The concept brought by the Author was correlated with the empirical relationship to examine the h-index and converting the relation S-Index. This modified empirical relationship evaluate increasing rate of index and thus replacing the h-index to s-index. The relationship hold good with the proportionalities coefficient should be taken as 0.5. However index h is defined as the number of papers with citation number higher or equal to h, as a useful Index to characterize the scientific Engineering and medicos output of a

researcher. The selection of scale and tools for assessment and creation of ranking of research in the field of Engineering, sciences and medicals as well as pharmaceuticals. Paradoxically, parameterization is a common and well accepted way in the engineering, medicals, pharmaceutical methodology. The same method used, as extremism, to evaluate engineering as well as medicals researches seems to provide erroneous conclusions.

1.1 Conditions and potential measure of research output; The level of thoughts, university knowledge and potential measure is an important role while categorize the individual credential.



1.2 Committee for Evaluation of Scientific research: The parameterization of science and scientific researchers is the over-world tendency. However, the direct inspiration for this study has been taken from domestic experiences. The Committee of advisory body to the minister for Evaluation of Scientific Units, Engineering aspects, medicals and pharmaceutical sciences are constituted with the frame structure. The committee would forward the assessment of the leading research units including the quality of their scientific activity. The scientific activity is in order to determine the level of financial support granted to fund their research potential. The National Science Centre is a government executive agency set up to fund basic research. Basic research is original experimental or theoretical research work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without the direct practical application or use.

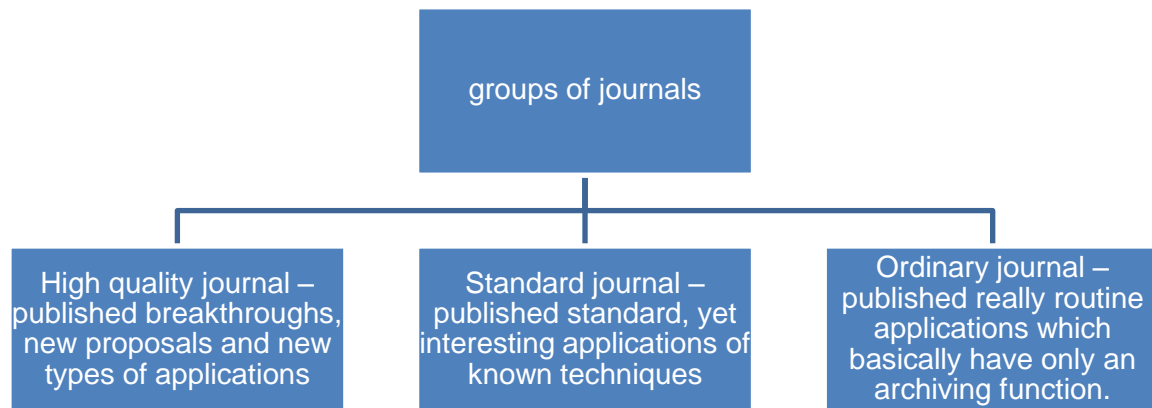
The above tendency has been presented in the regulation of the Minister of Science and Higher Education which concerns the criteria, conditions and procedures of applying for obtaining

1.3 Status of the Leading National Research Centre:

1.3.1. The assessment of the research of Engineering, medicals and sciences would be made based on the WOS citation, SCOUPOS Citation and Google citation of the each journal. The number of citations and H-index estimated from the works published in journals, which are on the Journal Citation report list, prepared for every university teacher,

1.3.2. The number of published works has been limited to 25% of the best journals taken from the list of Journal Citation Report for the restricted areas of science and prepared by the Thomson's Reuters Scientific.

1.3.3. The journal impact factor is the average number of citations for an article in a particular journal during a given period of time (usually the last two years, sometimes previous five years). The author Dr Sanjay Gupta who has published approximately 60 technical papers in different international and national journals. The correlation between the impact factor and h-index were established and gave a world scale of sterling or above excellent work in research and development in science and Engineering. The group of journals are categorized are as under:



1.4 Academic system and Knowledge; The provision of academic system of activity rewarding to the society are become the measure concern. The output knowledge exercise become one of the Hercules aspect in the science and engineering and to provide such toughest research technocrat as well as medicals output are being given prior promotion while sanctioning fund to the society or University.

