1. **Strong Motion Earthquakes**
   a. Intra- and interplate moderate to great damaging earthquakes
   b. Earthquake ground motion simulations
   c. Strong motion data processing, analysis and interpretation
   d. Real-time ground motion prediction framework for earthquake early warning

2. **Seismic Hazards, Risk and Mitigation**
   a. Seismic hazard assessment
   b. Risk reduction strategies for smart city development
   c. Mitigation measures for critical infrastructures
   d. Seismic microzonation for urban planning
   e. Community-based seismic risk reduction and sustainability

3. **Strong Ground Motions and Soil-Structure Interaction**
   a. Soil-structure interaction modelling
   b. Site response analysis
   c. Nonlinear soil behaviour under seismic loading
   d. Soil-structure interaction at soft bed-rock foundation

4. **Numerical Analysis for Performance-Based Designing**
   a. Nonlinear dynamic analysis
   b. Performance-based designing
   c. Verification and validation of numerical models
   d. Advanced finite element methods for seismic analysis
   e. Numerical modelling of seismic isolation systems

5. **Innovative Technologies and Safety Engineering of Structures**
   a. Advanced materials for seismic resilience
   b. Innovative structural systems for earthquake resistance
   c. Smart technologies for structural health monitoring
   d. Self-healing materials for seismic damage repair
   e. Seismic retrofitting techniques for existing structures

6. **Lifelines and Resilience**
   a. Seismic resilience of transportation systems
   b. Water resilience in urban areas
   c. Power grid resilience and restoration
   d. Communication system resilience during earthquakes
   e. Emergency response planning for lifeline disruptions

7. **Liquefaction Evaluation**
   a. Liquefaction-induced ground deformation
   b. Liquefaction potential evaluation and mitigation
   c. Numerical modelling of liquefaction-induced deformation
   d. In-situ liquefaction testing methods

8. **Para Seismic Devices**
   a. Seismograph Machines
   b. Seismic isolation systems
   c. Energy dissipation devices
   d. Tuned mass dampers for seismic control

e. Semi-active control systems for seismic protection
f. Shape memory alloy-based seismic devices

9. **Geophysics and Aided Construction of Engineering Projects**
   a. Seismic refraction/reflection for site characterization
   b. Electrical resistivity modelling for subsurface imaging
   c. Gravity modelling for near-surface characterization
   d. Ground-penetrating radar for non-destructive testing
   e. Geophysical surveys for tunnelling and excavation
   f. Seismic hazard assessment using geophysical data
   g. Passive seismic for velocity modelling and imaging

10. **Geology, Groundwater and Geotechnical Risks**
    a. Geotechnical hazard mapping
    b. Groundwater flow modelling
    c. Geotechnical risk assessment for infrastructure projects
    d. Geological mapping for seismic hazard assessment
    e. Early warning-based geotechnical monitoring
    f. Slope stability analysis and mitigation
    g. Numerical modelling
    h. Geomaterial characterization
    i. Deep seabed minerals, mining, infrastructure lifelines and benthic ecosystem

11. **Remote Sensing for Strong Earthquake Mitigation**
    a. Satellite-based earthquake damage assessment
    b. Remote sensing for seismic hazard mapping
    c. InSAR-based ground deformation monitoring
    d. UAV-based damage assessment
    e. Remote sensing for landslide monitoring

12. **Impacts of Strong Earthquakes in Mining, Minerals, Petroleum and Other Energy Sectors**
    a. Seismic hazard assessment for mining operations
    b. Reservoir monitoring and management
    c. Earthquake data inversion for in-situ stress modelling
    d. Seismic risk management for subsurface energy storage facilities
    e. Earthquake impacts on mining equipment and operations
    f. Seismic design of infrastructures in oil and gas fields
    g. Impacts on power plants, pipelines, transmission line and railway network

13. **Impacts of Strong Earthquakes on Environment**
    a. Seismic impacts on water quality and aquatic ecosystems
    b. Impacts on air quality and atmospheric conditions
    c. Earthquake-induced wildfires and fire risk assessment
    d. Seismic impacts on soil erosion and sediment transport
    e. Tsunami modelling

14. **Near Surface Stress-Strain Evaluation and Geotechnical Modelling**
    a. In-situ stress measurement techniques
    b. Creep and subsidence modelling
    c. Numerical modelling of near-surface stress-strain behaviour
    d. Geotechnical modelling for tunnelling and excavation

e. Stress-strain behaviour of soil-mass and damping

f. Geotechnical modelling for landslide risk assessment

15. AI/ML-Based Designing and Smart Health Monitoring of Structures

a. Machine learning-based structural damage detection

b. AI-driven performance-based design optimization

c. Smart sensor technologies for real-time structural health monitoring

d. Deep learning-based seismic hazard assessment

e. AI-based seismic risk assessment for infrastructure systems