



NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE
(NAAC Re Accredited with A Grade)
(Approved by AICTE, Affiliated to APJ Abdul Kalam Technological University, Kerala)



1.1.1 The Institution ensures effective curriculum delivery through a well planned and documented process

This is to certify that the Institution ensures effective curriculum delivery through a well planned and documented process.

Academic year	Link
2021-22	http://www.ncerc.ac.in/downloads/criteria1/1.1.1/1.1.1NCERC.pdf



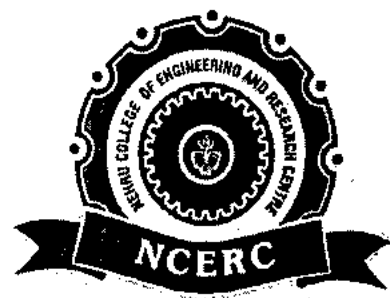

Principal

PRINCIPAL
Nehru College of
Engineering and Research Centre
Pampady, Thiruvilwamala, Thiruvananthapuram
Pin - 680 597, Kerala

1-1-1

EST 130(13)

COURSE FILE



**NEHRU COLLEGE OF
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Pampady, Thiruvilwamala, Thrissur. (Dt.) Pin - 680 588



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ISO 9001 - 2015 Certified

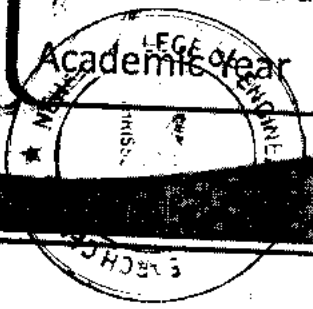
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2021..... 20.22.....

Course Code	: EST 130
Course Name	: BASICS OF ELECTRICAL & ELECTRONICS ENGINEERING
Semester & Branch	: S ₂ - ECE
Academic Year	: 2021 - 2022

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2021..... 20.22.....

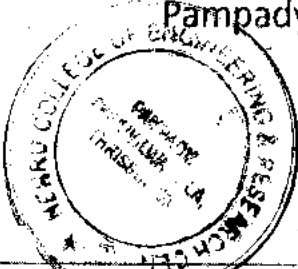
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VISION

To mould true citizens who are millennium leaders and catalysts of change through excellence in education.

MISSION

NCERC is committed to transform itself into a center of excellence in Learning and Research in Engineering and Frontier Technology and to impart quality education to mould technically competent citizens with moral integrity, social commitment and ethical values.

We intend to facilitate our students to assimilate the latest technological know-how and to imbibe discipline, culture and spiritually, and to mould them in to technological giants, dedicated research scientists and intellectual leaders of the country who can spread the beams of light and happiness among the poor and the underprivileged.



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DEPARTMENT OF: ECE

Name of the Faculty : LISA C

Branch / Course : ECE / B.Tech

Year & Semester : 1st year, IInd Semester

Subject Code : EST 130

Name of the Subject : BASICS OF ELECTRICAL AND ELECTRONICS EN01

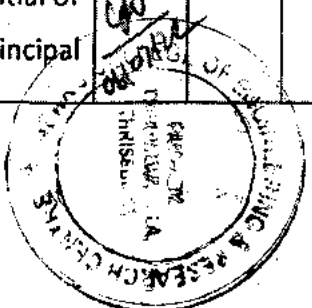
Objective of the Course :
• To equip the students with an understanding of the fundamental principles of electrical engineering.

• To provide an overview of evolution of electronics and introduce the working principle and examples of fundamental electronic devices & circuits.

• To provide an overview of evolution of communication s/m & Radio Communication.

RECORD CHECKING

Month	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Initial of HOD	<i>[Signature]</i>	<i>[Signature]</i>									<i>[Signature]</i>	<i>[Signature]</i>
Initial of Principal	<i>[Signature]</i>										<i>[Signature]</i>	<i>[Signature]</i>



Final Verification By

[Signature]
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Thiruvananthapuram, Kerala
Principal

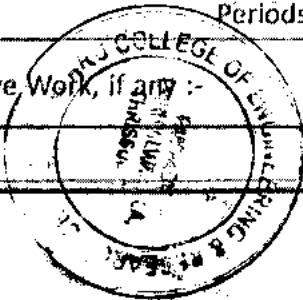
TIME TABLE

DAYS / PERIODS	9-10	10-11	11-12	12-1	5	2pm-3pm	3.10pm-4pm
Monday					↑	EST 130	
Tuesday					↑		
Wednesday					↑	EST 130	EST 130
Thursday					↑		
Friday		EST 130			↓		
Saturday					↓		

Total No. of Periods / Week :

WORK LOAD

Subject Code	Theory / Practical / Project	Sem	Periods/Week	Remarks
EC404	Theory	8 th	5	
EST 130	Theory	2 nd	2	
ESL 130	Practical	2 nd	2	
ECL 332	Communication Lab	6 th	3	
TOTAL			12	13
Periods / Week				PRINCIPAL
Administrative Work, if any :-				Nehru College of Engineering and Research Centre Pampady, Thiruvilwamala, Thrissur Dt. Pin - 680 597, Kerala

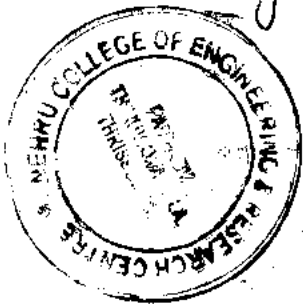


DEPARTMENT VISION

Providing universal communicative Electronics Engineers with corporate and social relevance towards sustainable developments through quality education.

DEPARTMENT MISSION

1. Imparting quality education by providing excellent teaching, learning environment.
2. Transforming and adopting students in this knowledgeable era, where the electronic gadgets (things) are getting obsolete in short span.
3. To initiate multi disciplinary activities to students at earliest and apply in their respective fields of interest later.
4. Promoting leading edge research and development through collaboration with academic and industry.



