ECE 260 (Continuous-Time Signals and Systems)
Video Lectures

1 Introduction

The following is a link to the full video:

The following are links to particular offsets within the video:
   ○ 00:00: [intro] Unit: Introduction
   ○ 00:18: [intro] Signals
   ○ 01:41: [intro] Classification of Signals
   ○ 06:01: [intro] Graphical Representation of Signals
   ○ 07:09: [intro] Systems
   ○ 07:44: [intro] Classification of Systems
   ○ 09:19: [intro] Signal Processing Systems
   ○ 11:50: [intro] Communication Systems
   ○ 14:01: [intro] Control Systems
   ○ 17:52: [intro] Why Study Signals and Systems?
   ○ 20:03: [intro] System Failure Example: Tacoma Narrows Bridge
   ○ 22:41: [intro] System Failure Example: Tacoma Narrows Bridge (Continued)

2 Complex Analysis

The following is a link to the full video:
   ○ https://youtu.be/8_KKaTEU2B0 [duration: 00:45:42]

The following are links to particular offsets within the video:
   ○ 00:00: [complex] Unit: Complex Analysis
   ○ 00:26: [complex] Complex Numbers
   ○ 01:45: [complex] Complex Numbers (Continued)
   ○ 03:07: [complex] Geometric Interpretation of Cartesian and Polar Forms
   ○ 03:58: [complex] The arctan Function
   ○ 07:14: [complex] The atan2 Function
   ○ 08:32: [complex] Conversion Between Cartesian and Polar Form
   ○ 09:46: [complex] Properties of Complex Numbers
   ○ 11:02: [complex] Conjugation
   ○ 12:08: [complex] Properties of Conjugation
   ○ 13:37: [complex] Addition
   ○ 14:38: [complex] Multiplication
   ○ 15:44: [complex] Division
   ○ 17:47: [complex] Properties of the Magnitude and Argument
   ○ 18:56: [complex] Euler’s Relation and De Moivre’s Theorem
   ○ 20:06: [complex] Roots of Complex Numbers
   ○ 21:05: [complex] Quadratic Formula
   ○ 22:04: [complex] Complex Functions
   ○ 23:35: [complex] Continuity
   ○ 25:11: [complex] Differentiability
3 Preliminaries — Introduction

The following is a link to the full video:
- https://youtu.be/0950-nRIKqQ [duration: 00:00:26]

The following are links to particular offsets within the video:
- 00:00: [prelim] Unit: Preliminaries

4 Preliminaries — Functions, Sequences, System Operators, and Transforms

The following is a link to the full video:
- https://youtu.be/IREmWSf5v3k [duration: 00:33:33]

The following are links to particular offsets within the video:
- 00:00: [prelim] Section: Functions, Sequences, System Operators, and Transforms
- 00:11: [prelim] Sets
- 01:07: [prelim] Notation for Intervals on the Real Line
- 03:41: [prelim] Mappings
- 06:19: [prelim] Functions
- 09:59: [prelim] Example 2.2
- 15:58: [prelim] Sequences
- 19:42: [prelim] System Operators
- 22:48: [prelim] Remarks on Operator Notation for CT Systems
- 28:21: [prelim] Example 2.6
- 30:08: [prelim] Example 2.7
- 31:38: [prelim] Transforms
- 32:49: [prelim] Examples of Transforms

5 Preliminaries — Signal Properties

The following is a link to the full video:
- https://youtu.be/iWDh_nhVEII [duration: 00:08:59]

The following are links to particular offsets within the video:
- 00:00: [prelim] Section: Properties of Signals
- 00:10: [prelim] Even Symmetry
- 01:53: [prelim] Odd Symmetry
- 03:59: [prelim] Conjugate Symmetry
- 05:04: [prelim] Periodicity
- 06:46: [prelim] Periodicity (Continued 1)
- 07:49: [prelim] Periodicity (Continued 2)
6 CT Signals and Systems — Introduction