The ideas are becoming the real power and potentials of the researchers in the field of Engineering and medicals, based on the idea researcher may proceed for advancement of knowledge.

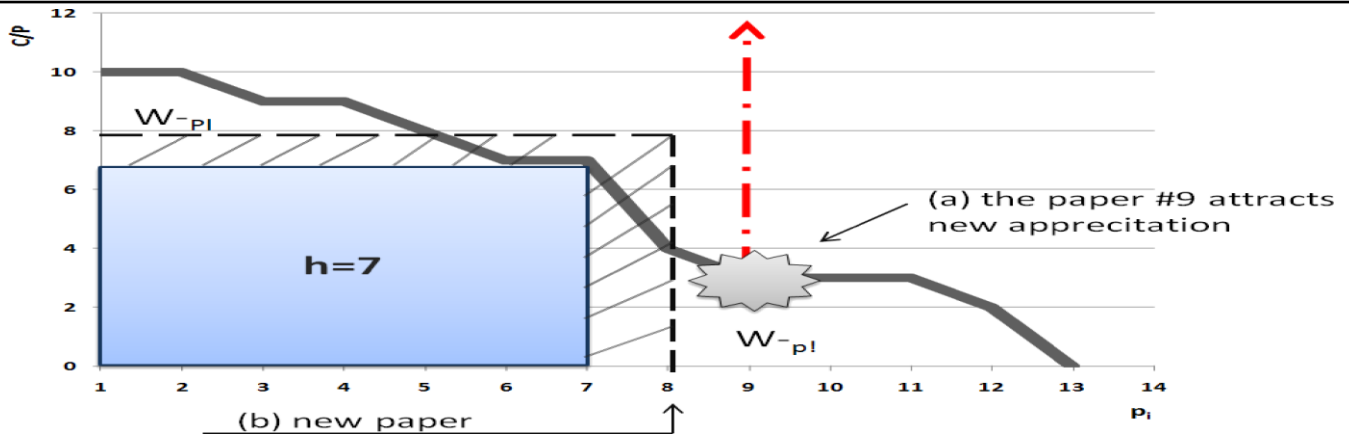
1.5 Meaning and definition of h-index: The example of an author have eight papers and have cited with 33, 30, 20, 15, 7, 6, 5 and 4 times. This tells us that the author's h-index is 6.

Articles	Citation numbers
1	33
2	30
3	20
4	15
5	7
6	6 = h-index
7	5
8	4

The meaning of h-index of 6: An h-index of 6 means that this author has published at least 6 papers that have each received at least 6 citations.

More contexts:

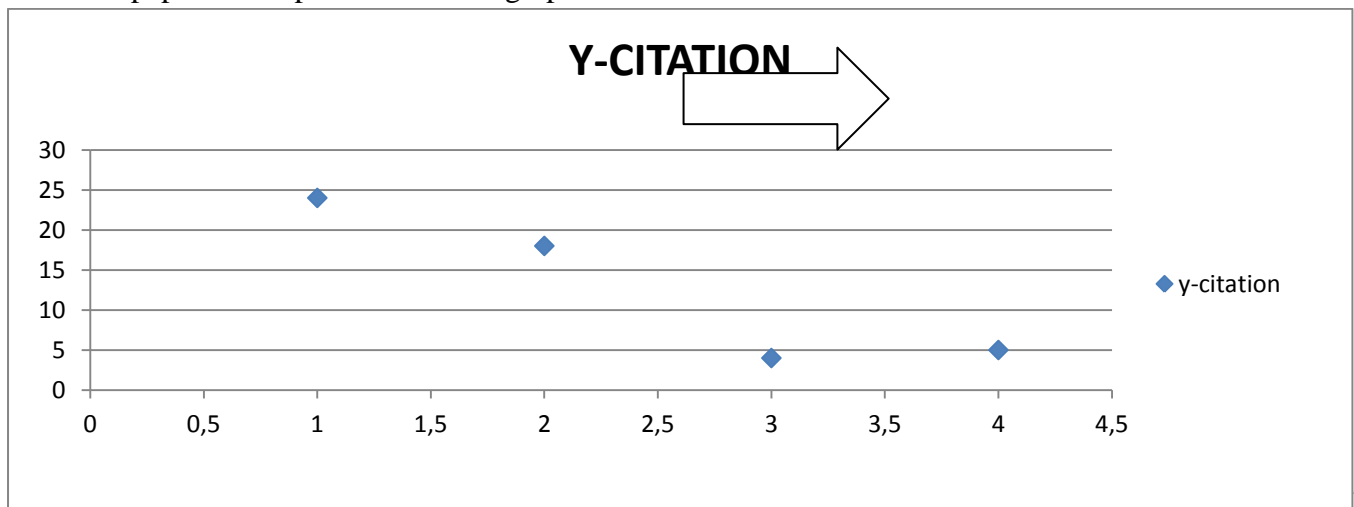
- The first paper has been cited 33 times, and gives us a 1 (there is one paper that has been cited at least once).
- The second paper has been cited 30 times, and gives us a 2 (there are two papers that have been cited at least twice).
- The third paper gives us a 3 and all the way up to 6 with the sixth highest paper.
- The final two papers have no effect in this case as they have been cited less than six times



