

Webometric analysis of Iranian universities of medical sciences

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Introduction: There are many researches have been conducted on webometrics, especially the impacts of websites on each other and the web impact factor. However, there are few studies focusing on the websites of Iranian universities. This study analyzed the websites of Iranian universities of medical sciences according to the webometric indicators.

Method and materials: In a cross-sectional study, the number of web pages, inlinks, external inlinks and also the overall and absolute web impact factors for Iranian universities of medical sciences with active exclusive websites were calculated and compared using AltaVista search engine. Finally, the websites were ranked based on these webometric indicators.

Results: The results showed that the website of Tehran university of medical sciences with 49,300 web pages and 9860 inlinks was ranked first for the size and number of inlinks, while its impact factor was ranked 38th. Rafsanjan UMS with 15 web pages and 211 links had the highest rank for the web impact factor among Iranian universities of medical sciences.

Discussions and conclusions: The study revealed that Iranian universities of medical sciences did not have much impact on the web and were not well known internationally. The major reason relies on linguistic barriers. Some of them also suffer from technical problems in their web design.

Introduction

Despite the traditional information systems such as libraries, which categorize their information resources based on special criteria, internet is receptive for every kind of information from individuals and institutions. In other words, there is no structural control on the data entering to internet. Therefore, to find relevant and high quality information in the easiest and fastest possible way is a serious challenge for internet users and information technology specialists. Internet is full of various information and services including medical information, each of which has their own users. Some internet services are more attractive for users of different sciences background such as medical sciences.

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World Wide Web is the most used internet service. One of the most important features of the web is that web pages can be easily connected by linking them to each other. Links provides easily access to the relevant information on the Internet. On 6 August 1991, Tim Berners Lee – the British physicist at CERN – posted a web software on the alt.hypertext newsgroup and introduced the project of WWW to the world. This project was designed to provide a thorough connection among various information and he made it possible by linking texts to each other. Even though linking was possible some years before that, Berners-Lee combined link and internet [1].

WWW consists of millions of hypertext pages which are connected to each other by hyperlinks. The number of hyperlinks that a website receives from other websites can be a significant criterion to show the impact of that website as well as the impact of its producer. It is also a sign of the web site's visibility compared to other resources. The pattern of hyperlinks created between hypertexts pages is similar to that of traditional publications references and citations.

The science of webometrics and the study of links created between web pages tries to determine a model for scientific usage of the web and also information resources with highest impact on the web using the new calculating methodologies to measure inlinks of the web pages [2]. In fact, webometrics is a science based on informetrics methods, which studies the nature and characteristics of websites. In this science the content analysis of web pages are performed through calculating and analyzing their outlinks and inlinks. Outlink is a type of link from a web page in a website to a web page in another website, and it is the equal term for 'reference' in printed resources. Inlink is a link that a web page receives from other web pages. This term is equal to 'citation' in printed resources. Inlink can be internal or external. The external inlink is a link received from an outsider website, while internal inlink is received from the pages in the same website. From the webometrics viewpoint, external inlinks are of more value. It is assumed that the more external inlinks means the more valuable and useful the content of the website for its users and this is a sign of the validity of that website.

The ratio between the external inlinks received by a website and the number of web pages comprising that website is called web impact factor (WIF), which reflects its global fame as well as the quality of information resources it provides. The concept of WIF was introduced first on 1997 by a Spanish researcher, Rodriguez Gairín [3]. The basic idea of this concept came from journal impact factor (JIF) which was introduced by Dr. Eugene Garfield on 1960s and used by ISI to select the scientific journals for citation indices ever since [4]. WIF is an indicator to measure and compare efficiency, attractiveness, and success of websites in a broad level such as country domains or a limited level such as academic websites. The bigger the WIF, the higher the validity, visibility and accessibility of the website in both national and International levels. Analyzing the average of all the links received by a website is called Overall WIF, which shows the ratio of the inlinks to its web pages retrieved and indexed by search

engines. Absolute WIF or External WIF is the ratio of external inlinks to the web pages indexed by search engines.

The academic websites in countries are the most important Internet communication tools. They introduce universities, their related institutes and departments, their resources and services, faculty members, students, alumnae Nowadays, an important factor for the success of a university is its website and web accessibility and in particular its visibility on the web. Therefore, it is important to evaluate their presence on the web as it is to evaluate the educational and research performance of the universities.