The following is a link to the full video:
- [https://youtu.be/9wJGqOaEbWg](https://youtu.be/9wJGqOaEbWg) [duration: 00:00:23]

The following are links to particular offsets within the video:
- 00:00: [ctsigsys] Unit: Continuous-Time (CT) Signals and Systems

7 CT Signals and Systems — Independent/Dependent-Variable Transformations

The following is a link to the full video:
- [https://youtu.be/dtfMWDJPqEs](https://youtu.be/dtfMWDJPqEs) [duration: 00:38:00]

The following are links to particular offsets within the video:
- 00:00: [ctsigsys] Section: Independent- and Dependent-Variable Transformations
- 00:18: [ctsigsys] Time Shifting (Translation)
- 01:24: [ctsigsys] Time Shifting (Translation): Example
- 03:17: [ctsigsys] Time Reversal (Reflection)
- 04:45: [ctsigsys] Time Compression/Expansion (Dilation)
- 06:02: [ctsigsys] Time Compression/Expansion (Dilation): Example
- 08:04: [ctsigsys] Time Scaling (Dilation/Reflection)
- 10:21: [ctsigsys] Time Scaling (Dilation/Reflection): Example
- 11:57: [ctsigsys] Combined Time Scaling and Time Shifting
- 19:36: [ctsigsys] Exercise 3.3
- 28:26: [ctsigsys] Two Perspectives on Independent-Variable Transformations
- 31:14: [ctsigsys] Demonstration: Two Views of Time-Shifting Transformations
- 33:26: [ctsigsys] Amplitude Scaling
- 35:19: [ctsigsys] Amplitude Shifting
- 36:11: [ctsigsys] Combined Amplitude Scaling and Amplitude Shifting

8 CT Signals and Systems — Function Properties

The following is a link to the full video:
- [https://youtu.be/PRD3WoWrxa4](https://youtu.be/PRD3WoWrxa4) [duration: 00:26:30]

The following are links to particular offsets within the video:
- 00:00: [ctsigsys] Section: Properties of Functions
- 00:11: [ctsigsys] Symmetry and Addition/Multiplication
- 02:28: [ctsigsys] Decomposition of a Function into Even and Odd Parts
- 04:48: [ctsigsys] Theorem 3.1
- 08:17: [ctsigsys] Sum of Periodic Functions
- 11:50: [ctsigsys] Example 3.2
- 14:00: [ctsigsys] Example 3.4
- 17:17: [ctsigsys] Right-Sided Functions
- 19:49: [ctsigsys] Left-Sided Functions
- 21:54: [ctsigsys] Finite-Duration and Two-Sided Functions
- 23:32: [ctsigsys] Bounded Functions
9 CT Signals and Systems — Elementary Functions

The following is a link to the full video:

   ◦ https://youtu.be/qVurOxABoYM [duration: 00:51:59]

The following are links to particular offsets within the video:

   ◦ 00:00: [ctsigsys] Section: Elementary Functions
   ◦ 00:17: [ctsigsys] Real Sinusoidal Functions
   ◦ 00:49: [ctsigsys] Complex Exponential Functions
   ◦ 01:23: [ctsigsys] Real Exponential Functions
   ◦ 02:35: [ctsigsys] Complex Sinusoidal Functions
   ◦ 03:49: [ctsigsys] Complex Sinusoidal Functions (Continued)
   ◦ 04:15: [ctsigsys] Plots of Complex Sinusoidal Functions
   ◦ 05:14: [ctsigsys] General Complex Exponential Functions
   ◦ 07:00: [ctsigsys] General Complex Exponential Functions (Continued)
   ◦ 07:44: [ctsigsys] Unit-Step Function
   ◦ 09:08: [ctsigsys] Signum Function
   ◦ 09:50: [ctsigsys] Rectangular Function
   ◦ 10:59: [ctsigsys] Cardinal Sine Function
   ◦ 12:55: [ctsigsys] Unit-Impulse Function
   ◦ 17:25: [ctsigsys] Unit-Impulse Function as a Limit
   ◦ 19:55: [ctsigsys] Properties of the Unit-Impulse Function
   ◦ 22:17: [ctsigsys] Figure: Graphical Interpretation of Equivalence Property
   ◦ 24:23: [ctsigsys] Example 3.8
   ◦ 25:55: [ctsigsys] Example 3.9
   ◦ 29:34: [ctsigsys] Example 3.10
   ◦ 36:30: [ctsigsys] Representing a Rectangular Pulse (Using Unit-Step Functions)
   ◦ 39:08: [ctsigsys] Example 3.11
   ◦ 43:06: [ctsigsys] Representing Functions Using Unit-Step Functions
   ◦ 44:21: [ctsigsys] Example 3.12

