CRITERION 1-CURRICULAR ASPECTS

KEY INDICATOR 1.1-CURICULUM PLANNING & IMPLEMENTATION

Metric No. 1.1.1. The institution ensures effective curriculum delivery through a well planned and documented process

S.No.	TABLE OF CONTENT	PAGE NO.
1	Academic schedule from Affiliating university-Anna University	2
2	Subject Willingness	8
3	Workload for Faculty	12
4	Time Table	19
5	Overview of Course file	27
6	Course Information Sheet	30
7	Lesson Plan	36
8	Internal Assessment Test Question Paper	43
9	Assignment Question Paper	44
10	Question Bank	46
11	Internal Test-Sample Test Paper	62
12	Class Committee Meeting	71
13	Final Year Projects & Project Review	79
14	Value Added Courses-Sample Certificates	88
15	Internship/Inplant Training	95
16	Curriculum of Compliances	99

NPR COLLEGE OF ENGG. & TECHNOLOGY NATHAM

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University,
Accredited by NAAC WITH 'A' GRADE Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401. Web: www.nprcet.org

ACADEMIC SCHEDULE FROM AFFILIATING UNIVERSITY-ANNA UNIVERSITY

Date: 25.10.2021

CENTRE FOR ACADEMIC COURSES

ANNA UNIVERSITY: : CHENNAI – 600 025

ACADEMIC SCHEDULE FOR NON-AUTONOMOUS AFFILIATED COLLEGES

November 2021 – March 2022 (SEMESTER I)

UG (FT) Degree Programmes

Sl. No.	Programme	Semester	Commencement of Induction Programme	Commencement of Classes	Last working day	Commencement of Practical Examinations	Commencement of End Semester Examinations
1.	B.E. / B.Tech. (Full Time)	I	08.11.2021	22.11.2021	08.03.2022	10.03.2022	21.03.2022

RE-OPENING DAY FOR THE NEXT SEMESTER: 18.04.2022 (Monday)

NOTE:

1. The Theory and Practical Examination schedules will be published in due course. (Practical Examinations will be conducted before the theory examinations).
2. If necessary, loss of classes due to various curricular / co-curricular activities of the department / college may be compensated by conducting classes on Saturdays.

DIRECTOR
ACADEMIC COURSES

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

DAC - SB

CENTRE FOR ACADEMIC COURSES

ANNA UNIVERSITY: : CHENNAI – 600 025

ACADEMIC SCHEDULE FOR NON AUTONOMOUS AFFILIATED COLLEGES

August 2021 – December 2021 (ODD SEMESTER)*

UG & PG Programmes

Sl. No.	Programme	Semester	Commencement of Classes	Last working day	Commencement of Practical Examinations	Commencement of End Semester Examinations
1.	B.E. / B.Tech (Full-Time)	III, V, VII	18.08.2021	30.11.2021**	02.12.2021	13.12.2021
2.	B.E. / B.Tech (Part-Time)	III, V, VII				
3.	B.Arch. (Full-Time)	III, V, VII, IX				
4.	M.C.A. (Full-Time)	V				
5.	M.Sc (5 Yrs-Integrated)	V, VII, IX				
6.	M.B.A. (5 Yrs-Integrated)	V, VII, IX				

* As per the directives of the Government of Tamil Nadu, the classes will be conducted in ONLINE mode

RE - OPENING DAY FOR THE NEXT SEMESTER: 19.01.2022 (Wednesday)

NOTE:

1. The Theory and Practical Examination schedules will be published in due course (Practical Examinations will be conducted before the theory examinations).
2. If necessary, loss of classes due to various curricular / co-curricular activities of the department / college may be compensated by conducting classes on Saturdays.

** In order to ensure minimum no. of working days, the following 7 Saturdays are declared as working days.

Sl. No.	Working Days (Saturdays)	Time Table of the Week Day to be Followed
1.	28.08.2021	Friday
2.	11.09.2021	Monday
3.	25.09.2021	Friday
4.	09.10.2021	Thursday
5.	23.10.2021	Friday
6.	06.11.2021	Tuesday
7.	20.11.2021	Thursday

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul. 624 401.

DIRECTOR
ACADEMIC COURSES

DAC - SB

Date: 21.09.2021

CENTRE FOR ACADEMIC COURSES

ANNA UNIVERSITY: : CHENNAI – 600 025

ACADEMIC SCHEDULE FOR NON AUTONOMOUS AFFILIATED COLLEGES

September 2021 – December 2021 (ODD SEMESTER – III Semester)

PG (FT) Degree Programmes

Sl. No	Programme	Semester	Commencement of Classes	Last working day	Commencement of Practical Examinations	Commencement of End Semester Examinations
1.	M.B.A.(FT)	III	27.09.2021	31.12.2021**	03.01.2022	19.01.2022
2.	M.B.A. (5 Yrs-Integrated)	III				
3.	M.E. / M. Tech. / M. Arch.(FT)	III				

RE-OPENING DAY FOR THE NEXT SEMESTER: 14.02.2022 (Monday)

- Theory and Practical Examination schedules will be published in due course. (Practical Examinations will be conducted before the theory examinations).

** In order to ensure minimum no. of working days, the following Saturdays are declared as working days.

Sl. No.	Working Days (Saturdays)	Time Table of the Week Day to be Followed
1.	09.10.2021	Thursday
2.	23.10.2021	Friday
3.	30.10.2021	Tuesday
4.	06.11.2021	Thursday
5.	13.11.2021	Monday

Sl. No.	Working Days (Saturdays)	Time Table of the Week Day to be Followed
6	20.11.2021	Tuesday
7.	27.11.2021	Wednesday
8	04.12.2021	Thursday
9	11.12.2021	Friday
10	18.12.2021	Monday

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Nathem, Dindigul (Dt) - 624 401

DIRECTOR
ACADEMIC COURSES

DAC - SB

Date: 04.03.2022

REVISED

CENTRE FOR ACADEMIC COURSES

ANNA UNIVERSITY: : CHENNAI – 600 025

ACADEMIC SCHEDULE FOR NON-AUTONOMOUS AFFILIATED COLLEGES

March 2022 – June 2022 (Even Semester – Except Semester II)

UG (FT/PT) Degree Programmes

Sl. No.	Programme	Semester	Commencement of Classes	Last working day	Commencement of Practical Examinations	Commencement of End Semester Examinations
1.	B.E. / B.Tech.(Full-Time)	IV,VI,VIII	16.03.2022	16.06.2022**	18.06.2022	28.06.2022
2.	B.E. / B.Tech (Part-Time)	IV,VI				
3.	B.Arch. (Full-Time)	IV,VI,VIII,X				

RE - OPENING DAY FOR THE NEXT SEMESTER: 10.08.2022 (Wednesday)

NOTE:

1. The Theory and Practical Examination schedules will be published in due course (Practical Examinations will be conducted before the theory examinations).
2. If necessary, loss of classes due to various curricular / co-curricular activities of the department / college may be compensated by conducting classes on Saturdays.

** In order to ensure minimum no. of working days, the following Saturdays are declared as working days.

Sl. No.	Working Days (Saturdays)	Time Table of the Week Day to be Followed
1.	19.03.2022	Tuesday
2.	26.03.2022	Wednesday
3.	09.04.2022	Thursday
4.	23.04.2022	Friday
5.	30.04.2022	Tuesday
6.	07.05.2022	Monday

Sl. No.	Working Days (Saturdays)	Time Table of the Week Day to be Followed
7.	14.05.2022	Tuesday
8.	21.05.2022	Wednesday
9.	28.05.2022	Thursday
10.	04.06.2022	Friday
11.	11.06.2022	Monday

NPR COLLEGE OF ENGG & TECHNOLOGY NATHAM

Dr. J.SUNDARARAJAN, B.E., M.E., Ph.D.
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt.)

DIRECTOR
ACADEMIC COURSES

DAC - SB

Date: 16.02.2022

CENTRE FOR ACADEMIC COURSES

ANNA UNIVERSITY: : CHENNAI – 600 025

ACADEMIC SCHEDULE FOR NON-AUTONOMOUS AFFILIATED COLLEGES

April 2022 – July 2022 (Even Semester – Except Semester II)

PG (FT) Degree Programmes

Sl. No.	Programme	Semester	Commencement of Classes	Last working day	Commencement of Practical Examinations	Commencement of End Semester Examinations
1.	M.E. / M.Tech / M.Arch (FT)	IV	04.04.2022	04.07.2022**	06.07.2022	18.07.2022
2.	M.C.A. (Full-Time)	IV,VI				
3.	M.B.A. (FT)	IV				
4.	M.Sc. (5 Yrs-Integrated)	IV,VI,VIII,X				
5	M.B.A. (5 Yrs-Integrated)	IV,VI,VIII,X				

RE - OPENING DAY FOR THE NEXT SEMESTER: 22.08.2022 (Monday)

NOTE:

1. The Theory and Practical Examination schedules will be published in due course (Practical Examinations will be conducted before the theory examinations)
2. If necessary, loss of classes due to various curricular / co-curricular activities of the department / college may be compensated by conducting classes on Saturdays.

**** In order to ensure minimum no. of working days, the following Saturdays are declared as working days.**

Sl. No.	Working Days (Saturdays)	Time Table of the Week Day to be Followed
1	09.04.2022	Thursday
2	23.04.2022	Friday
3	30.04.2022	Tuesday
4	07.05.2022	Monday
5	14.05.2022	Tuesday
6	21.05.2022	Wednesday

Sl. No.	Working Days (Saturdays)	Time Table of the Week Day to be Followed
7	28.05.2022	Thursday
8	04.06.2022	Friday
9	11.06.2022	Monday
10	18.06.2022	Tuesday
11	25.06.2022	Wednesday
12	02.07.2022	Thursday

Dr. J.SUNDARARAJAN,
B.E., M.Tech., P.....
Principal
N.P.R. College of Engineering & T...
Nathan, Dindigul (Dt.) - 624 ...