The index of an individual expressed as 7, showing that the individual technical papers presented as 7 and have index as 7 where as the new papers index become 7+1 gave an attractive interpretation, otherwise if it show average or less become worst one. The new technical papers showing h-index as more than the the existing the technical paper become productive and become the best technical papers. The overall the technical papers are productive, otherwise unproductive .

2.0 Recognize individuals, institutions, University, international university and New knowledge;

2.1 The author Dr Sanjay Gupta representing the citation and publication. Keeping the view that the numbers of the publication of technical papers are equal to number of citation to the number of published technical papers are represented in the graphical form.



2.2

Different type of publication

X-X axis	International journals	National journals	International Conference	National conference
0.5	31			
1.0		18		
1.5				
2.0				
3.0			5.0	
4.0				6.0

International publication = 31, National publication = 18, International conference = 5

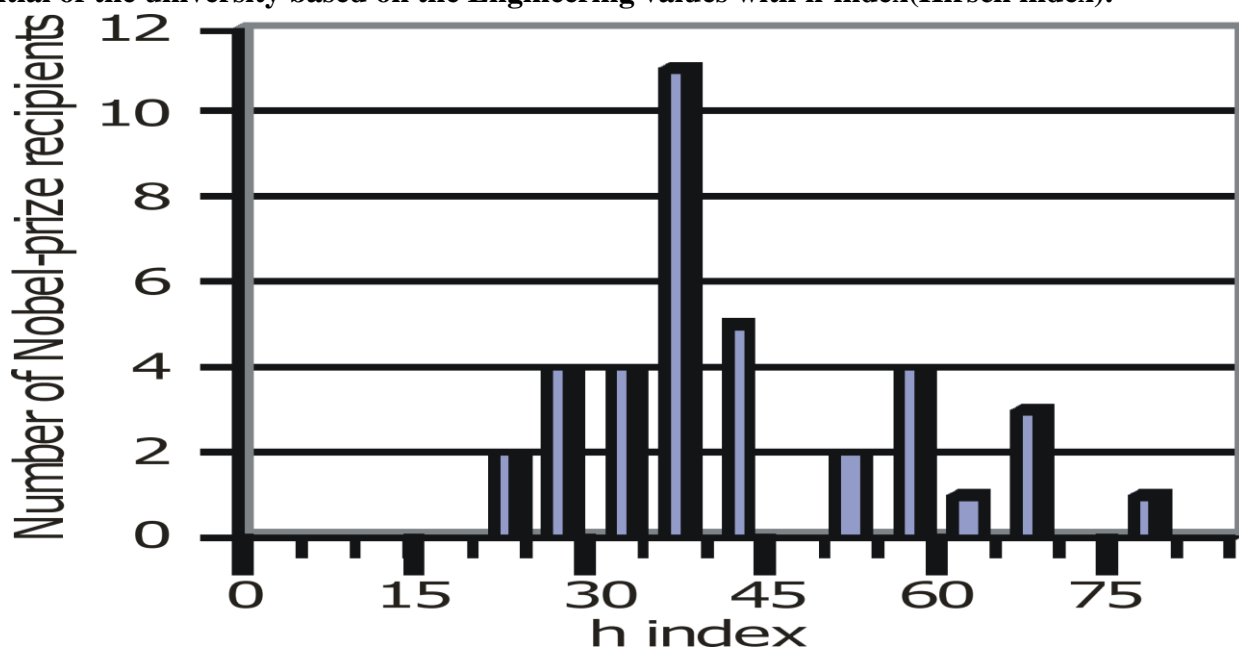
National conference = 6

The basis of the plotted curve is numbers of citation of technical papers vrs number of publication as per the world standard. Based on the above observation the Slope of the curve citation gives a value of 6 of Author Dr Sanjay Gupta is one of the Associate Professor of civil engineering of Manav Rachna International University, Faculty of Engineering and Technology, Department of civil Engineering, Faridabad. The world Scientist while analyzing of individual or institution or