

BANDHIT VONGDERRI : EXPERT SYSTEM FOR DIAGNOSIS OF THE OPERATIONS  
OF INDUSTRIAL FIRE TUBE BOILER UP TO 10-TON CAPACITY. THESIS ADVISORS :  
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This thesis illustrates the applications of Artificial Intelligence and Expert System Technology for diagnosis and maintenance of the operations of industrial fire tube boiler. The Knowledge engineer has the duty to gather the information and knowledge of causes of the problem and remedies from the experts in the field of boiler manufacturer, dealer, operator and inspector.

In the boiler system, an industrial fire tube boiler up to 10-ton capacity, particularly consists of automatic combustion control, automatic feed water control, automatic fuel oil supply control and safety control system.

In the expert system, we used the powerful knowledge system software tool, M.I, to create an expert system for diagnosis of boiler operations and problems called BODES(Boiler Operations Diagnosis Expert System.)

A BODES consists of knowledge base which contains rules and facts, backward chaining reasoning process, and user interface. Non-specialist end-user can interact to BODES with user-friendly. A consultation involves a dialogue between BODES and end-user, eventually gain an expert advice. There are the degree of trouble from the most to the least seriousness(Emergency, Heavy, Moderate and Light respectively.) There are the priority degree from the most to the least occurrence frequency(1, 2, 3 and 4 respectively.)

In each cause of the problem, there are the remedies for advise the boiler operators to operate properly.