The world universities are ranked based on their academic and research performance every year by some reputable centers such as the Institute of Higher Education, Shanghai Jiao Tong University (IHE-SJTU). The results of this ranking published annually as Academic Ranking of World Universities (ARWU) have a great international importance [5, 6].

Since mid 1990s, there have been lots of efforts to study the structure and characteristics of the web by itself, web contents and links and also web search engines using new informetric methodologies. Several studies show that web sites can be compared and ranked in different domains based on their impact factor. In 1998, Ingwersen calculated the web impact factor for some Danish domains and websites. He used AltaVista for his study because he believed this search engine covers a broad area of the web and provides sufficient information for webometric studies [7]. In another study two types of websites in Australia had been compared: Australian universities websites and Australian electronic journals. Analyzing the results of his study, the author concluded that the web impact factor is an appropriate indicator to measure the general impact of large institutions such as universities and research institutes, but it is not reliable to evaluate websites with small content volume such as electronic journals [8]. Smith and Thelwall in 2002 studied the web impact factor for the Australian Universities websites. They used commercial search engines AltaVista and AllTheWeb as well as a specially designed crawler for calculating and comparing the web impact factor and the number of links that three countries of Australia, New Zealand and England were provided for the Australian universities websites. They concluded that AltaVista and AllTheWeb search engines could find more domains and links compared to other Internet search engines and they are also more accessible and easier to use [9].

In another study in 2002, Thelwall compared the WIFs of UK Universities with different domains using several search engines. The results showed that the web impact factor has a close relation with the research rank of academic domains. In addition, universities with the same fields of study show less different WIF. For example, the universities which offer majors in computer and IT fields and has more faculty members in these fields have more publications on the Internet and attract more web users. As a result, they have more attraction, receive more links and therefore, got

higher WIF [10]. Mukhopadhyay, in 2004 studied the WIF for SAARC¹ countries as well as the sub domains of academic and research institutions in India. He believed that because of the hierarchical structure of the web, WIF should be calculated in three levels: WIF for Top level domains (e. g. .in for India), WIF for Sub level domains (e. g. .ernet which stands under the above domain), and WIF for site level domains. He also believed that well-known search engines such as Alltheweb, AltaVista, and Hotbot can be used for data gathering and calculating WIF in each of the above mentioned levels [11]. Agarin and Nwagwu studied the inlinks of the Nigerian universities for 6 years from 2000 to 2005. The target population of this study was 30 out of 65 Nigerian universities with exclusive websites. They also used AltaVista search engine because webometric studies by other researchers had proved that AltaVista was the most reliable search engine in this field. According to the results of this study, neither Nigerian universities nor other countries' universities provided links for the Nigerian universities. One of the reasons can be Nigerian researcher's tendency to use the limited traditional methods for publishing their scientific works rather than the broadly accessible electronic methods. As a result, the universities' websites in this country had not received many links and had low WIF [12]. In 2006, Noruzi studied the web presence and the impact factors for country code Top level domains of middle eastern countries as well as Sub level domains of their academic institutions. In this study, he used Yahoo search engine to count the number of links and then calculated WIFs in Top level and Sub level domains. The results showed that the middle eastern countries except for Turkey, Israel and Iran had low web presence. He believed that there were special factors affecting the amount of impact factor of a country. For example, websites written in local languages of these countries such as Persian, Arabic, Turkish, Kurdish, and Hebrew received fewer links and attracted fewer audiences. This in general would lead to low presence on the web and lower WIFs for these websites [13].

Studying the universities' websites for their presence on the virtual world of web and in general evaluating their performance is of the same significance as evaluating academic and research performance of the universities. Since several years ago the world universities have been ranked for their webometric features. One of the significant measurements in this ranking is the impact of universities websites. Iranian universities of medical sciences started their presence on the Internet along side other universities about ten years ago soon after the Internet entered Iran. In the present study, the number of web pages, inlinks, external inlinks and also the overall and absolute web impact factors for 40 Iranian universities of medical sciences with exclusive and active websites were calculated using AltaVista search engine. Then, the websites were compared and ranked according to the mentioned webometric indicators.

