



## Operational Amplifiers: Theory and Design

TU DELFT, THE NETHERLANDS  
NOVEMBER 5-9, 2018

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### MONDAY, November 5

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8:30 - 9:00 am	Registration / Computer Setup	J.H. Huijsing / B. Gonen
9:00 - 10:15 am	Introduction / Definitions/ Macromodels	J.H. Huijsing
10:15 - 11:15 am	Precision Applications / Dynamic Range	J.H. Huijsing
11:30 - 12:30 am	Hands-on Simulations	B. Gonen
1:30 - 15:00 pm	Input Stages: Offset, Noise, CMRR	R. Hogervorst
3:15 - 4:15 pm	Rail-to-Rail Capability	R. Hogervorst
4:30 - 6:00 pm	Hands-on Simulations / Questions & Answers	B. Gonen / R. Hogervorst

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### TUESDAY, November 6

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9:00 - 10:00 am	Output Stages: Voltage and Current Efficiency	J.H. Huijsing
10:15 - 11:15 am	Class-AB Biasing	J.H. Huijsing
11:30 - 12:30 am	Hands-on Simulations / Questions & Answers	B. Gonen / J.H. Huijsing
1:30 - 3:00 pm	Frequency Compensation, Slew-Rate	R.G.H. Eschauzier
3:15 - 4:15 pm	Non-linear Distortion	R.G.H. Eschauzier
4:30 - 6:00 pm	Hands-on Simulations / Questions & Answers	B. Gonen / R.G.H. Eschauzier

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### WEDNESDAY, November 7

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9:00 - 10:00 am	Two-Stage Configurations	J.H. Huijsing
10:15 - 11:15 am	Three-Stage Configurations	J.H. Huijsing
11:30 - 12:30 am	Hands-on Simulations / Questions & Answers	B. Gonen / J.H. Huijsing
1:30 - 3:00 pm	Three-Stage Configurations	K.J. de Langen
3:15 - 4:15 pm	Three-Stage Configurations	K.J. de Langen
4:30 - 6:00 pm	Hands-on Simulations / Questions & Answers	B. Gonen / K.J. de Langen

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### THURSDAY, November 8

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9:00 - 10:00 am	Four-Stage Configurations	J.H. Huijsing
10:15 - 11:15 am	Fully Differential OpAmps	J.H. Huijsing
11:30 - 12:30 am	Hands-on Simulations / Questions & Answers	B. Gonen
1:30 - 3:00 pm	Dynamic Offset Compensation: Auto-Zeroing	J.F. Witte
3:15 - 4:15 pm	Low Offset Chopper Amplifiers	J.F. Witte
4:15 - 4:30 pm	Hands-on Simulations / Questions & Answers	B. Gonen / J.H. Huijsing

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### FRIDAY, November 9

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9:00 - 11:15 am	Auto-Zero and Chopper Amplifiers Overview	J.H. Huijsing
11:30 - 12:30 am	Hands-on Simulations / Questions & Answers	B. Gonen
1:30 - 3:00 pm	Capacitive Coupled Amplifiers	Q. Fan
3:00 - 3:30 pm	Evaluation	J.H. Huijsing

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