

Course 602

## Voltage Security Assessment Using VSAT

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Course objectives	To provide the necessary background and technical skills for applications of VSAT
Material covered	<ul style="list-style-type: none"> <li>• The basic concepts of power system voltage stability</li> <li>• Modeling, computational techniques, and analysis methods</li> <li>• Operation of VSAT</li> <li>• Result analysis</li> </ul>
Who should attend	Engineers involved in power system voltage stability studies using VSAT
Background required	<ul style="list-style-type: none"> <li>• Basic knowledge of power system modelling, powerflow, and voltage stability analysis</li> <li>• Recommended prerequisite: Course 601 – powerflow analysis using PSAT</li> </ul>
Duration	2 days (extendable upon request)

### Part 1: Voltage Security Assessment (VSA) Basics

1. Introduction to voltage stability
2. Factors influencing voltage stability
3. Practical aspects of voltage collapse
4. Methods of voltage stability analysis
5. Case studies

### Part 2: Using VSAT

1. Introduction to VSAT
2. Main features
  - Security assessment of an operating point
  - Voltage security criteria
  - Transfer limit computation
  - Contingency screening
  - Detailed contingency analysis
  - Governor response
  - AGC action
  - Modal analysis
  - V-Q curves
  - Remedial actions
3. Modeling features and data requirements
4. Input/output data formats

5. Program customization and operation
6. Result examination
7. Help sources

### **Part 3: Hands-on Exercises**

1. Test case descriptions
2. Hands-on exercises including the following topics:
  - Perform basecase analysis
  - Perform transfer analysis
  - Perform modal analysis
  - Perform VQ analysis
  - Determine remedial actions
  - Examine results
  - Use other features in VSAT

Note: the actual contents of the course may be customized based on user requests; please refer to the course announcement for details.