¹ South Asian Association for Regional Cooperation

Methods and materials

This is an analytical descriptive research carried out as a cross sectional study. The population of this study included all the medical sciences universities with exclusive websites in Iran, consisting of those ruled by Ministry of Health and Medical Education, Baqiyatallah University of Medical Sciences, and University of Social welfare and Rehabilitation Sciences. Zabol and Qom UMS out of 42 Iranian universities of medical sciences websites were omitted because of their websites problem at the time of the study.

The number of Inlinks, external Inlinks, and the web pages listed in each academic website was counted using the following commands in AltaVista search engine [14]:

Total Pages

Site:HostName.Domain

Inlinks

linkdomain:HostName.Domain

External Inlinks

linkdomain:HostName.Domain-site:HostName.Domain

The following formulas were used to calculate the Overall impact factor and the Absolute impact factor for each websites:

Overall WIF of the website = Number of inlinks the website receives/ Number of web pages indexed from the same website

Absolute (External) WIF of the website = Number of external inlinks / Number of web pages indexed from the same website

Because of the instability of the web and its content, the increasing number of web pages and also the continuous changes in the number of links, the data was gathered in a short period of time to make the results more precise. Accordingly, the websites of Iranian universities of medical sciences were investigated all at the same day, 30 July 2007. Then the data entered in Excel software and the results were analyzed.

Results

Two universities (Zabol and Qom) out of 42 Iranian medical sciences university websites were omitted from the research because of their technical problem at the time of study. Therefore, 40 Iranian universities websites were studied. As it is indicated in Table 1, Tehran University of Medical Sciences with 49,300 web pages had the highest rank for the total pages. Guilan UMS with 25,300 web pages, Iran UMS with 15,900 web pages, and Isfahan University of Medical Sciences with 11,900 web pages are respectively in positions two to four. The last one in this ranking is Rafsanjan UMS with 15 web pages.

Table 1. Distribution of total pages by Iranian UMSs

No.	University of Medical Science	Total Pages	Inlinks	External Inlinks	Overall WIF	Absolute WIF
1	Tehran UMS	49,300	9,860	2,980	0.20	0.06
2	Guilan UMS	25,300	3,620	730	0.14	0.03
3	Iran UMS	15,900	9,700	1,380	0.61	0.09
4	Isfahan UMS	11,900	1,980	1,210	0.17	0.10
5	Shiraz UMS	8,980	7,800	2,700	0.87	0.30
6	Baqiyatallah UMS	6,600	2,110	536	0.32	0.08
7	Tabriz UMS	5,780	3,510	1,330	0.61	0.23
8	Mashhad UMS	5,270	1,840	689	0.35	0.13
9	Kashan UMS	5,080	1,500	258	0.30	0.05
10	Zahedan UMS	2,800	1,850	639	0.66	0.23
11	Babol UMS	2,670	1,070	361	0.40	0.14
12	Social welfare and Rehabilitation US	2,430	1,970	860	0.81	0.35
13	Urmia UMS	2,340	1,480	375	0.63	0.16
14	Sabzevar UMS	1,600	682	161	0.43	0.10
15	Hormozgan UMS	1,430	1,590	783	1.11	0.55
16	Shahid Beheshti UMS	1,280	1,500	1,350	1.17	1.05
17	Ardebil UMS	1,260	657	201	0.52	0.16
18	Golestan UMS	883	470	171	0.53	0.19
19	Kerman UMS	800	844	540	1.06	0.68
20	Arak UMS	597	397	336	0.66	0.56
21	Hamadn UMS	556	714	683	1.28	1.23
22	Shahrekor UMS	534	359	116	0.67	0.22
23	Qazvin UMS	513	583	193	1.14	0.38
24	Yasuj UMS	499	333	291	0.67	0.58
25	Mazandaran UMS	472	4,360	3,910	9.24	8.28
26	Zanjan UMS	454	1,640	1,270	3.61	2.80
27	Yazd UMS	450	507	302	1.13	0.67
28	Kurdistan UMS	414	403	320	0.97	0.77
29	Bushehr UMS	346	229	220	0.66	0.64
30	Birjand UMS	327	258	184	0.79	0.56
31	Fasa UMS	279	328	281	1.18	1.01
32	Ahvaz UMS	270	276	132	1.02	0.49
33	Kermanshah UMS	268	912	806	3.40	3.01
34	Semnan UMS	236	290	302	1.23	1.28
35	Gonabad UMS	227	379	262	1.67	1.15
36	Jahrom UMS	104	122	70	1.17	0.67
37	Shahrood UMS	60	16	15	0.27	0.25
38	Lorestan UMS	56	333	315	5.95	5.63
39	Ilam UMS	41	58	58	1.41	1.41
40	Rafsanjan UMS	15	211	207	14.07	13.80

Comparing the inlinks, Tehran UMS (9860) was the first in the number of inlinks, then Iran UMS (9700), and after that Shiraz University of Medical Sciences (7800) got the second and third ranks. Shahrood UMS with 16 inlinks ranked last according to the number of inlinks.

