CHEMICAL REACTION ENGINEERING

CHEMICAL ENGINEERING

Lecture Information

Chapter 01 ▶ Introduction & Basics of CRE

Lecture 01	Introduction of Chemical Reaction Engineering	0:31:15
Lecture 02	Introduction about Chemical Engineering	0:31:09

Chapter 02 ▶ Basics of Reaction & Kinetics

Lecture 01	Types of Reaction	0:13:45
Lecture 02	Rate of Reaction	0:21:54
Lecture 03	Rate of Reaction For Homogeneous Reaction	0:13:12
Lecture 04	Factors Affecting The Rate of Reaction (Power Model)	0:10:10
Lecture 05	Rate of Reaction For Elementary & Non Elementary Reaction	0:14:13
Lecture 06	Molecularity & Order Of Reaction	0:12:26
Lecture 07	Mixed Order Of Reaction	0:19:07
Lecture 08	Relative Rate Of Reaction	0:13:04
Lecture 09	Workbook Question 5–7	0:22:36
Lecture 10	Rate Constant	0:27:06
Lecture 11	Temperature Dependency Theory	0:05:00
Lecture 12	Arrhenius Theory	0:44:58
Lecture 13	Workbook Questions 10–11	0:11:31

Chapter 03 ▶ Introduction To Reactor Design

Chapter 04 ▶ Multiple Reactor System

Chapter 05 ▶ Kinetics For Multiple Reaction System

Chapter 06 ▶ Yield & Selectivity

Chapter 07 ▶ Non Ideal Reactor

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Lecture 02	RTD Measurement	0:04:32
Lecture 03	Tracer	0:03:20
Lecture 04	Pulse Input Experiment & RTD Curve	0:38:17
Lecture 05	Mean Residence Time	0:04:48
Lecture 06	Workbook Questions 1-5	0:52:28
Lecture 07	Step Input Experiment	0:50:20
Lecture 08	Workbook Question 6	0:06:57
Lecture 09	RTD For MFR	0:25:05
Lecture 10	RTD For PFR	0:10:04
Lecture 11	RTD For MFR & PFR in Series	0:10:12
Lecture 12	RTD For PFR's in Series	0:03:53
Lecture 13	RTD For MFR & PFR in Parallel	0:05:29
Lecture 14	RTD For N-MFR's in Series	0:07:06
Lecture 15	Workbook Questions 7-10	0:26:49

Chapter 08 ▶ Effect of Temperature, Pressure and Inert on Reaction

Lecture 01	Effect of Temprature, Pressure & Inerts	0:26:06
Lecture 02	Workbook Questions 1-3	0:13:22
Lecture 03	Energy Balance for Chemical Reaction (Case 1)	0:18:27
Lecture 04	Workbook Question 4	0:11:18
Lecture 05	Energy Balance for Chemical Reaction (Case 2 & 3)	0:08:05
Lecture 06	Workbook Question 5	0:07:21

Chapter 09 ▶ Semibatch Reactor

Lecture 01	About Semibatch Reactor	0:16:29
Lecture 02	Performance Equation of Semibatch Reactor	0:20:46
Lecture 03	Workbook Question	0:29:31

Chapter 10 ▶ Recycle Reactor

Lecture 01	Importance of Recycling	0:30:43
Lecture 02	Performance Equation For Recycle Reactor	0:25:05
Lecture 03	Workbook Question 1	0:14:13

Chapter 11 ▶ Reactor Modeling

Chapter 12 ▶ Heterogeneous Reaction System

MASS TRANSFER

CHEMICAL ENGINEERING

Lecture Information

Chapter 01 ▶ Introduction

Chapter 02 ▶ Diffusion

Chapter 03 ▶ Distillation

Lecture 01	Introduction Of Distillation	1:16:07
Lecture 02	Continuous Distillation	1:12:15
Lecture 03	Mccabe Thiele Method (Part 1)	0:43:59
Lecture 04	Mccabe Thiele Method (Part 2)	1:17:56
Lecture 05	Mccabe Thiele Method (Part 3)	0:40:08
Lecture 06	Role Of Pressure And Reflux Ratio	0:26:39
Lecture 07	Total Reflux And Minimum Reflux Condition	1:06:25
Lecture 08	Fenske's Equation	0:40:54
Lecture 09	Efficiency	0:49:58
Lecture 10	Flooding And Weeping	0:48:07
Lecture 11	Flash Distillation	0:57:40
Lecture 12	Steam Distillation	0:10:50
Lecture 13	Batch Distillation	0:47:37
Lecture 14	Extractive Distillation And Azeotropic Distillation	0:27:07
Lecture 15	Vacuum Distillation	0:38:51