10 CT Signals and Systems — Systems

The following is a link to the full video:

   ◦ https://youtu.be/InFEzaTvCl0 [duration: 00:05:40]

The following are links to particular offsets within the video:

   ◦ 00:00: [ctsigsys] Section: Continuous-Time (CT) Systems
   ◦ 00:13: [ctsigsys] CT Systems
   ◦ 02:36: [ctsigsys] Block Diagram Representations
   ◦ 02:57: [ctsigsys] Interconnection of Systems

11 CT Signals and Systems — System Properties

The following is a link to the full video:


The following are links to particular offsets within the video:

   ◦ 00:00: [ctsigsys] Section: Properties of (CT) Systems
   ◦ 00:11: [ctsigsys] Memory
   ◦ 02:45: [ctsigsys] Memory (Continued)
   ◦ 04:42: [ctsigsys] Example 3.15
   ◦ 06:09: [ctsigsys] Example 3.16
   ◦ 08:02: [ctsigsys] Causality
12 CT LTI Systems — Introduction

The following is a link to the full video:
- [https://youtu.be/oOl2SX3Fzw8](https://youtu.be/oOl2SX3Fzw8) [duration: 00:02:24]

The following are links to particular offsets within the video:
- 00:00: [ctltisys] Unit: Continuous-Time Linear Time-Invariant (LTI) Systems
- 00:52: [ctltisys] Why Linear Time-Invariant (LTI) Systems?

13 CT LTI Systems — Convolution

The following is a link to the full video:
- [https://youtu.be/q2n6l3-gi_c](https://youtu.be/q2n6l3-gi_c) [duration: 00:57:49]

The following are links to particular offsets within the video:
- 00:00: [ctltisys] Section: Convolution
- 00:15: [ctltisys] CT Convolution
- 03:32: [ctltisys] Example X.4.1
- 10:46: [ctltisys] Practical Convolution Computation
- 14:25: [ctltisys] Example 4.1
- 34:26: [ctltisys] Exercise 4.18(u)
- 46:21: [ctltisys] Properties of Convolution
- 49:03: [ctltisys] Theorem 4.1
- 56:06: [ctltisys] Representation of Functions Using Impulses

14 CT LTI Systems — Convolution and LTI Systems

The following is a link to the full video:
- [https://youtu.be/fnH51-gRiqg](https://youtu.be/fnH51-gRiqg) [duration: 00:25:29]

The following are links to particular offsets within the video:
15 CT LTI Systems — Properties of LTI Systems

The following is a link to the full video:

- https://youtu.be/cOhpZyxyDW8 [duration: 00:46:04]

The following are links to particular offsets within the video:

- 00:00: [ctltisys] Section: Properties of LTI Systems
- 00:35: [ctltisys] Memory
- 04:03: [ctltisys] Example 4.8
- 06:21: [ctltisys] Example 4.9
- 07:14: [ctltisys] Causality
- 09:32: [ctltisys] Example 4.10
- 12:09: [ctltisys] Example 4.11
- 14:29: [ctltisys] Invertibility
- 20:12: [ctltisys] BIBO Stability
- 21:56: [ctltisys] Example 4.14
- 27:32: [ctltisys] Example 4.15
- 32:22: [ctltisys] Eigenfunctions of LTI Systems
- 35:10: [ctltisys] Representations of Functions Using Eigenfunctions
- 38:07: [ctltisys] Example: Corollary of Theorem 4.12
- 41:29: [ctltisys] Example 4.16

