CATHODIC PROTECTION ENGINEERING

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PRE-REQUISITES : A course on introduction to corrosion is desirable but not mandatory

INTENDED AUDIENCE : Primarily for PG, but UG can also register for course. Industry professional will benefit. Because cathodic protection is a multidisciplinary subject, engineers across the discipline might be interested to learn.

INDUSTRIES APPLICABLE TO : All industries employing buried pipelines and tanks and majorly Oil and Gas Industries

COURSE OUTLINE :

Course on Introduction to Corrosion Science and Engineering is offered by several academic institutions, including IITs, NITs, colleges affiliated to various universities. But a specialized course on “Cathodic Protection Engineering” is not being offered by any of these institutions excepting IIT Bombay. The course is important as cathodic protection is one of the most important means of controlling corrosion of buried metallic structures and India is embarking on building large pipeline network. Notably, this course will be valuable to personnel with mechanical, civil, electrical engineering back ground are involved in design, commissioning and maintenance of pipelines who do not have any formal training in cathodic protection. This course was developed by the instructor and is being taught to M. Tech corrosion science and engineering. The instructor has been offering this course to PG students over the last 15 years This could well be useful for the industry personnel.

ABOUT INSTRUCTOR :

Prof. V.S. Raja, Taught several courses related to corrosion over the last 32 years. Published a book on Corrosion Failure Analysis: basics, Case Studies and Solutions Edited a book on Stress Corrosion Cracking: Theory and Practice. Passionate about teaching, recipient of the Prof. SP. Sukhatme award for excellence in teaching

COURSE PLAN :

Week 1: Various types of corrosion in buried metallic structures; Electrochemical concepts of cathodic various forms of corrosion, worked out examples

Week 2: Criteria for cathodic protection, pipeline survey, monitoring and assessment, anode ground bed selection, worked out examples

Week 3: Cathodic protection of tanks, ships, off-shore structures, anodes, worked out examples for calculation of anode requirements, stray current corrosion and its control

Week 4: Coatings and rectifier selection, internal corrosion of oil and gas steel pipelines, anodic protection engineering