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SYLLABUS

EST 130	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	CATEGORY	L	T	P	CREDIT	YEAR OF INTRODUCTION
		ESC	4	0	0	4	2019

Preamble:

This course aims to (1) equip the students with an understanding of the fundamental principles of electrical engineering (2) provide an overview of evolution of electronics, and introduce the working principle and examples of fundamental electronic devices and circuits (3) provide an overview of evolution of communication systems, and introduce the basic concepts in radio communication.

Prerequisite: Physics and Mathematics (Pre-university level)

Course Outcomes: After the completion of the course the student will be able to

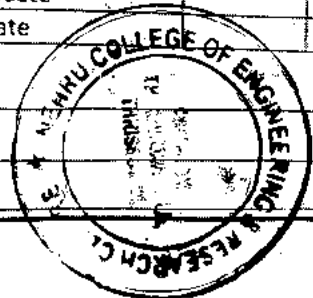
CO 1	Apply fundamental concepts and circuit laws to solve simple DC electric and magnetic circuits
CO 2	Develop and solve models of magnetic circuits
CO 3	Apply the fundamental laws of electrical engineering to solve simple ac circuits in steady state
CO 4	Describe working of a voltage amplifier
CO 5	Outline the principle of an electronic instrumentation system
CO 6	Explain the principle of radio and cellular communication


Mapping of course outcomes with program outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	3	1	-	-	-	-	-	-	-	-	-	2
CO 2	3	1	-	-	-	-	-	-	-	-	-	2
CO 3	3	1	-	-	-	-	-	-	-	-	-	2
CO 4	2	-	-	-	-	-	-	-	-	-	-	-
CO 5	2	-	-	-	-	-	-	-	-	-	-	2
CO 6	2	-	-	-	-	-	-	-	-	-	-	2

Assessment Pattern

Bloom's Category	Basic Electrical Engineering			Basic Electronics Engineering		
	Continuous Assessment Tests		End Semester Examination (Marks)	Continuous Assessment Tests		End Semester Examination (Marks)
	Test 1 (Marks)	Test 2 (Marks)		Test 1 (Marks)	Test 2 (Marks)	
Remember	0	0	10	10	10	20
Understand	12.5	12.5	20	15	15	30
Apply	12.5	12.5	20			
Analyse						
Evaluate						
Create						




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Mark distribution

Total Marks	CIE marks	ESE marks	ESE Duration
150	50	100	3 hours

Continuous Internal Evaluation Pattern:

Attendance	: 10 marks
Continuous Assessment Test (2 numbers)	: 25 marks
Assignment/Quiz/Course project	: 15 marks

End Semester Examination Pattern: There will be two parts; Part I – Basic Electrical Engineering and Part II – Basic Electronics Engineering. Part I and PART II carries 50 marks each. For the end semester examination, part I contain 2 parts - Part A and Part B. Part A contain 5 questions carrying 4 marks each (not exceeding 2 questions from each module). Part B contains 2 questions from each module out of which one to be answered. Each question carries 10 mark and can have maximum 2 sub-divisions. The pattern for end semester examination for part II is same as that of part I. However, student should answer both part I and part 2 in separate answer booklets.

Course Level Assessment Questions

Course Outcome 1 (CO1):

1. Solve problems based on current division rule.
2. Solve problems with Mesh/node analysis.
3. Solve problems on Wye-Delta Transformation.

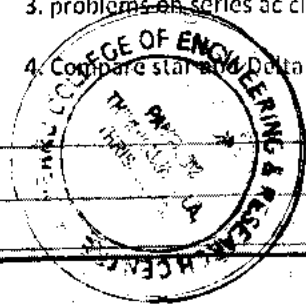
Course Outcome 2 (CO2):

1. Problems on series magnetic circuits
2. Problems on parallel magnetic circuits
3. Problems on composite magnetic circuits

4. Course Outcome 3 (CO3):

1. problems on self inductance, mutual inductance and coefficient of coupling
2. problems on rms and average values of periodic waveforms
3. problems on series ac circuits

4. Compare star and Delta connected 3 phase AC systems.



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SYLLABUS

MODULE 4

Introduction to Semiconductor devices: Evolution of electronics – Vacuum tubes to nano electronics. Resistors, Capacitors and Inductors: types, specifications. Standard values, color coding. PN Junction diode: Intrinsic and extrinsic semiconductors, Principle of operation, V-I characteristics, principle of avalanche breakdown and working of Zener diode. Bipolar Junction Transistors: PNP and NPN structures, Principle of operation, relation between current gains in CE, CB and CC, input and output characteristics of common emitter configuration.

MODULE 5

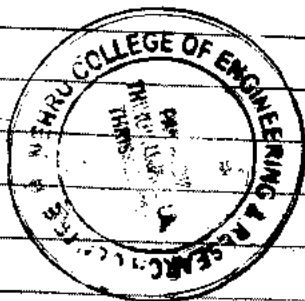
Basic electronic circuits and instrumentation: Rectifiers and power supplies: Block diagram description of a dc power supply, Working of a full wave bridge rectifier, capacitor filter (no analysis), working of simple zener voltage regulator. Amplifiers: Block diagram of Public Address system, Circuit diagram and working of common emitter (RC coupled) amplifier with its frequency response, Concept of voltage divider biasing. Electronic Instrumentation: Block diagram of an electronic instrumentation system, Working of digital multimeter.

MODULE 6

Introduction to Communication Systems: Evolution of communication systems – Telegraphy to 5G. Radio communication: principle of AM & FM, frequency bands used for various communication systems, block diagram of super heterodyne receiver, Principle of antenna – radiation from accelerated charge, working of parabolic reflector. Mobile communication: basic principles of cellular communications, principle and block diagram of GSM.