16 Interlude

The following is a link to the full video:

- https://youtu.be/5pliTVUox0I [duration: 00:04:54]

The following are links to particular offsets within the video:

- 00:00: Interlude

17 CT Fourier Series — Introduction

The following is a link to the full video:

- https://youtu.be/YxQ2Bi3Z4Iw [duration: 00:01:33]

The following are links to particular offsets within the video:

- 00:00: [ctfs] Unit: Continuous-Time Fourier Series (CTFS)
- 00:31: [ctfs] Introduction

18 CT Fourier Series — Fourier Series

The following is a link to the full video:
19  CT Fourier Series — Convergence Properties of Fourier Series

The following is a link to the full video:

- https://youtu.be/Vrf1Q93-JFM [duration: 00:28:16]

The following are links to particular offsets within the video:

- 00:00: [ctfs] Section: Convergence Properties of Fourier Series
- 00:32: [ctfs] Remarks on Equality of Functions
- 06:06: [ctfs] Convergence of Fourier Series
- 08:48: [ctfs] Convergence of Fourier Series (Continued)
- 10:38: [ctfs] Convergence of Fourier Series: Continuous Case
- 12:55: [ctfs] Dirichlet Conditions
- 17:21: [ctfs] Convergence of Fourier Series: Dirichlet Case
- 18:50: [ctfs] Example 5.6

20  CT Fourier Series — Properties of Fourier Series

The following is a link to the full video:

- https://youtu.be/WRCjY_pPAZo [duration: 00:10:15]

The following are links to particular offsets within the video:

- 00:00: [ctfs] Section: Properties of Fourier Series
- 00:14: [ctfs] Properties of (CT) Fourier Series
- 00:33: [ctfs] Linearity
- 01:25: [ctfs] Even and Odd Symmetry
- 02:07: [ctfs] Real Functions
- 04:36: [ctfs] Trigonometric Forms of a Fourier Series
- 08:07: [ctfs] Other Properties of Fourier Series
- 09:20: [ctfs] Zeroth Coefficient of Fourier Series

21  CT Fourier Series — Fourier Series and Frequency Spectra

The following is a link to the full video:

- https://youtu.be/FDyi1EUAC9M [duration: 00:22:08]

The following are links to particular offsets within the video:

- 00:00: [ctfs] Section: Fourier Series and Frequency Spectra
- 00:20: [ctfs] A New Perspective on Functions: The Frequency Domain
- 01:50: [ctfs] Motivating Example
- 04:53: [ctfs] Motivating Example (Continued)
22 CT Fourier Series — Fourier Series and LTI Systems

The following is a link to the full video:
○ https://youtu.be/Vhwaw0NdCDM [duration: 00:25:47]

The following are links to particular offsets within the video:
○ 00:00: [ctfs] Section: Fourier Series and LTI Systems
○ 00:22: [ctfs] Frequency Response
○ 03:26: [ctfs] Fourier Series and LTI Systems
○ 05:24: [ctfs] Example 5.9
○ 09:27: [ctfs] Filtering
○ 10:42: [ctfs] Ideal Lowpass Filter
○ 12:05: [ctfs] Ideal Highpass Filter
○ 13:26: [ctfs] Ideal Bandpass Filter
○ 15:20: [ctfs] Example 5.10

23 CT Fourier Transform — Introduction

The following is a link to the full video:
○ https://youtu.be/uqnNXbislNgA [duration: 00:01:40]

The following are links to particular offsets within the video:
○ 00:00: [ctft] Unit: CT Fourier Transform
○ 00:38: [ctft] Motivation for the Fourier Transform

