

G.S. Mandal's MAHARASHTRA INSTITUTE OF TECHNOLOGY Chh. Sambhajinagar (An Autonomous Institute) Department of Electrical Engineering

INSTRUCTIONAL SYSTEM DESIGN

Class: S.Y.B.Tech(Autonomous)

Course: EED202 Analog and Digital Electronics

Step 1: Write Course Outcomes using Revised Bloom's Taxonomy

Structure of a CO statement

- Action: Represents a cognitive/ affective/ psychomotor activity the learner should perform. An action is indicated by an action verb, occasionally two, representing the concerned cognitive process(es).
- Knowledge: Represents the specific knowledge from any one or more of the eight knowledge categories
- **Condition:** Represents the process the learner is expected to follow or the condition under which to perform the action (This is an optional element of CO)
- **Criteria:** Represent the parameters that characterize the acceptability levels of performing the action (This is an optional element of CO)

C01	Illustrate working principle of BJT and basic electronic circuits (clipper, clamper and
	bridge rectifier with filters)
CO2	Explain working of basic Oscillators, amplifiers and OPAMP.
CO3	Demonstrate different number systems.
CO4	Describe Boolean algebra and minimize combinational functions
C05	Design and verify combinational and sequential circuits.
C06	Observe the operation of various analog circuit.

Step 2: Locate COs in Revised Bloom-Vincenti Taxonomy Table

Locating Sample CO in Revised Bloom-Vincenti Taxonomy Table

		Knowledge Categories											
Cognitiv		Design											
е				Metacog	Fundame	Criteria &	Practical	instrumenta					
Processe	Factua	Conceptu	Procedur	nitive	ntal	Specificati	Constrai	lities					
S	I	al	al		Design	ons	nts						
					Principles								
Remember			CO1										
Understand		CO1, CO2	CO2										
Apply		CO3	CO3										

Analyze	CO4	CO4			
Evaluate	CO5	CO5	CO5		
Create			CO6		

Step 3: Tag course outcomes with Program Outcomes (POs,) Program Specific Outcomes (PSOs,) Cognitive Level (CL), Knowledge Categories (KC), number of Class/ Laboratory/ Field sessions, and present it in the table format indicated with sample course.

	Course Outcome	POs/	CL	KC	Class	Tutorial
		PSOs			Sessions	(Hrs)
CO1	Illustrate working principle of BJT and basic electronic circuits (clipper, clamper and bridge rectifier with filters)	PO1,PSO 1	U	F	4	00
CO2	Explain working of basic Oscillators, amplifiers and OPAMP.	PO1,PO2, PSO1	U	P, C	9	00
CO3	Demonstrate different number systems.	PO1,PSO 1	AP	С, М	4	00
CO4	Describe Boolean algebra and minimize combinational functions	PO1,PSO 1	AN	C, M	6	00
CO5	Design and verify combinational and sequential circuits.	PO1,PO3, PSO1	AP	С, М	15	00
CO6	Observe the operation of various analog circuit.	PO1,PSO 1	E	P, C, M	10	00
Total	Hours of instruction	1		•	48	00

Cognitive levels

R-Remember, U-Understand, Ap- Apply, An-Analyse, E-Evaluate and C-Create.

Categories of Knowledge

General Categories

F- Factual, C- Conceptual, P- Procedural, M-Metacognitive

Categories specific to Engineering

FDP- Fundamental Design Principles, C&S-Criteria and Specifications, PS- Practical Constraints, DI- Design

Instrumentalities

Step 4: Decide on Strength of CO-PO/PSO Mapping

Example (Showing only non-zero mapping entries):

СО	P01	PO2	PO3	P05	PO10	PO11	PO12	PSO1	PSO3
C01	3							1	

CO2	2	1				1	
CO3	2					1	
CO4	2					1	
C05	2		1			1	
C06	3					1	
Average	2.33	1.0	1.0			1.0	
Mapping Strength	2.0	1.0	1.0			1.0	

Step 5: Identify the Assessment Items/Assessment Instruments, Delivery Technologies and Instruction types.

Cos	Assessment Items/Assess Instruments	sment	Delivery Technologies	Instruction types
CO1	MSE-I	ESD	Chalk & Board PPT Presentation Video Lecture	Teaching Plan
CO2	MSE-I, TA	ESD	Chalk & Board PPT Presentation Video Lecture	Teaching Plan
CO3	MSE-II	ESD	Chalk & Board PPT Presentation Video Lecture	Teaching Plan
CO4	MSE-II , CIE 1	ESD	Chalk & Board PPT Presentation Video Lecture	Teaching Plan
CO5	Rubrics	PR Exam	Practical Session Chalk & Board	Practical Teaching Plan
CO6	Rubrics, CIE2	PR Exam	Practical Session Chalk & Board	Practical Teaching Plan

Dr. Shilpa Kodgire

Dr.S.M.Badave

Course Coordinator

HEED

Instructional System Design

Course Name: EED 203 Network Analysis

Class: S.Y. B.Tech-EE (Autonomous) 2024-25 Semester: III

Step 1: Write Course Outcomes using Revised Bloom's Taxonomy

Structure of a CO statement

CO1: Apply the knowledge of basic circuital law and analyze the circuit using Kirchhoff's law.