University or international university that the citation may be counted as per the number of the publication becoming the citation of the papers. The presentation of 6 slope of the parametric study of the published technical papers could compare with the world scale of individual potential of Professor, scientist and Engineer.

The credential of the Professor and Technocrats and their potential can be measured with the aforesaid scale are as under;

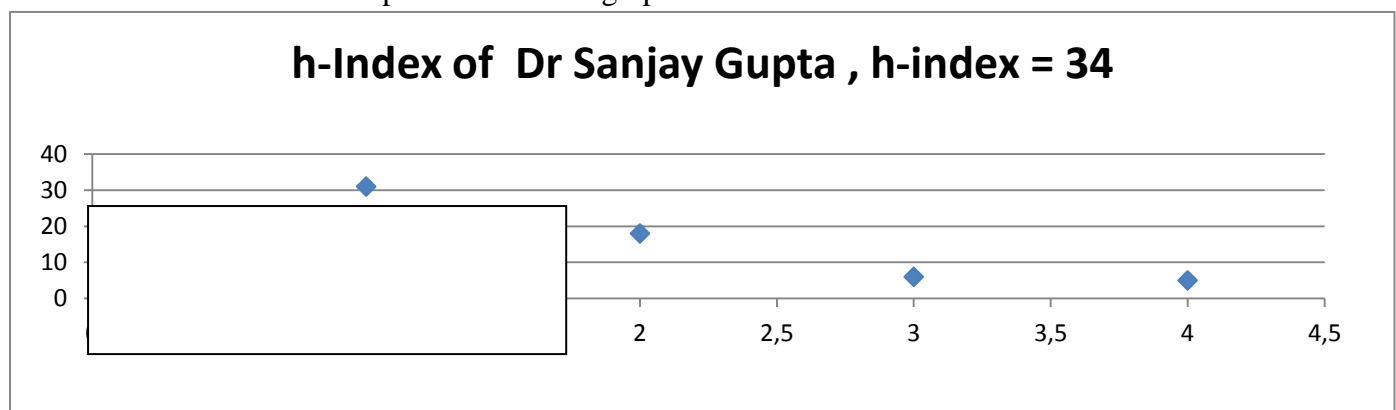
- i)The below average the world scale value is less than 2 ,ii) Excellent performance, the world scale as 2-3,iii) Sterling and high potential of individual , University, college ,the world scale shows above 3

2.3 The world Nobel prize scientist Dr Hritch D express and gave best approach while analyzing the potential of the university based on the Engineering values with h-index(Hirsch index).



The highest world in Non technical Physics papers who had awarded Nobel Prize was visualized as 11 , in the above h-index of 40 , however on a world record Nobel prize winner was visualized with h-index 20 ,30 and 75 as 2,4 and 01 Was represented in the graph .

2.4 h-index (Hirsch index)of Dr Sanjay Gupta ; The value based on the citation is 34 h-index is becoming the criteria for evaluation of Professor capacity In ternational and National University was shown in scale of world . The world scale as per the available graph and values are not less than 4



Number of publication year wise from 2009-2015

This approach of h-index was given by the above scientist. But the scale and formulation of the index required certain modification of empirical relationship.

