



# Bharath

INSTITUTE OF HIGHER EDUCATION AND RESEARCH  
(Declared as Deemed - to - be - University under section 3 of UGC Act 1956)

## Requisition Letter

Date: 27.03.2019

From

The HOD,  
Department of Mechanical Engineering,  
Bharath Institute of Higher Education and Research,  
Selaiyur, Chennai.

To

The Dean Engineering,  
Bharath Institute of Higher Education and Research,  
Selaiyur, Chennai.

Respected Sir,

Sub: Requisition for conducting Value added course – reg.

Department of Mechanical Engineering has planned to conduct Value added course entitled "Network theorems, Optoelectronics and Electronics" from 01/04/2019 to 8.04.2019. In this regard we kindly request you to grant permission for the same.

Thanking You

  
HOD/MECH

  
Dean Engineering

DEAN (Engineering)  
Bharath Institute of Science & Technology  
BHARATH INSTITUTE OF HIGHER EDUCATION & RESEARCH  
(Declared as Deemed to be University U/S 3 of UGC Act. 1956)  
Selaiyur, Chennai-600 073.



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Date:27.03.2019

## Department of Mechanical Engineering

### Circular

The of Department of Mechanical Engineering, BIHER is glad to conduct five days value added program entitled "*Network theorems, Optoelectronics and Electronics*" from 01.04.2019 for 30 hours. Those who are interested to participate do register your name to the program coordinator.

The registered students must attend all the classes without fail. Students who have completed the course successfully with good score will get the course completion certificate from the institute/Department.

**Resource person: Dr.K.Selvakumar and Dr.M.P.Natarajan**

Maximum no. of registration Allowed – 60.

**Program coordinator**

  
**Mr.V.P.Durairaj**

  
**Mr.R J Golden Renjith Nimal**



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## Department of Mechanical Engineering

### ~~Skill Development on~~ Network theorems, Optoelectronics and Electronics

#### Unit - 1

##### 1. Network theorems:

(6 Hrs)

Kirchoff's laws -Proof (Mesh analysis), Super position theorem(proof), Thevenin's and Norton's theorem(only thevinising and nortonising without proof), Maximum power transfer theorem (proof) and its applications.

##### 2. Optoelectronics:

(5 Hrs)

Optical fibers, structure, pulse dispersion and modes of propagation of light through optical fibers, critical angle of propagation, angle of acceptance, expression for numerical aperture and fractional refractive index change, application of optical fibers and advantages..

##### 3. Digital electronics :

(9 Hrs)

Conversion to Binary to decimal and decimal to binary Logic system, Types. Logic gates: AND, OR,(analysis using diodes) NOT, NOR, NAND, (analysis using diodes or transistors) XOR gate Conversion of universal to basic gates Half and full adder, flip-flop, RS, JK and master slave flip-flop,

#### Unit - 2

##### 3. Bipolar junction Transistor:

(10 Hrs)

Introduction, ( types and action) Characteristics and parameters of common emitter configuration, D C load line, operating point. Need for transistor biasing Self biasing of a transistor, JFET Construction, working & characteristics Inter relationship between the parameters and MOSFET (E & D).Construction

##### 4. Amplifier:

(10 Hrs)

CE amplifier (Quantitative), CE amplifier its equivalent circuit using h-parameters, expression for voltage gain, current gain, power gain, input resistance and output resistances in terms of h parameters. Operational-amplifier Characteristics inverting and non inverting amplifier (Quantitative)

### Unit - 3

#### 5. Oscillators:

(4 Hrs)

Concept of feed back, positive and negative feedback. Expression for loop gain Barkhausen's criteria, phase shift oscillator and Wein's bridge oscillator Merits and demerits. Types of Negative feed back.(Qualitative) Advantages of negative feed back.

#### 7. Radio communication:

(13 Hrs)

Modulation modes of Radio wave propagation(Qualitative), need for modulation, amplitude modulation, modulation factor, side bands, band width, AM spectrum, power in AM wave. frequency modulation, FM spectrum, Demodulation, essentials of demodulation, diode detector circuit. Superhydrodyne receivers, block diagram of AM & FM receivers. Advantages of FM over AM. Applications

#### 8. Display devices:

(3 Hrs)

LED, construction and use of LED in display. Liquid crystal, types of liquid crystals. Basic principal of LCD and its construction, Comparison between LED and LCD.