Chapter 04 ▶ Extraction

Lecture 01	Introduction Of Extraction	0:31:28
Lecture 02	General Representation Of Extraction	1:04:55
Lecture 03	Type Of Systems In Extraction	0:59:40
Lecture 04	Cross Flow Cascade (Part 1)	1:14:44
Lecture 05	Cross Flow Cascade (Part 2)	0:49:21
Lecture 06	Mixing Rule And Missing Rule	0:21:57
Lecture 07	Minimum And Maximum Solvent Required	0:34:48
Lecture 08	Counter Current Flow Cascade	1:28:38
Lecture 09	Selectivity Of Solvent	0:25:02

Chapter 05 ▶ Absorption

Lecture 01	Introduction Of Absorption	0:43:22
Lecture 02	Minimum solvent required in absorption & minimum gas…	0:56:25
Lecture 03	Minimum solvent required in absorption & minimum gas…	0:33:14
Lecture 04	Kremser Equation (Part 1)	1:03:44
Lecture 05	Kremser Equation (Part 2)	0:56:24
Lecture 06	Packed Column	0:17:11
Lecture 07	HTU & NTU	0:36:33

Chapter 06 ▶ Drying

Chapter 07 ▶ Absorption

Chapter 08 ▶ Humidification & Leaching

MECHANICAL OPERATIONS

CHEMICAL ENGINEERING

Lecture Information

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Lecture 02	Shape Of The Particles (Concept Of Sphericity)	0:22:54
Lecture 03	Workbook Question 1.1	0:10:19
Lecture 04	Surface Shape Factor Concept & Workbook Question 1.2	0:11:18
Lecture 05	Volume Shape Factor	0:03:18
Lecture 06	Workbook Question 1.3	0:06:41
Lecture 07	Workbook Question 1.4	0:08:07
Lecture 08	Particle Size Analysis	0:08:47
Lecture 09	Average Size Analysis	0:20:39
Lecture 10	Workbook Question 1.5 & 1.6	0:11:37
Lecture 11	Mixed Size Analysis	0:21:04
Lecture 12	Workbook Question 1.7	0:12:06

Chapter 02 ▶ Size Reduction

Lecture 01	Introduction & Purpose Of Size Reduction	0:13:21
Lecture 02	Operating Methods (Forces) Of Size Reductions	0:16:29
Lecture 03	Crushing Efficiency & Mechanical Efficiency	0:13:30

Chapter 03 ▶ Solidsolid Separation

Chapter 04 ▶ Transportation Of Solids

Chapter 05 ▶ Sedimentation

Chapter 06 ▶ Filtration

Chapter 07 ▶ Solidgas Separation

Chapter 08 ▶ Fluidization

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Lecture 07	Workbook Question 8.1	0:06:08
Lecture 08	Workbook Question 8.2	0:01:48
Lecture 09	Workbook Question 8.3 & 8.4	0:07:59
Lecture 10	Workbook Question 8.5	0:09:28
Lecture 11	Workbook Question 8.6	0:06:15
Lecture 12	Workbook Question 8.7 & 8.8	0:08:03
Lecture 13	Workbook Question 8.9	0:02:54
Lecture 14	Workbook Question 8.10 & 8.11	0:05:15
Lecture 15	Workbook Question 8.12	0:04:50
Lecture 16	Workbook Question 8.13 & 8.14	0:07:26
Lecture 17	Workbook Question 8.15	0:06:50
Lecture 18	Workbook Question 8.16	0:02:51

Chapter 09 ▶ Mixing

Lecture 01	Introduction Of Mixing & Agitation	0:16:02
Lecture 02	Purpose Of Mixing	0:15:41
Lecture 03	Mixing Equipments	0:13:46
Lecture 04	Applicability Of Froude Number	0:10:03
Lecture 05	Power Consumption For Mixing	0:14:13
Lecture 06	Workbook Question 9.1	0:03:16
Lecture 07	Workbook Question 9.2	0:02:09
Lecture 08	Workbook Question 9.3, 9.8 & 9.9	0:11:15
Lecture 09	Workbook Question 9.4	0:06:28
Lecture 10	Workbook Question 9.5	0:10:07
Lecture 11	Workbook Question 9.6	0:05:46
Lecture 12	Workbook Question 9.7	0:06:28

Syllabus Competition (Conclusion Lecture)