24 CT Fourier Transform — Fourier Transform

The following is a link to the full video:
○ https://youtu.be/3ghUBR8AHxg [duration: 00:12:45]

The following are links to particular offsets within the video:
○ 00:00: [ctft] Section: Fourier Transform
○ 00:13: [ctft] Development of the Fourier Transform [Aperiodic Case]
○ 01:44: [ctft] Development of the Fourier Transform [Aperiodic Case] (Continued)
○ 03:58: [ctft] Generalized Fourier Transform
○ 05:33: [ctft] CT Fourier Transform (CTFT)
○ 07:12: [ctft] Example 6.1
○ 09:43: [ctft] Example 6.3

25 CT Fourier Transform — Convergence Properties

The following is a link to the full video:
○ https://youtu.be/hWcGkscx0A [duration: 00:13:45]

The following are links to particular offsets within the video:
○ 00:00: [ctft] Section: Convergence Properties of the Fourier Transform
○ 00:32: [ctft] Convergence of the Fourier Transform
○ 02:26: [ctft] Convergence of the Fourier Transform: Finite-Energy Case
26 CT Fourier Transform — Properties of the Fourier Transform

The following is a link to the full video:
- [ctft] Section: Properties of the Fourier Transform
- [ctft] Properties of the (CT) Fourier Transform
- [ctft] (CT) Fourier Transform Pairs
- [ctft] Linearity
- [ctft] Example 6.7
- [ctft] Time-Domain Shifting (Translation)
- [ctft] Example 6.9
- [ctft] Frequency-Domain Shifting (Modulation)
- [ctft] Example 6.10
- [ctft] Time- and Frequency-Domain Scaling (Dilation)
- [ctft] Example 6.11
- [ctft] Conjugation
- [ctft] Example 6.12
- [ctft] Duality
- [ctft] Example 6.13
- [ctft] Time-Domain Convolution
- [ctft] Example 6.14
- [ctft] Time-Domain Multiplication
- [ctft] Example 6.15
- [ctft] Time-Domain Differentiation
- [ctft] Example 6.16
- [ctft] Frequency-Domain Differentiation
- [ctft] Example 6.17
- [ctft] Time-Domain Integration
- [ctft] Example 6.18
- [ctft] Parseval’s Relation
- [ctft] Example 6.19
- [ctft] Even/Odd Symmetry
- [ctft] Real Functions
- [ctft] More Fourier Transforms
- [ctft] Example 6.26
- [ctft] Exercise 6.5(g)
- [ctft] Exercise 6.2(j)

27 CT Fourier Transform — Fourier Transform of Periodic Functions

The following is a link to the full video:
- [ctft] Section: Fourier Transform of Periodic Functions
- [ctft] Fourier Transform of Periodic Functions

Instructor: Michael D. Adams  Version: 2020-08-01
28  CT Fourier Transform — Fourier Transform and Frequency Spectra of Functions

The following is a link to the full video:
   ◦  https://youtu.be/1JI9Qs3vbJA [duration: 00:19:03]

The following are links to particular offsets within the video:
   ◦  00:00: [ctft] Section: Fourier Transform and Frequency Spectra of Functions
   ◦  00:21: [ctft] The Frequency-Domain Perspective on Functions
   ◦  02:25: [ctft] Fourier Transform and Frequency Spectra
   ◦  04:40: [ctft] Fourier Transform and Frequency Spectra (Continued 1)
   ◦  05:55: [ctft] Fourier Transform and Frequency Spectra (Continued 2)
   ◦  08:26: [ctft] Example 6.30
   ◦  13:31: [ctft] Frequency Spectra of Real Functions
   ◦  15:03: [ctft] Bandwidth

29  CT Fourier Transform — Fourier Transform and LTI Systems

The following is a link to the full video:
   ◦  https://youtu.be/zf9uo2wk8pw [duration: 00:15:42]