As it is shown in Table 1, Mazandaran UMS with 3910 external inlinks was in the first position. Tehran UMS with 2980 and Shiraz UMS with 2700 external inlinks were respectively in the second and third position. Again Shahrood UMS with 15 external Inlinks had the last position.

Table 2. Distribution of Overall WIF by Iranian UMSs

No.	University of Medical Science	Total Pages	Inlinks	External Inlinks	Overall WIF	Absolute WIF
1	Rafsanjan UMS	15	211	207	14.07	13.80
2	Mazandaran UMS	472	4,360	3,910	9.24	8.28
3	Lorestan UMS	56	333	315	5.95	5.63
4	Zanjan UMS	454	1,640	1,270	3.61	2.80
5	Kermanshah UMS	268	912	806	3.40	3.01
6	Gonabad UMS	227	379	262	1.67	1.15
7	Ilam UMS	41	58	58	1.41	1.41
8	Hamadn UMS	556	714	683	1.28	1.23
9	Semnan UMS	236	290	302	1.23	1.28
10	Fasa UMS	279	328	281	1.18	1.01
11	Jahrom UMS	104	122	70	1.17	0.67
12	Shahid Beheshti UMS	1,280	1,500	1,350	1.17	1.05
13	Qazvin UMS	513	583	193	1.14	0.38
14	Yazd UMS	450	507	302	1.13	0.67
15	Hormozgan UMS	1,430	1,590	783	1.11	0.55
16	Kerman UMS	800	844	540	1.06	0.68
17	Ahvaz UMS	270	276	132	1.02	0.49
18	Kurdistan UMS	414	403	320	0.97	0.77
19	Shiraz UMS	8,980	7,800	2,700	0.87	0.30
20	Social welfare and Rehabilitation US	2,430	1,970	860	0.81	0.35
21	Birjand UMS	327	258	184	0.79	0.56
22	Shahrekord UMS	534	359	116	0.67	0.22
23	Yasuj UMS	499	333	291	0.67	0.58
24	Arak UMS	597	397	336	0.66	0.56
25	Bushehr UMS	346	229	220	0.66	0.64
26	Zahedan UMS	2,800	1,850	639	0.66	0.23
27	Urmia UMS	2,340	1,480	375	0.63	0.16
28	Iran UMS	15,900	9,700	1,380	0.61	0.09
29	Tabriz UMS	5,780	3,510	1,330	0.61	0.23
30	Golestan UMS	883	470	171	0.53	0.19
31	Ardebil UMS	1,260	657	201	0.52	0.16
32	Sabzevar UMS	1,600	682	161	0.43	0.10
33	Babol UMS	2,670	1,070	361	0.40	0.14
34	Mashhad UMS	5,270	1,840	689	0.35	0.13
35	Baqiyatallah UMS	6,600	2,110	536	0.32	0.08
36	Kashan UMS	5,080	1,500	258	0.30	0.05
37	Shahrood UMS	60	16	15	0.27	0.25
38	Tehran UMS	49,300	9,860	2,980	0.20	0.06
39	Isfahan UMS	11,900	1,980	1,210	0.17	0.10
40	Guilan UMS	25,300	3,620	730	0.14	0.03

According to the information provided in Table 2, Rafsanjan UMS with 15 web pages, 211 Inlinks, and 207 external Inlinks had the highest overall web impact factor (14.07) and also the highest absolute WIF (13.8). The second rank was Mazandaran UMS with 472 web pages, 4360 Inlinks, and 3910 external Inlinks with 9.24 overall WIF and 8.28 absolute WIF. The last in the list was Guilan UMS with 0.14 overall WIF and 0.03 absolute WIF. 49300 web pages of Tehran University of Medical Sciences website received 9860 Inlinks, 2980 of which were external. Therefore, the WIF for this university was 0.2 and its absolute WIF was 0.06.

