SLIIT

Discover Your Future

MODULE INTRODUCTION

Module Content

SEMESTER LONG PROJECT

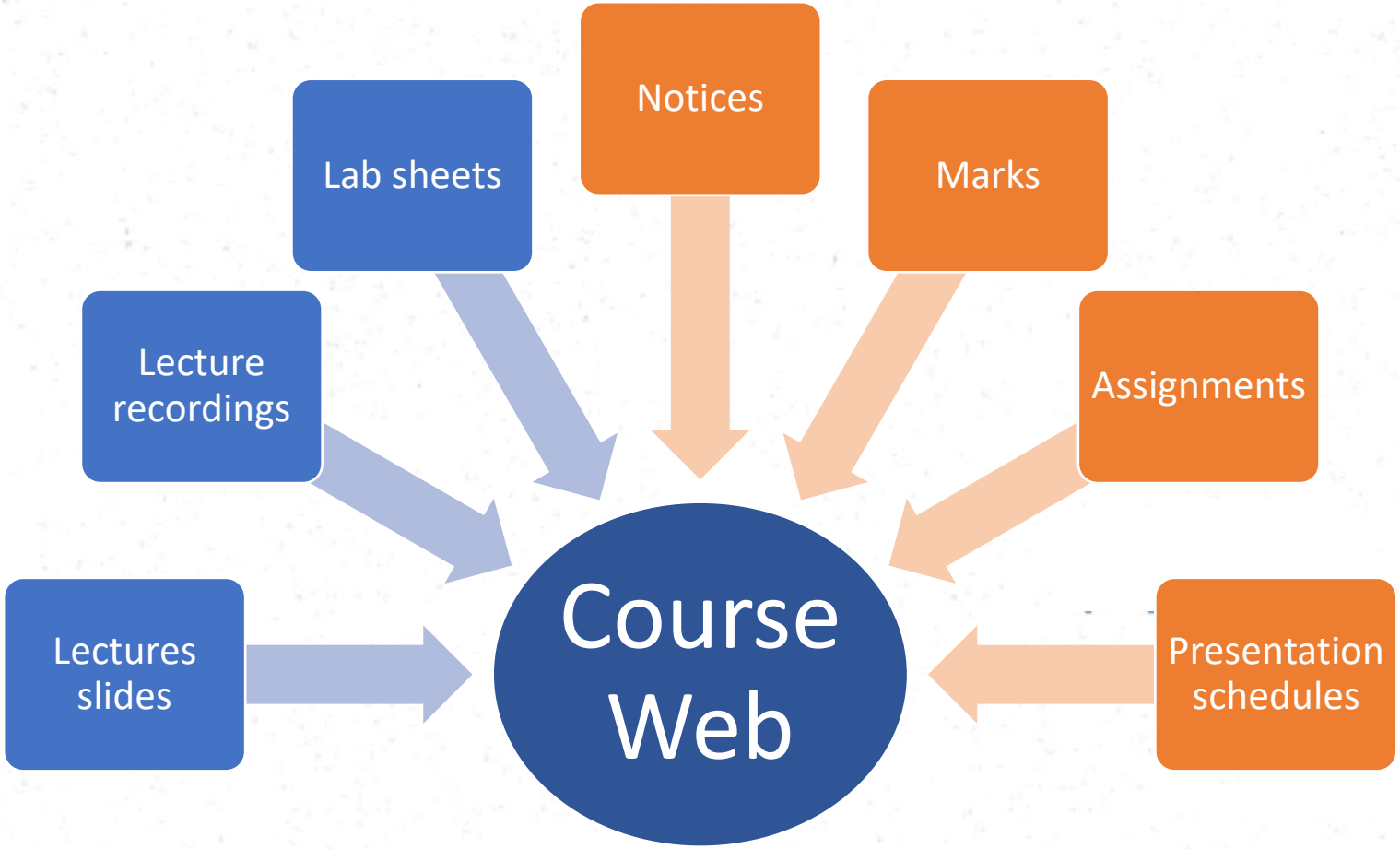
PROJECT MANAGEMENT KNOWLEDGE AREAS

TOOLS FOR MANAGING THE PROJECT

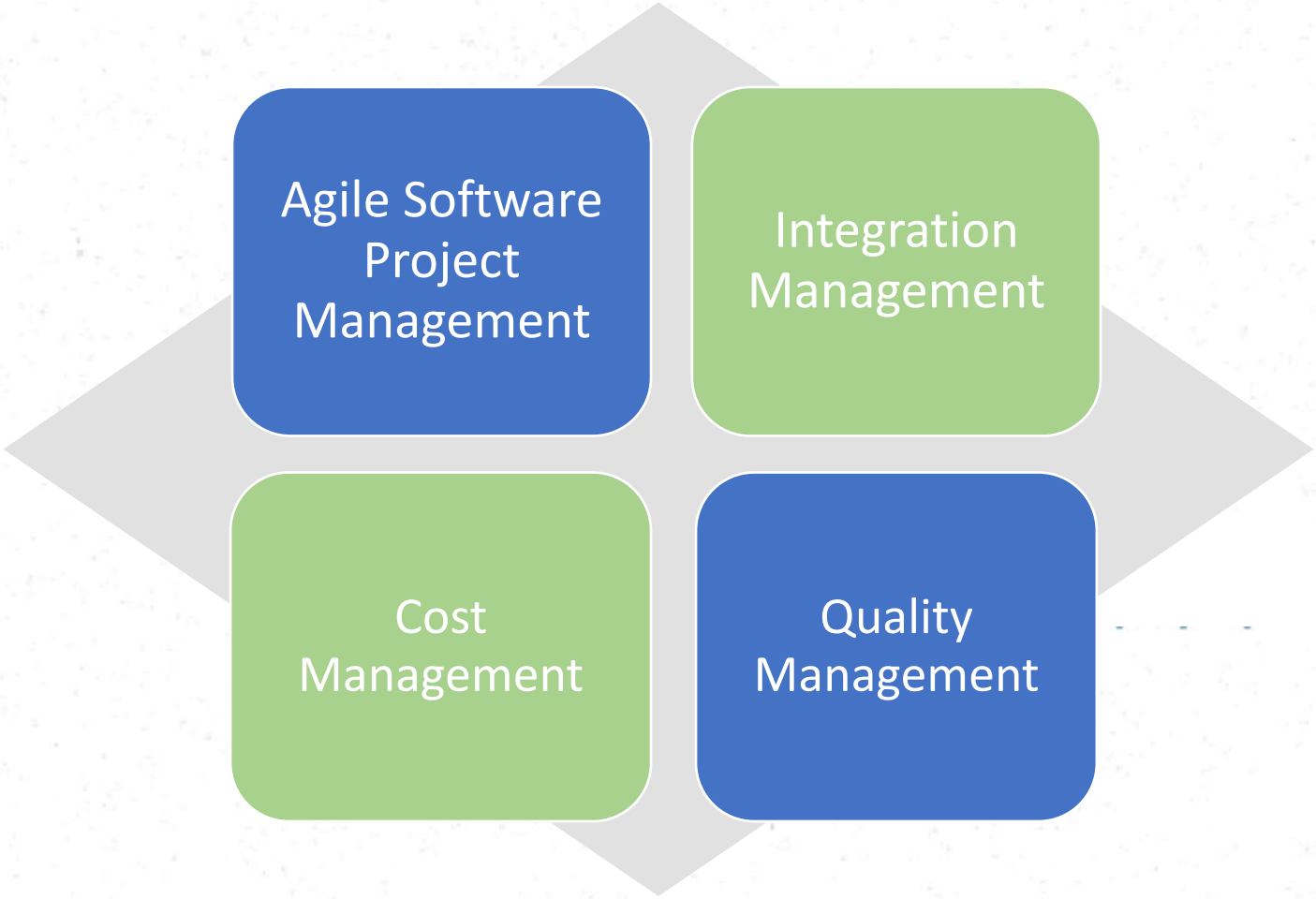
Skills Developed

- Team-working skills
- Organizing and planning skills
- Decision making skills
- Time management skills
- Leadership skills
- Initiative skills
- Analytical skills
- Learning skills
- Communication skills
- Working under competitive conditions

Resources and Materials



Lectures


Agile Software Project Management
Integration Management
Cost Management
Quality Management

Lectures


Communications Management
HR Management
Risk Management
Stakeholder Management

Practicals

- Self-learning practicals on:
  - Azure Devops - Agile project management tool
  - SonarQube – Code quality inspection tool
  - Git – Distributed version control system
  - Selenium – Test automation frameworks

Group Formation

- A team with a **maximum** of **four members**
- One member from the team to email the group details to ***SPM3080@gmail.com :***

Registration No	Name with Initials	SLIIT Email Address	Personal Email Address	Contact No
ITXXXXXXXX	A. M. D. Perera	ITXXX@sliit.lk	ap@gmail.com	07XXXXXXXX

- Subject of the email should be the **assigned lab group**

Assessment Plan

Assessment No	Assessment Name	**Assessed Week**	**Marks Distribution**
Assessment 1	Topic & function approval presentation	Week 2	6%
Assessment 2	Progress presentation	Week 6	16%
Assessment 3	Final presentation	Week 10	18%
Assessment 4	Progress of the research paper	Week 4 & Week 9	10%
	Presentation & viva	Week 12	20%
Assessment 5	Final examination	Week 15	30%

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Introduction to Research and Scholarly Communication

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What is a research?