Text Books

1. D P Kothari and I J Nagrath, "Basic Electrical Engineering", Tata McGraw Hill, 2010.
2. D C Kufshreshtha, "Basic Electrical Engineering", Tata McGraw Hill, 2010.
3. ChinmoySaha, Arindham Halder and Debarati Ganguly, Basic Electronics - Principles and Applications, Cambridge University Press, 2018.
4. M.S.Sukhija and T.K.Nagsarkar, Basic Electrical and Electronics Engineering, Oxford University Press, 2012.
5. Wayne Tomasi and Neil Storey, A Textbook On Basic Communication and Information Engineering, Pearson, 2010.



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Course Outcome 4 (CO4): Describe working of a voltage amplifier

1. What is the need of voltage divider biasing in an RC coupled amplifier?
2. Define operating point in the context of a BJT amplifier.
3. Why is it required to have a voltage amplifier in a public address system?

Course Outcome 5 (CO5): Outline the principle of an electronic instrumentation system

1. Draw the block diagram of an electronic instrumentation system.
2. What is a transducer?
3. Explain the working principle of operation of digital multimeter.

Course Outcome 6 (CO6): Explain the principle of radio and cellular communication

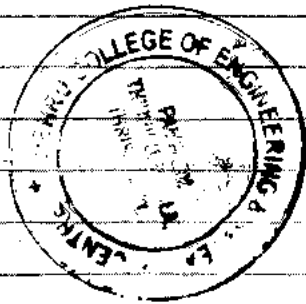
1. What is the working principle of an antenna when used in a radio transmitter?
2. What is the need of two separate sections RF section and IF section in a super heterodyne receiver?
3. What is meant by a cell in a cellular communication?



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SYLLABUS

4	Introduction to Semiconductor devices	
4.1	Evolution of electronics – Vacuum tubes to nano electronics	1
4.2	Resistors, Capacitors and Inductors: types, specifications. Standard values, color coding	2
4.3	PN Junction diode: Intrinsic and extrinsic semiconductors, Principle of operation, V-I characteristics, principle of avalanche breakdown and working of Zener diode	2
4.4	Bipolar Junction Transistors: PNP and NPN structures, Principle of operation, relation between current gains in CE, CB and CC, input and output characteristics of common emitter configuration	3



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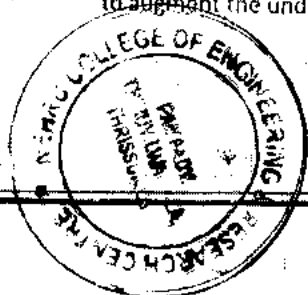
5	Basic electronic circuits and instrumentation	
5.1	Rectifiers and power supplies: Block diagram description of a dc power supply, Working of a full wave bridge rectifier, capacitor filter (no analysis), working of simple zener voltage regulator.	3
5.2	Amplifiers: Block diagram of Public Address system, Circuit diagram and working of common emitter (RC coupled) amplifier with its frequency response, Concept of voltage divider biasing	4
5.3	Electronic Instrumentation: Block diagram of an electronic instrumentation system, Working of μ - transducer	2
6	Introduction to Communication Systems	
6.1	Evolution of communication systems – Telegraphy to 5G	1
6.2	Radio communication: principle of AM & FM, frequency bands used for various communication systems, block diagram of super heterodyne receiver, Principle of antenna – radiation from accelerated charge, working of parabolic reflector	4
6.3	Mobile communication: basic principles of cellular communications, principle and block diagram of GSM.	2

Suggested Simulation Assignments for Basic Electronics Engineering

1. Plot V-I characteristics of Si and Ge diodes on a simulator
2. Plot Input and Output characteristics of BJT on a simulator
3. Implementation of half wave and full wave rectifiers
4. Simulation of RC coupled amplifier with the design support
5. Generation of AM signal

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Note: The simulations can be done on open tools such as QUCS, KiCad, GnuRadio or similar software to augment the understanding.



Reference:

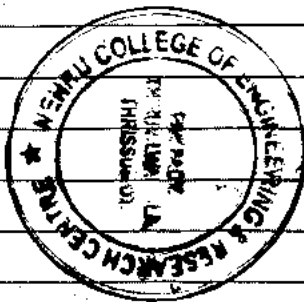
1. Basics of Electronics Engineering

Dr. V. Suresh Babu

Dr. Varun. P. Gopi

2. Wayne Thomas and Neil Storey

A text book on Basic Communication and Information Engineering, Pearson, 2010.



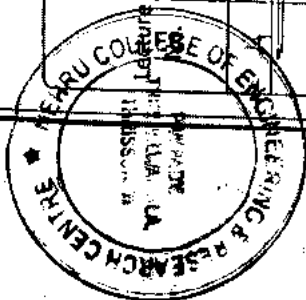
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LECTURE PLAN

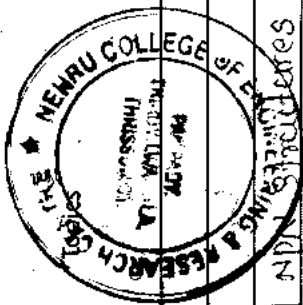
Topics	Text/Reference Book No. & Section	Teaching Aid Used (ICET, Lecture, GD, Demo, Debate etc.)	Assessment Method used (Assignment, problems, Reading, Quiz, MCQ etc.)	Scheduled on	Delivered on	Reason for Deviation	Signature
<u>Introduction to sc devices</u>							
4.1 Evolution of electronics	6.1 (5)						
Vacuum tubes to nano electronics (In evolutionary perspectives only)		Lecture	Reading	18-4-22	18-4-22		Usg
4.2 Resistors: types specifications std. values	7.1 (5)	Lecture	problems	22-4-22	22-4-22		Usg
4.3 Capacitors of inductors types specifications std. values colour coding.	7.3 (5)	Lecture	problems				
4.4 P-N Junction diode: Int & Ext	7.5 (5)	Lecture	Quiz	25-4-22	25-4-22		Usg
4.4.1 SC. principles of operation	8.1 (5)	Lecture	Quiz	29-4-22	29-4-22		Usg
4.4.2 V-I characteristics	8.4						
4.4.3 Principles of avalanche breakdown.	8.10	Lecture	Quiz	6-5-22	6-5-22		Usg
4.5 Principles of zener diode and breakdown.							