The Manav Rachna international university, Department of civil Engineering having the h-index as analyzed below and show the value of h-index based on the approach that number of the papers published by individual faculties of the International university of civil engineering should be taken as number of citation, Manav Rachna international university, Faculty of Engineering and Technology, Department of civil Engineering, as such the analysis shows the H-index of the above graphical representation is 20 only. Based on the above observation the H-Index based on impact factor gives a value of 20 of one of the Professor of civil engineering, Dr Sanjay Gupta of Manav Rachna international university, Faculty of Engineering and Technology, Department of civil Engineering, Faridabad, The Scientist while analyzing express his views that the Impact factor may be counted while analyzing the H-index. The H-index increases with the citation of the technical papers increases. The value gives an scientific approaches that is h-index directly proportional to citation.

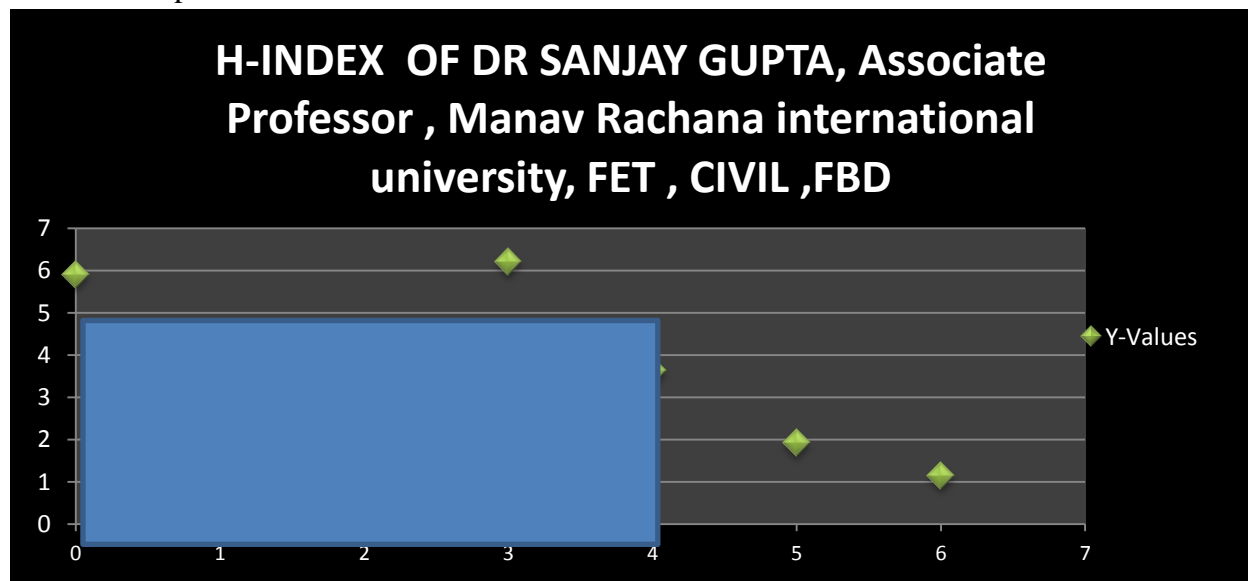
Empirical relationship hold good $H-I = K.(C)^{1/2}$

$$K = .5 \text{ for a citation value of } 2000.$$

That shows that the increasing of citation of 2000, increasing h-Index as 25 or so. The above empirical relationship hold good for any citation with a multiplier proportionalities constant as 0.5.

2.5 Another Parameter for Evaluation of S-Index i.e. Impact Factor;

The world scale for Civil and Mechanical Engineering Professor h-index become 03 based on the Impact Factor. The h-index based on the above parameter the Author Dr Sanjay Gupta have a h-index /S-index as 4.0 based on the impact factor on the world scale