- The process of conducting a systematic and methodical investigation to either create new knowledge or utilize existing knowledge in new and innovative ways, leading to the development of fresh concepts, methodologies, and understandings.

- Involves gathering and analyzing information, formulating hypotheses, conducting experiments, and drawing conclusions based on evidence.

What is a research paper?

- Content of a research paper:
  - Abstract - Provides a concise summary of the key points of the paper, including the research problem, objectives, methods, results, and conclusions.
  - Introduction - Provides an overview of the background of the topic, problem statement, significance of the research, research questions, and a preview of the remaining sections of the paper
  - Literature review - Summarizes existing research on the topic
  - Methodology - Explains the research design and procedures
  - Results - Presents the findings of the study
  - Discussion - Interprets and contextualizes the results considering the research questions and existing knowledge
  - Conclusion - Summarizes the key findings, interpret their implications, and provide practical recommendations for future research or practice
  - Reference - Lists the sources cited in the research paper

Abstract Vs Conclusion

Aspect	Abstract	Conclusion
Length	Usually limited to 150-250 words, depending on the journal or conference requirements.	Can vary in length depending on the complexity of the study, but typically longer than the abstract.
Content	Provides a brief summary of the research problem, objectives, methods, results, and conclusions of the study.	Summarizes the key findings of the study and explains their implications, limitations, and recommendations for future research or practice.
Audience	Intended for readers who want to quickly understand the main points of the paper before reading the full text.	Intended for readers who have already read the full paper and want to understand the main implications and contributions of the study.

Citing Vs Listing

Citing

Complexity metrics have a lot of potential uses which include: provision of feedback during a software project to help control the design activity, and provision of detailed information about software modules to help pinpoint areas of potential instability during testing and maintenance. Cyclomatic complexity is the most widely used complexity metric for computer software [12]. It is a software metric that provides a quantitative measure of the logical complexity of a program. The introduction of cognitive informatics to the software engineering domain through the work of Wang [13] has brought about the emergence of a new set of complexity metrics referred to as cognitive complexity metrics. These metrics introduce cognitive weights – which define the effort required, relative time or extent of difficulty in comprehending software. In cognitive informatics, the functional complexity of software in design and comprehension depends on three key elements namely: its input, internal processing and output [14]. Initially three basic control structures (BCS), branch, iteration and sequence were identified [15]. However, the work of Shao and Wang [14] modified these BCSs and introduced what obtains in Table 1. These BCSs are the fundamental logic building blocks of software.

Listing

REFERENCES

[11] T. J. McCabe and A. H. Watson, "Software complexity," *Crosstalk*, vol. 7, no. 12, pp. 5–9, 1994.

[12] R. S. Pressman, *Software Engineering: A Practitioner's Approach*. New York, NY, USA: McGraw-Hill, 2005, pp. 649–672.

[13] Y. Wang, "On the cognitive informatics foundations of software engineering," in *Proc. ICCI*, 2004, pp. 22–31.

[14] J. Shao and Y. Wang, "A new measure of software complexity based on cognitive weights," *Electr. Comput. Eng., Can. J.*, vol. 28, no. 2, pp. 69–74, Apr. 2003.

[15] C. A. R. Hoare *et al.*, "Laws of programming," *Comms ACM*, vol. 30, no. 8, pp. 672–686, Aug. 1987.

Identifying a research problem

- Steps to follow:
  - Identify a general area of interest
  - Conduct a literature review and identify gaps in knowledge or areas that have not been explored in depth
  - Based on your review of the literature, brainstorm potential research questions that could be investigated to address the gaps or unanswered questions in the field.
  - Evaluate the feasibility of investigating each potential research question, considering factors such as available resources, data availability, and ethical considerations.
  - Refine the research questions based on feedback from peers or experts in the field, and ensure that they are specific, focused, and answerable
  - Consider the potential implications and impact of each research question and determine the possible consequences and benefits that they may have on various stakeholders.

Guidelines

- Do not write a research paper in the first person. Instead, use the third person.
- Do not use the speaking style in research paper writing.
- Do not have lengthy sentences.
- Do not use words such as "so". Instead, use words such as “thus”, “hence”, “therefore”, “accordingly”, etc.
- Be specific. Do not say the following figure, table, or sub-section. Instead, use numbers. For example, Table 1, Fig. 1, sub-section 1.2, etc.