The following are links to particular offsets within the video:
   ◦  00:00: [ctft] Section: Fourier Transform and LTI Systems
   ◦  00:35: [ctft] Frequency Response of LTI Systems
   ◦  02:35: [ctft] Frequency Response of LTI Systems (Continued 1)
   ◦  04:08: [ctft] Frequency Response of LTI Systems (Continued 2)
   ◦  04:53: [ctft] Block Diagram Representations of LTI Systems
   ◦  05:49: [ctft] Interconnection of LTI Systems
   ◦  07:37: [ctft] LTI Systems and Differential Equations
   ◦  09:19: [ctft] Example 6.34
   ◦  12:44: [ctft] Example 6.35

30  CT Fourier Transform — Application: Filtering

The following is a link to the full video:
   ◦  https://youtu.be/tfEhqrCDeJ0 [duration: 00:06:26]

The following are links to particular offsets within the video:
   ◦  00:00: [ctft] Section: Application: Filtering
   ◦  00:19: [ctft] Filtering
   ◦  01:31: [ctft] Ideal Lowpass Filter
   ◦  01:33: [ctft] Ideal Highpass Filter
   ◦  01:35: [ctft] Ideal Bandpass Filter
   ◦  01:48: [ctft] Example 6.38
31  CT Fourier Transform — Application: Circuit Analysis

The following is a link to the full video:
  ⋅ https://youtu.be/LTs-04k9oPQ [duration: 00:17:50]

The following are links to particular offsets within the video:
  ⋅ 00:00: [ctft] Section: Application: Circuit Analysis
  ⋅ 00:19: [ctft] Electronic Circuits
  ⋅ 02:00: [ctft] Resistors
  ⋅ 03:05: [ctft] Inductors
  ⋅ 04:24: [ctft] Capacitors
  ⋅ 05:52: [ctft] Circuit Analysis with the Fourier Transform
  ⋅ 07:46: [ctft] Example 6.40

32  CT Fourier Transform — Application: Amplitude Modulation

The following is a link to the full video:
  ⋅ https://youtu.be/Ua_H1OiZL-c [duration: 00:28:55]

The following are links to particular offsets within the video:
  ⋅ 00:00: [ctft] Section: Application: Amplitude Modulation (AM)
  ⋅ 00:46: [ctft] Motivation for Amplitude Modulation (AM)
  ⋅ 04:16: [ctft] Trivial Amplitude Modulation (AM) System
  ⋅ 09:21: [ctft] Trivial Amplitude Modulation (AM) System: Example
  ⋅ 10:06: [ctft] Double-Sideband Suppressed-Carrier (DSB-SC) AM
  ⋅ 12:58: [ctft] Example: Analysis of DSB-SC AM — Transmitter
  ⋅ 16:14: [ctft] Example: Analysis of DSB-SC AM — Receiver
  ⋅ 24:19: [ctft] Example: Analysis of DSB-SC AM — Spectra
  ⋅ 26:46: [ctft] Single-Sideband Suppressed-Carrier (SSB-SC) AM
  ⋅ 27:48: [ctft] SSB-SC AM: Example

33  CT Fourier Transform — Application: Sampling and Interpolation

The following is a link to the full video:
  ⋅ https://youtu.be/GkOrtV2BkZ8 [duration: 00:33:16]

The following are links to particular offsets within the video:
  ⋅ 00:00: [ctft] Section: Application: Sampling and Interpolation
  ⋅ 00:31: [ctft] Sampling and Interpolation
  ⋅ 02:19: [ctft] Periodic Sampling
  ⋅ 03:35: [ctft] Invertibility of Sampling
  ⋅ 06:49: [ctft] Model of Sampling
  ⋅ 09:16: [ctft] Model of Sampling: Various Signals
  ⋅ 10:41: [ctft] Model of Sampling: Invertibility of Sampling Revisited
  ⋅ 13:12: [ctft] Model of Sampling: Characterization
  ⋅ 15:15: [ctft] Analysis of Sampling — Multiplication by a Periodic Impulse Train (Part 1)
  ⋅ 16:37: [ctft] Analysis of Sampling — Fourier Series for a Periodic Impulse Train
  ⋅ 18:59: [ctft] Analysis of Sampling — Multiplication by a Periodic Impulse Train (Part 2)
  ⋅ 22:34: [ctft] Model of Sampling: Aliasing (Continued)
  ⋅ 26:38: [ctft] Model of Interpolation
  ⋅ 28:43: [ctft] Sampling Theorem
  ⋅ 30:33: [ctft] Example 6.41
34 Partial Fraction Expansions (PFEs)

