

C9 Process Control

Part 1 Lessons

Process Control

EE116	Process Control System
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I006+ H & I units in UEE11

UEENEEI127A		Analyse complex electronic circuits controlling fluids
UEENEEI139A		Diagnose and rectify faults in digital controls systems
UEENEEI101A		Use instrumentation drawings, specification, standards and equipment manuals
UEENEEI116A		Assemble, enter and verify operating instructions in microprocessor equipped devices
UEENEEI138A		Provide solutions to extra low voltage (ELV) electro-pneumatic control systems and drives
UEENEEI140A		Plan the electrical installation of integrated systems
UEENEEI141A		Develop electrical integrated systems
UEENEEI150A		Develop, enter and verify discrete control programs for programmable controllers
UEENEEI142A		Develop an electrical integrated system interface for access through a touch screen
UEENEEI143A		Develop access control of electrical integrated systems using logic-based programming tools
UEENEEI144A		Develop interfaces for multiple access methods to monitor, schedule & control electrical integrated
UEENEEI151A		Develop, enter and verify word and analogue control programs for programmable logic controllers.
UEENEEI152A		Develop, enter and verify programs in Supervisory Control and Data Acquisition systems
UEENEEH147A		Assess electronic apparatus compliance
UEENEEH184A		Modify digital signal processing (DSP) based sub-systems
UEENEEH185A		Design signal-conditioning subsystems
UEENEEH188A		Design and develop electronics - computer systems projects
UEENEEI123A		Design electronic control systems

UEENEEI128A		Set up and configure controls on complex fluid systems
UEENEEI129A		Set up electronically controlled mechanically operated complex systems
UEENEEI141A		Develop electrical integrated systems
UEENEEI150A		Develop, enter and verify discrete control programs for programmable controllers
UEENEEI119A		Set up industrial field control devices
UEENEEI120A		Provide solutions to problems in industrial control systems
UEENEEI124A		Fault find and repair analogue circuits and components in electronic control systems
UEENEEI125A		Provide solutions to fluid circuit operations
UEENEEI126A		Provide solutions to pneumatic-hydraulic system operations
UEENEEI139A		Diagnose and rectify faults in digital controls systems
UEENEEI142A		Develop an electrical integrated system interface for access through a touch screen
UEENEEI143A		Develop access control of electrical integrated systems using logic-based programming tools
UEENEEI144A		Develop interfaces for multiple access methods to monitor,schedule & control electrical integrated
UEENEEI148A		Solve problems in single phase electronic power control circuits
UEENEEI149A		Solve problems in polyphase electronic power control circuits
UEENEEI151A		Develop, enter and verify word and analogue control programs for programmable logic controllers.
UEENEEI152A		Develop, enter and verify programs in Supervisory Control and Data Acquisition systems
UEENEEI127A		Analyse complex electronic circuits controlling fluids
UEENEEI157A		Configure and maintain industrial control system networks

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http://www.filefactory.com/file/cf9bf8f/n/Video_Lessons.pdf

Process Control+ Digital Electronics +Signal Processing

I006 Part 1-Process Control-Signal Conditioning.zip

<http://youtu.be/C4IVgfKuSW4>

http://www.filefactory.com/file/c39c63c/n/I006_Part_1-Process_Control-Signal_Conditioning.zip

I006 Lesson 1 Process control Intro+Signal conditioning.zip

http://www.filefactory.com/file/c0b2798/n/I006_Lesson_1_Process_control_Intro+Signal_conditioning.zip

I006 Lesson 2 Op-amp in process control.zip

<http://youtu.be/AXIcU51ps84>

http://www.filefactory.com/file/c0b25d5/n/I006_Lesson_2_Op-amp_in_process_control.zip