Guidelines

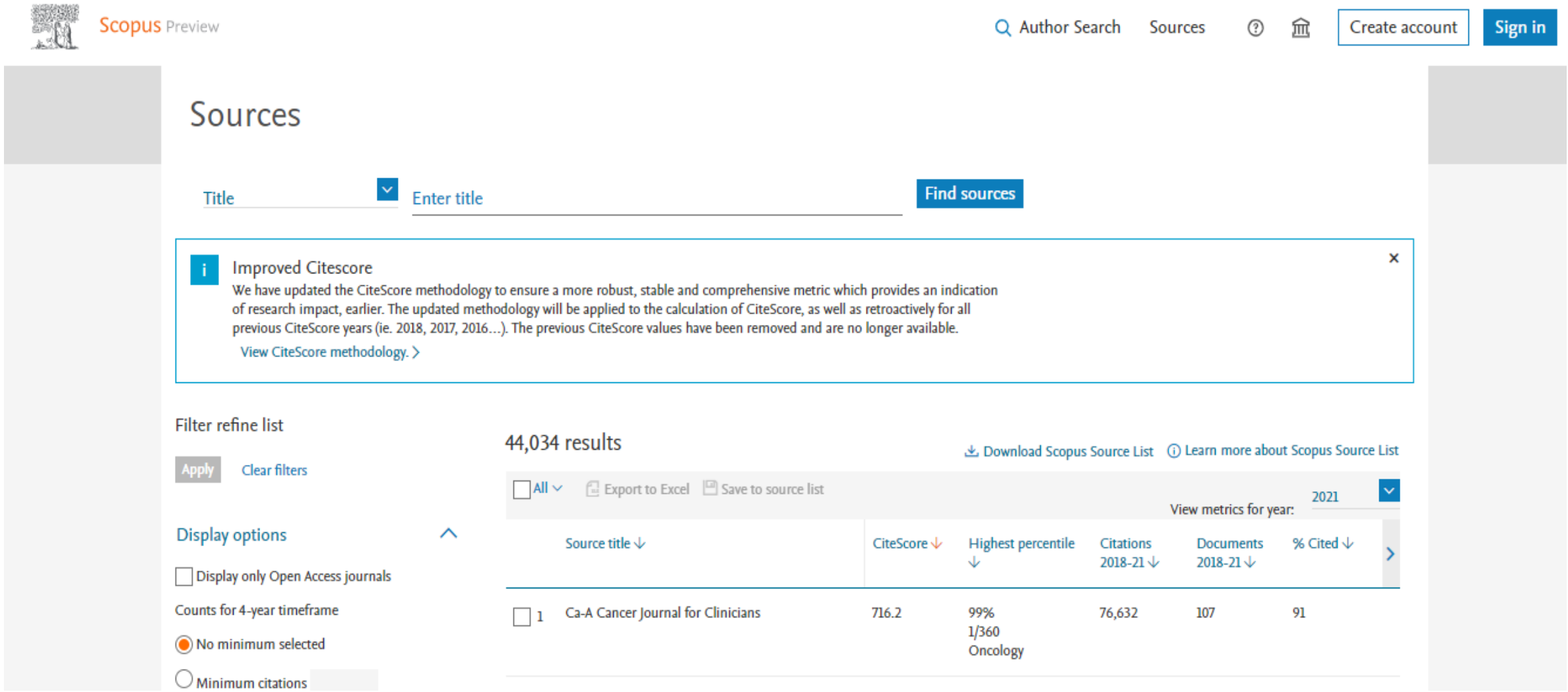
- The text of figures and tables should be clearly visible when the document is viewed at 100% zoom level.
- Do not include the tables and equations as pictures.
- Number the equations in the paper.
- A reference should be given to figures, tables, and equations from the body of the paper before including them.
- It is possible to directly copy and paste sentences from other sections of the paper into the abstract

Conference Papers Vs Journal Articles

Aspect	Conference Papers	Journal Articles
Publication Format	Proceedings of a conference (book or online)	Scholarly journals (printed or online)
Page Size	Range from 6 to 8 pages	Range from around 10 to 20 or more pages
Presentation Requirement	Presented at a conference	Not required to be presented
Peer-Review Process	Subject to a streamlined review process that can take a few weeks to a few months	Subject to a more rigorous review process that can take several months to a year or more