DIRECTOR
ACADEMIC COURSES

NPR College of Engineering & Technology
NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
An ISO 9001:2015 Certified Institution
Phone No: 04544-246380, 246381, 246382
Website: www.nprcolleges.org, www.nprcet.org, Email: nprcetprincipal@nprcolleges.org

SUBJECT WILLINGNESS DETAILS

Course: B.E **Department: ECE** **Semester: ODD** **Academic year: 2021-2022** **Date : 19.10.21**

S. No	Name of Faculty & Designation	Subject Code and Name	Year / Branch	Signature
1.	Dr A. Gopi Saminathan Professor & Head	EC8352-Signals and Systems	II / ECE	
		EC8553-Discrete-Time Signal Processing	III / ECE	
		EC8395- Communication Engineering	II / CSE	
		EC8361-Analog & Digital lab	II / ECE	
2.	Mr. K.Jayaprakasam Asso. Prof	OMD551- Basic of Bio-Medical Instrumentation	III / ECE	
		EC8561- Communication system Lab	III / ECE	
		EC8553-Discrete-Time Signal Processing	III / ECE	
		EC8395- Communication Engineering	II / CSE	
		CS838-Digital system Lab	II/CSE	
3.	Dr.S.M.VijayaRajan Asso. Prof	EC8701-Antenna and Microwave Engineering	IV/ECE	
		EC8751- Optical Communication	IV / ECE	
		EC8553-Discrete-Time Signal Processing	III / ECE	
		EC8681- Microprocessor & MicrocontrollersLab	III / CSE	
4.	Mr. J. G. Sabarish Asst. Prof	EC8553-Discrete-Time Signal Processing	III / ECE	
		EC8701-Antenna and Microwave Engineering	IV/ECE	
		EC8751- Optical Communication	IV / ECE	
		EC8711- Embedded Lab	IV/ ECE	
5.	Mr.S.Sudhakar Asst prof	EC8501-Digital Communication	III/ ECE	
		EC8761-Adv.Comm. Lab	III / ECE	
		EC8551-Communication Networks	III / ECE	
6.	Mrs.C.Kannika Parameshwari Asst. Prof	EC8751- Optical Communication	IV / ECE	
		EC8701-Antenna and Microwave Engineering	IV/ECE	
		EC8553-Discrete-Time Signal Processing	III / ECE	
		EC8562- Digital signal processing Lab	III/ECE	
7.	Ms.S.Priyadarshini AP/ECE	EC8395- Communication Engineering	II / CSE	
		EC8751- Optical Communication	IV / ECE	
		EC8701-Antenna and Microwave Engineering	IV/ECE	
		CS838-Digital system Lab	II/CSE	
8.	Dr.S.Ponmalar Prof / ECE	EC8351-Electronic Circuits I	II / ECE	
		EC8395- Communication Engineering	II / CSE	
		EC8751- Optical Communication	IV / ECE	
		EC8361-Analog & Digital lab	II / ECE	
9.	Mr.S.Surendhar Asst.Prof / ECE	EE8551- Microprocessors & Microcontrollers	III/ EEE	
		EC8351-Electronic Circuits I	II / ECE	
		EC8395- Communication Engineering	II / CSE	
		EC8681- Microprocessors & Microcontrollers Lab	III / CSE	
10.	Dr.M.Ameena Banu Asso.Prof	EC8551-Communication Networks	III / ECE	
		EE8551- Microprocessors & Microcontrollers	III/ EEE	
		EC8391-Control Systems	II / ECE	
		EC8563- Communication Networks Lab	III / ECE	

COLLEGE OF ENGG & TECHNOLOGY NATHAM

11.	Ms.S.Monika Asst. Prof	EC8791 – Embedded and Real Time Systems	IV / ECE
		EC8551-Communication Networks	III / ECE
		EC8551- Microprocessors & Microcontrollers	III/ EEE
		EC8681- Microprocessors & Microcontrollers Lab	III / CSE
12	Ms.E.Thangadeepiga Asst. Prof	OIC751- Transducer Engineering	IV ECE
		EC8551-Communication Networks	III / ECE
		EE8551- Microprocessors & Microcontrollers	III/ EEE
		EC8681- Microprocessors & Microcontrollers Lab	III / CSE
13.	Mrs.A.Iniyamary Asst. Prof	EC8691- Microprocessors & Microcontrollers	III / CSE
		OIC751- Transducer Engineering	IV ECE
		EC8551-Communication Networks	III / ECE
		CS838-Digital system Lab	II/CSE
14.	Mr.R.NaveenKumar Asst. Prof	EC8702 - Ad hoc and Wireless Sensor	IV / ECE
		EC8691- Microprocessors & Microcontrollers	III / CSE
		OIC751- Transducer Engineering	IV ECE
		EC8561- Communication system Lab	III / ECE
15.	Mr.S.Vinayagam Asst. Prof	EC8092- Adv.Wireless Communication	III/ ECE
		EC8702 - Ad hoc and Wireless Sensor	IV / ECE
		EC8691- Microprocessors & Microcontrollers	III / CSE
		EC8361-Analog & Digital lab	II / ECE
16.	Mr.K.Sundarapandi Asst. Prof	EC8703- Medical electronics	III / ECE
		EC8092- Adv.Wireless Communication	III/ ECE
		EC8702 - Ad hoc and Wireless Sensor	IV / ECE
		EC8563- Communication Networks Lab	III / ECE
17.	Ms. J.Nayanadhara Asst. Prof	EC8552-Computer Architecture & Organization	III / ECE
		EC8703- Medical electronics	III / ECE
		EC8092- Adv.Wireless Communication	III/ ECE
		EE8691- Microprocessors & Microcontrollers	III / CSE
18.	Mr.R Sundara Bharathi Asst. Prof	EC8353- Electron device & Circuits	II / EEE
		EC8552-Computer Architecture & Organization	III / ECE
		EC8703- Medical electronics	III / ECE
		EC8761-Adv.Comm. Lab	III / ECE
19.	Mrs.S.Kamalam Asst. Prof	EC8392- Digital Electronics	II / ECE
		EC8353- Electron device & Circuits	II / EEE
		EC8552-Computer Architecture & Organization	III / ECE
		EC8711- Embedded Lab	IV/ ECE
20.	Mr.M. Marikani Asst. Prof	EC8562- Digital signal processing Lab	III/ECE
		EC8392- Digital Electronics	II / ECE
		EC8353- Electron device & Circuits	II / EEE
		CS838-Digital system Lab	II/CSE

TIME TABLE INCHARGE

HOD-ECE

PRINCIPAL

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University,
Accredited by NAAC WITH A GRADE [Recognized by UGC under 2 (f)]
Natham, Dindigul - 624 401 Web: www.nprcet.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Subject willingness

Course: B.E Department: ECE Semester : EVEN Academic year: 2021-2022 Date :01.04.2022

S. No	Name of Faculty & Designation	Subject Code and Name	Year / Branch	Signature
1	Dr.S Ponmalar Professor & Head	EC8004-Wireless Networks	III / ECE	
		EC8691-Microprocessors and Microcontrollers	III / ECE	
		EE8691-Embedded Systems	III / EEE	
2	Dr.A.Gopi Saminathan Prof./ECE	EC8691-Microprocessors and Microcontrollers	III / ECE	
		EC8004-Wireless Networks	III / ECE	
		EE8691-Embedded Systems	III / EEE	
3	Dr.M.Ameena Banu ASP/ECE	EE8691-Embedded Systems	III / EEE	
		EC8004-Wireless Networks	III / ECE	
		EE8691-Embedded Systems	III / EEE	
4	Dr.S.M.VijayaRajan ASP/ECE	EC8651-Transmission Lines and RF Systems	III ECE	
		EC8004-Wireless Networks	III / ECE	
		EE8691-Embedded Systems	III / EEE	
5	Mr.K Jayaprakasam ASP/ECE	EC8652-Wireless Communication	III / ECE	
		EC8004-Wireless Networks	III / ECE	
		EE8691-Embedded Systems	III / EEE	
6	Mr. J.G.Sabarish AP/ECE	EC3251-Circuit Analysis	I / ECE A	
		EC8491-Communication Theory	II / ECE	
		EC8004-Wireless Networks	III / ECE	
7	Mr.S.Sudhakar AP/ECE	EC8491-Communication Theory	II / ECE	
		EC8004-Wireless Networks	III / ECE	
		EC8094-Satellite Communication	IV / ECE	
8	Mrs.A.Iniyamary AP/ECE	EC8094-Satellite Communication	IV / ECE	
		EC8004-Wireless Networks	III / ECE	
		EE8451-Linear integrated circuits and Applications	II / EEE	
9	Mrs.S.Kamalam AP/ECE	GE8076-Professional Ethics in Engineering	IV / ECE	
		EE8451-Linear integraled circuits and Applications	II / EEE	
		EC8651-Transmission Lines and RF Systems	III ECE	
10	Mrs.S.Monika AP/ECE	EC8004-Wireless Networks	III / ECE	
		EE8451-Linear integrated circuits and Applications	II / EEE	
		EC8651-Transmission Lines and RF Systems	III ECE	
11	Mrs.C.Kannika Parameshwari AP/ECE	EC8095-VLSI Design	III / ECE	
		EE8451-Linear integrated circuits and Applications	II / EEE	
		EC8651-Transmission Lines and RF Systems	III ECE	
12	Mr.S.Vinayagam AP/ECE	EC8452- Electronic Circuits II	II/ ECE	
		EE8451-Linear integrated circuits and Applications	II / EEE	
		EC3251-Circuit Analysis	I / ECE B	
13	Mr.K.Sundarapandi AP/ECE	EE8461- Linear and Digital Integrated circuits lab	II / EEE	
		EC3251-Circuit Analysis	I / ECE B	
		EC3251-Circuit Analysis	I / ECE A	
14	Mr.R.Naveen Kumar AP/ECE	EC3251-Circuit Analysis	I / ECE B	
		EC3251-Circuit Analysis	I / ECE A	