The following is a link to the full video:
   ▶️ https://youtu.be/wgTXbvhSgnk [duration: 00:12:49]

The following are links to particular offsets within the video:
   - 00:00: [pfe] Unit: Partial Fraction Expansions (PFEs)
   - 00:10: [pfe] Motivation for PFEs
   - 00:55: [pfe] Strictly-Proper Rational Functions
   - 01:53: [pfe] Partial Fraction Expansions (PFEs) [CT and DT Contexts]
   - 03:28: [pfe] Simple-Pole Case [CT and DT Contexts]
   - 04:39: [pfe] Example B.1
   - 07:13: [pfe] Repeated-Pole Case [CT and DT Contexts]
   - 09:24: [pfe] Example B.2

35 Laplace Transform — Introduction

The following is a link to the full video:
   ▶️ https://youtu.be/uVCVRZ01I1s [duration: 00:02:49]

The following are links to particular offsets within the video:
   - 00:00: [lt] Unit: Laplace Transform (LT)
   - 00:32: [lt] Motivation Behind the Laplace Transform
   - 01:35: [lt] Motivation Behind the Laplace Transform (Continued)

36 Laplace Transform — Laplace Transform

The following is a link to the full video:
   ▶️ https://youtu.be/UoeBiWrAfDs [duration: 00:18:20]

The following are links to particular offsets within the video:
   - 00:00: [lt] Section: Laplace Transform
   - 00:15: [lt] (Bilateral) Laplace Transform
   - 02:07: [lt] Bilateral and Unilateral Laplace Transforms
   - 03:18: [lt] Relationship Between Laplace and Fourier Transforms
   - 06:22: [lt] Derivation: LT FT Relationship (Special Case)
   - 07:40: [lt] Derivation: LT FT Relationship (General Case)
   - 08:54: [lt] Laplace Transform Examples
   - 09:08: [lt] Example 7.3
   - 13:36: [lt] Example 7.4

37 Laplace Transform — Region of Convergence

The following is a link to the full video:
   ▶️ https://youtu.be/DoaZUx550Yw [duration: 00:23:29]

The following are links to particular offsets within the video:
   - 00:00: [lt] Section: Region of Convergence (ROC)
   - 00:26: [lt] Left-Half Plane (LHP)
   - 01:21: [lt] Right-Half Plane (RHP)
   - 02:08: [lt] Intersection of Sets
   - 02:49: [lt] Adding a Scalar to a Set
   - 03:45: [lt] Multiplying a Set by a Scalar
   - 05:22: [lt] Region of Convergence (ROC)
38 Laplace Transform — Properties of the Laplace Transform

The following is a link to the full video:
- https://youtu.be/qld0TLDFaxc [duration: 01:00:16]

The following are links to particular offsets within the video:
- 00:00: [It] Section: Properties of the Laplace Transform
- 00:21: [It] Properties of the Laplace Transform
- 00:39: [It] Laplace Transform Pairs
- 02:34: [It] Linearity
- 05:00: [It] Example 7.8
- 09:57: [It] Example 7.9
- 14:41: [It] Time-Domain Shifting
- 15:42: [It] Example 7.10
- 17:16: [It] Laplace-Domain Shifting
- 18:56: [It] Example 7.11
- 22:37: [It] Time-Domain/Laplace-Domain Scaling
- 24:31: [It] Example 7.12
- 28:13: [It] Conjugation
- 29:14: [It] Example 7.13
- 33:07: [It] Time-Domain Convolution
- 35:22: [It] Example 7.14
- 37:48: [It] Time-Domain Differentiation
- 40:16: [It] Example 7.15
- 41:43: [It] Laplace-Domain Differentiation
- 42:37: [It] Example 7.16
- 44:29: [It] Time-Domain Integration
- 46:56: [It] Example 7.17
- 49:13: [It] Initial Value Theorem
- 51:23: [It] Final Value Theorem
- 53:36: [It] Example 7.18
- 55:26: [It] Example 7.19