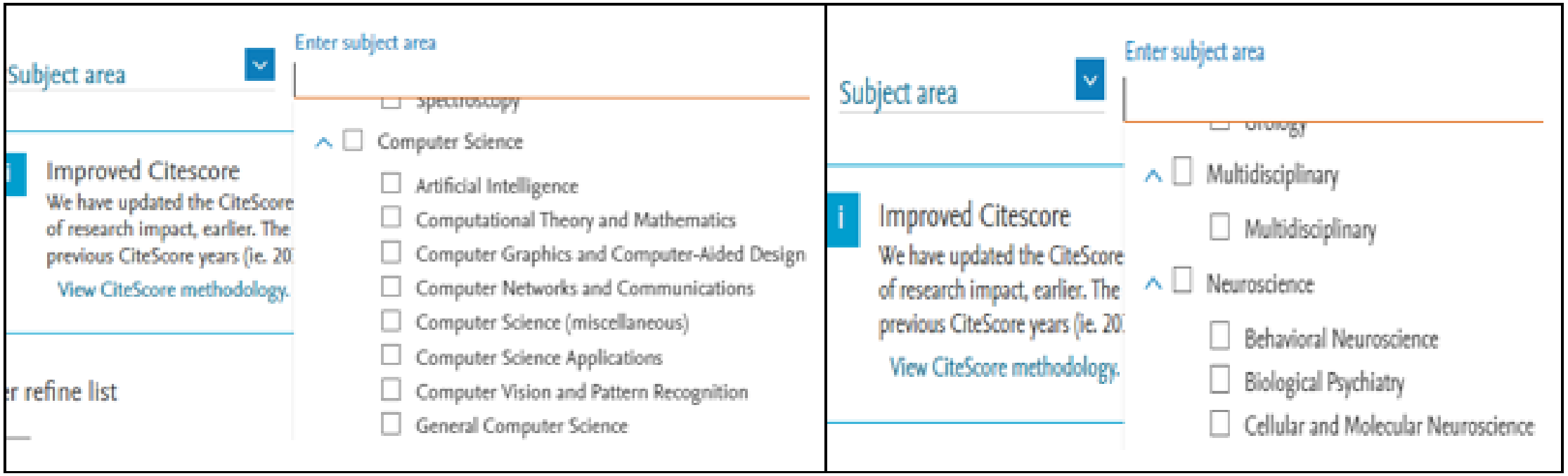
How to find Scopus indexed papers

- Go to Scopus : *https://www.scopus.com/sources.uri*



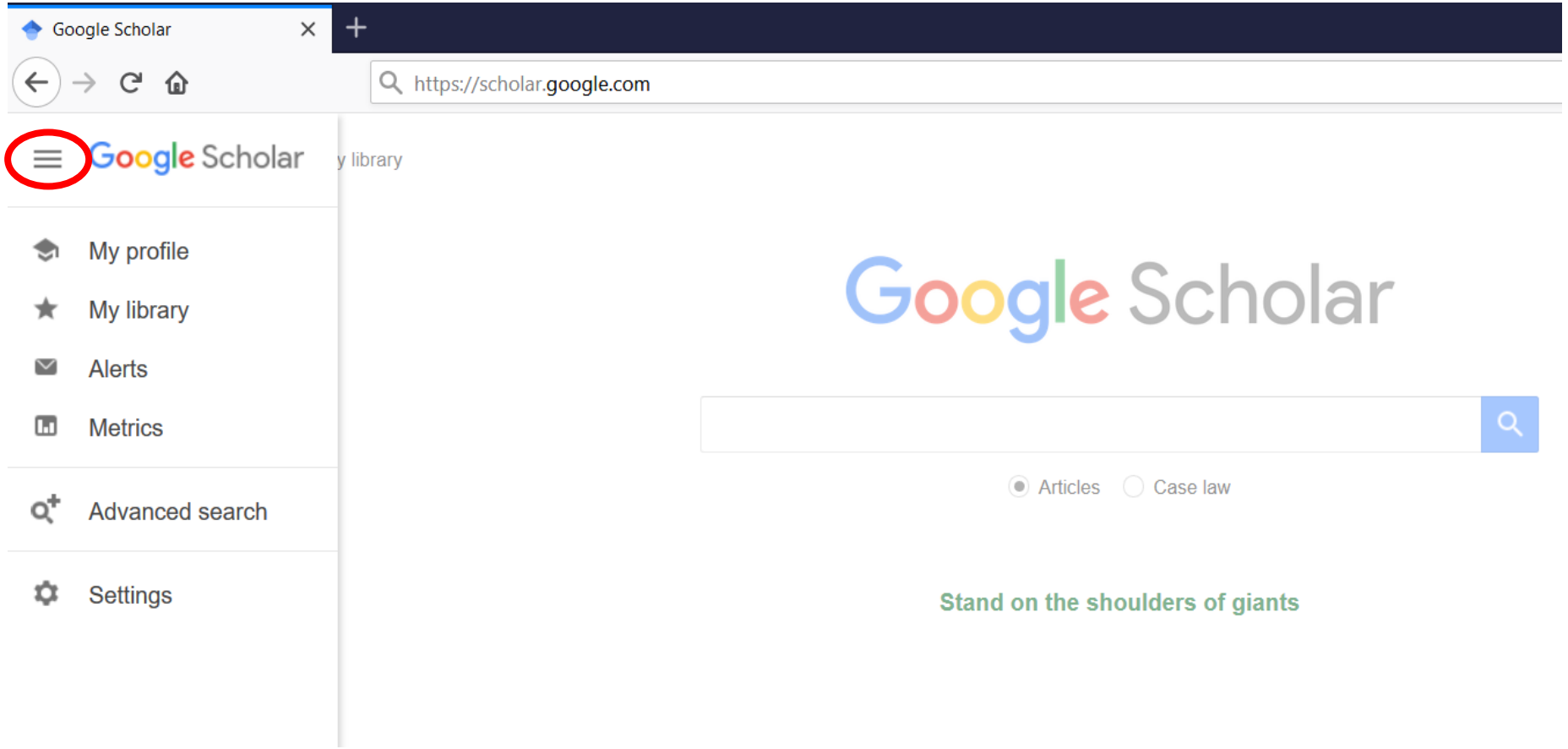
How to find Scopus indexed papers