NPR COLLEGE OF ENGG & TECHNOLOGY NATHAM

		EC8451 - Electromagnetic Fields	II / ECE	
15	Mr.M Manikani AP/ECE	EE8451-Linear integrated circuits and Applications	II / EEE	
		MG8591- Principle of management	III / ECE	
		EC8453-Linear Integrated Circuits	II / ECE	
16	Mr.R Sundara Bharathi, AP/ECE	MG8591- Principle of management	III / ECE	
		EE8403 –Measurement and Instrumentation	II / EEE	
		EC8453-Linear Integrated Circuits	II / ECE	
17	Mrs.J Nayanadhara AP/ECE	EC8453-Linear Integrated Circuits	II / ECE	
		MG8591- Principle of management	III / ECE	
		EE8403 –Measurement and Instrumentation	II / EEE	
18	Ms.S.Priyadharsini AP/ECE	EE8403 –Measurement and Instrumentation	II / EEE	
		EC8453-Linear Integrated Circuits	II / ECE	
		MG8591- Principle of management	III / ECE	
19	Ms.V.Kousalya Devi AP/ECE	EC8095-VLSI Design	III / ECE	
		EC8453-Linear Integrated Circuits	II / ECE	
		MG8591- Principle of management	III / ECE	
20	Mr.S.Surendhar AP/ECE	EC8661-VLSI Design Laboratory	III/ECE	
		CISCO Certified lab	ECE	
		EC8651-Transmission Lines and RF Systems	III ECE	
21	Ms.E.Thangadeepiga AP/ECE	EC8451- Electromagnetic Fields	II / ECE	
		EC8453-Linear Integrated Circuits	II / ECE	
		EC8095-VLSI Design	III / ECE	

TIME TABLE INCHARGE
K.JAYAPRAKASAM

HoD/ECE
Dr.S.PONMALAR

PRINCIPAL
Dr. J.SUNDARARAJAN
M.E., M.Tech., Ph.D
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt.) - 624 401

NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
An ISO 9001:2015 Certified Institution
Phone No: 04544- 246 500, 246501, 246502.
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

WORK LOAD DETAILS

Course: B.E **Department: ECE** **Semester:ODD** **Academic year: 2021-2022** **Date:19.10.21**

S. No	Name of Faculty & Designation	Subject Code and Name	Year / Branch	Teaching Load				Department Work	Signature
				L	T	P	Total		
1.	Dr A. GopiSaminathan Professor & Head	EC8352-Signals and Systems	II / ECE	6	0	0	12	1.HOD 2. Department Development Activities. 3.Association In charg	
		EC8361-Analog & Digital lab (S)	II / ECE	0	0	6			
2.	Mr. K.Jayaprakasam Asso. Prof	OMD551- Basic of Bio-Medical Instrumentation	III / ECE	5	0	0	11	1.HOD In charge 2.II Year Class In-charge 3.Time table In-charge 4.LIC LAB INCHARGE	
		EC8561- Communication system Lab	III / ECE	0	0	6			
3.	Dr.S.M.VijayaRajan Asso. Prof	EC8701-Antenna and Microwave Engineering	IV/ECE	6	0	0	12	1.IV year class In charge 2.IV year Mentor 3.Examcell in charge 4.Electronics Lab In charge	
		EC8681- Microprocessors & Microcontrollers Lab	III / CSE	0	0	6			
4.	Mr. J. G. Sabarish Asst. Prof	EC8553-Discrete-Time Signal Processing	III / ECE	6	0	0	12	1.NPTEL In-charge 2.Embedded lab In charge 3.Dept stationary In-charge	
		EC8711- Embedded Lab	IV/ ECE	0	0	6			

COLLEGE OF ENGG & TECHNOLOGY * NPRCET * NATHAM

NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India.
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
An ISO 9001:2015 Certified Institution.
Phone No: 04544- 246 500, 246501, 246502.
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

S. No	Name of Faculty & Designation	Subject Code and Name	Year / Branch	Teaching Load				Department Work	Signature
				L	T	P	Total		
5.	Mr.S.Sudhakar Asst prof	EC8501-Digital Communication	III/ ECE	5	0	0	11	1. Dept Exam cell in charge 2. Alumni in charge 3.OCN lab In charge	
		EC8761-Adv.Comm. Lab	III / ECE	0	0	6			
6.	Mrs.C.KannikaParameshwari Asst. Prof	EC8751- Optical Communication	IV / ECE	6	0	0	12	1..Dept library In charge 3..Minutes of Meeting 4. Website Updation	
		EC8562- Digital signal processing Lab	III/ECE	0	0	6			
7.	Ms.S.Priyadarshini AP/ECE	EC8395- Communication Engineering	II / CSE	6	0	0	12	1..Alumni In-charge 2. DSP/VLSI Lab In charge	
		CS8382-Digital system Lab	II/CSE	0	0	6			
8	Dr.S.Ponmalar Prof / ECE	EC8351-Electronic Circuits I	II / ECE	5	0	0	11	1.News and Press In-charge 2.ERP in charge	
		EC8361-Analog & Digital lab	II / ECE	0	0	6			
9	Mr.S.Surendhar Asst. Prof	EC8353- Electron device & Circuits	II / EEE	5	0	0	8	1.Microprocessors & Microcontrollers Lab In charge 2.. Placement and Training In-charge	
		EC8311- Electronics lab	II / EEE	0	0	3			

NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India.
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
An ISO 9001:2015 Certified Institution.
Phone No: 04544- 246 500, 246501, 246502.
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

S. No	Name of Faculty & Designation	Subject Code and Name	Year / Branch	Teaching Load				Department Work	Signature
				L	T	P	Total		
10.	Dr.M.AmeenaBanu Asso.Prof	EC8551-Communication Networks	III / ECE	5	0	0	16	1. Department AICTE In-charge	
		EC8563- Communication Networks Lab	III / ECE	0	0	6			
		EC8691-Control System	II ECE	5	0	0			
11	Ms.S.Monika Asst. Prof	EC8791 – Embedded and Real Time Systems	IV / ECE	6	0	0	12	1.WDC In charge	
		EC8711- Embedded Lab (S)	IV/ ECE	0	0	6			
12	Ms.E.Thanga deepiga Asst. Prof	OIC751- Transducer Engineering	IV ECE	5	0	0	11	1.NAACIn charge	
		EC8681- Microprocessors & Microcontrollers Lab (S)	III / CSE	0	0	6			
13	Mrs.A.Iniyamary Asst. Prof	EC8691- Microprocessors & Microcontrollers	III / CSE	6	0	0	12	1.WDC In charge	
		EC8681- Microprocessors & Microcontrollers Lab (S)	III / CSE	0	0	6			
14	Mr.R.Naveen Kumar Asst. Prof	EC8702 - Ad hoc and Wireless Sensor	IV / ECE	5	0	0	11	1..Industrial visit In charge	
		EC8561- Communication system Lab (S)	III / ECE	0	0	6			
15	Mr.S.Vinayagam Asst. Prof	EC8092- Adv.Wireless Communication	III/ ECE	5	0	0	11	1.Scholarship In-charge	
		EC8361-Analog & Digital lab (S)	II / ECE	0	0	6			
16	Mr.K.Sundara pandi Asst. Prof	EC8703- Medical electronics	III / ECE	5	0	0	11	1. Discipline In-charge	
		EC8563- Communication Networks Lab (S)	III / ECE	0	0	6			

17	Mrs.J.Nayanadhara Asst. Prof	EC8552-Computer Architecture & Organization	III / ECE	5	0	0	11	1.Discipline In-charge 2..Innovative project In-charge	
		EC8761-Adv.Comm. Lab	IV / ECE	0	0	6			
18	Mr.R SundaraBharathi Asst. Prof	EE8551- Microprocessors & Microcontrollers	III/ EEE	5	0	0	11	1.NACC In charge	
		EE8691- Microprocessors & Microcontrollers lab	III / EEE	0	0	6			
19	Mrs.S.Kamalam Asst. Prof	EC8392- Digital Electronics	II / ECE	5	0	0	11	1.NBA in charge	
		EC8711- Embedded Lab (S)	IV/ ECE	0	0	6			
20	Mr.M. Marikani Asst. Prof	EC8311- Electronics lab (S)	II / EEE	0	0	3	9	1.. Placement and Training In-charge	
		CS838-Digital system Lab (S)	II / CSE	0	0	6			

TIME TABLE INCHARGE
[Mr.K.JAYAPRAKASAM]

HOD-ECE
[Dr.A.GOPISAMINATHAN]

PRINCIPAL
[Dr.J.SUNDARARAJAN]

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624401.

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University,
Accredited by NAAC WITH 'A' GRADE |Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401. Web: www.nprcet.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
WORK LOAD DETAILS

Course: B.E **Department: ECE** **Semester: EVEN** **Academic year: 2021-2022** **Date :01.04.2022**

S. No	Name of Faculty & Designation	Subject Code and Name	Year / Branch	Teaching Load				Department Work	Institution work	Signature
				L	T	P	Total			
1.	Dr.S Ponmalar Professor & Head	EC8004-Wireless Networks	III / ECE	5	0	0	7	1.HoD 2. Department Development Activities. 3..NAAC In-charge	1.Placement 2 Incubation Centre	
		EC8611-Technical Seminar	III / ECE	0	0	2				
2.	Dr.A.Gopi Saminathan Prof /ECE	EC8691-Microprocessors and Microcontrollers	III / ECE	6	0	0	12	1.NAAC In-charge 2.Association In charge 3.III year mentor	1.Admission Team	
		EC8811-Project Work	IV / ECE	0	0	6				
3.	Dr.M.Ameena Banu ASP/ECE	EE8691-Embedded Systems	III / EEE	6	0	0	12	1.HoD In charge 2..ERP In charge 3. III year mentor	1.IPR Cell Coordinator 2 Placement	
		EC8462–Linear Integrated Circuits Lab	II / ECE	0	0	6				
4	Dr S M VijayaRajan ASP/ECE	EC8651-Transmission Lines and RF Systems	III / ECE	6	0	0	12	1.IV Year Class In-charge 2. Electronics Lab In charge 3.IPT & Internship In charge	1 Admission Team	
		EC8461- Circuits Design and Simulation Lab	II / ECE	0	0	6				
5	Mr K.Jayaprakasam ASP/ECE	EC8652-Wireless Communication	III / ECE	5	0	0	14	1.II year class In charge 2. Industrial visit In charge 3.Time table in charge 4.LIC Lab In charge	1. Admission Team 2 Overall Time table Coordinator	
		EC8811-Project Work	IV / ECE	0	0	9				
6.	Mr. J.G.Sabarish AP/ECE	EC3251-Circuit Analysis	I / ECE A	6	0	0	18	1.Website Updation 2.Embedded lab In charge 3.ERP In charge 4. III year mentor	1. Placement In-charge 2 Mobile App Development club in charge	
		EC3271-Circuits Analysis Laboratory	I / ECE A	0	0	6				
		GE3271- Engineering Practices Lab	I / ECE B	0	0	6				
7	Mr.S.Sudhakar AP/ECE	EC8491-Communication Theory	II / ECE	6	0	0	12	1.Dept Exam cell in charge 2.OCN lab In charge	1 CISCO Coordinator	
		EC8681-Microprocessor and Microcontroller Lab	III / ECE	0	0	6				