Discussion

The number of links received by a university website shows its impact on the web compared to the other web sources and also the number of visitors it attracts. The present study calculated and compared the number of web pages, inlinks, external inlinks and also the overall and absolute web impact factors for Iranian universities of medical sciences with active exclusive websites, then compared and ranked these universities based on these webometric indicators. We chose AltaVista because of its ability to cover a broader range of the web as apposed to the other commercial search engines. Moreover, some essential data could not be retrieved via other commercial search engines like Google, Yahoo and Live Search at the time of the study. In fact, they could't process some of the main queries useful for webometric purposes [14]. Several webometric studies also reported AltaVista to be more reliable than the other search engines [7, 9, 11, 12].

AltaVista search engine indexed 15 web pages on the Rafsanjan UMS website at the time of the study. These pages in general received 211 inlinks from which 207 were external. Since WIF is calculated by dividing the number of inlinks to the number of web pages, it will be falsely high for the new websites with few web pages. Therefore, the website of Rafsanjan UMS with only 15 active web pages at the time of the study placed at the top of total Iranian universities of medical sciences. It is obvious that major Iranian medical universities such as Tehran, Iran, Isfahan, and Shiraz with thousands of web pages have more effective presence on the Internet and are internationally more known. Therefore, they should logically have a higher impact on the web and its users. The report of the Webometrics ranking of world universities published on July 2007 confirm the higher positions of the above mentioned universities [15]. Thelwall believes that calculating WIF of a domain by AltaVista can be enough precise if the number of web pages in the website is relatively high. He suggests that before using a search engine for calculating WIF for a website, the high number of web pages in the same website should be ensured [16].

Another factor that can increase WIF of a university website is to make appropriate information resources easily accessible and usable for its users. Electronic publishing and distributing scientific materials via a university website will attract more audiences and as a result the university website will receive more inlinks and get higher WIF. Thelwall in 2002 studied 100 universities websites of the UK. The results of his research showed that the most highly linked-to pages are those that facilitate access to a wide range of information [17]. Also in 2004, Kousha and Horri in their study demonstrated the relationship between scholarly publishing and the counts of academic inlinks to the web sites of the Iranian universities [18].

Linguistic barrier is another factor affecting WIF. Other researches also discussed that websites which provided non-English web pages attracted less visitors and, received less inlinks and therefore got lower WIFs [13].

On the other hand, using traditional methods of publishing scientific productions and information resources in some Iranian universities causes lower inlinks and WIFs. Agarin and Nwagwu in their study on the Nigerian universities got the same result [12]. Some other reasons for the low presence of the Iranian universities on the web are as follow: not indexing some Iranian universities websites in major search engines and web directories, the instability of their web servers and inefficient web designs.

According to the report of webometric ranking of world universities 2007, the website of Tehran University of Medical Sciences was the best among Iranian UMSs whilst its rank among the world universities was 2470. The global ranks for Shiraz and Isfahan UMSs, which got the second and third position in the country webometric ranking, were 290 and 3367. While some Asian universities such as Tokyo University got the remarkable rank of 59 in the world. According to the same report, three universities of Tokyo, Taiwan, and Kyoto got the first to third ranks among the Asian universities. None of the Iranian medical universities were among the first 100 universities in Asia, but Tehran, Shiraz, and Isfahan UMSs were ranked 8, 18, and 28 among the Middle East universities.

The results of this study showed that in general the Iranian UMSs did not have much impact in the web and were not known in the international level and based on the webometrics criteria their websites were ranked very low.

The number of web pages, the number of accessible ppt, doc, pdf, and ps files, and also the academic rank of a university announced annually by credible academic world rankings such as Shanghai and Times are considerable factors in the webometric ranking of universities. Therefore, the policy makers of the Iranian universities and also the managers of their websites should pay more attention to their work and make the websites active and rich in a way to be attractive and usable not only for their students, professors, and staff, but for all Iranian and non-Iranian users of the Internet.