CO2: Simplify the network using reduction techniques and Network simplification theorems.

CO3: Analyze circuits using graph theory.

CO4: Infer and evaluate transient response, Steady state response.

CO5: Apply the Laplace transform to linear circuits and systems.

CO6: Evaluate two-port network parameters and synthesize one port network.

Step 2: Locate COs in Revised Bloom-Vincenti Taxonomy Table

				Knowle	edge Catego	ries		
								Design
Cognitive				Meta-	Fundament	Criteria &	Practical	instrumentaliti
Processes	Factual	Conceptual	Procedural	cognitive	al Design	Specification	Constraints	es
					Principles	s		
Remember	CO1,							
	CO4							
Understand	CO1	CO1, CO2,						
	COI	CO3, CO4						
Apply		CO5	CO1					
Analyze	CO6		CO1					
Evaluate								
Create								

Step 3: Tag course outcomes with Program Outcomes (POs,) Program Specific Outcomes (PSOs,) Cognitive Level (CL), Knowledge Categories (KC), number of Class/ Laboratory/ Field sessions, and present it in the table format indicated with for course ;

Electrical Machines-I (BTEEC302)

- Credits: 4:0:1

	Course Outcome	POs/ PSOs	CL	КС	Class	Tutorial
					Sessions	(Hrs)
CO1	CO1: Apply the knowledge of basic circuital law and analyze the circuit using Kirchhoff's law.	PO1, PO3, PSO1	An	F,C,P	10	00
CO2	CO2: Simplify the network using reduction techniques and Network simplification theorems.	PO1, PO2, PSO1	An	С	04	00
CO3	CO3: Analyze circuits using graph theory.	PO1, PO2, PSO1	U	С	08	00
CO4	CO4: Infer and evaluate transient response, Steady state response, network functions.	PO1, PSO2	A	F, C	14	00
CO5	CO5: Apply the Laplace transform to linear circuits and systems.	PO1, PSO2	А	F, C	14	00
CO6	CO6: Evaluate two-port network parameters and synthesize one port network.	PO1, PO2, PSO1	An	С	04	00
Total	Hours of instruction		<u> </u>		36	00

Cognitive levels

R-Remember, U-Understand, Ap- Apply, An-Analyse, E-Evaluate and C-Create.

Categories of Knowledge

General Categories

F- Factual, C- Conceptual, P- Procedural, M-Metacognitive

Categories specific to Engineering

FDP- Fundamental Design Principles, C&S-Criteria and Specifications, PS- Practical Constraints,

DI- Design Instrumentalities

	Course Outcomes											
Course Program Outcomes												
	Engineeri ng Knowledg e	Analysis	Design/ Developmen t of Solution	Conduct Investigation of complex problem		Engineer	Environme nt and Sustanabilit y		Individual and team work	Commu	Project management and finance	Life long learning

Step 4: Decide on Strength of CO-PO/PSO Mapping

CO1: Apply the knowledge of basic circuital law and analyze the circuit using Kirchhoff's law.	2	2	1	2				
CO2: Simplify the network using reduction techniques and Network simplification theorems.	1	3	3	2				
CO3: Analyze circuits using graph theory.	1		3					
CO4: Infer and evaluate transient response, Steady state response, network functions.	1		3	2				
CO5: Apply the Laplace transform to linear circuits and systems.	2	3	2	2				
CO6: Evaluate two-port network parameters and synthesize one port network.	2	2						

Step 5: Identify the Assessment Items/Assessment Instruments, Delivery Technologies and Instruction

types.

Cos	Assessment Items/Assessment	t	Delivery Technologies	Instruction types
	Instruments			
CO1	ISE-1, TA1	ESE	Chalk & Board, PPT Presentation	Teaching Plan
			Video Lecture	
CO2	ISE-1, CIE1	ESE	Chalk & Board, PPT Presentation	Teaching Plan
			Video Lecture	
CO3	ISE-2 CIE1	ESE	Chalk & Board, PPT Presentation	Teaching Plan
			Video Lecture	
CO4	ISE-2 CIE1	ESE	Chalk & Board, PPT Presentation	Teaching Plan
			Video Lecture	
CO5	CIE2	ESE	Chalk & Board, PPT Presentation	Teaching Plan
			Video Lecture	
CO6		ESE	Chalk & Board, PPT Presentation	Teaching Plan
			Video Lecture	