- Select "*Subject area*" from the first dropdown list.
- Select a subject area that matches your research topic from the "*Enter subject area*" field.



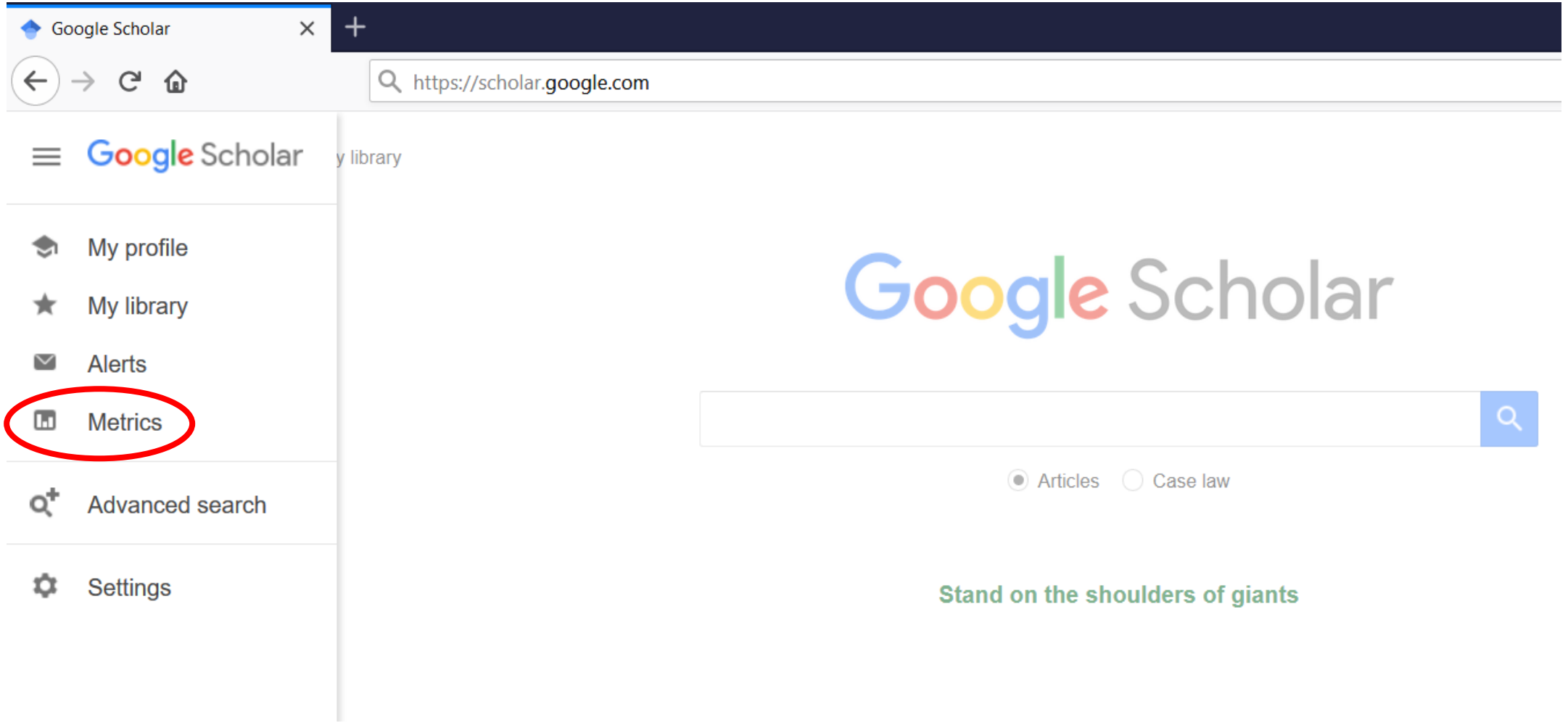
How to find the H5-index of a conference