NPR COLLEGE OF ENGG & TECHNOLOGY NATHAM

S. No	Name of Faculty & Designation	Subject Code and Name	Year / Branch	Teaching Load				Department Work	Institution work	Signature
				L	T	P	Total			
8	Mrs.A.Iniyamary AP/ECE	EC8094-Satellite Communication	IV / ECE	6	0	0	12	1. Dept stationary In-charge	1.WDC cell	
		EC8461- Circuits Design and Simulation Lab (S)	II / ECE	0	0	6				
9	Mrs.S.Kamalam AP/ECE	GE8076-Professional Ethics in Engineering	IV / ECE	6	0	0	12	1.Department AICTE In-charge 2.II year mentor	1.Discipline In-charge	
		EC3271-Circuits Analysis Laboratory (S)	I / ECE B	0	0	6				
10	Mrs.S.Monika AP/ECE	GE3271- Engineering Practices Lab (S)	I / ECE A	0	0	6	12	1. Dept Lib in charge	1.Discipline In-charge	
		EC3271-Circuits Analysis Laboratory (S)	I / ECE B	0	0	6				
11	Mrs.C.Kannika Parameshwari AP/ECE	EC8095-VLSI Design	III / ECE	5	0	0	12	1.Electronics Lab In charge 2.III Year Class In charge	1.WDC In charge	
		EC8661-VLSI Design Laboratory	III /ECE	0	0	6				
		Library	III / ECE	0	1	0				
12	Mr.S.Vinayagam AP/ECE	EC8452- Electronic Circuits II	II ECE	6	0	0	18	1.Alumni in charge	1.Discipline In-charge	
		EC8811-Project Work	IV / ECE	0	0	6				
		EC3271-Circuits Analysis Laboratory (S)	I / ECE A	0	0	6				
13	Mr.K.Sundarapandi AP/ECE	EC3251-Circuit Analysis	I / ECE B	6	0	0	18	1.Add on Course	1.Discipline In-charge	
		EC3271-Circuits Analysis Laboratory (S)	I / ECE B	0	0	6				
		GE3271- Engineering Practices Lab	I / ECE A	0	0	6				
14	Mr.R.Naveen Kumar AP/ECE	EC8811-Project Work	IV / ECE	0	0	6	12	1.NPTEL In-charge	1.E- Club in charge	
		EC8681-Microprocessor and Microcontroller Lab (S)	III / ECE	0	0	6				
15	Mr.M Marikani AP/ECE	EE8451-Linear integrated circuits and Applications	II / EEE	5	0	0	8	1. IV year mentor	1.Discipline In-charge	
		EE8461- Linear and Digital Integrated circuits lab (S)	II / EEE	3	0	0				

NPR COLLEGE OF ENGG & TECHNOLOGY NATHAM

16	Mr.R Sundara Bharathi, AP/ECE	MG8591- Principle of management	III / ECE	4	0	0	11	1. Scholarship In-charge	1.MDC cell	
		GE3271- Engineering Practices Lab (S)	I / ECE B	0	0	6				
		Library	IV / ECE	0	1	0				
17	Mrs.J.Nayanadhara AP/ECE	EC8453-Linear Integrated Circuits	II / ECE	6	0	0	12	1.Minutes of Meeting	1.Discipline In-charge	
		EC8462–Linear Integrated Circuits Lab (S)	II / ECE	0	0	6				
18	Ms.S.Priyadharsini AP/ECE	EE8403 –Measurement and Instrumentation	II / EEE	6	0	0	12	1. DSP/VLSI Lab In charge 2. II year mentor	1.WDC In charge	
		GE3271- Engineering Practices Lab (S)	I / ECE B	0	0	5				
		Library	II / ECE	0	1	0				
19	Ms.V.Kousalya Devi AP/ECE	EC8462–Linear Integrated Circuits Lab (S)	II/EEE	0	0	6	12	1.Class Committee Meeting	1.Discipline In-charge	
		EC8661-VLSI Design Laboratory (S)	III / ECE	0	0	6				
20	Mr.S.Surendhar AP/ECE	Cisco Certified Network Associate	III/IV ECE	0	0	12	18	1.Alumni in charge 2.Minutes of Meeting	1.Discipline In-charge	
		EC8661-VLSI Design Laboratory (S)	III/ECE	0	0	6				
21	Mrs.E.Thangadeepiga AP/ECE	EC8451 – Electromagnetic Fields	II / ECE	6	0	0	12	1.Add on Course 2.ERP In charge	1.Mobile App Development club in charge	
		EC3271-Circuits Analysis Laboratory (S)	I/ECE A	0	0	6				

HoD-ECE
[Dr.S.PONMALAR]

PRINCIPAL
[Dr.J.SUNDARARAJAN]
Dr. J.SUNDARARAJAN, M.E., M.Tech., Ph.D.
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dist.)

NPR College of Engineering & Technology
NPR Nagar, Natham, Dindigul – 624401, Tamil Nadu, India.
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
An ISO 9001:2015 Certified Institution.
Phone No. 04544 - 246 500, 246501, 246502
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

CLASS TIMETABLE

Department& Section	ECE	Course	B.E
Batch	2020-2024	Academic Year	2021-2022& ODD
Year - Semester	II-3	Hall Number	RBLH 305
Class In charge	Mr.K.JAYAPRAKASAM	With Effect From	16.09.2021

Period	1		2	3	4		5	6	7	8
Time	9.00 – 9.50	9.50–10.15	10.16 – 11.05	11.06 – 11.55	11.56 – 12.45	12.46 – 1.20	1.21 - 2.05	2.06 –2.50	2.51 – 3.35	3.36-4.30
MON	MA8352 KY	BREAK	EC8391 MAB	EC8351 SPM	EC8352 AGS	LUNCH	PLACEMENT TRAINING KJP		EC8393 MFJ	ACTIVITY HOUR
TUE	EC8351 SPM		MA8352 KY	EC8393 MFJ	EC8352 AGS		EC8381-FDC LAB /(MFJ) EC8361-ADC LAB/(SPM/SP)			ACTIVITY HOUR
WED	EC8391 MAB		EC8392 SKM	EC8352 AGS	EC8351 SPM		EC8391 MAB	EC8352 AGS	LIB KJP	ACTIVITY HOUR
THUR	EC8392 SKM		EC8393 MFJ	MA8352 KY	EC8391 MAB		HS8381-IPSL LAB(KM)			ACTIVITY HOUR
FRI	EC8352 AGS		EC8393 MFJ	EC8392 SKM	EC8351 SPM		EC8381-FDC LAB /(MFJ) EC8361-ADC LAB/(SPM/SP)			ACTIVITY HOUR Y
SAT	EC8393 MFJ		EC8392 SKM	EC8391 MAB	EC8352 AGS		MA8352 KY	EC8392 SKM	EC8351 SPM	ACTIVITY HOUR

Subject Code	Subject Name		Handled by		Department	Hours
MA8352	Linear Algebra and Partial Differential	- LAPE	Mr..K.Yogunath	- KY	S & H	6
EC8391	Control Systems Engineering	- CS	Dr.M.Ameena Banu	- MAB	EEE	6
EC8393	Fundamentals of Data Structures in C	- FDC	Mrs.M.Fathima John	- MFJ	CSE	5
EC8392	Digital Electronics	- DE	Mrs. S.Kamalam	- SKM	ECE	5
EC8352	Signals and Systems	- SS	Dr A. Gopi Saminathan	- AGS	ECE	5
EC8351	Electronic Circuits- I	- EC1	Dr.S.Ponmalar	- SPM	ECE	5
EC8361	Analog and Digital Circuits Laboratory	- ADCL	Dr.S.Ponmalar/ Ms.S.Priyadharsini	- SPM/SP	ECE	5
EC8381	Fudamentals of Data Structures in C Lab	- FDCL	Mrs.M.Fathima John	- MFJ	CSE	5
HS8381	Interpersonal Skills/Listening &Speaking	- ISL	Mr.K.Murali	- KM	S & H	3
—	Library &Placement training	-LIB & PT	Mr.K.Jayaprakasam	- -KJP	ECE	3

TIME TABLE IN-CHARGE
K.JAYAPRAKASAM

HoD
Dr.A.GOPISAMINATHAN

PRINCIPAL
Dr.J.SUNDARARAJAN

Dr. J. SUNDARARAJAN, M.E., Ph.D.
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt.) - 624 401.

NPR College of Engineering & Technology
NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India.
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
An ISO 9001:2015 Certified Institution
Phone No. 04544- 246 500, 246501, 246502
Website : www.nprcollege.org, www.nprcet.org, Email:nprcetprincipal@nprcollege.org

CLASS TIMETABLE

Department& Section		ECE			Course		B.E.			
Batch		2019-2023			Academic Year		2021 – 2022& ODD			
Year - Semester		III – 5			Hall Number		RBLH 303			
Class In charge		Mrs.C.KANNIKAPARAMEAWARI			With Effect From		16.09.2021			
Period	1		2	3	4		5	6	7	8
Time	9.00 – 9.50	9.50– 10.15	10.16 – 11.05	11.06 – 11.55	11.56 – 12.45	12.46 – 1.20	1.21 - 2.05	2.06 –2.50	2.51 – 3.35	3.36-4.30
MON	EC8501 SSK	BREAK	OMD551 KJP	EC8501 SSK	EC8551 MAB	LUNCH	EC8562-DSP LAB(CKP) / EC8561-CN LAB(MAB)			ACTIVITY
TUE	EC8553 JGS		EC8551 MAB	EC8552 JND	EC8553 JGS		EC8561-CS LAB(JP)/ EC8563-CN LAB(MAB)			ACTIVITY
WED	EC8552 JND		EC8501 SSK	EC8073 KSP	EC8551 MAB		EC8553 JGS	LIB CKP	EC8553 JGS	ACTIVITY
THUR	EC8551 MAB		EC8552 JND	OMD551 KJP	EC8553 JGS		EC8501 SSK	PLACEMENT TRAINING KJP		ACTIVITY
FRI	OMD551 KJP		EC8552 JND	EC8553 JGS	EC8073 KSP		EC8562-DSP LAB(CKP) / EC8561-CS LAB(KJP)			ACTIVITY
SAT	EC8073 KSP		EC8501 SSK	EC8073 KSP	OMD551 KJP		EC8552 JND	OMD551 KJP	EC8551 MAB	ACTIVITY