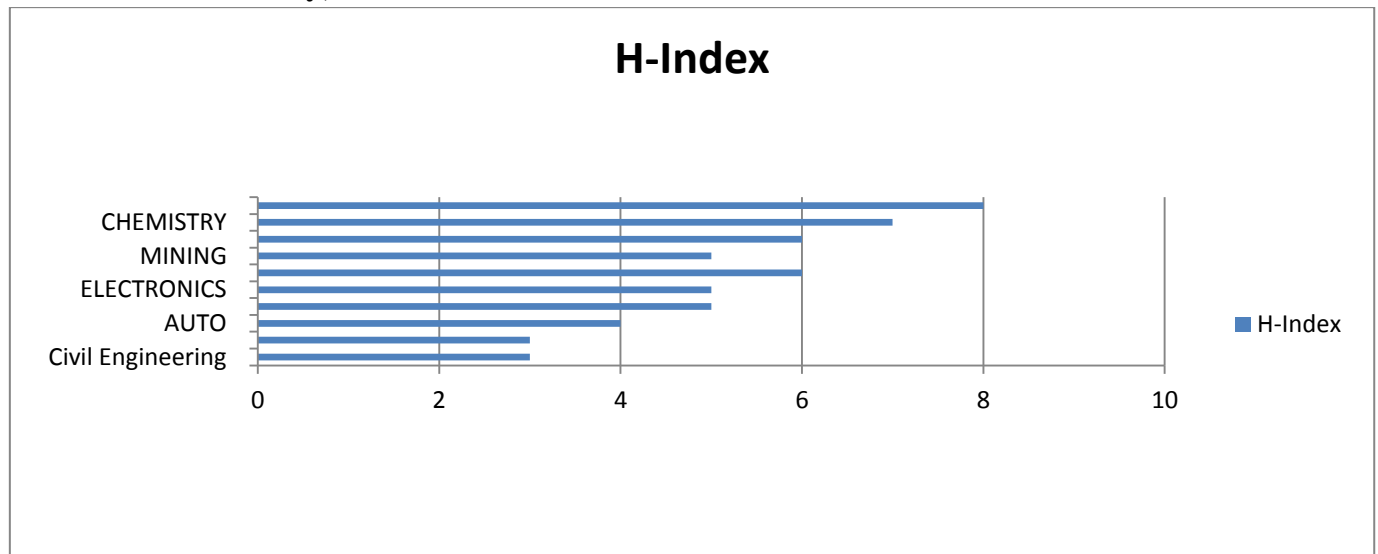


Publication Vs. Impact Factor

h-index/ S-index (Dr Sanjay Gupta) based on impact factor of Dr Sanjay Gupta

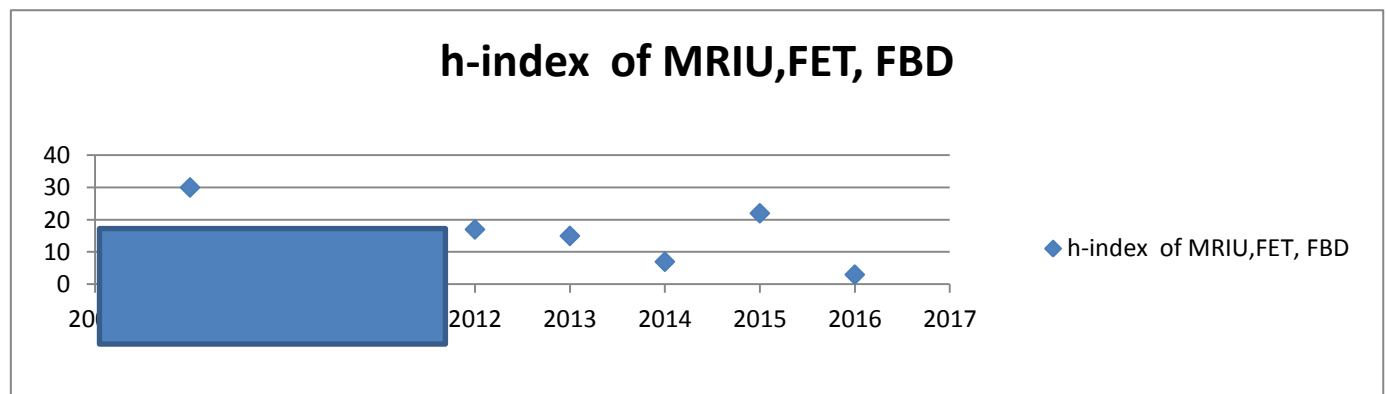
The requirement of the other than the Civil and Mechanical engineering i.e. Physics, chemistry and mathematics got the highest value of h-index 8 to 6 in the world scale. as shown in the graphical form. Based on the above observation one can predict the entire technical papers have impact factor 4. The another criteria for evaluation of the h-index. The slope pertaining to the above criteria become more than 3 and give the potential of Professor Author Dr Sanjay Gupta become sterling.

