Title: Introduction to STME research
Credits: 4 (~44 hours, about 2 contact session per week of 2 hours)
Semester 1: August 14 to December 29

Objectives:
1. Motivation for STME research (Why STME research is necessary?)
2. Exposure to research in STME and research at HBCSE
3. Overview of issues (central themes) in science, technology and mathematics education research

Concepts/Issues/ Skills/ Questions:
• Ability to search research materials in STME (article, chapter, etc.)
• Recognise the context of research (broad areas of research, and issues addressed by the article)
• Develop ability to follow cross references of interest, and identify those that are significant or have broad reviews
• Conduct literature review
• Identify some of the central themes in STME research,
  ◦ eg. Student conceptions, Teacher education, Students'/Teachers' attitudes to STME, Classroom interaction and assessment, Application to real-world contexts, STME and society

Classroom sessions:
The course will cover themes in STME and there will be 2 or more sessions per theme. The instructor/invited speaker will discuss a paper in a theme and students have to select a paper in that theme for presentation in the next session. Each student will have 15 minutes for presentation of the paper where the highlights of the paper are to be discussed. A short write-up written in ones own words is expected to be submitted on the day of the presentation.

Some selected readings (more to added by students themselves and instructors):


2. **Theme 1: Education and Society**
   
   
   
   


3. **Theme 2: Out-of-school and connections to real world**


4. **Theme 3: Teacher Education**


5. **Theme 4: Student conceptions**


6. **Theme 5: Classroom Interaction and Assessment**


**Activities:**
1) A literature review on one of the themes
2) List questions or statements of problems in STME that can be researched
3) For one of the questions, frame the research study

**Assessment:**
Students will be assessed based on their presentations,(40%) writeups (40%) and peer assessment (20%).

**Handbooks:**

**Journals:**
- Contemporary Education Dialogue.
- Economic and political Weekly.
- Eurasia journal of Mathematics, Science and Technology Education.
- International journal of Science Education.
- International journal of Technology and Design Education.
- Journal for Research in Mathematics Education.
- Journal of Biological Education.
- Journal of Science Teacher Education.
- Science and Education.
- Science Education.
- Studies in Science Education.
- ZDM Mathematics Education.