Subject Code	Subject Name			Handled by			Department	Hours
EC8501	Digital Communication	-	DC	Mr. S. Sudhakar	-	SSK	ECE	5
EC8553	Discrete-Time Signal Processing	-	DTSP	Mr. J. G. Sabarish	-	JGS	ECE	6
EC8552	Computer Architecture& Organization	-	CAO	Mrs.J.Nayanadhara	-	JND	ECE	6
EC8551	Communication Networks	-	CNS	Dr.M.Ameena Banu	-	MAB	ECE	5
EC8073	Medical electronics	-	ME	Mr.K.Sundarapandi	-	KSP	ECE	5
OMD551	Basic of Bio-Medical Instrumentation	-	BMI	Mr. K. Jayaprakasam	-	KJP	ECE	5
EC8562	Digital Signal Processing Lab	-	DSPL	Mrs.C.Kannika Parameshwari	-	CKP	ECE	5
EC8561	Communication Systems Lab	-	CMSL	Mr.K.Jayaprakasam	-	KJP	ECE	5
EC8563	Communication Networks Lab	-	CNSL	Dr.M.Ameena Banu	-	MAB	ECE	5
	Library & Placement training		LIB/PT	Mrs.C.Kannika Parameshwari	-	CKP	ECE	3

TIMETABLE-IN-CHARGE
K.JAYAPRAKASAM

HoD
Dr.A.GOPISAMINATHAN

PRINCIPAL
Dr. J. SUNDARARAJAN,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

NPR College of Engineering & Technology
NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
An ISO 9001:2015 Certified Institution
Phone No: 04544 - 246 500, 246501, 246502
Website: www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

CLASS TIMETABLE

Department& Section	ECE			Course	B.E.			
Batch	2018-2022			Academic Year	2021 – 2022& ODD			
Year - Semester	IV – 7			Hall Number	RBLH312			
Class In charge	Dr.SM.VIJAYARAJAN			With Effect From	16.09.2021			
Period	1	2	3	4	5	6	7	8
Time	9.00 – 9.50	9.50– 10.15	10.16 – 11.05	11.06 – 11.55	11.56 – 12.45	12.46 – 1.20	1.21 - 2.05	2.06 –2.50	2.51 – 3.35	3.36-4.30
MON	EC8701 SMV	BREAK	EC8791 SM	EC8751 CKP	EC8702 RNK	LUNCH	EC8092 SV	EC8701 SMV	OIC751 ETG	ACTIVITY
TUE	EC8751 CKP		EC8092 SV	OIC751 ETG	EC8701 SMV		EC8751 CKP	PLACEMENT TRAINING KJP		ACTIVITY
WED	EC8702 RNK		EC8751 CKP	EC8702 RNK	OIC751 ETG		EC6711-EMB LAB/ EC6712-ADV.COMM LAB(JGS/SSK)			ACTIVITY
THUR	EC8791 SM		EC8751 CKP	EC8092 SV	EC8701 SMV		EC6711-EMB LAB/ EC6712-ADV.COMM LAB(JGS/SSK)			ACTIVITY
FRI	EC8092 SV		OIC751 ETG	EC8701 SMV	EC8791 SM		EC8701 SMV	LIB SMV	EC8791 SM	ACTIVITY
SAT	OIC751 ETG		EC8791 SM	EC8702 RNK	EC8092 SV		EC8791 SM	EC8702 RNK	EC8751 CKP	ACTIVITY

Subject Code	Subject Name			Handled by			Department	Hours
EC8701	Antennas and Microwave Engineering	-	AME	Dr. S. M.VijayaRajan	-	SMV	ECE	6
EC8751	Optical Communication	-	OC	Mrs.C.Kannika Parameshwari	-	CKP	ECE	6
EC8791	Embedded & Real Time Systems	-	ERT	Ms.S.Monika	-	SM	ECE	6
EC8702	Ad hoc and Wireless Sensor	-	AWS	Mr. R.NaveenKumar	-	RNK	ECE	6
EC8092	Advanced Wireless Communication	-	AWC	Mr. S.Vinavagam	-	SV	ECE	6
OIC751	Transducer Engineering	-	TE	Mrs.E.Thanga Deepiga	-	ETD	ECE	6
EC8711	Embedded Lab	-	EMBL	Mr.J.G.Sabarish/S.Sudhakar	-	JGS/SSK	ECE	4
EC8761	Adv.communication Lab	-	ACL	Mr. S. Sudhakar /J.G.Sabarish	-	S.SK/JGS	ECE	4
	Library & Placement training	-	LIB &PT	Dr. S. M.VijayaRajan	-	SMV	ECE	3

TIMETABLE IN-CHARGE
K.JAYAPRAKASAM

HoD
Dr.A.GOPISAMINATHAN

PRINCIPAL
Dr.J.SUNDARARAJAN
B.E., M.Tech., Ph.D.
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

NPR College of Engineering & Technology

Approved by AICTE, Affiliated to Anna University.
Accredited by NAAC WITH 'A' GRADE |Recognised by UGC under 2 (f)
Natham, Dindigul - 624 401. Web: www.nprcet.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CLASS TIMETABLE

Department & Section	ECE	Course	B.E
Batch	2020-2024	Academic Year	2021-2022 & EVEN
Year - Semester	II-4	Hall Number	RBLH304
Class In charge	Mr.K.JAYAPRAKASAM	With Effect From	07.03.2022

Period	1		2	3	4		5	6	7
Time	9.00 – 9.50AM	9.50-10.15AM	10.16 – 11.05AM	11.06 – 11.55AM	11.56– 12.45PM	12.45 –01.30 PM	1.30 - 2.20PM	2.20 –3.10PM	3.10 – 4.00PM
MON	MA8451 KY	BREAK	EC8491 SSK	EC8453 JN	EC8452 SV	LUNCH	EC8461- CDS LAB((SMV/SM) / EC8462- LIC LAB(MAB/JN)		
TUE	EC8452 SV		EC8491 SSK	EC8451 ETD	GE8291 CBM		MA8451 KY	EC8452 SV	EC8453 JN
WED	EC8491 SSK		MA8451 KY	EC8451 ETD	EC8453 JN		GE8291 CBM	EC8451 ETD	EC8491 SSK
THUR	EC8451 ETD		EC8453 JN	EC8452 SV	MA8451 KY		GE8291 CBM	EC8452 SV	MA8451 KY
FRI	EC8453 JN		EC8451 ETD	MA8451 KY	EC8451 ETD		EC8461- CDS LAB((SMV/SM) / EC8462- LIC LAB(MAB/JN)		
SAT	GE8291 CBM		EC8452 SV	GE8291 CBM	EC8491 SSK		EC8491 SSK	EC8453 JN	LIB SP

Subject Code	Subject Name		Handled by			Dept	Hours
EC8452	Electronic Circuits II	EC-II	Mr.S.Vinayagam AP/ECE		SV	ECE	6
EC8491	Communication Theory	CT	Mr. S.Sudhakar, AP/ECE	-	SSK	ECE	6
EC8451	Electromagnetic Fields	EMF	Ms.E.Thangadeepiga AP/ECE	-	ETD	ECE	6
EC8453	Linear Integrated Circuits	LIC	Mrs.J.Nayanadhara, AP/ECE	-	JN	ECE	6
MA8451	Probability and Random Processes	PRP	Mr.K.Yogunath AP/MATHS	-	KY	S&H	6
GE8291	Environmental Science and Engineering	EVS	Dr.C.Balamuruqan Prof/Che	-	CBM	S & H	5
EC8461	Circuits Design and Simulation Laboratory	CDSLAB	Dr.S.M.Vijayarajan ASP/ECE Mrs. A.Iniyamary, AP/ECE	-	SMV/ AI	ECE	6
EC8462	Linear Integrated Circuits Laboratory	LIC LAB	Dr.M.Ameena Banu ASP/ECE Mrs.J.Nayanadhara, AP/ECE	-	MAB/ RN	ECE	6
	Library	LIB	Ms.S.Priyadharsini AP/ECE	-	SP	ECE	1

HoD-ECE
Dr.S.PONMALAR

PRINCIPAL
Dr.J.S[illegible]RAJAN, B.E., M.Tech., Ph.D.
Principal
N.P.R. College of Engineering & Technology
Natham

NPR College of Engineering & Technology

Approved by AICTE, Affiliated to Anna University
Accredited by NAAC with 'A' Grade|Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401. Web: www.nprcet.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
CLASS TIMETABLE

Department & Section	ECE				Course	B.E.				
Batch	2019-2023				Academic Year	2021– 2022 & EVEN				
Year - Semester	III – 6				Hall Number	RBLH312				
Class In charge	Mrs. C.KANNIKA PARAMESHWARI				With Effect From	07.03.2022				
Period	1	2	3	4		5	6	7		
Time	9.00 – 9.50AM	9.50-10.15AM	10.16 – 11.05AM	11.06 – 11.55AM	11.56– 12.45PM	12.45 –01.30 PM	1.30 - 2.20PM	2.20 –3.10PM	3.10 – 4.00PM	
MON	EC8095 CKP	BREAK	EC8651 SMV	EC8004 SPM	MG8591 RSB	LUNCH	EC8691 AGS	EC8652 KJP	EC8691 AGS	
TUE	EC8652 KJP		EC8004 SPM	EC8651 SMV	EC8691 AGS		EC8681-MPMC LAB(SSK/RN)/ EC8661-VLSI LAB(CKP/VK)			
WED	EC8691 AGS		EC8651 SMV	MG8591 RSB	EC8652 KJP		EC8095 CKP	MG8591 RSB	TS SPM	
THUR	EC8651 SMV		EC8004 SPM	EC8095 CKP	EC8691 AGS		EC8681-MPMC LAB(SSK/RN)/ EC8661-VLSI LAB(CKP/VK)			
FRI	EC8004 SPM		EC8651 SMV	EC8004 SPM	EC8652 KJP		TS SPM	EC8095 CKP	LIB CKP	
SAT	MG8591 RSB		EC8691 AGS	EC8095 CKP	EC8652 KJP		EC8651 SMV	PROFESSIONAL COMMUNICATION(AB)		