Dr. A. S. Borole

Dr.S.M.Badave

Course Coordinator

HEED

INSTRUCTIONAL SYSTEM DESIGN

Class: S.Y.B.Tech(EE)

Course: EED211 Python Programming and Data Structures

Step 1: Write Course Outcomes using Revised Bloom's Taxonomy

Structure of a CO statement

- Action: Represents a cognitive/ affective/ psychomotor activity the learner should perform. An action is indicated by an action verb, occasionally two, representing the concerned cognitive process(es).
- Knowledge: Represents the specific knowledge from any one or more of the eight knowledge categories
- **Condition:** Represents the process the learner is expected to follow or the condition under which to perform the action (This is an optional element of CO)
- **Criteria:** Represent the parameters that characterize the acceptability levels of performing the action (This is an optional element of CO)
- CO1: Use basic Python programming concepts and operations.
- CO2: Draw the flowchart and design an algorithm for a given problem and to develop python programs using operators to find its solution.
- CO3: Develop conditional and iterative statements to write python programs which uses Arithmetic,

Logical, Relational operators.

• CO4: Design and implement the python code using user defined functions.

Step 2: Locate COs in Revised Bloom-Vincenti Taxonomy Table

Locating Sample CO in Revised Bloom-Vincenti Taxonomy Table

		Knowledge										
		Categories										
Cognitive								Design				
Processes				Metacog	Fundame	Criteria	Practical	instrumental				
	Factua	Conceptu	Procedur	nitive	ntal	&	Constrain	ities				
	1	al	al		Design	Specificati	ts					
					Principles	ons						

Remember	CO1					
Understand		CO1,	CO2			
		CO2	02			
Apply		CO3	CO3			
Analyze				CO4		
Evaluate						
Create						

Step 3: Tag course outcomes with Program Outcomes (POs,) Program Specific Outcomes (PSOs,) Cognitive Level (CL), Knowledge Categories (KC), number of Class/ Laboratory/ Field sessions, and present it in the table format indicated with sample course Analog Devices and Circuits - Credits: 3:1:0

	Course Outcome	POs/	CL	KC	Class	Tutorial
		PSOs			Sessions	(Hrs)
CO1	Use basic Python programming concepts	PO1 R		F	4	00
	and operations.	PO12,	K	1	-	00
CO2	Draw the flowchart and design an algorithm	PO1,P				00
	for a given problem and to develop python programs using operators to find its	O2,PO	U	P, C	6	
	solution.	12,				
CO3	Develop conditional and iterative statements to write python programs which	PO1,		C,		00
	uses Arithmetic, Logical, Relational operators	PO12,	Ар	М	6	
CO4	Design and implement the python code	PO1,	A - a	C,	4	00
	using user defined functions.		An	М,	4	00
Total H	ours of instruction				28	00

Cognitive levels

R-Remember, U-Understand, Ap- Apply, An-Analyse, E-Evaluate and C-Create.

Categories of Knowledge

General Categories - F- Factual, C- Conceptual, P- Procedural, M-Metacognitive

Categories specific to Engineering

FDP- Fundamental Design Principles, C&S-Criteria and Specifications, PS- Practical Constraints,

DI- Design Instrumentalities

FDP- Fundamental Design Principles, C&S-Criteria and Specifications, PS- Practical Constraints,

DI- Design Instrumentalities

Step 4: Decide on Strength of CO-PO/PSO Mapping

СО	PO1	PO2	PO3	PO5	PO10	PO11	PO12	PSO1	PSO3
CO1	2	-	-	-	-	-	2	1	
CO2	2	2	-	-	-	-	2	1	-
CO3	2	-	-	-	-	-	2	1	-
CO4	2	-	-	-	-	-	2	-	1
Average	2.0	2.0	-	-	-	-	2.0	-	-
Mapping Strength	2.0	2.0	-	-	-	-	2.0	1	1

Example (Showing only non-zero mapping entries):

Step 5: Identify the Assessment Items/Assessment Instruments, Delivery Technologies and Instruction types.

Cos	Assessment Items/Assessr	nent	Delivery	Instruction types
	Instruments		Technologies	
CO1	ISE-I/CIE-I/ Teacher	ESD	Chalk & Board	Teaching Plan
	Assessment		PPT Presentation	
			Video Lecture	
CO2	ISE-I/ CIE-I/ Teacher	ESD	Chalk & Board	Teaching Plan
	Assessment		PPT Presentation	
			Video Lecture	
CO3	ISE-II / Teacher	ESD	Chalk & Board	Teaching Plan
	Assessment		PPT Presentation	
			Video Lecture	
CO4	ISE-II / Teacher	ESD	Chalk & Board	Teaching Plan
	Assessment		PPT Presentation	
			Video Lecture	
CO5	CIE-II(Model Making)	ESD	Chalk & Board	Teaching Plan
			PPT Presentation	
			Video Lecture	
CO6	CIE-II(Model Making)	ESD	Chalk & Board	Teaching Plan
			PPT Presentation	
			Video Lecture	