Lecture 01	Syllabus Copletition (Conclusion Lecture)	0:02:31

CLASSICAL THERMODYNAMICS

CHEMICAL ENGINEERING

Lecture Information

Chapter 01 ▶ Basic Concepts

Chapter 02 ▶ Zeroth Law of Thermodynamics

Chapter 03 ▶ Energy Interaction

Chapter 04 ▶ First Law of Thermodynamics (Closed System)

Chapter 05 ▶ First Law of Thermodynamics (Open System)

Chapter 06 ▶ Second Law of Thermodynamics

Chapter 07 ▶ Entropy

Chapter 08 ▶ Properties Of Pure Substance

Chapter 09 ▶ Mixture of Gasses

Chapter 10 ▶ T.ds Relations

SOLUTION THERMODYNAMICS

CHEMICAL ENGINEERING

Lecture Information

Unit 01

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Lecture 02	Workbook Question 1.1	0:05:31
Lecture 03	Workbook Question 1.2	0:08:07
Lecture 04	Partial Molar Properties	0:11:40
Lecture 05	Workbook Question 1.3	0:07:42
Lecture 06	Workbook Question 1.4	0:06:06
Lecture 07	Workbook Question 1.5	0:07:42
Lecture 08	Summarization Of Partial Molar Properties	0:22:59

Unit 02

Lecture 01	Ideal Gas Mixture Model	0:27:46
Lecture 02	Properties Change Of Mixing	0:24:23
Lecture 03	Summarization Of Ideal Gas Mixture Model	0:21:36
Lecture 04	Workbook Question 2.1	0:08:32
Lecture 05	Workbook Question 2.2	0:09:31
Lecture 06	Workbook Question 2.3	0:06:22
Lecture 07	Workbook Question 2.4	0:06:40

Unit 03

Lecture 01	Excess Property And Residual Properties	0:17:10
Lecture 02	Workbook Question 3.1	0:10:04
Lecture 03	Fugacity And Fugacity Coefficient	0:26:59
Lecture 04	Workbook Question 3.2	0:09:43
Lecture 05	Workbook Question 3.3	0:13:45
Lecture 06	Workbook Question 3.4	0:06:55
Lecture 07	Fugacity Of Compressed Liquid	0:14:09
Lecture 08	Workbook Question 3.5	0:08:03
Lecture 09	Workbook Question 3.6	0:10:50
Lecture 10	Workbook Question 3.7	0:12:10
Lecture 11	Activity And Activity Coefficient	0:13:18
Lecture 12	Workbook Question 3.8	0:11:50
Lecture 13	Workbook Question 3.9	0:05:09
Lecture 14	Modified Raoult's Law	0:23:58
Lecture 15	Workbook Question 3.10	0:15:01
Lecture 16	Workbook Question 3.11	0:11:06
Lecture 17	Workbook Question 3.12	0:16:09
Lecture 18	Workbook Question 3.13	0:10:29

Unit 04

Lecture 01	Gibbs Free Energy As A Generating Function	0:12:25
Lecture 02	Workbook Question 4.1	0:09:11
Lecture 03	Workbook Question 4.2	0:05:38
Lecture 04	Vapor Liquid Equilibrium & Lewis–Randall Rule	0:11:10
Lecture 05	Workbook Question 4.3	0:08:56
Lecture 06	Workbook Question 4.4	0:16:59
Lecture 07	Chemical Reaction Equilibrium	0:34:25
Lecture 08	Workbook Question 4.5	0:14:16
Lecture 09	Workbook Question 4.6	0:07:52
Lecture 10	Workbook Question 4.7	0:21:13
Lecture 11	Workbook Question 4.8	0:19:03
Lecture 12	Workbook Question 4.9	0:08:32
Lecture 13	Summarization Of Solution Thermodynamics	0:32:08

GENERAL APTITUDE

CHEMICAL ENGINEERING

Lecture Information

Chapter 01 ▶ Number System

Lecture 01	Number of Zeros at the end	00:45:09
Lecture 02	Unit Digit Value	00:47:50
Lecture 03	Last Two Digits	00:30:17
Lecture 04	Concept of Remainders	00:40:09
Lecture 05	Factorisation	00:30:07
Lecture 06	Divisibility	00:43:07
Lecture 07	Important Note	00:23:09

Chapter 02 ▶ PnC & Probability

Lecture 01	Addition, Multiplication & Filling	01:16:42
Lecture 02	Basics of PnC	00:24:20
Lecture 03	Letters–Word Arrangement	00:32:51
Lecture 04	Team Formation	00:25:59
Lecture 05	Question Paperwala Question	00:13:37
Lecture 06	Number Sum	00:12:14
Lecture 07	Linear and Circular Arrangements	00:10:44
Lecture 08	Straight Lines, Triangles, Chess Board, Handshake & Gift…	00:28:09