Department of Mechanical Engineering  
One Week Value added Program on "Network theorems, Optoelectronics  
and Electronics"

1<sup>st</sup> Apr to 8<sup>th</sup> Apr 2019

Date	Morning Session (9 AM – 12 PM)	Afternoon Session (1:30 PM – 3:30 PM)
01 – 04 – 2019 (Monday)	<b>Dr.K.Selvakumar</b> Kirchoff's laws -Proof (Mesh analysis), Super position theorem(proof), Thevenin's and Norton's theorem(only thevinising and nortonising without proof), Maximum power transfer theorem (proof) and its applications	<b>Dr.M.P.Natarajan</b> Optical fibers, structure, pulse dispersion and modes of propagation of light through optical fibers, critical angle of propagation, angle of acceptance, expression for numerical aperture
02 – 04 – 2019 (Tuesday)	<b>Dr.M.P.Natarajan</b> propagation of light through optical fibers, critical angle of propagation, angle of acceptance, expression for numerical aperture and fractional refractive index change, application of optical fibers and advantages..	<b>Dr.K.Selvakumar</b> Conversion to Binary to decimal and decimal to binary Logic system, Types. Logic gates: AND, OR,(analysis using diodes) NOT, NOR, NAND, (analysis using diodes or transistors) XOR gate
03 – 04 – 2019 (Wednesday)	<b>Dr.K.Selvakumar</b> CE amplifier (Quantitative), CE amplifier its equivalent circuit using h-parameters, expression for voltage gain, current gain, power gain, input resistance and output resistances	<b>Dr.M.P.Natarajan</b> Introduction, ( types and action) Characteristics and parameters of common emitter configuration, D C load line, operating point. Need for transistor biasing Self biasing of a transistor
04 – 04 – 2019 (Thursday)	<b>Dr.M.P.Natarajan</b> Need for transistor biasing Self biasing of a transistor, JFET Construction, working & characteristics Inter relationship between the parameters and MOSFET (E & D).Construction	<b>Dr.K.Selvakumar</b> power gain, input resistance and output resistances in terms of h parameters. Operational-amplifier Characteristics inverting and non inverting amplifier (Quantitative).
05 – 04 – 2019 (Friday)	<b>Dr.K.Selvakumar</b> Effect of feed back, positive and negative feedback. Condition for loop gain Barkhausen's criteria, phase oscillator and Wein's bridge oscillator Merits and demerits. Types of Negative feed back.(Qualitative) Advantages of negative feed back.	<b>Dr.M.P.Natarajan</b> Modulation modes of Radio wave propagation(Qualitative), need for modulation, amplitude modulation, modulation factor, side bands, band width, AM spectrum, power in AM wave

<p>08 - 04 - 2019 (Monday)</p>	<p><b>Dr.M.P.Natarajan</b>            cy modulation, FM spectrum, Demodulation,            tials of demodulation, diode detector circuit.            rhydrodyne receivers, block diagram of AM &amp; FM            vers. Advantages of FM over AM. Applications</p>	<p><b>Dr.K.Selvakumar</b>            LED, construction and use of LED in display.            Liquid crystal, types of liquid crystals. Basic            principal of LCD and its construction,            Comparison between LED and LCD.</p>
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**Program Coordinator:**

**Mr.V.P.Durairaj**  **Mr.R J Golden Renjith Nimal**

Assistant Professor,

**E-Mail:** vpdurairaj57@gmail.com

goldenrenjith.mech@bharathuniv.ac.in



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## FEEDBACK FORM

❖ As part of a continuing improvement process, our college appreciates suggestions and inputs regarding the institution. We request you to sincerely answer these questions under assurance of complete confidentiality. Your interest in making our institution better is greatly appreciated.

Name of Department : Engg mech (B.Tch)

Date : 1/4/2019

Event / Speaker Name : Network Theory, op to electronics

- Please rate the session on the scale indicated. Your comments are most appreciated.

S.NO	Parameters	Below Average	Average	Good	Excellent	Outstanding
1.	<b>The Topic</b>	✓				
	The choice of topic was relevant to me			✓		
2.	<b>The Lecturer / Speaker</b>			✓		
	Self-confidence			✓		
	Communication skills				✓	
	Doubts/ queries were answered satisfactorily		✓			
3.	<b>The Content (Topic)</b>			✓		
	Refers to latest developments in the field				✓	
	Career oriented					✓
	Innovative learning, if any				✓	

- Overall, how would you rate this Guest Lecture / Workshop / Seminar / Event/Value added course?

1. Below Average	2. Average	3. Good	4. Excellent	5. Outstanding
		✓		

- Comments (If any):

✓ Good and it was very informative for this course



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## FEEDBACK FORM

- ❖ As part of a continuing improvement process, our college appreciates suggestions and inputs regarding the institution. We request you to sincerely answer these questions under assurance of complete confidentiality. Your interest in making our institution better is greatly appreciated.

Name of Department : E. Mechanical Engineering Dept

Date : 01.04.2019

Event / Speaker Name : Network Theory, Optoelectronics

- Please rate the session on the scale indicated. Your comments are most appreciated.

S.NO	Parameters	Below Average	Average	Good	Excellent	Outstanding
1.	<b>The Topic</b>					✓
	The choice of topic was relevant to me					✓
2.	<b>The Lecturer / Speaker</b>					✓
	Self-confidence					✓
	Communication skills					✓
	Doubts/ queries were answered satisfactorily					✓
3.	<b>The Content (Topic)</b>				✓	✓
	Refers to latest developments in the field				✓	✓
	Career oriented					✓
	Innovative learning, if any					✓

- Overall, how would you rate this Guest Lecture / Workshop / Seminar / Event/Value added course?