I006 Lesson 3 Pnuematic.zip

<http://youtu.be/C6sxFVofvkE>

http://www.filefactory.com/file/c0b145a/n/I006_Lesson_3_Pnuematic.zip

I006 Lesson 3+H012 Lesson 1 Digital principle+Logic gates.zip

<http://youtu.be/C6sxFVofvkE>

http://youtu.be/EsD_AFu-ivk

http://www.filefactory.com/file/c0b1488/n/I006_Lesson_3_H012_Lesson_1_Digital_principle_Logic_gates.zip

I006 Lesson 4+H012 Lesson 2 Equivalent gate.zip

<http://youtu.be/vesmoLTetEc>

<http://youtu.be/YZR8jYsyLhk>

http://www.filefactory.com/file/c0b16a2/n/I006_Lesson_4_H012_Lesson_2_Equivalent_gate.zip

I006 Part 4-Transducers.zip

http://www.filefactory.com/file/c39dbee/n/I006_Part_4-Transducers.zip

I006 Lesson 5+H012 Lesson 3 Number system.zip

<http://youtu.be/3tkPLJOGK2w>

<http://youtu.be/f9Zjlzy0M4M>

http://www.filefactory.com/file/c0b544e/n/I006_Lesson_5_H012_Lesson_3_Number_system.zip

I006 Lesson 6+H012 Lesson 4 Binary subtraction.zip

http://youtu.be/_Q3pRlcLC08

<http://youtu.be/8BcUJ7BDKII>

http://www.filefactory.com/file/c0b55f2/n/I006_Lesson_6_H012_Lesson_4_Binary_substraction.zip

I006 Lesson 7+H012 Lesson 5 Endecoder+Decoder.zip

<http://youtu.be/8BcUJ7BDKII>

http://www.filefactory.com/file/c0b18c8/n/I006_Lesson_7_H012_Lesson_5_Endecoder_Decoder.zip

I006 Lesson 8+H012 Lesson 6 SR Flipflop.zip

<http://youtu.be/QB3I1utxMQk>

http://www.filefactory.com/file/c27e44a/n/I006_Lesson_8_H012_Lesson_6_SR_Flipflop.zip

I006 Lesson 9+H012 Lesson 7 Shift register+Data latches.zip

<http://youtu.be/Dno6mTqdSeg>

http://www.filefactory.com/file/c0b1885/n/I006_Lesson_9_H012_Lesson_7_Shift_register_Data_latches.zip

I006 Lesson 10+H012 Lesson 8 Counter.zip

<http://youtu.be/qID0a4T4mPM>

<http://youtu.be/cnB8WaUHK9k>

http://www.filefactory.com/file/c0b194c/n/I006_Lesson_10_H012_Lesson_8_Counter.zip

I006 Lesson 11+H012 Lesson 9 Display.zip

<http://youtu.be/EGSuf2BKrSo>

<http://youtu.be/imBgGNrI7L4>

http://www.filefactory.com/file/c0b2ad0/n/I006_Lesson_11_H012_Lesson_9_Display.zip

I006 Lesson 12 Digital signal processing.zip

<http://youtu.be/nF6exJcU0jc>

http://www.filefactory.com/file/c0b2b27/n/I006_Lesson_12_Digital_signal_processing.zip

I006 Lesson 13 Digital control design.zip

<http://youtu.be/ggcylffa0yl>

<http://youtu.be/KknQ8yoLsck>

http://www.filefactory.com/file/c0b2cf2/n/I006_Lesson_13_Digital_control_design.zip

I006 Lesson 14 DAC.zip

<http://youtu.be/rOOr8-7SwdY>

<http://youtu.be/Tjw-UKimmZE>

http://www.filefactory.com/file/c0b2d00/n/I006_Lesson_14_DAC.zip

I006 Lesson 15 Ramp AD.zip

<http://youtu.be/C76wnlgVRIU>

http://www.filefactory.com/file/c0b2d7d/n/I006_Lesson_15_Ramp_AD.zip

I006 Lesson 16 Sample and hold.zip

http://youtu.be/GvF_pUQH2Ik

http://www.filefactory.com/file/c39cfdb/n/I006_Lesson_16_Sample_and_hold.zip

I006 Lesson 17 Micro processor compatible DAC.zip

<http://youtu.be/cByb6RpKJiA>

http://youtu.be/10aYqRn7_mg

http://www.filefactory.com/file/c0b260b/n/I006_Lesson_17_Micro_processor_compatible_DAC.zip