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 Anna University
 Chennai

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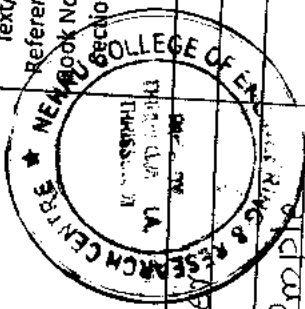
Lecture No.	Text/ Reference Book No. & Section	Teaching Aid Used (ICET, Lecture, GD, Demo, Debate etc.)	Assessment Method used (Assignment, problems, Reading, Quiz, MCQ etc.)	Scheduled on	Delivered on	Reason for Deviation	Signature
4.6	<u>B.T.S</u>						
4.6	PNP and NPN Structures	Lecture	Reading	9-5-22	19-5-22	Class suspended	USA
4.7	principle operation. Relation between current gains in CE, CB, CC	Lecture	Quiz Assignment	13-5-22	13-5-22	after NAA VISIT	USA
4.8	input and output characteristics of CE configuration.	Lecture	Assignment	16-5-22	16-5-22		USA
5	<u>BASIC ELECTRONIC CIRCUITS AND INSTRUMENTATION.</u>	Lecture	Quiz.	20-5-22	20-5-22		USA
5.1	Block diagram description of a dc power supply.	Lecture	Quiz	20-5-22	20-5-22		USA
5.2	working of a bridge Rectifier	Lecture	Problems. Assignment	23-5-22	23-5-22		USA



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LECTURE PLAN

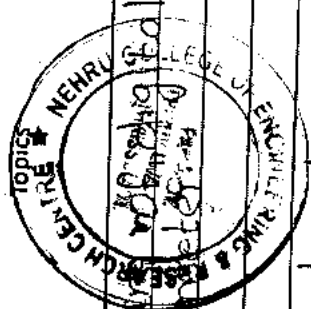
Lecture No.	Topics	Text/Reference Book No. & Section	Teaching Aid Used (ICET, Lecture, GD, Demo, Debate etc.)	Assessment Method used (Assignment, problems, Reading, Quiz, MCQ etc.)	Scheduled on	Delivered on	Reason for Deviation	Signature
5.3	capacitor filter (no analysis) working of simple Zener voltage regulator.		Lecture	Quiz	27-5-22	27-5-22		<i>[Signature]</i>
5.4	<u>AMPLIFIERS</u>							
5.4	Block diagram of Public Address system.	7-9 (0)	Lecture	Assignment	30-5-22	11-7-22	leave (personal)	<i>[Signature]</i>
5.5	circuit diagram and working of C.F.CRC coupled amplifier.	7-8 (0)	Lecture	Assignment	8-6-22	3-6-22		<i>[Signature]</i>
5.6	its frequency response	7-8, 30	Lecture	Assignment	6-6-22	10-6-22	Time table change	<i>[Signature]</i>
5.7	Concept of Voltage divider biasing.		Lecture	problem	10-6-22	15-6-22		<i>[Signature]</i>
5.8	<u>ELECTRONIC INSTRUMENTATION</u>							
5.8	Block diagram of an electronic instrumentation system.		Lecture	Quiz	13-6-22	17-6-22		<i>[Signature]</i>



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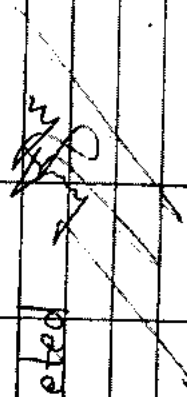
LECTURE PLAN

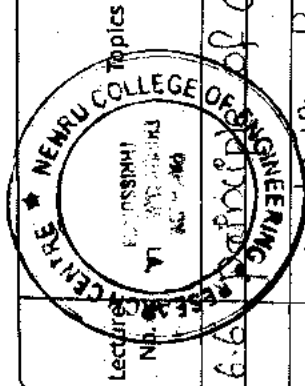
Lecture No.	Text/Reference Book No. & Section	Teaching Aid Used (ICET, Lecture, GD, Demo, Debate etc.)	Assessment Method used (Assignment, problems, Reading, Quiz, MCQ etc.)	Scheduled on	Delivered on	Reason for Deviation	Signature
6.9	cook book Multi Multiplexing	Lecture	Quiz	17-6-22	22-6-22	Time table changed	
6	Introduction to Communication Systems						
6.1	evolution of communication systems Telegraphy to Tg	lecture	Reading	20-6-22	24-6-22	Time Table changed	
6.2	RADIO COMMUNICATION						
6.3	principle of AM & FM.	10-4-0 Lecture	Problems	24-6-22	24/6/22		
6.4	Frequency band used for Various Communication systems.	10.10.0 Lecture	Quiz	27-6-22	28/6/22	Time Table changed	
6.5	Block diagram of Superhetrodyne	10.4.8 Lecture	Assignment	1-7-22	29/6/22		