39 Laplace Transform — Determination of Inverse Laplace Transform

The following is a link to the full video:
- https://youtu.be/yW0nCwrwaCQ [duration: 00:20:17]

The following are links to particular offsets within the video:
- 00:00: [It] Section: Determination of Inverse Laplace Transform
- 00:10: [It] Finding Inverse Laplace Transform
- 01:18: [It] Example 7.27
40 Laplace Transform — Laplace Transform and LTI Systems

The following is a link to the full video:

- https://youtu.be/MWZV3c6TzJi [duration: 00:33:11]

The following are links to particular offsets within the video:

- 00:00: [It] Section: Laplace Transform and LTI Systems
- 00:37: [It] System Function of LTI Systems
- 03:08: [It] Block Diagram Representations of LTI Systems
- 03:58: [It] Interconnection of LTI Systems
- 05:47: [It] Causality
- 09:14: [It] Example 7.31
- 12:31: [It] BIBO Stability
- 15:22: [It] Example 7.32
- 17:24: [It] Example 7.33
- 19:24: [It] Example 7.34
- 23:38: [It] Invertibility
- 26:01: [It] Example 7.35
- 27:53: [It] LTI Systems and Differential Equations
- 29:51: [It] Example 7.36
- 31:39: [It] Example 7.37

41 Laplace Transform — Application: Circuit Analysis

The following is a link to the full video:

- https://youtu.be/cf8Ji83DdQ [duration: 00:15:42]

The following are links to particular offsets within the video:

- 00:00: [It] Section: Application: Circuit Analysis
- 00:12: [It] Electronic Circuits
- 01:15: [It] Resistors
- 01:17: [It] Inductors
- 01:19: [It] Capacitors
- 01:24: [It] Circuit Analysis With the Laplace Transform
- 03:25: [It] Example 7.38

42 Laplace Transform — Application: Design and Analysis of Control Systems

The following is a link to the full video:

- https://youtu.be/SgK69mQdgiw [duration: 00:29:03]

The following are links to particular offsets within the video:

- 00:00: [It] Section: Application: Design and Analysis of Control Systems
- 00:13: [It] Control Systems
- 02:35: [It] Feedback Control Systems
- 05:27: [It] Stability Analysis of Feedback Systems
- 07:40: [It] Example 7.40 — Stabilization Example: Unstable Plant
- 08:52: [It] Example 7.40 — Stabilization Example: Using Pole-Zero Cancellation
- 11:04: [It] Example 7.40 — Stabilization Example: Using Feedback (1)
43   Laplace Transform — Unilateral Laplace Transform

The following is a link to the full video:
   ❖ https://youtu.be/ac6Nbs6hf7M [duration: 00:20:52]

The following are links to particular offsets within the video:
   ❖ 00:00: [It] Section: Unilateral Laplace Transform
   ❖ 00:32: [It] Unilateral Laplace Transform
   ❖ 03:15: [It] Inversion of the Unilateral Laplace Transform
   ❖ 05:40: [It] Unilateral Versus Bilateral Laplace Transform
   ❖ 07:39: [It] Properties of the Unilateral Laplace Transform
   ❖ 09:14: [It] Unilateral Laplace Transform Pairs
   ❖ 10:21: [It] Solving Differential Equations Using the Unilateral Laplace Transform
   ❖ 11:31: [It] Example 7.42
   ❖ 14:25: [It] Example 7.43