

Department of Mathematics
Introduction to South Asia
B-6: *The History of Mathematics in South Asia*

Duration: Fridays, 11 am – 1 pm; 24 April – 04 May 2017

Credits: 1

Course Instructor: Dr Jagdish C Bansal

Note: The course is limited to a maximum of 25 students on a first- come-first-served basis. The course will not be offered if a minimum of ten students have not opted for it.

Objectives:

The Course covers the development of mathematical ideas and techniques in the South Asian region. Great mathematicians of this region and their significant contributions will also be discussed. The approach of the course will be historical.

Course Outline:

1. Development of numbers, geometrical figures, discovery of zero and the place value system.
2. Contributions in the field of arithmetic, algebra, geometry, trigonometry, combinatorics, calculus and spherical trigonometry.
3. Mathematicians of ancient and modern times from this region and their contributions.
4. Mathematics in Nepal, Afghanistan, Sri Lanka, Pakistan, Bangladesh, Bhutan, Maldives and India.

Assessment Criteria:

(50% continuous evaluation + 50% end-semester exam)

1. Surprise Quiz / test – 05 + 05 marks
2. Assignments – 10 marks
3. Class attendance and interaction during class – 05 marks
5. End Semester Examination – 25 marks

Suggested Readings:

- Ifrah, G, *The universal history of numbers: From prehistory to the invention of the computer*, Wiley and Sons, 2000.
- Katz, Victor J, "Ideas of Calculus in Islam and India" (PDF), *Mathematics Magazine* 68 (3): 163-174, June 1995, doi:10.2307/2691411, JSTOR 2691411
- A K Bag, *Mathematics in ancient and medieval India*. Chaukhambha Orientalia, 1979.
- Gregersen, Erik, ed. *The Britannica Guide to the History of Mathematics*. Britannica Educational Publishing, 2010.
- <http://www-groups.dcs.st-and.ac.uk/history/>
- https://en.wikipedia.org/wiki/Kerala_school_of_astronomy_and_mathematics
- https://en.wikipedia.org/wiki/Srinivasa_Ramanujan
- <http://archaeologyonline.net/artifacts/history-mathematics>
- <http://nptel.ac.in/courses/111101080/>