In this regard this research suggests that:

- The university websites facilitate for all users to have access to the academic and scientific resources as well as up-to-date information and news not only in local language, but also in English.
- The web designs and the links between pages be corrected, so that the search engines can easily access and index the newest materials uploaded to the websites; and the users can easily find their favorable information in the shortest possible time.
- The universities and colleges provide special budget for the web design, support, and updating of their websites.
- The web masters try to use HTM, HTML, PHP, PDF, PPT, and Doc formats to ensure that the Internet search engines can index their websites.
- Providing a site map for university website will help search engines to index all the centers related to the institute such as clinical, academic, research centers etc. Also, allocating special subdirectories to each school, educational group, and department of the university will help this purpose. A site map is a useful tool to make web pages easily accessible to both users and search engines which leads to increase the visibility of the website.
- Web masters try to introduce universities web pages in international websites, Internet guides and search engines.
- Universities websites provide some space for the faculty members, staff, graduated, and graduate students to design their own web pages and introduce their professional and scientific products and activities on the university website.
- The web masters of universities websites try to find useful information such as open access resources to add to the richness of website content. It will help the main goal of the websites which is facilitation of access to reliable as well as up-to-date resources. Providing a variety of information and a broad collection of professional up-to-date resources in universities websites will attract more users and visitors, increase the visibility and number of Inlinks and as a result lead to a bigger WIF.
- Professors and faculty members should be encouraged to upload their course syllabus, course resources (if possible), and the content of their courses on the university website and they should encourage students to use the above facilities provided for them.
- To increase visibility and the number of Inlinks, websites should provide English web pages. Because English language is the most common language used by international and academic societies around the world.

Conclusion

The study showed in general that Iranian universities of medical sciences do not have much impact on the web and were not known internationally. As the number of accessible documents and the visibility of the websites and their content directly reflect the main missions of all universities, which are teaching, researching, and transferring knowledge, Iranian universities webmasters should pay more attention to the universities web design and content to make them more attractive and usable not only for their own students and staff, but for all Iranian and non-Iranian users of the Internet.

Some reasons for the Iranian UMSs' low WIFs are: structural problems in web designing, providing few English web pages, limitation of access to the scientific resources, and faculty members' tendency to use traditional publishing methods rather than electronic publishing in order to distributing their scientific works.

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Appendix

Names & URLs of Iranian Universities of Medical Sciences

No.	Name	URL	No.	Name	URL
1	Ahvaz UMS	http://ajums.ac.ir/	21	Kurdistan UMS	www.muk.ac.ir
2	Arak UMS	www.arakmu.ac.ir	22	Lorestan UMS	www.lums.ac.ir
3	Ardebil UMS	www.arums.ac.ir	23	Mashhad UMS	www.mums.ac.ir
4	Babol UMS	www.mubabol.ac.ir	24	Mazandaran UMS	www.mazums.ac.ir
5	Baqiyatallah UMS	www.bmsu.ac.ir	25	Qazvin UMS	www.qums.ac.ir
6	Birjand UMS	www.bums.ac.ir	26	Rafsanjan UMS	www.rums.ac.ir
7	Bushehr UMS	www.bpums.com	27	Sabzevar UMS	www.medsab.ac.ir
8	Fasa UMS	www.fums.ac.ir	28	Semnan UMS	www.sem-ums.ac.ir
9	Golestan UMS	www.goums.ac.ir	29	Shahid Beheshti UMS	www.sbm.ac.ir
10	Gonabad UMS	www.gmu.ac.ir	30	Shahrekord UMS	www.skums.ac.ir
11	Guilan UMS	www.gums.ac.ir	31	Shahrood UMS	www.shmu.ac.ir
12	Hamadn UMS	www.umsha.ac.ir	32	Shiraz UMS	www.sums.ac.ir
13	Hormozgan UMS	www.hums.ac.ir	33	Social welfare and Rehabilitation US	www.uswr.ac.ir
14	Ilam UMS	www.medilam.ac.ir	34	Tabriz UMS	www.tbzmed.ac.ir
15	Iran UMS	www.iums.ac.ir	35	Tehran UMS	www.tums.ac.ir
16	Isfahan UMS	www.mui.ac.ir	36	Urmia UMS	www.umsu.ac.ir
17	Jahrom UMS	www.jums.ac.ir	37	Yasuj UMS	www.yums.ac.ir
18	Kashan UMS	www.kaums.ac.ir	38	Yazd UMS	www.ssu.ac.ir
19	Kerman UMS	www.kmu.ac.ir	39	Zahedan UMS	www.zdmu.ac.ir
20	Kermanshah UMS	www.kums.ac.ir	40	Zanjan UMS	www.zums.ac.ir