- Go to Google scholar - https://scholar.google.com/
- Click on the *3 horizontal bar* icon at the top left corner



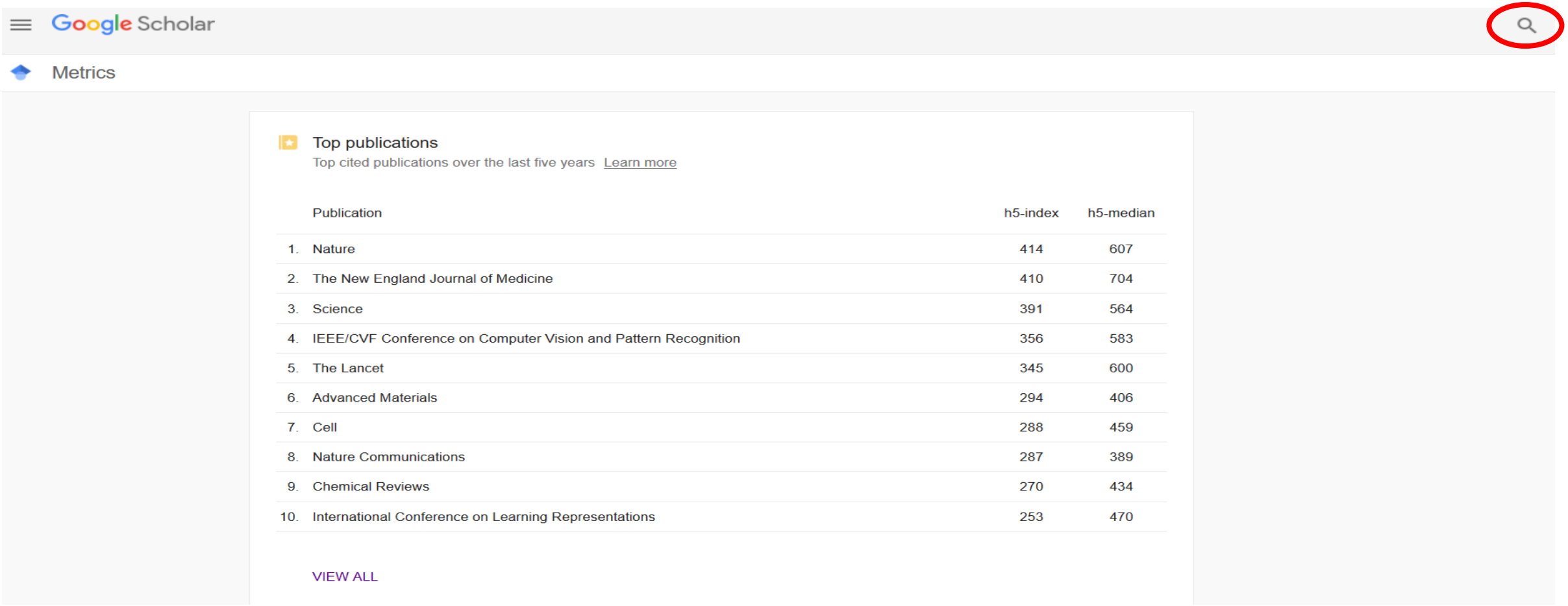
How to find the H5-index of a conference