Subject Code	Subject Name		Handled by			Department	Hours
EC8004	Wireless Networks	WN	Dr.S.Ponmalar, HoD/ECE	-	SPM	ECE	5
EC8652	Wireless Communication	WC	Mr.K.Jayaprakasam, AP/ECE	-	KJP	ECE	5
EC8095	VLSI Design	VLSI	MRS.C.Kannika Parameshwari AP/ECE	-	CKP	ECE	5
EC8691	Microprocessor and Microcontrollers	MP&MC	Dr.A.Gopisaminathan, Prof/ECE	-	AGS	ECE	6
EC8651	Transmission Lines and RF Systems	TLRF	Dr.S.M.Vijayarajan,AP/ECE	-	SMV	ECE	6
MG8591	Principles of Management	POM	Mr.R Sundara Bharathi, AP/ECE	-	RSB	ECE	4
EC8661	VLSI Design Laboratory	VLSI Lab	Mrs.C.Kannika Parameshwari AP/ECE Ms.V.Kousalya Devi, AP/ECE	-	CKP/ VK	ECE	6
EC8681	Microprocessors and Microcontrollers Lab	MP&MC Lab	Mr.S.Sudhakar AP/ECE, Mr.R.Naveen AP/ECE	-	SSK/RN	ECE	6
EC8611	Technical Seminar	TS	Dr.S.Ponmalar, HoD/ECE	-	SPM	ECE	2
HS8581	Professional Communication	PC	Dr.Anand Babu AP/ECE	-	AB	S & H	2
	Library	LIB	Mrs.C.Kannika Parameshwari AP/ECE	-	CKP	ECE	1

HOD-ECE
Dr.S.PONMALAR

Dr. J. SUNDARARAJAN,
Dr.J.SUNDARARAJAN, M.Tech., Ph.D
Principal
N.P.R College of Engineering & Tech

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University
Accredited by NAAC WITH 'A' GRADE | Recognised by UGC under 2 (f)
Natham, Dindigul - 624 401 Web: www.nprcet.org
NAAC

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CLASS TIMETABLE

Department & Section	ECE				Course	B.E.			
Batch	2018-2022				Academic Year	2021– 2022 & EVEN			
Year - Semester	IV – 8				Hall Number	RBLH 306			
Class In charge	Dr. S.M.VIJAYARAJAN				With Effect From	07.03.2022			
Period	1		2	3	4		5	6	7
Time	9.00 – 9.50AM	9.50-10.15AM	10.16 – 11.05AM	11.06 – 11.55AM	11.56– 12.45PM	12.45 – 01.30 PM	1.30 - 2.20PM	2.20 –3.10PM	3.10 – 4.00PM
MON	EC8094 AI	BREAK	GE8076 SK	EC8094 AI	GE8076 SK	LUNCH	PROJECT WORK		
TUES	GE8076 SK		GE8076 SK	EC8094 AI	EC8094 AI		PROJECT WORK		
WED	EC8094 AI		GE8076 SK	EC8094 AI	GE8076 SK		PROJECT WORK		
THUR	GE8076 SK		GE8076 SK	EC8094 AI	EC8094 AI		PROJECT WORK		
FRI	EC8094 AI		EC8094 AI	GE8076 SK	LIB RSB		PROJECT WORK		

Subject Code	Subject Name		Handled by			Department	Hours
GE8076	Professional Ethics in Engineering	PEE	Mrs.S.Kamalam, AP/ECE	-	SK	ECE	9
EC8094	Satellite Communication	SC	Mrs.A.Iniyamary, AP/ECE		AI	ECE	10
EC8811	Project work	PW	Dr.A.Gopi Swaminathan/ Mr.K.Jayaprakasam Mr.S. Vinayagam/Mr.K.Sundarapandi	-	AGS/KJP/SV/ KS	ECE	15
	Library	LIB	Mr.R.Sundara Bharathi, AP/ECE		RSB	ECE	1

HoD/ECE
Dr.S.PONMALAR

PRINCIPAL
Dr.J.SUNDARARAJAN
Dr. J.SUNDARARAJAN, B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering and Technology
Natham, Dindigul (Dt) - 624 401.

NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
An ISO 9001:2015 Certified Institution
Phone No: 04544-248 900, 248903, 248902
Website: www.nprcollege.org, www.nprcet.org, Email: nprengineering@nprcollege.net

DEARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

MASTER TIMETABLE

ACADEMIC YEAR (2021 - 2022) - ODD SEMESTER

Period / Time	YEAR	1 9.00 a.m to 9.50 a.m	9.51a.m to 10.15a.m	2 10.16 a.m to 11.05 a.m	3 11.06 a.m to 11.55 a.m	4 11.56 a.m To 12.45 a.m	12.46pm to 1.20p.m	5 1.21 p.m to 2.05 p.m	6 2.06p.m to 2.50 p.m	7 2.51 p.m to 3.35 p.m	8 3.36 p.m to 4.30 p.m
MON	II	MA8352 KY		EC8391 MAB	EC8351 SPM	EC8352 AGS		PLACEMENT TRAINING KJP		EC8393 MFJ	ACTIVITY HOUR
	III	EC8501 SSK		OMD551 KJP	EC8501 SSK	EC8551 MAB		EC8562-DSP LAB(CKP) / EC8561-CN LAB(MAB)			ACTIVITY HOUR
	IV	EC8701 SMV		EC8791 SM	EC8751 CKP	EC8702 RNK		EC8092 SV	EC8701 SMV	OIC751 ETD	ACTIVITY HOUR
TUES	II	EC8351 SPM		MA8352 KY	EC8393 MFJ	EC8352 AGS		EC8381-FDC LAB /(MFJ) EC8361-ADC LAB(SPM/SP)			ACTIVITY HOUR
	III	EC8553 JGS		EC8551 MAB	EC8552 JND	EC8553 JGS		EC8561-CS LAB(JPV EC8563-CN LAB(MAB)			ACTIVITY HOUR
	IV	EC8751 CKP		EC8092 SV	OIC751 ETD	EC8701 SMV		EC8751 CKP	PLACEMENT TRAINING SMV		ACTIVITY HOUR
WED	II	EC8391 MAB		EC8392 SKM	EC8352 AGS	EC8351 SPM		EC8391 MAB	EC8352 AGS	LIB KJP	ACTIVITY HOUR
	III	EC8552 JND		EC8501 SSK	EC8073 KSP	EC8551 MAB		EC8553 JGS	LIB CKP	EC8553 JGS	ACTIVITY HOUR
	IV	EC8702 RNK		EC8751 CKP	EC8702 RNK	OIC751 ETD		EC6711-EMB LAB/ EC6712-ADV.COMM LAB(JGS/SSK)			ACTIVITY HOUR
THUR	II	EC8392 SKM	BREAK	EC8393 MFJ	MA8352 KY	EC8391 MAB	LUNCH	HS8381-IPSL LAB(KM)			ACTIVITY HOUR
	III	EC8551 MAB		EC8552 JND	OMD551 KJP	EC8553 JGS		EC8501 SSK	PLACEMENT TRAINING CKP		ACTIVITY HOUR
	IV	EC8791 SM		EC8751 CKP	EC8092 SV	EC8701 SMV		EC6711-EMB LAB/ EC6712-ADV.COMM LAB(JGS/SSK)			ACTIVITY HOUR
FRI	II	EC8352 AGS		EC8393 MFJ	EC8392 SKM	EC8351 SPM		EC8381-FDC LAB /(MFJ) EC8361-ADC LAB(SPM/SP)			ACTIVITY HOUR
	III	OMD551 KJP		EC8552 JND	EC8553 JGS	EC8073 KSP		EC8562-DSP LAB(CKP) / EC8561-CS LAB(KJP)			ACTIVITY HOUR
	IV	EC8092 SV		OIC751 OTD	EC8701 SMV	EC8791 SM		EC8701 SMV	LIB SMV	EC8791 SM	ACTIVITY HOUR
SAT	II	EC8393 MFJ		EC8392 SKM	EC8391 MAB	EC8352 AGS		MA8352 KY	EC8392 SKM	EC8351 SPM	ACTIVITY HOUR
	III	EC8073 KSP		EC8501 SSK	EC8073 KSP	OMD551 KJP		EC8552 JND	OMD551 KJP	EC8551 MAB	ACTIVITY HOUR
	IV	OIC751 ETD		EC8791 SM	EC8702 RNK	EC8092 SV		EC8791 SM	EC8702 RNK	EC8751 CKP	ACTIVITY HOUR

Subject Code	Subject Name	Handled by	
	II YEAR		
MA8352	Linear Algebra and Partial Differential Equations	Mr. K.Yogunath	- KY
EC8391	Control Systems Engineering	Dr.M.Ameena Banu	- MAB
EC8393	Fundamentals of Data Structures in C	Mrs.M.Fathima John	- MFJ
EC8392	Digital Electronics	Mrs. S.Kamalam	- SKM
EC8352	Signals and Systems	Dr.A.Gopisaminathan	- AGS
EC8351	Electronic Circuits- I	Dr.S.Ponmalai	- SPM
EC8361	Analog and Digital Cirquits Laboratory	Dr.S.Ponmalai/ Ms.S.Priyadharsini	- SPM/SP
EC8381	Fundamentals of Data Structures in C Lab	Mrs.M.Fathima John	- MFJ
HS8381	Interpersonal Skills/Listening &Speaking	Mr.K.Murali	- KM
	Placement	Mr.K.Jayaprakasam	- KJP
	LIB	Mr.K.Jayaprakasam	-KJP
	III YEAR		
EC8501	Digital Communication	S.SUDHAKAR	- SSK
EC8553	Discrete Time Signal Processing	Mr. J. G. Sabarish	- JGS
EC8552	Computer Architecture& Organization	Mrs.J.Nayanadhara	- JND
EC8551	Communication Networks	Dr.M.Ameena Banu	- MAB
EC8073	Medical electronics	Mr.K.Sundarapandi	- KSP
OMD551	Basic of Bio-Medical Instrumentation	Mr. K. Jayaprakasam	- KJP
EC8562	Digital Signal Processing Lab	Mrs.C.Kannika Parameshwari	- CKP
EC8561	Communication Systems Lab	Mr. K. Jayaprakasam	- KJP
EC8563	Communication Networks Lab	Dr.M.Ameena Banu	- MAB
	Placement	Mrs.C.Kannika Parameshwari	- CKP
	LIB	Mrs.C.Kannika Parameshwari	- CKP
	IV YEAR		
EC8701	Antennas and Microwave Engineering Engineering	Dr. S. M.VijayaRajan	- SMV
EC8751	Optical Communication	Mrs.C.Kannika Parameshwari	- CKP
EC8791	Embedded & Real Time Systems	Ms.S.Monika	- SM
EC8702	Ad hoc and Wireless Sensor	Mr. R.NaveenKumar	- RNK
EC8092	Advanced Wireless Communication	Mr. S.Vinayagam	- SV
OIC751	Transducer Engineering	Ms.E.Thanadeepika	- ETD
EC8711	Embedded Lab	Mr.J.G.Sabarish/S.Sudhakar	- JGS/SSK
EC8761	Adv communication Lab	Mr.J.G.Sabarish/S.Sudhakar	-JGS/SSK
	Library & Placement training	Dr. S. M.VijayaRajan	- SMV

