Transition metal nitride AND CARBIDE Thin Films

This course will be a series of lectures giving an overview of properties of transition metal (TM) nitride (N) and carbide (C) materials in general, with special perspective on TM nitride and carbide thin films.

Our aim is to familiarize PhD students studying related material systems with a broader perspective, while many of you are specializing in one or another aspect.

Content: The fundamental focus is on structural understandings, relation to material’s physical and chemical properties, and structure/properties characterization methodology by experimental techniques. The course will discuss how to select materials specific to different applications and relevant up-to-date examples will be given. We also aim to cover theoretical methods used to complement experimental investigations. The course is intended to have learning outcome where students after the course:

- Understand the overall diversity of physical and chemical properties of TMN and TMC and are able to explain implication of selective properties to their own choice of material system.
- Understand the physical reasoning how and why a certain category of materials possess certain characteristic properties and are able to differentiate between specific aspects of material knowing their structure and chemistry.
- Generalize the above knowledge while discussing the material science.

Course name: Transition metal nitride AND CARBIDE Thin Films
Credits: 6
Period: May-June 2019, (final exams after summer)
Course responsible: Naureen Ghafoor (naureen.ghafoor@liu.se)
Lina Rogström (lina.rogstrom@liu.se)