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LECTURE PLAN

Lectures No.	Topics	Text/Reference Book No. & Section	Teaching Aid Used (ICET, Lecture, GD, Demo, Debate etc.)	Assessment Method used (Assignment, problems, Reading, Quiz, MCQ etc.)	Scheduled on	Delivered on	Reason for Deviation	Signature
6.6	Principles of antenna. Radiation from accelerated charge. Cooking of parabolic reflector.		Lecture	Quiz	4-7-22	1/7/22	??	
6.7	MOBILE COMMUNICATION.							
6.8	Principles of Cellular Communications	12.1(a)	Lecture	Assignment	8-7-22	7/7/22	??	
6.8	Principles and Block diagram of GSM.	12.6(a)	Lecture	Quiz, Assignment	11-7-22	21/7/22	??	
	Portion Completed 							



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DEPARTMENT OF :

Name of the Faculty : SRUTHY M.R

Branch / Course : CSE

Year & Semester : IVth, 7th

Subject Code : CS 401

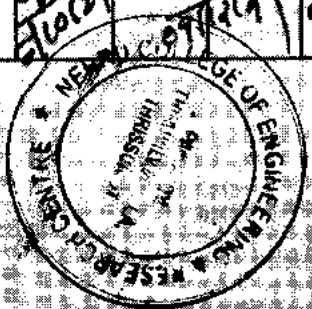
Name of the Subject : COMPUTER GRAPHICS

Objective of the Course

- ↳ Students will be able to compare various graphics devices.
- ↳ Analyze & implement algorithms for line drawing, circle drawing & polygon filling.
- ↳ Apply geometrical transformation on 2D & 3D objects.
- ↳ Analyze & implement algorithms for clipping.

RECORD CHECKING

Month	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Initial of HOD				<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>			
Initial of Principal				<i>[Signature]</i>	<i>[Signature]</i>		<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>			



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Final Verification By

TIME TABLE

DAYS / PERIODS	1	2	3	4	5	6	7
Monday		MCN 201				← CSH 333 →	
Tuesday		CS 401					
Wednesday				CS 401			
Thursday	MCN 201		CS 401	CS 451		CS 451	CS 451
Friday		← CSH 333		CS 451			
Saturday							

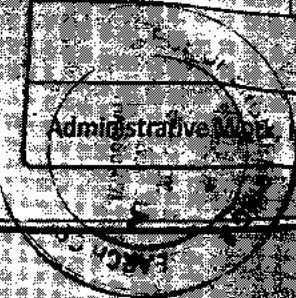
Total No. of Periods / Week :

WORK LOAD

Subject Code	Theory / Practical / Project	Sem	Periods/Week	Remarks
CS 401	Theory	VII	4	
MCN 201	Theory	III	2	
CS 451	Project	VII	4	
CSH 333	lab	SB ACB	3+3	

TOTAL
Periods / Week : 16

Administrative Work : If any



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SYLLABUS

Course code	Course Name	L-T-P Credits	Year of Introduction
CS401	COMPUTER GRAPHICS	4-0-0-4	2016

Course Objectives :

- To introduce concepts of graphics input and display devices.
- To discuss line and circle drawing algorithms.
- To introduce 2D and 3D transformations and projections.
- To introduce fundamentals of image processing.

Syllabus:

Basic Concepts in Computer Graphics. Input devices. Display devices. Line and circle drawing Algorithms. Solid area scan-conversion. Polygon filling. Two dimensional transformations. Windowing, clipping. 3D Graphics, 3D transformations. Projections – Parallel, Perspective. Hidden Line Elimination Algorithms. Image processing – digital image representation – edge detection – Robert, Sobel, Canny edge detectors. Scene segmentation and labeling – region-labeling algorithm – perimeter measurement.

Expected Outcome:

The Students will be able to :

- i. compare various graphics devices
- ii. analyze and implement algorithms for line drawing, circle drawing and polygon filling
- iii. apply geometrical transformation on 2D and 3D objects
- iv. analyze and implement algorithms for clipping
- v. apply various projection techniques on 3D objects
- vi. summarize visible surface detection methods
- vii. interpret various concepts and basic operations of image processing

Text Books:

1. Donald Hearn and M. Pauline Baker, Computer Graphics, PHI, 2e, 1996
2. E. Gose, R. Johnsonbaugh and S. Jost., Pattern Recognition and Image Analysis, PHI PTR, 1996 (Module VI – Image Processing part)
3. William M. Newman and Robert F. Sproull , Principles of Interactive Computer Graphics, McGraw Hill, 2e, 1979
4. Zhigang Xiang and Roy Plastock, Computer Graphics (Schaum's outline Series), McGraw Hill, 1986.

References:

1. David F. Rogers , Procedural Elements for Computer Graphics, Tata McGraw Hill, 2001.
2. M. Sonka, V. Hlavac, and R. Boyle. Image Processing, Analysis, and Machine Vision, Thomson India Edition, 2007.
3. Rafael C. Gonzalez and Richard E. Woods, Digital Image Processing, Pearson, 2017