TIME TABLE INCHARGE

HOD/ECE

Dr. J.SUNDARARAJAN, M.E., M.Tech., Ph.D.,
PRINCIPAL
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt.) - 624 401

NPR
College of Engineering & Technology

Approved by AICTE, Affiliated to Anna University,
Accredited by NAAC With 'A' GRADE | Recognized by UGC under 2 (f)
Nathamc, Dindigul - 624 401 Web: www.nprcet.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

MASTER TIMETABLE

ACADEMIC YEAR (2021 - 2022) - EVEN SEMESTER

Period / Time	YEAR	1 9.00 a.m. to 9.50 a.m.	9.51 a.m. to 10.15a.m.	2 10.16 a.m. to 11.05 a.m.	3 11.06 a.m. to 11.55 a.m.	4 11.56 a.m. to 12.45 p.m.	12.46pm to 1.30p.m.	5 1.31 p.m. to 2.20 p.m.	6 2.21p.m. to 3.10 p.m.	7 3.11 p.m. to 4.00 p.m.
MONDAY	II	MA8451 AKM		EC8452 SV	EC8451 ETD	EC8453 AI		EC8491 SSK	EC8491 SSK	MA8451 AKM
	III	EC8094 RN		EC8095 CKP	EC8691 SK	EC8652 KJP		MG8591 KS	EC8811 SMV	EC8651 SMV
	IV	EC8094 MM		GE8076 AGS	PLACEMENT (NPRGI)			PROJECT WORK		
TUESDAY	II	EC8452 SV		MA8451 AKM	EC8451 ETD	EC8491 SSK		EC8461 ETD	EC8451 AI	LIB CKP
	III	EC8652 KJP		EC8691 SK	EC8651 SMV	EC8095 CKP		PLACEMENT (NPRGI)		EC8094 RN
	IV	GE8076 AGS		EC8094 MM	GE8076 AGS	LIB (KJP)		PROJECT WORK		
WEDNESDAY	II	EC8451 ETD		EC8452 SV	GE8291 KSB	PLACEMENT (NPRGI)		EC8461 CDS LAB / EC8662 LIC LAB		
	III	EC8095 CKP		EC8461 MP MC LAB / EC8661 VLSI LAB				EC8651 SMV	EC8651 KJP	EC8691 SK
	IV	EC8094 MM		GE8076 AGS	EC8094 MM	GE8076 AGS		PROJECT WORK		
THURSDAY	II	EC8453 AI		EC8451 ETD	GE8291 KSB	EC8452 SMV		EC8461 - CDS LAB / EC8662- LIC LAB		
	III	EC8691 SK		EC8461 MP MC LAB / EC8661 VLSI LAB				EC8651 SMV	EC8094 RN	EC8652 KJP
	IV	GE8076 AGS		EC8094 MM	GE8076 AGS	EC8091 MM		PROJECT WORK		
FRIDAY	II	EC8491 SSK		EC8453 AI	MA8451 AKM	EC8491 SSK		EC8451 AI	EC8451 ETD	MA8451 AKM
	III	EC8651 SMV		MG8591 KS	EC8095 CKP	EC8094 RN		MG8591 KS	Prof. comm. Lab(MRK / TAE/AGS)	
	IV	EC8094 MM		GE8076 AGS	EC8094 MM	EC8094 MM		PROJECT WORK		
SATURDAY	II	GE8291 KSB		EC8491 SSK	EC8453 AI	MA8451 AKM		EC8491 SSK	EC8491 SSK	GE8291 KSB
	III	MG8591 KS		EC8651 SMV	EC8652 KJP	EC8094 RN		MG8591 KS	EC8095 CKP	EC8691 SK
	IV	PROJECT		PROJECT WORK				PROJECT WORK		

Subject Code	Subject Name	Handled by	
		II YEAR	
EC8452	Electronic Circuits II	Mr.S.Vinayagam	- SV
EC8491	Communication Theory	Mr. S.Sudhakar	- SSK
EC8451	Electromagnetic Fields	Mr.E.Thangadurai	- ETD
EC8453	Linear Integrated Circuits	Mrs.A.Iniyamary	-AI
MA8451	Probability and Random Processes	Mrs.A.Kanimozhi	- AKM
GE8291	Environmental Science and Engineering	Mr. K.Sundarabharathi	- KSB
EC8461	Circuits Design and Simulation Laboratory	Mr.S.M.Vijayarajan	- SMV
EC8462	Linear Integrated Circuits Laboratory	Mr.J.G.Sabarish	- JGS
	Communication English	Mrs.Akila Arungiri	- AA
	Placement	Mrs.C.Kannika Parameshwari	- CKP
	LIB	Mrs.C.Kannika Parameshwari	- CKP
		III YEAR	
EC8004	Wireless Networks	Mr.R.Naveenkumar AP/ECE	-RN
EC8652	Wireless Communication	Mr. K. Jayaprakasam	- KJP
EC8095	VLSI Design	Mrs.C.Kannika Parameshwari AP/ECE	-CKP
EC8691	Microprocessor and Microcontrollers	Mrs.S.Kamalam	-SKM
EC8651	Transmission Lines and RF Systems	Mr.S.M.Vijayarajan	-SMV
MG8591	Principles of management	Mr.K.Sundarapandi AP/ECE	-KS
EC8661	VLSI Design Laboratory	Mrs.C.Kannika parameshwari	- CKP
EC8681	Microprocessors & Microcontrollers Lab	Mr. S. Sudhakar/S.M.Vijayarajan	- SSK
EC8611	Technical Seminar	Dr.A.Gopinaminathan	-AGS
HS8581	Professional Communication	Mrs.K.Kavitha	- KK
	Communication English	Mrs.Ruthra.B	- BRT
	Cisco Certified Network Associate	Mr. S.Surendhar	- SSR
	Placement	Mr.S.M.Vijayarajan AP/ECE	SMV
	LIB	Mr.S.M.Vijayarajan AP/ECE	- SMV
		IV YEAR	
GE8076	Professional Ethics in Engineering	Dr.A.Gopinaminathan, HOD/ECE	-AGS
EC8094	Satellite Communication	Mr.M Marikani	- MM
EC8811	Project work	Mr. K. Jayaprakasam	-KJP
	Placement	Mr. K. Jayaprakasam AP/ECE	- KJP
	Library	Mr. K. Jayaprakasam AP/ECE	- KJP

TIME TABLE INCHARGE
K.JAYAPRAKASAM

HOD-ECE
Dr.S.PONMALAR

PRINCIPAL
Dr.J.SUNDARARAJAN

NPR COLLEGE OF ENGG. & TECHNOLOGY NATHAM

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.
Principal
N.P.R. College of Engg. & Tech.
Natham, Dindigul (Dt.)

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University
Accredited by NAAC WITH 'A' GRADE | Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401. Web: www.nprcet.org

OVERVIEW OF COURSE FILE

NPR College of Engineering & Technology
NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
An ISO 9001:2015 Certified Institution
Phone No: 04544- 246 500, 246501, 246502
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE FILE-CONTENTS

1. PREFACE OF THE SUBJECT
2. INSTITUTE V/M,DEPARTMENT V/M ,PSO, PEO & PO STATEMENTS
3. COURSE INFORMATION SHEET
4. TIME TABLE WITH INDIVIDUAL WORK LOAD
5. TENTATIVE LESSON PLAN
6. LESSON PLAN AND EXECUTION.(IF ANY DEVIATION MAKEUP CLASS)
7. LECTURE NOTES
8. OHP/PPT/SUBJECT CDS
9. TOPIC BEYOND SYLLABUS WITH REFERENCE DETAILS.
10. GAP IN SYLLABUS – PLAN AND EXECUTION.
11. UNIVERSITY QUESTION PAPERS WITH ANSWER KEY.
12. INTERNAL QUESTION PAPER WITH ANSWER KEY.
13. ASSIGNMENT TOPICS WITH SUBMISSION DATES.
14. INTERNAL ASSESMENT MARK RECORDS
15. STUDENTS NAME LIST-COMMON AND CATEGORYWISE
16. REMEDIAL CLASS PLAN AND CONTINOUS EVALUATION RECORDS.
17. COURSE HAND OUT
18. DELIVERY MONITORING.
19. COURSE ASSESMENT SHEET
20. SAMPLE ASSIGNMENTS.
21. TUTORIAL SHEETS
22. SAMPLE ANSWER SHEETS.

COLLEGE OF ENGG & TECHNOLOGY NATHAM

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

NPR College of Engineering & Technology
NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India
Approved by AICTE, New Delhu & Affiliated to Anna University, Chennai
An ISO 9001:2015 Certified Institution
Phone No: 04544- 246 500, 246501, 246502
Website: www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

PREFACE

NAME OF THE FACULTY	:	**Dr.M.Ameena Banu**
DESIGNATION	:	**Associate Professor/ ECE Department**
NAME OF THE SUBJECT	:	**Control Systems Engineering**
SUBJECT CODE	:	**EC8391**
YEAR	:	**II**
SEMESTER	:	**III**
ACADEMIC YEAR	:	**2021- 22 (Odd)**
REGULATION	:	**2017**

PREPARED BY

Dr.M.Ameena Banu

Associate Professor – ECE

NPR COLLEGE OF ENGG & TECHNOLOGY NATHAM

Dr. J.SUNDARARAJAN, B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt)-624 401.