2.6 World Scale for h-Index of Director or Head of Department of Professor in the University or international University;



The variation of the h-index for the different specialized field of engineering become 3 to 8, however the highest value of the h-index on the world scale become Physics and chemistry i.e. 8 to 7.

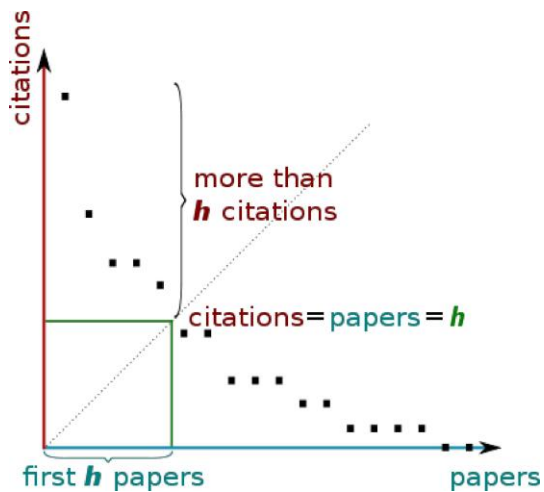
2.7 Evaluation of H-Index; The Author presented the h-index of one of the department of international University i.e, Manav Rachna international University, Faridabad, Haryana., India Department of civil Engineering, Faculty of Engineering and Technology, Manav Rachna international University, Faridabad, Haryana, India.



The department of civil engineering, Manav Rachna international university, Faridabad, Haryana, India got an h-index of 15 based on the citation of technical papers. The basis of the h-index is citation i.e. the number of the publication is equal to the number of the citation of the technical papers.

3.0 h-index criteria for evaluation of University or Professor and the meaning of h-index;

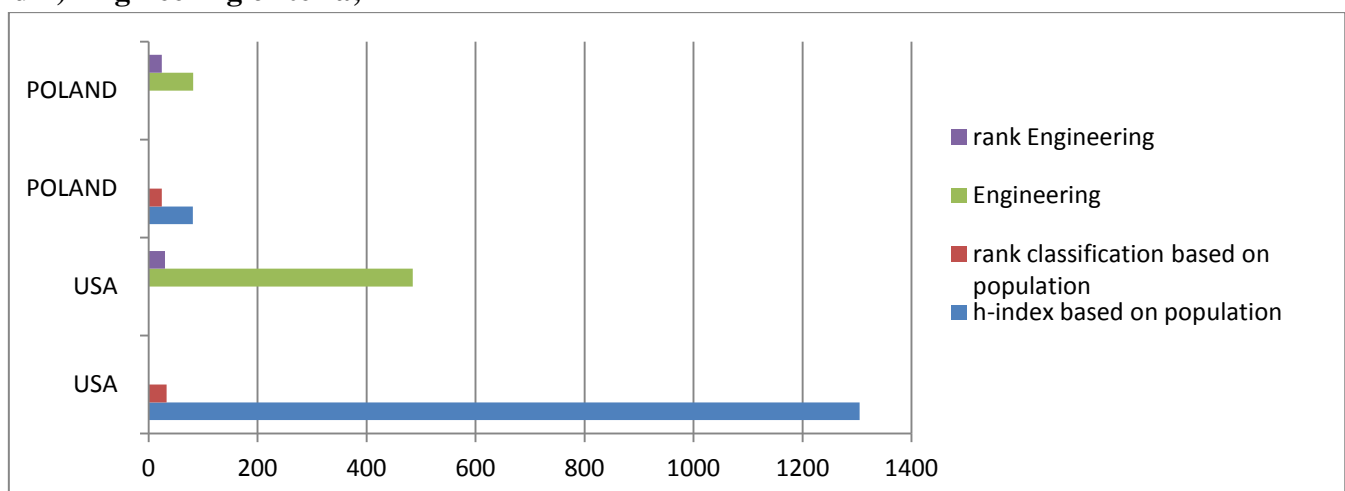
H-index (Hirsch index) from a plot of decreasing citations for numbered papers. The basis of the h-index was modified based on the impact factor or importance factor is another way of identifying the potential of Professor or academician or University.