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Module - I

Module - II

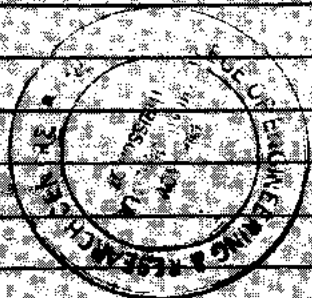
SYLLABUS

Course Plan

Module - V

Module	Contents	Hours	End Sem. Exam Marks
I	Basic concepts in Computer Graphics – Types of Graphic Devices – Interactive Graphic inputs – Raster Scan and Random Scan Displays.	7	15%
II	Line Drawing Algorithm- DDA, Bresenham's algorithm – Circle Generation Algorithms –Mid point circle algorithm, Bresenham's algorithm- Scan Conversion-frame buffers – solid area scan conversion – polygon filling algorithms	8	15%
FIRST INTERNAL EXAM			
III	Two dimensional transformations. Homogeneous coordinate systems – matrix formulation and concatenation of transformations. Windowing concepts –Window to Viewport Transformation- Two dimensional clipping-Line clipping – Cohen Sutherland, Midpoint Subdivision algorithm	8	15%
IV	Polygon clipping-Sutherland Hodgeman algorithm, Weiler-Atherton algorithm, Three dimensional object representation- Polygon surfaces, Quadric surfaces – Basic 3D transformations	8	15%
SECOND INTERNAL EXAM			
V	Projections – Parallel and perspective projections – vanishing points. Visible surface detection methods- Back face removal- Z-Buffer algorithm, A-buffer algorithm, Depth-sorting method, Scan line algorithm.	9	20%
VI	Image processing – Introduction – Fundamental steps in image processing – digital image representations – relationship between pixels – gray level histogram –spatial convolution and correlation – edge detection – Robert, Prewitt, Sobel.	8	20%
END SEMESTER EXAM			

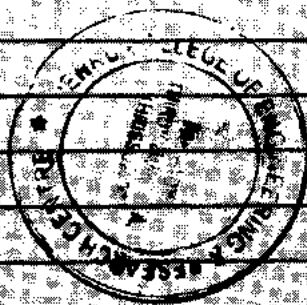
Module - VI



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Question Paper Pattern (End semester exam)

1. There will be **FOUR** parts in the question paper – A, B, C, D
2. **Part A**
 - a. **Total marks : 40**
 - b. **TEN** questions, each have **4** marks, covering all the **SIX** modules (**THREE** questions from modules I & II; **THREE** questions from modules III & IV; **FOUR** questions from modules V & VI).
All the TEN questions have to be answered.
3. **Part B**
 - a. **Total marks ; 18**
 - b. **THREE** questions, each having **9** marks. One question is from module I; one question is from module II; one question *uniformly* covers modules I & II.
 - c. *Any TWO* questions have to be answered.
 - d. Each question can have *maximum THREE* subparts.
4. **Part C**
 - a. **Total marks : 18**
 - b. **THREE** questions, each having **9** marks. One question is from module III; one question is from module IV; one question *uniformly* covers modules III & IV.
 - c. *Any TWO* questions have to be answered.
 - d. Each question can have *maximum THREE* subparts.
5. **Part D**
 - a. **Total marks : 24**
 - b. **THREE** questions, each having **12** marks. One question is from module V; one question is from module VI; one question *uniformly* covers modules V & VI.
 - c. *Any TWO* questions have to be answered.
 - d. Each question can have *maximum THREE* subparts.
6. There will be **AT LEAST 50%** analytical/numerical questions in all possible combinations of question choices.



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MODULE I

LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
1	Basic concepts in computer Graphics.	1.2	27/9/21	27/9/21
2	Types of Graphics devices.	1.3	28/9/21	28/9/21
3	Interactive Graphic Input.	1.4	29/9/21	29/9/21
4	Raster scan Display	1.5	30/9/21	30/9/21
5	Random Scan Display.	1.6	1/10/21	1/10/21
6	LED	1.6	4/10/21	4/10/21
7	LCD	1.7	5/10/21	7/10/21

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Remarks:



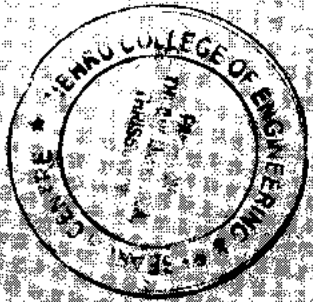
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MODULE I

LECTURE PLAN

Lecture No.	Topics	Reference Book No.& Section	Scheduled on	Delivered on
1	Line drawing algorithm	2.1	6/10/21	8/10/21
2	DDA	2.1	7/10/21	11/10/21
3	Bresenham's Algorithm	2.2	8/10/21	12/10/21
4	Circle generation Algorithms	2.3	11/10/21	13/10/21
5	Mid Point circle algorithm	2.3	17/10/21	25/10/21
6	Bresenham's algorithm	2.4	13/10/21	26/10/21
7	Scan Conversion	2.5	18/10/21	28/10/21
8	Frame Buffer.	2.6	20/10/21	1/11/21
9	Solid area scan conversion	2.6	21/10/21	2/11/21
10	Polygon filling algorithm.	2.6	22/10/21	3/11/21

Remarks :



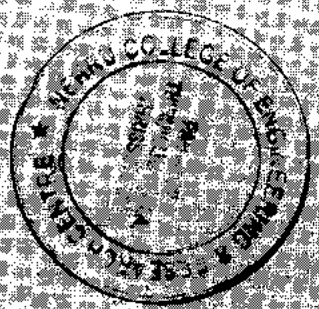

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MODULE III

LECTURE PLAN

Lecture No.	Topics	Reference Book No. & Section	Scheduled on	Delivered on
1	Two dimensional transformations	3.1	25/10/21	8/11/21
2	Homogeneous Coordinate System	3.1.2	26/10/21	9/11/21
3	Matrix Formulation & concatenation of transformation.	3.2	27/10/21	16/11/21
4	Windowing Concepts	3.3	28/10/21	22/11/21
5	Window to viewport Transprmo- ation	3.4	29/10/21	23/11/21
6	Two-dimensional clipping.	3.5	1/11/21	23/11/21
7	Line clipping	3.6	2/11/21	24/11/21
8	Cohen Sutherland	3.7	3/11/21	30/11/21
9	Midpoint subdivision algorithm	3.8	4/11/21	30/11/21

Remarks:

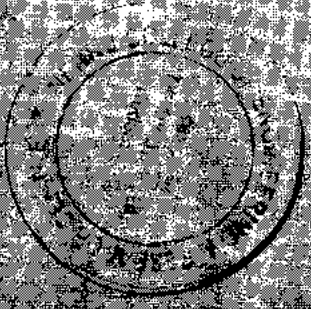


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MODULE IV

LECTURE PLAN

Lecture No	Topics	Reference Book No. & Section	Scheduled on	Delivered on
1	Polygon clipping	4.1	3/11/21	1/12/21
2	Sutherland Hodgeman algorithm	4.2	8/11/21	1/12/21
3	Weiler - Atherton Algorithm	4.3	9/11/21	2/12/21
4	3D-Object Representation	4.4	10/11/21	2/12/21
5	Polygon surfaces	4.4	11/11/21	6/12/21
6	Quadratic Surfaces	4.5	12/11/21	6/12/21
7	Basic 3D transformations	4.6	13/11/21	6/12/21
8	Formes of 3D	4.7	16/11/21	7/12/21



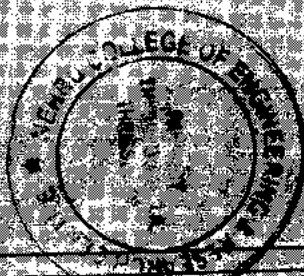
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MODULE V

LECTURE PLAN

Lecture No.	Topics	Reference Book No. & Section	Scheduled on	Delivered on
1	Projections.	5.1	17/11/21	7/12/21
2	Parallel & Perspective Projection	5.2	18/11/21	7/12/21
3	Vanishing Points	5.3	19/11/21	10/12/21
4	Visible surface detection methods.	5.4	22/11/21	10/12/21
5	Back face removal.	5.5	23/11/21	13/12/21
6	Z-Buffer Algorithms	5.6	24/11/21	13/12/21
7	A-Buffer Algorithms.	5.7	25/11/21	14/12/21
8	Depth - Sorting methods.	5.8	26/11/21	14/12/21
9	Scan line algorithms.	5.9	27/11/21	14/12/21

Remarks:



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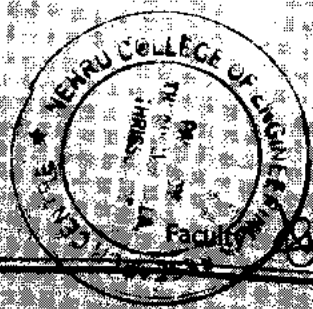
MODULE VI

LECTURE PLAN

Lecture No.	Topics	Reference Book No. & Section	Scheduled on	Delivered on
1	Image Processing.	6.1	29/11/21	20/12/21
2	Introduction.	6.2	29/11/21	20/12/21
3	Fundamental steps in Image Processing.	6.3	30/11/21	21/12/21
4	Digital Image representation	6.4	1/12/21	21/12/21
5	relationship b/w pixels.	6.5	2/12/21	21/12/21
6	gray level histogram	6.6	3/12/21	21/12/21
7	spatial convolution and correlation.	6.7	6/12/21	6/01/22
8	edge detection	6.8	7/12/21	6/01/22
9	Robert, Prewitt, Sobel.	6.9	8/12/21	11/01/22

Text / Reference Books:

1. Computer Graphics - Donald Hearn & M. Pauline
2. Digital Image Processing - Rafael C. Gonzalez
- 3.
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Signature

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Signature

Students Profile		
Reg. No.	Name	CGPA / Arrears / Pass / Fail / DS
1	NCEIRCS036 NAVANEETH P	
2	036 NITHA SHERIN R	
3	037 NITHYA P	
4	038 RANJITH R	
5	039 R ANUSWARIA S	
6	040 SANAL SALDEEN S	
7	041 SANDRA N P	
8	042 SARANIA N	
9	043 SHYBI VARGHESE	
10	044 SNEHA S	
11	045 SNEHA V	
12	047 SREEDEVI C	
13	048 SREELAKSHMI A	
14	049 SREERAM K	
15	050 SULFI A	
16	051 SWETHA RAJ P S	
17	052 THEJUS K J	
18	053 THRISHAL G	
19	054 VARGHESE P G	
20	056 VARSHA P K	
21	057 VIJITHRA R	
22	058 VINAY KRISHNA K M	
23	059 VIPIN C B	
24	060 VISHNU MOHANAN	
25	061 VISHNU M R	
26	062 VISHNUPRIYA R	
27	063 VISHNU T U	
28	064 V SIVASANKARI S	
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No of Absentees		
Initial of the Faculty		

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at 9:45
 13/9/20

Reg. No		
1	NCEIRCS038	NAVANEETH
2	036	NITHA SHER
3	037	NITHYA P
4	038	RANJITH R
5	039	R ANUSWARI
6	040	SANAL SALDI
7	041	SANDRA N-I
8	042	SARANIA N
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No. of Absentees		
Initial of the Faculty		

Mo	14	15	16	17	18	19	20	21	22	23	24	25	26
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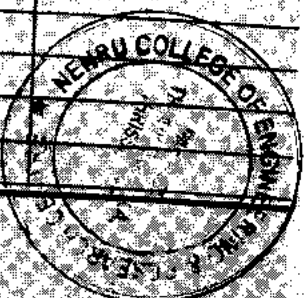
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Reg. No.		N
1	NCEIRCS035	NAVANEETH
2	036	NITHA SHEF
3	037	NITHYA P
4	038	RANJITH R
5	039	R ANUSWARI
6	040	SANAL SALDI
7	041	SANDRA N.I
8	042	SARANIA N
9	043	SHYBI VARG
10	044	SNEHA S
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12	047	SREEDEVI C
13	048	SREELAKSHM
14	049	SREERAM K
15	050	SULFI A
16	051	SWETHA RA
17	052	THEJUS K.J
18	053	THRISHAL G
19	054	VARGHESE
20	056	VARSHA P.K
21	057	VIJITHRA R
22	058	VINAY KRIS
23	059	VIPIN C.B
24	060	VISHNU MO
25	061	VISHNU M.F
26	062	VISHNUPRIY
27	063	VISHNU T.U
28	064	V SIVASAN
29		
30		
31		
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33		
34		