I006 Lesson 18 Thermocouple.zip

http://youtu.be/QkcVEIgpV_4

http://www.filefactory.com/file/c0b2e67/n/I006_Lesson_18_Thermocouple.zip

I006 Lesson 19 Temperature measurement.zip

http://youtu.be/TLgQN4tZM_I

http://www.filefactory.com/file/c0b2fdd/n/I006_Lesson_19_Temperature_measurement.zip

I006 Lesson 20 Proportional mode.zip

<http://youtu.be/nJZ7lQfXQVc>

<http://youtu.be/6l08dJUQV8l>

http://www.filefactory.com/file/c0b2f26/n/I006_Lesson_20_Proportional_mode.zip

I006 Lesson 21 Industrial transducer.zip

<http://youtu.be/nDGvjfBRv-8>

http://www.filefactory.com/file/c0b2f95/n/I006_Lesson_21_Industrial_transducer.zip

I006 Lesson 22 Force measurement.zip

<http://youtu.be/BIKpRw3Wszs>

http://www.filefactory.com/file/c0b2673/n/I006_Lesson_22_Force_measurement.zip

I006 Lesson 23 Open loop control+Proportional control.zip

<http://youtu.be/l7mIVJ6F1mk>

<http://youtu.be/qw9G6enld4E>

http://www.filefactory.com/file/c0b56d5/n/I006_Lesson_23_Open_loop_control_Proportional_control.zip

I006 Lesson 24 Closed loop control.zip

<http://youtu.be/R37Dcbsf3Fo>

<http://youtu.be/kV2dfbkPT5o>

http://www.filefactory.com/file/c0b21e4/n/I006_Lesson_24_Closed_loop_control.zip

I006 Lesson 25 Electronics signal in process control.zip

<http://youtu.be/fEfwaTBTzxE>

<http://youtu.be/f2DrTcYShog>

http://www.filefactory.com/file/c39c16d/n/I006_Lesson_25_Electronics_signal_in_process_control.zip

I006 Lesson 26 PCM.zip

<http://youtu.be/ZibIAqJEHlo>

http://www.filefactory.com/file/c0b2255/n/I006_Lesson_26_PCM.zip

I006 Lesson 27 Control loop.zip

<http://youtu.be/uvKx0xmy2Lo>

http://youtu.be/lo_dSNA03IA

http://www.filefactory.com/file/c0b23bd/n/I006_Lesson_27_Control_loop.zip

I006 Lesson 28 Strain gauge+Piezo electric.zip

<http://youtu.be/tiBHaJsTd-E>

http://www.filefactory.com/file/c0b230b/n/I006_Lesson_28_Strain_gauge_Piezo_electric.zip