Chapter 07 ▶ Verbal Ability and Verbal Grammar (VA/VG)

Lecture 01	Verbal Ability and Verbal Grammar (VA/VG)	02:22:20

Chapter 08 ▶ Vocabulary Development (Rapid Fire)

Lecture 01	Rapid Fire (1)	00:27:28
Lecture 02	Rapid Fire (2)	00:14:19
Lecture 03	Rapid Fire (3)	00:11:39

ENGINEERING MATHEMATICS

CHEMICAL ENGINEERING

Lecture Information

Lecture 07	Partial Differential Equation	00:40:33
Lecture 08	Basics of Partial Differential Equation	00:19:20
Lecture 09	"Solutions of Partial Differential Equations"	00:43:03
Lecture 10	First Order First Degree Differential Equation (Non-exact)	00:46:11

Chapter 03 ▶ Integral Calculus

Lecture 01	Basic of Integral Calculus	00:37:55
Lecture 02	Special Function (Gamma & Beta)	00:53:06
Lecture 03	Change of Order (Double Integral)	00:50:14
Lecture 04	Application of Integral	01:11:10
Lecture 05	Zero level concept of integration	00:51:50
Lecture 06	Basic of proper and improper integrals	00:28:29

Chapter 04 ▶ Vector Calculus

Lecture 01	Basic of Vector	00:46:16
Lecture 02	Del Operator	00:08:03
Lecture 03	Gradient, Divergence, Curl & Directional Derivative	00:49:13
Lecture 04	Problem Based on G, D & C	00:37:04
Lecture 05	Vector Integral Calculus	00:13:07
Lecture 06	Stoke & Gauss Theorem	00:24:54
Lecture 07	Problem Based on Stoke & Gauss Theorem	00:49:00
Lecture 08	Miscellaneous	00:19:02

Chapter 05 ▶ Maxima Minima

Lecture 01	Concept of Maxima & Minima (One Independent Variable)	00:18:33
Lecture 02	Analysis of Maxima & Minima	00:17:18
Lecture 03	Questions on Maxima & Minima	00:14:01
Lecture 04	Concept of Maxima & Minima (Two Independent Variable)	00:07:53
Lecture 05	Miscellaneous Questions on Maxima & Minima	00:30:06

Chapter 06 ▶ Mean Value Theorem

Lecture 01	Basic of Functions & Limits	00:15:12
Lecture 02	Continuity & Differentiablity	00:54:21
Lecture 03	Rolle & Lagrange's MVT	00:28:30

Chapter 07 ▶ Complex Variable

Lecture 01	Basic of Complex Variable	00:29:32
Lecture 02	Concept of Analytic Function	00:53:35
Lecture 03	Complex Integral	00:12:47
Lecture 04	Residue Theorem & Cauchy Theorem	01:07:02

Lecture 05	Complex Series Expansion	00:33:02
Lecture 06	Basic of Zeros & Singularities	00:19:04

Chapter 08 ▶ Limits & Series Expansion

Lecture 01	Limits	00:33:36
Lecture 02	Series Expansion	00:40:43
Lecture 03	Fourier Series	00:32:21
Lecture 04	Laplace Transform	00:48:00