No. of Absentees _____
Initial of the Faculty _____

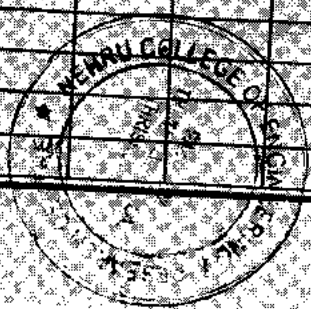


	40	41	42	43	44	45	46	47	48	49	50	51	52
Mo.	7												
Dt.	12												
Hr.	2												
1	/												
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Principal
Netru College of
Engineering and Research Center
Palakkad, Thiruvananthapuram
Pin - 686 597, Kerala

STUDENTS PERFORMANCE REPORT - THEORY

Total Periods Engaged				Assignment Marks				Internal Exam Marks				Internal Assessment Marks		
Sl. No.	No. of Hrs. Absent	No. of Hrs. Present	DL	Attendance %	Assignment No. 1	Assignment No. 2	Assignment Marks	1 st Int. Exam Marks	2 nd Int. Exam Marks	Int. Exams Marks	Assignment Marks	Internal Exams Marks	Internal Marks	
	(Out of 30)	(Out of 30)			(Out of 60)	(Out of 20)	(Out of 20)							(Out of 10)
1	5	35		86	0	30	30	16	18		5	34	39	
2	7	33		83	27	27	54	17	16		9	33	42	
3	7	33		83	30	30	60	-	17	16	10	33	43	
4	8	32		80	0	30	30	-	14	14	5	28	33	
5	6	34		85	30	30	60	12	16		10	28	38	
6	5	35		86	30	30	60	8	13		10	21	31	
7	7	33		83	30	30	60	-	18	17	10	35	45	
8	9	31		78	30	30	60	13	11		10	24	34	
9	5	35		86	30	30	60	-	16	14	10	30	40	
10	7	33		83	27	27	54	13	15		9	26	35	
11	4	36		90	30	30	60	16	14		10	30	40	
12	8	32		80	27	27	54	18	14		9	32	41	
13	4	36		90	30	30	60	14	12		10	26	36	
14	6	34		85	30	30	60	4	9		10	13	23	
15	9	31		78	30	30	60	17	14		10	31	41	
16	9	31		78	30	30	60	12	14		10	26	36	
17	8	32		80	30	30	60	12	14		10	26	36	
18	8	32		80	30	30	60	10	13		10	23	33	
19	3	37		93	30	30	60	16	17		10	33	43	
20	5	35		86	26	30	56	-	15	11	9	26	35	
21	9	31		78	30	30	60	10	11		10	21	31	
22	9	31		78	30	30	60	5	15		10	20	30	
23	4	36		90	30	30	60	14	17		10	31	41	
24	4	36		90	30	30	60	18	15		10	33	43	
25	2	38		95	30	30	60	12	12	1	10	24	34	
26	3	37		93	30	30	60	-	16	13	10	29	39	
27	9	31		78	30	30	60	8	5		10	13	23	
28	5	35		86	30	0	30	11	15		5	26	31	
29														
30														
31														
32														
33														
34														



PRINCIPAL

Netru College of
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Palakkad, Thiruvithamala, Thrissur Dt.
Pin - 686 597, Kerala

INTERNAL EXAMINATION RESULT ANALYSIS

Date of Test / Exam : 18/11/21

Department of..... CSE Paper Corrected & Returned on : 22/11/21.....

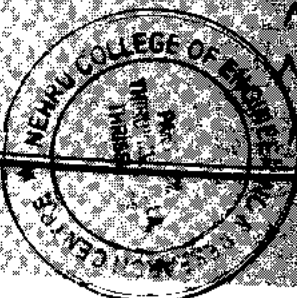
1. Student's Batch : 2018 - 2022
2. Academic Year : 2021 - 2022
3. Semester : VII
4. Name of the subject : Computer Graphics
5. Subject code : CS401
6. Name of the Examination : First Internal Exam
7. Total number of Students : 28
8. No. of students appeared : 22
9. No. of students Absent : 6
10. No. of students Passed : 18
11. No. of students Failed : 4
12. No. of students attended Re-test : 6
13. Pass Percentage : 81.81%
(based on students appeared)

RESULT ANALYSIS

Description	Below 45%	45% to 60%	61% to 80%	81% to 100%
No. of Students	4	8	4	6

Absentees (Reg. No.)

- NCE18CS037
- NCE18CS056
- NCE18CS038
- NCE18CS062
- NCE18CS041
- 10
- NCE18CS043



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Thiruvikramala, Tanissur, District,
Kerala

RESULT ANALYSIS

Analysis of the root cause of failure and the poor performance of the students.

a) Lack of Problem solving skill.

b)

c)

d)

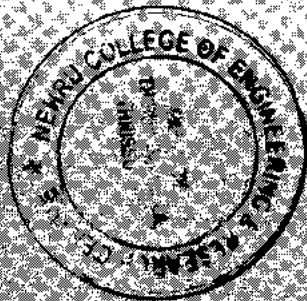
CORRECTIVE ACTIONS

a) Advised them to do more problems.

b)

c)

d)




PRINCIPAL

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Engineering and Research Centre
Pambay, Thiruvananthapuram, Kerala
Pin - 680 587


Faculty

Counsellor


DHOD


Principal