

# MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR-05

(A Govt. Aided UGC Autonomous Institute Affiliated to RGPV, Bhopal)

Department of Chemical Engineering

## Chemical Reaction Engineering - I Lab

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1. To determine the reaction rate constant ( $k$ ) for the given saponification reaction of ethyl acetate in aqueous sodium hydroxide solution in a batch reactor.
  2. To determine the activation energy for a given saponification reaction of ethyl acetate in aqueous sodium hydroxide solution.
  3. To determine the reaction rate constant ( $k$ ) for the given saponification reaction of ethyl acetate in aqueous sodium hydroxide solution in a continuous stirred tank reactor (CSTR) at ambient conditions.
  4. To determine the reaction rate constant ( $k$ ) for the given saponification reaction of ethyl acetate in aqueous sodium hydroxide solution in a plug flow reactor (PFR) at ambient conditions.
  5. To plot the  $C$  curve,  $E$  curve and  $E_{\theta}$  curve for a CSTR using pulse tracer.
  6. To plot the  $C$  curve,  $E$  curve and  $E_{\theta}$  curve for a PFR using pulse tracer.
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### **Virtual Lab Experiments: (Unit Operation – Reaction Engg. – Process Control Lab, NIT Surathkal)**

- I. Reaction kinetic studies in a batch reactor.
- II. Reaction kinetic studies in a mixed flow reactor.
- III. Reaction kinetic studies in a plug reactor