Ms. R.B. Palwe

Dr.S.M.Badave

Course Coordinator

HEED

INSTRUCTIONAL SYSTEM DESIGN

Course Cordinator: Mr. Syed Imran Ali Course code & Course Title: OE241 E Electrical, Fire and Vehicle Safety Class: SY (B.tech) Semester : III

Course Outcomes:

- CO1: Understand basic electrical safety provisions, OSHA standards, and the impact of electrical current on the human body.
- CO2: Study the causes, severity, and prevention of electric shocks, including first aid and accident management techniques.
- CO3: Identify causes and types of electrical fires, and understand fire prevention and protection strategies.
- CO4: Understand battery location and design considerations for electric vehicles.
- CO5: Explore electric vehicle components, battery types, associated hazards, and safety measures at charging stations.
- CO6: Understand the scope of the Indian Electricity Act and Rules, safety requirements for electrical installations, and standards for electric vehicles.

		Knowledge Categories										
								Design				
Cognitive				Meta-	Fundamental	Criteria &	Practical	instrumentalities				
Processes	Factual	Conceptual	Procedural	cognitive	Design	Specifications	Constraints					
110005505					Principles							
Explain	C01											
Discuss		CO2										
Explain	CO3	CO3										
Discuss	C04	CO4	CO4									
Discuss	C05	C05	C05									
Discuss	C06	C06	C06									

Locating Sample CO in Revised Bloom-Vincenti Taxonomy Table

Step 3: Tag course outcomes with Program Outcomes (POs,) Program Specific Outcomes (PSOs,) Cognitive Level (CL), Knowledge Categories (KC), number of Class/ Laboratory/ Field sessions, and present it in the table format indicated with sample course.

Electrical, Fire and Vehicle Safety (OE 241E)

Credits : 3:0:1

	Course Outcome	POs/	CL	КС	Class	Tutorial
		PSOs			Sessions	(Hrs.)
C01	Understand basic electrical safety provisions, OSHA standards, and the impact of electrical current on the human body.	PO1, PSO3	R	F	06	00
CO2	study the causes, severity, and prevention of electric shocks, including first aid and accident management techniques.	PO1, PO2 PSO1 and 2	U	С	07	00
CO3	Identify causes and types of electrical fires, and understand fire prevention and protection strategies.	PO1 ,7 and 12 PSO2	AP	F,C	06	00
CO4	Understand battery location and design considerations for electric vehicles.	PO1, 4 PSO2	An	F, C, & P	07	00
C05	Explore electric vehicle components, battery types, associated hazards, and safety measures at charging stations.	PO1,2,4 PSO2	An	F, C, & P	06	00
C06	Understand the scope of the Indian Electricity Act and Rules, safety requirements for electrical installations, and standards for electric vehicles.	PO1, 2 PSO2	С	F, C, & P	07	00
	Total Hours of instruction	1			39	00

Cognitive levels

R-Remember, U-Understand, AP- Apply, An-Analyse, E-Evaluate and C-Create.

Categories of Knowledge

General Categories

F- Factual, C- Conceptual, P- Procedural, M-Metacognitive

Categories specific to Engineering

FDP- Fundamental Design Principles, C&S-Criteria and Specifications, PS- Practical

Constraints, DI- Design Instrumentalities

Step 4: Decide on Strength of CO-PO/PSO Mapping

• Example (Showing only non-zero mapping entries):

CO	P01	PO 2	PO 4	PO 7	P012	PSO1	PSO2	PSO3

C01	2			1	1			1
C02	2	1				1	1	
C03	2			1	1		1	
CO4	1		1				1	
C05	2	1	2				1	
C06	2	2				1		
Average	2	1.6						
Mapping Strength	2	2						

Step 5: Identify the Assessment Items/Assessment Instruments, Delivery Technologies and Instruction types.

Cos	Assessment Items/Assess	nent	Delivery Technologies	Instruction types
	Instruments			
C01	ISE - I	ESE	Chalk & Board	Teaching Plan
			PPT Presentation	
			Video Lecture	
CO2	ISE - I	ESE	Chalk & Board	Teaching Plan
			PPT Presentation	
			Video Lecture	
CO3	ISE -II	ESE	Chalk & Board	Teaching Plan
			PPT Presentation	
			Video Lecture	
CO4	ISE -II	ESE	Chalk & Board	Teaching Plan
			PPT Presentation	
			Video Lecture	
CO5	Teacher Assessment	ESE	Chalk & Board	Teaching Plan
			PPT Presentation	
			Video Lecture	
C06	Continuous Internal	ESE	Chalk & Board	Teaching Plan
	Assessment		PPT Presentation	
			Video Lecture	