Chapter 09 ▶ Probability

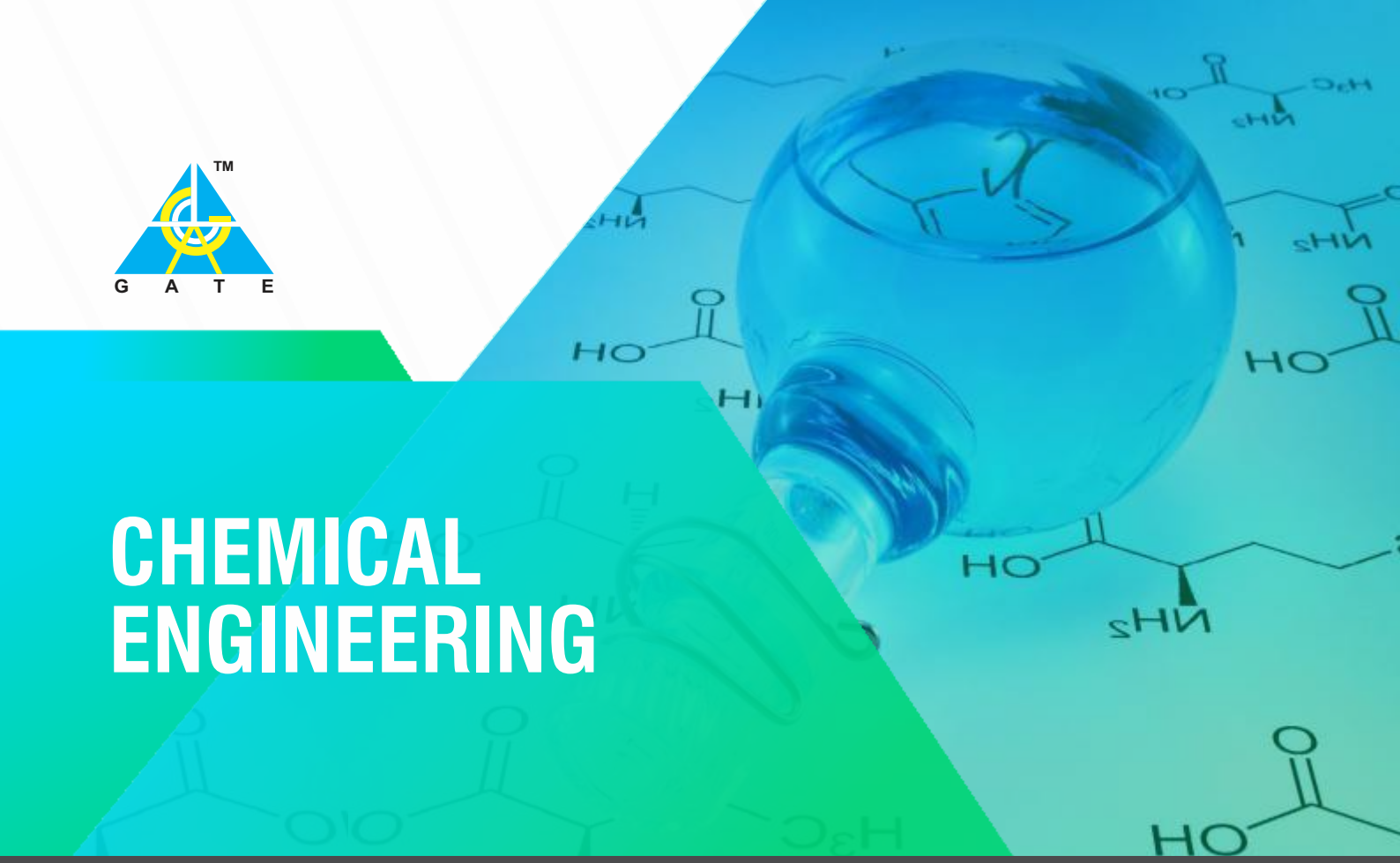
Lecture 01	Sample Space	00:35:33
Lecture 02	Events	00:23:42
Lecture 03	Basic Of Probability	00:45:07
Lecture 04	Probability of Distribution (Binomial)	00:30:27
Lecture 05	Poison Distribution	00:13:27
Lecture 06	Normal Distribution	00:32:39
Lecture 07	Random Variable	01:29:04
Lecture 08	Central Tendency (Mean, median, mode)	00:55:22
Lecture 09	Standard deviation & Coefficient of Variance	00:06:14
Lecture 10	Questions Based on Central Tendency	00:34:02
Lecture 11	Basics of Corelation & Regression Analysis	00:40:45
Lecture 12	Some more on probability(Bayes theorem) (Part–1)	00:24:58
Lecture 13	Some more on probability (Part–2)	00:20:31

Chapter 10 ▶ Numerical Methods

Lecture 01	Methods to solve Non–Linear Algebric Equation	00:54:03
Lecture 02	Question of Non–Linear Algebric Equation	00:30:55
Lecture 03	Methods to Solve Differential Equation	00:12:25
Lecture 04	Question of Differential Equation	00:30:30
Lecture 05	Method to Solve Numerical Integral	00:15:05
Lecture 06	Questions of Numerical Integrals	00:24:59

Preparation Strategy ▶

Lecture 01	Prepare GATE Maths Strategically ??? By : Gurupal Sir	00:48:00



CHEMICAL ENGINEERING

Subjects to be provided in Slot 2 ..

1. Fluid Mechanics
2. Process Dynamics & Control
3. Chemical Technology
4. Heat Transfer Operations
5. Plant Design & Economics
6. Process Calculation

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A/114-115, Smriti Nagar, Bhilai
490020 (CG)

+91 97131 13156
+91 788 4034176