- Click on *Metrics*



How to find the H5-index of a conference

- Click on the *magnifying glass* icon



How to find the H5-index of a conference

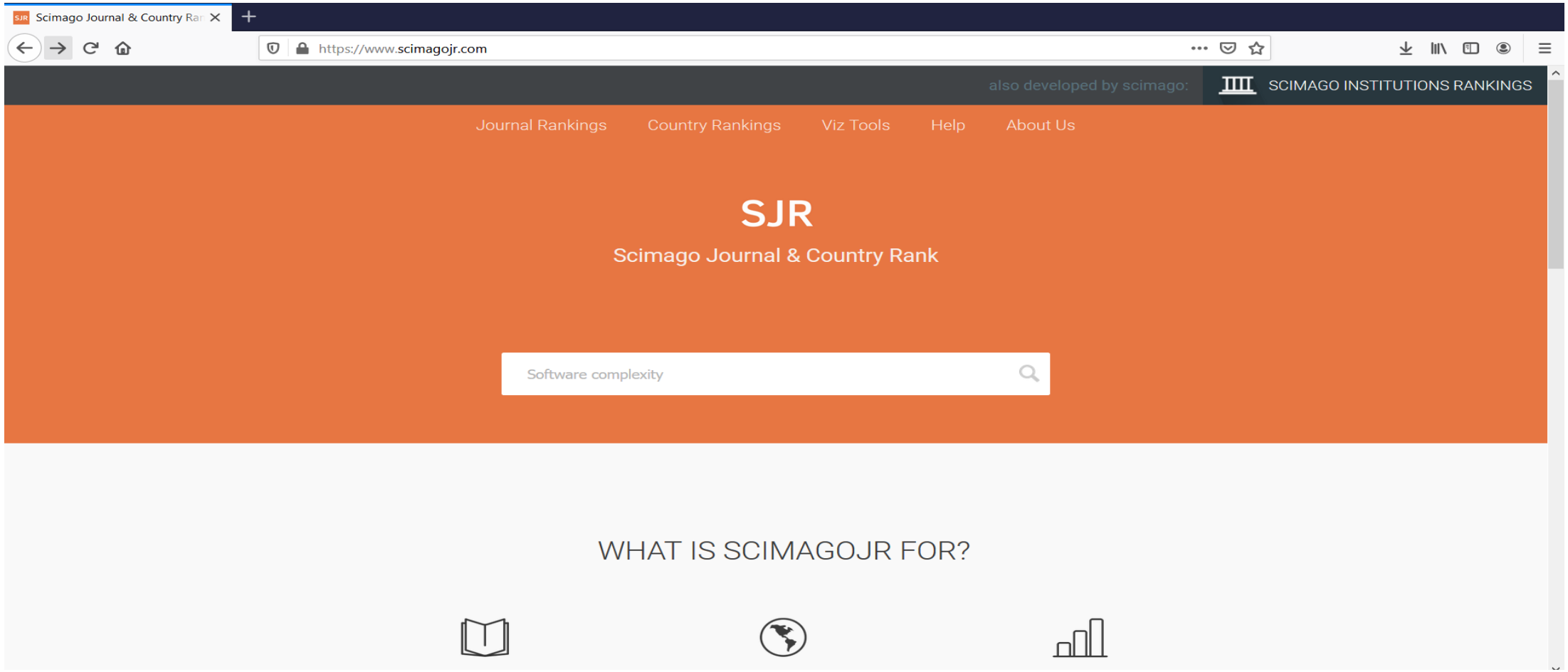
- Search for the conference by typing its name:

Top 20 publications matching *International Conference on Software Engi...*

	Publication	h5-index	h5-median
1.	ACM/IEEE International Conference on Software Engineering	76	113
2.	ACM SIGSOFT International Symposium on Foundations of Software Engineering	57	93
3.	IEEE/ACM International Conference on Automated Software Engineering (ASE)	47	77
4.	IEEE/ACM International Conference on Computer-Aided Design (ICCAD)	39	58
5.	International Symposium on Empirical Software Engineering and Measurement, ESEM	28	39
6.	International Conference on Agile Processes in Software Engineering and Extreme Programming (XP)	26	34
7.	ACM International Conference on Software Engineering: Software Engineering in Practice	24	43
8.	International Conference on Electrical, Computer and Communication Engineering	24	35
9.	International Conference on Computer Science and Engineering	23	36
10.	IEEE International Conference on Computer Design, ICCD	23	32
11.	International Conference on Advanced Trends in Radioelecrtronics, Telecommunications and Computer Engineering	23	31
12.	International Conference on Evaluation and Assessment in Software Engineering	23	31
13.	ACM International Conference on Mobile Software Engineering and Systems	22	33

How to find the H-index of a journal

- Go to Scimago Journal Rankings - https://www.scimagojr.com/



How to find the H-index of a journal

- Search for the journal by typing its name