The h-index is the measure of the potential of University as well as individual Professor. The basis of the measurement is the citation. The citation of the research papers with different citation data bases. The different data bases are as under; i. ISI Web knowledge /web of science ii. Thomson –Reuter iii. Scopus iv. Elsevier v. published or perish (pop) vi. Google scholar vii. Academic search Microsoft

The concept of H-index gained huge popularity, appreciation and, contributed to the development of scientometrics, the science of knowledge measurements.

4.0 A comparative statement of h-index of Poland and USA based on classification of i) population and ii) Engineering criteria;



The H-index for a country express the population as well as Engineering and gross domestic product. The expressions indicate the productive and unproductive Engineering and non Engineering technical papers. The growth of highest domestic index is 485 with highest amongst the world scale of H-index. Whereas based on the population criteria the index obtained for the USA become 1305 become highest amongst the world scale, got 33 rank. In the h-index by population as well as Engineering of Poland become 281 with 24 th rank and index 82 with 30 th rank.

However the Indian index become too low compared to the other nation in respect of productive and non productive papers. The approaches are being made based on the impact factor instead of citation of papers. The higher impact factor gave the higher potential of the papers.

Conclusion of the Technical papers:

- The index to measure the potential and capacity of individual Professor or Scientist as well as University or international University are axiomatic characterization of Hirsch index where as

Author also introduce S-index. The s-index introduced the empirical relationship to measure the potential of the University as well individual Professor and academician.

- ii. The basis of the Number of publications and the number of citations per publication, but where the citation of the technical papers does not appear in the web analysis of the potential can be obtained based on the number of the publications are equal to the number of the citation.
- iii. The Author with higher value of citation show the high impact publication and with conclusion the highest potential and productiveness .But the Author with low impact publication will score the weak h-index or s-index.
- iv. The h-index or s-index of a scientist, professor or academician or University or international university never decrease on timeline, the h-index of Professor or University or international university may increase when new papers are published and will attract citations significantly, vis above current h-level and index will suddenly increase based on the empirical relationship developed by the Author Dr Sanjay Gupta.
- v. The publication of new papers , if show average with the current index , the papers are not raising the index ,publications cited less frequently than h-times are “wasted”,
- vi. The Existing paper attracts new citations it should raise the index only if the number of citations per paper increase above the current index value.
- vii. The h-index is an integer number by increasing the number of citations to a single article, the h-index should not increase by more than 1; the “extra top publication” cited more (even much more) than h-times are “wasted”.
- viii. The h-index is absolutely neutral to the context of citations: affirmative or negative.
- ix. The another basis of the analysis is the impact factor of the technical papers which are recent technology for identifying the index base on S-index.
- x. The higher the score of the S-index (Dr Sanjay Gupta –index) gave the higher quality and potential of the technical papers.
- xi. The S-index are quite different from the h-index as such the impact or importance factor correlates S-index and h-index directly correlates the citation.
- xii. As such the 2000 citation of the technical papers give h-index 25 or higher than 25, where as S-index of 4-5 gives citation higher than the above.
- xiii. The cited and un cited polish papers have been established with visualizing in the filed of Engineering and on the basis of population .The cited and un cited Polish papers after more than 7 years since publication has been established at the level of 20% uncited for all area and 40% un cited for Engineering.
- xiv. The published article should have enough time to be cited at least for a period of 7 years for setting up stable h-value.
- xv. The H-indices are the *general* (commonly used) measure of the position of a Professor, scientist, university or international University or person or organization and a change of the h or s -value, which never decreases in time, is a measure of progress. The challenge for future is to find rationality between “necessity” and a potential limit which is comprised in the h or s-indices.
- xvi. The Authors should have the right to free selection of a suitable database and machine for establishing the h-index. It is justified by the condition that unnoticed citation does not mean non-existing. In consequence, each s or h-value should be given with the adequate database/search machine.

- xvii. The position of Poland in the general country ranking and in the Engineering area is respectively 24 and 30. It is worse or even “much worse” in comparison with the Gross Domestic Product, GDP where Poland is on the 20th position in Engineering:
- xviii. The citation ratio – the number of citations per paper could differ among various academic disciplines, even in the case of top scientists by the factor of 15, and between various Engineering sub-disciplines 10 times. Even while considering the value tends to vary 4-10 in the various Engineering field in case of s-index (Dr Sanjay Gupta, s-index).

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