1. Below Average	2. Average	3. Good	4. Excellent	5. Outstanding
				7

- Comments (If any):

Myself gaining knowledge about opto electronics



# **Bharath Institute of Higher Education and Research**

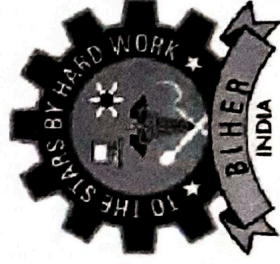
## **CERTIFICATE OF PARTICIPATION**

This is certify that

**K. PRAVIN**

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has participated in the Value Added Course titled "Network Theory and Optoelectronics" conducted by the School of Mechanical Engineering during the month of April 2019.





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**VAC CO-ORDINATOR**



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**HOD MECHANICAL**



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## Attendance sheet

S.No	Reg. No	Students Name	Department
1	U16ME001	PRAVIN K	Mechanical Engineering
2	U16ME003	BHARATH S	Mechanical Engineering
3	U16ME004	GIRIDHARAN S	Mechanical Engineering
4	U16ME005	PRABAKARAN S	Mechanical Engineering
5	U16ME010	PAVITHRAN P	Mechanical Engineering
6	U16ME013	ABUBAKKAR M	Mechanical Engineering
7	U16ME015	HARIHARAN N	Mechanical Engineering
8	U16ME017	KARTHICK M	Mechanical Engineering
9	U16ME019	SIDDARTH A	Mechanical Engineering
10	U16ME020	NISONAN N	Mechanical Engineering
11	U16ME021	RAJITH R C	Mechanical Engineering
12	U16ME022	SURIYA RAJ R	Mechanical Engineering
13	U16ME027	R.UDHAYA KUMAR R	Mechanical Engineering
14	U16ME028	BANALA RAVI ANISH	Mechanical Engineering
15	U16ME032	MALARAVAN A	Mechanical Engineering
16	U16ME034	SHEIK SYBUDEEN M	Mechanical Engineering
17	U16ME037	THAMIN ANSARI M	Mechanical Engineering
18	U16ME038	VIGNESH G	Mechanical Engineering
19	U16ME039	PRADHIP B R	Mechanical Engineering
20	U16ME040	RAGUL KUMAR S	Mechanical Engineering
21	U16ME043	AAKASH KAVIN T	Mechanical Engineering
22	U16ME044	DINESH C	Mechanical Engineering
23	U16ME045	MUSTAQA AHMED M	Mechanical Engineering
24	U16ME047	GOWTHAM S	Mechanical Engineering
25	U16ME048	HEMANTH RAJ R	Mechanical Engineering
26	U16ME052	SHRIKHANTH R	Mechanical Engineering
27	U16ME071	SANTHOSH R	Mechanical Engineering
28	U16ME079	MOHAMMED SHAJI B	Mechanical Engineering
29	U16ME081	MUKANTHAN T	Mechanical Engineering
30	U16ME084	SAMPADARAO ASHOK	Mechanical Engineering
31	U16ME088	GODWIN PRABHU G	Mechanical Engineering
32	U16ME108	YERRAMSETTI MAHESH BABU .	Mechanical Engineering
33	U16ME114	REDDYVARI TEJESH	Mechanical Engineering
34	U16ME123	ABHIJITH A R	Mechanical Engineering

35	U16ME124	BEENAGONI ANILKUMAR	Mechanical Engineering
36	U16ME125	SUJITH H	Mechanical Engineering
37	U16ME126	JAKKAMSETTI BHANU CHAITANYA .	Mechanical Engineering
38	U16ME130	VENKATASRINIVAS M	Mechanical Engineering
39	U16ME132	ASHWIN S	Mechanical Engineering
40	U16ME135	KRISHNAKANTH S	Mechanical Engineering
41	U16ME136	MOHAMMED THAUFEEQ K	Mechanical Engineering
42	U16ME137	DINESHKUMAR S	Mechanical Engineering
43	U16ME141	DEJOEL HAROLD RAYMOND F	Mechanical Engineering
44	U16ME142	JARUPULA REVANTH KUMAR	Mechanical Engineering
45	U16AM021	ANJERI BALU	Automobile Engineering
46	U16AM022	JONATHAN LEVI WILLIAMS S	Automobile Engineering
47	U16AM023	MOHAMED FARIZ	Automobile Engineering
48	U16AM701	B.YASWANTH SAI	Automobile Engineering
49	U16AM702	MOHAMED AZHARUDEEN	Automobile Engineering
50	U16AM703	LAGHUVARAPU SAI SATHISH	Automobile Engineering
51	U16AM704	GUNTAMUKKALA THILAK	Automobile Engineering
52	U16MT701	CHANDRASEKAR D G	Mechatronics Engineering
53	U16MT702	CHIRANJEEVI A	Mechatronics Engineering
54	U16MT703	VIGNESH.A	Mechatronics Engineering
55	U16MT704	AJITH.H	Mechatronics Engineering
56	U16MT001	PRADEEPAN S	Mechatronics Engineering
57	U16MT002	RAAHUL GANESH R	Mechatronics Engineering
58	U16MT003	DINESH J	Mechatronics Engineering