I006 Lesson 29 Light transducer.zip

<http://youtu.be/3y4kNvPMxIU>

<http://youtu.be/Xc918QLN1PY>

<http://youtu.be/XBHKG2rBgiM>

http://www.filefactory.com/file/c0b237b/n/I006_Lesson_29_Light_transducer.zip

The links contain the following lessons

I006 Lesson 1 Process control Intro+Signal conditioning

I006 Lesson 2 Op-amp in process control

I006 Lesson 3 Pnuematic

I006 Lesson 3+H012 Lesson 1 Digital principle+Logic gates

I006 Lesson 4+H012 Lesson 2 Equivalent gate

I006 Lesson 5+H012 Lesson 3 Number system

I006 Lesson 6+H012 Lesson 4 Binary subtraction

I006 Lesson 7+H012 Lesson 5 Encoder+Decoder

I006 Lesson 8+H012 Lesson 6 SR Flipflop

I006 Lesson 9+H012 Lesson 7 Shift register+Data latches

I006 Lesson 10+H012 Lesson 8 Counter

I006 Lesson 11+H012 Lesson 9 Display

I006 Lesson 12 Digital signal processing

I006 Lesson 13 Digital control design

I006 Lesson 14 DAC

I006 Lesson 15 Ramp AD

I006 Lesson 16 Sample and hold

I006 Lesson 17 Micro processor compatible DAC

I006 Lesson 18 Thermocouple

I006 Lesson 19 Temperature measurement

I006 Lesson 20 Proportional mode

I006 Lesson 21 Industrial transducer

I006 Lesson 22 Force measurement

I006 Lesson 23 Open loop control+ Proportional control

I006 Lesson 24 Closed loop control

I006 Lesson 25 Electronics signal in process control

I006 Lesson 26 PCM

I006 Lesson 27 Control loop

I006 Lesson 28 Strain gauge+ Piezo electric

I006 Lesson 29 Light transducer

D150+D151 Control Programming

I020-6 Control Loop Programming

http://youtu.be/_yqqvDECzA

I20-7 Assembly Programming (1)

<http://youtu.be/UhWAt-sFhiQ>

I20-7 Assembly Programming (2)

<http://youtu.be/YCm6DO20tj4>

I20-8 Subroutine

<http://youtu.be/V08SbXJCf4k>

I20-9 Time Delay (1)

http://youtu.be/_QmoXbZmlX4

I20-9 Time Delay (2)

http://youtu.be/UjdExQ5_Hko

I20-9 Time Delay (3)

<http://youtu.be/o0sdiL8rDVE>

D150+D151 Micro Controllers & Data Communication

I020-1 Data Communication

<http://youtu.be/RTJKZmGu55s>

I020-2 LAN+PID

<http://youtu.be/VLw6wI65FSI>

I020-3 Control Loop

http://youtu.be/Yv1I6k_WPHQ

I020-4 Controller Operation

<http://youtu.be/wKmbT4IzVm8>

I020-5 Microcontroller

<http://youtu.be/6k8HKL3sxxY>

CLASS LESSONS

[Process control-I006+I008+I020.zip](#)

http://www.filefactory.com/file/c0b7d9d/n/Process_control-I006_I008_I020.zip

Exercise

Do UEENEEI006 Page 247 to 262 of the following link

http://www.filefactory.com/file/c0b7da3/n/Advanced_Diploma_in_Electrical_Engineering_Exercises.zip

Part 2 References

AnalogDigitalSignalConditioning

AnalogDigitalSignalConditioning.pdf (12.91MB)

<http://www.filefactory.com/file/6jcowgoj0oov/n/AnalogDigitalSignalConditioning.pdf>

H085+66+I006 Note

H085+66+I006 Note 1 (Sensors).zip (5.74MB)

[http://www.filefactory.com/file/78s0jigt9zv5/n/H085+66+I006_Note_1_\(Sensors\).zip](http://www.filefactory.com/file/78s0jigt9zv5/n/H085+66+I006_Note_1_(Sensors).zip)

H085+66+I006 Note 2 (Sensors 2).zip (7.34MB)

[http://www.filefactory.com/file/186nf4aj62q1/n/H085+66+I006_Note_2_\(Sensors_2\).zip](http://www.filefactory.com/file/186nf4aj62q1/n/H085+66+I006_Note_2_(Sensors_2).zip)

H085+66+I006 Note 3 (Sensors 3).zip (6.69MB)

[http://www.filefactory.com/file/36r46up6ga3f/n/H085+66+I006_Note_3_\(Sensors_3\).zip](http://www.filefactory.com/file/36r46up6ga3f/n/H085+66+I006_Note_3_(Sensors_3).zip)

H085+66+I006 Note 4 Control Concept1).zip (4.08MB)

[http://www.filefactory.com/file/79x2ootezeup/n/H085+66+I006_Note_4_Control_Concept1\).zip](http://www.filefactory.com/file/79x2ootezeup/n/H085+66+I006_Note_4_Control_Concept1).zip)

H085+66+I006 Note 5 Control Concept2).zip (4.08MB)

[http://www.filefactory.com/file/5g1knumuiaav/n/H085+66+I006_Note_5_Control_Concept2\).zip](http://www.filefactory.com/file/5g1knumuiaav/n/H085+66+I006_Note_5_Control_Concept2).zip)

H085+66+I006 Note 5 Control Concept2) (2).zip (4.08MB)

[http://www.filefactory.com/file/22umqzydy9kj/n/H085+66+I006_Note_5_Control_Concept2\)_2\).zip](http://www.filefactory.com/file/22umqzydy9kj/n/H085+66+I006_Note_5_Control_Concept2)_2).zip)

H085+66+I006 Note 6 (Electronics Signal).zip (4.53MB)

[http://www.filefactory.com/file/6fuuzfng4ikt/n/H085+66+I006_Note_6_\(Electronics_Signal\).zip](http://www.filefactory.com/file/6fuuzfng4ikt/n/H085+66+I006_Note_6_(Electronics_Signal).zip)

H085+66+I006 Note 8 (Process Control 1).zip (4.8MB)

[http://www.filefactory.com/file/1o4ec8egjpr7/n/H085+66+I006_Note_8_\(Process_Control_1\).zip](http://www.filefactory.com/file/1o4ec8egjpr7/n/H085+66+I006_Note_8_(Process_Control_1).zip)

ProcessControlCkt3.zip (8.58MB)

<http://www.filefactory.com/file/5n4mwej7oxo9/n/ProcessControlCkt3.zip>

ProcessControlCkt2.zip (8.64MB)

<http://www.filefactory.com/file/2xgao6nq4ar5/n/ProcessControlCkt2.zip>

ProcessControlCkt1.zip (7.93MB)

<http://www.filefactory.com/file/6writiio157/n/ProcessControlCkt1.zip>

Process_Control_Equipment_Setup_2.zip (10.63MB)

http://www.filefactory.com/file/6y3r70nw991z/n/Process_Control_Equipment_Setup_2.zip

I005TemperatureMeasurement.pdf (18.16MB)

<http://www.filefactory.com/file/6i6zopisp76d/n/I005TemperatureMeasurement.pdf>

Process Control.pdf (0.27MB)

http://www.filefactory.com/file/65lygg50lehv/n/Process_Control.pdf

Installation.zip (0.77MB)

<http://www.filefactory.com/file/2a4lfnzjlzyr/n/Installation.zip>

Installation Instruction.zip (0.94MB)

http://www.filefactory.com/file/4crhcxlxap4x/n/Installation_Instruction.zip

I006 Tutorials.pdf (1.31MB)

http://www.filefactory.com/file/6l64ac9l573h/n/I006_Tutorials.pdf

I002I004PressureFlowPnuematicReference.pdf (28.87MB)

<http://www.filefactory.com/file/3e0op65wxnvz/n/I002I004PressureFlowPnuematicReference.pdf>

I002+I004.pdf (13.21MB)

<http://www.filefactory.com/file/46eqhaqfeixn/n/I002+I004.pdf>

http://www.filefactory.com/file/6327pzp4ear/Process_Control_Equipment_Setup_1.zip

Part 3 Practicals

Process Control.pdf (0.27MB)

http://www.filefactory.com/file/4f3pob2w3qth/n/Process_Control.pdf

I006 Tutorials.pdf (1.31MB)

http://www.filefactory.com/file/l9x1ukv242x/n/I006_Tutorials.pdf