APPROVED BY

HoD - ECE

COURSE INFORMATION SHEET

NPR College of Engineering & Technology
NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
An ISO 9001:2015 Certified Institution
Phone No. 04544- 246 500, 246501, 246502
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE INFORMATION SHEET

PROGRAMME: Electronics and Communication Engineering	**DEGREE:** B.E
COURSE: Control Systems Engineering	**SEMESTER:** 3 **CREDITS:** 3
COURSE CODE: EC83911/C206	**COURSE TYPE:** CORE
COURSE AREA/STREAM :	**CONTACT HOURS:** 5+1 hours/Week.
CORRESPONDING LAB COURSE CODE (IF ANY):	**LAB COURSE NAME :** -
COURSE COORDINATOR NAME : Dr.M.Ameena Banu	

SYLLABUS:

MODULE	DETAILS	HOURS
I	**SYSTEMS COMPONENTS AND THEIR REPRESENTATION** Control System: Terminology and Basic Structure-Feed forward and Feedback control theory Electrical and Mechanical Transfer Function Models-Block diagram Models-Signal flow graphs models-DC and AC servo Systems-Synchronous -Multivariable control system	9
II	**TIME RESPONSE ANALYSIS** Transient response-steady state response-Measures of performance of the standard first order and second order system-effect on an additional zero and an additional pole-steady error constant and system- type number-PID control-Analytical design for PD, PI,PID control systems	9
III	**FREQUENCY RESPONSE AND SYSTEM ANALYSIS** Closed loop frequency response-Performance specification in frequency domain-Frequency response of standard second order system- Bode Plot - Polar Plot- Nyquist plots-Design of compensators using Bode plots-Cascade lead compensation-Cascade lag compensation-Cascade lag-lead compensation	9
IV	**CONCEPTS OF STABILITY ANALYSIS** Concept of stability-Bounded - Input Bounded - Output stability-Routh stability criterion-Relative stability-Root locus concept-Guidelines for sketching root locus-Nyquist stability criterion.	9
V	**CONTROL SYSTEM ANALYSIS USING STATE VARIABLE METHODS**	9

Dr. J. SUNDARARAJAN

N.P.R. College of Engg. & Tech.
Natham, Dindigul (Dt) - 624 401.

	State variable representation-Conversion of state variable models to transfer functions-Conversion of transfer functions to state variable models-Solution of state equations-Concepts of Controllability and Observability-Stability of linear systems-Equivalence between transfer function and state variable representations-State variable analysis of digital control system-Digital control design using state feedback	
	TOTAL HOURS	**45**

TEXT/REFERENCE BOOKS:

T/R	BOOK TITLE/AUTHORS/PUBLICATION
T1	M.Gopal, "Control System – Principles and Design", Tata McGraw Hill, 4th Edition, 2012
R1	J.Nagrath and M.Gopal, "Control System Engineering", New Age International Publishers, 5 th Edition, 2007
R2	K. Ogata, 'Modern Control Engineering', 5th edition, PHI, 2012
R3	S.K.Bhattacharya, Control System Engineering, 3rd Edition, Pearson, 2013
R4	Benjamin.C.Kuo, "Automatic control systems", Prentice Hall of India, 7th Edition,1995

COURSE PRE-REQUISITES:

C.CODE	COURSE NAME	DESCRIPTION	SEM
		-	

COURSE OBJECTIVES:

1	To introduce the components and their representation of control systems
2	To learn various methods for analyzing the time response, frequency response and stability of the systems.
3	To learn the various approach for the state variable analysis.

COURSE OUTCOMES:

S.NO	DESCRIPTION	Level in Bloom's Taxonomy
C206.1	Identify the various control system components and their representations	K2
C206.2	Analyze the various time domain parameters	K3
C206.3	Analyze the various frequency response plots and its system	K3
C206.4	Apply the concepts of various system stability criterions	K3
C206.5	Design various transfer functions of digital control system using state variable models	K3

Dr. J.SUNDA[illegible]

Prin[illegible]

N.P.R. College of Engineering & Te[illegible]

Natham, Dindigul (Dt) - 624 401.

CORRELATION BETWEEN COURSE OUTCOMES AND PROGRAMME OUTCOMES

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C206.1	3	3	3	-	-	-	-	-	-	-	2	2
C206.2	3	3	3	2	2	2	-	-	-	-	2	2
C206.3	3	3	3	2	2	2	-	-	-	-	2	2
C206.4	3	3	3	2	2	2	-	-	-	-	2	2
C206.5	3	3	3	2	2	2	-	-	-	-	2	2
C206	**3**	**3**	**3**	**2**	**2**	**2**	**-**	**-**	**-**	**-**	**2**	**2**

CORRELATION BETWEEN COURSE OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

CO	PSO1	PSO2
C206.1	3	2
C206.2	3	2
C206.3	3	2
C206.4	3	2
C206.5	3	2
C206	**3**	**2**

GAPS IN THE SYLLABUS - TO MEET INDUSTRY/PROFESSION REQUIREMENTS:

SNO	DESCRIPTION	Mapping to PO	PROPOSED ACTIONS
1	—		

TOPICS BEYOND SYLLABUS/ADVANCED TOPICS/DESIGN:

Sl.No	Topic	Mapping to P O
1	Application of Matlab for Control system Analysis	1, 2, 3, 4, 5

Dr. J.SUNDARA[illegible]
[illegible]
Prin[illegible]
N.P.R. College of Engi[illegible]
Natham, Dindigul(Dt)[illegible]

NPR COLLEGE OF ENGG & TECHNOLOGY NATHAM

WEB SOURCE REFERENCES

1	https://www.tutorialspoint.com › control_systems
2	https://www.electrical4u.com/types-of-controllers-proportional-integral-derivative-controllers/
3	https://en.wikipedia.org/wiki/Lead%E2%80%93lag_compensator
4	https://en.wikipedia.org/wiki/Nyquist_stability_criterion
5	https://slidetodoc.com/digital-control-systems-state-feedback-controller-design-design/

DELIVERY/INSTRUCTIONAL METHODOLOGIES

✓ CHALK & TALK	✓ STUD. ASSIGNMENT	✓ WEB RESOURCES
✓ LCD/SMART BOARDS	✓ STUD. SEMINARS	

DELIVERY METHODS USED FOR EACH COURSE OUTCOME

SNO	DELIVERY METHODS
C206.1	CHALK & TALK, LCD/SMART BOARDS, STUD. ASSIGNMENT
C206.2	CHALK & TALK, STUD. ASSIGNMENT
C206.3	CHALK & TALK, STUD. ASSIGNMENT
C206.4	CHALK & TALK, LCD/SMART BOARDS, STUD. ASSIGNMENT
C206.5	CHALK & TALK , STUD. ASSIGNMENT, LCD/SMART BOARDS, WEB RESOURCES

ASSESSMENT METHODOLOGIES-DIRECT

✓ ASSIGNMENTS	✓STUD. SEMINARS	✓ TESTS/ MODEL EXAMS	✓UNIV. EXAMINATION

ASSESSMENT METHODOLOGIES-INDIRECT

STUDENT FEEDBACK ON FACULTY (ONCE)	

COLLEGE OF ENGG & TECHNOLOGY NATHAM

Dr. J.SUNDARA[illegible]

ASSESSMENT METHODOLOGIES USED FOR EACH COURSE OUTCOME

Sl.No	ASSESSMENT METHODOLOGIES-DIRECT	ASSESSMENT METHODOLOGIES-INDIRECT
C206.1	UNIV. EXAMINATION, ASSIGNMENTS , TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C206.2	UNIV. EXAMINATION, ASSIGNMENTS, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C206.3	UNIV. EXAMINATION, ASSIGNMENTS, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C206.4	UNIV. EXAMINATION, ASSIGNMENTS, TESTS/MODEL EXAMS	STUDENT FEEDBACK ON FACULTY
C206.5	UNIV. EXAMINATION, ASSIGNMENTS, TESTS/MODEL EXAMS,	STUDENT FEEDBACK ON FACULTY

Prepared by
(Course Coordinator)

Dr.M.Ameena Banu
Name and Signature

Approved by
(Programme Coordinator)

HoD-ECE
Name and Signature

Dr. J.SUNDARARAJAN.
B.E., M.Tech
Principal
N.P.R. College of Engineering & T
Natham, Dindigul (Dt) - 624 401.

NPR COLLEGE OF ENGG & TECHNOLOGY NATHAM

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University,
Accredited by NAAC WITH 'A' GRADE |Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401 Web: www.nprcet.org

LESSON PLAN

NPR College of Engineering & Technology
NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India
Phone No: 04544- 246 500, 246501, 246502
Website : www.nprcolleges.org E-mail: nprgr@nprcolleges.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TENTATIVE LESSON PLAN

Subject Name: **CONTROL SYSTEM ENGINEERING** Branch: **ECE**

Subject Code: **EC8391** Semester: **III**

Name of the faculty: **Dr.M.Ameena Banu**

Theory Class : 5 Hrs/week Target Hours : 9

Module I

Date	Period No.	Topics to be Covered	Reference
18.8.21	1	Control System: Terminology and Basic Structure-Feed forward and Feedback control theory	T1
18.8.21	5	Electrical and Mechanical Transfer Function Models	T1
19.8.21	4	Electrical and Mechanical Transfer Function Models	T1
21.8.21	3	Block diagram Models	T1
23.8.21	2	Block diagram Models	T1
25.8.21	1	Signal flow graphs models	T1
25.8.21	5	Signal flow graphs models	T1
26.8.21	4	DC and AC servo Systems- Synchronous	T1
28.8.21	3	Multivariable control system	T1
Total Hrs.	9		

Target Hours : 9

Module II

Date	Period	Topics to be Covered	Reference
1.9.21	5	Transient response, Steady state response	T1
2.9.21	4	Measures of performance of the standard first order and second order system	T1
4.9.21	3	Effect on an additional zero and an additional pole	T1
6.9.21	2	Steady error constant	T1
8.9.21	1	Steady error constant	T1
8.9.21	5	System- type number	T1
9.9.21	4	PID control	T1
11.9.21	3	Analytical design for PD, PI control systems	T1
13.9.21	2	Analytical design for PID control systems	T1
Total Hrs.	9		

Target Hours : 9

Module III

Date	Period No.	Topics to be Covered	Reference
15.9.21	5	Closed loop frequency response, Performance specification in frequency domain	T1
16.9.21	4	Frequency response of standard second order system	T1
18.9.21	3	Bode Plot	T1
20.9.21	2	Bode Plot	T1
22.9.21	1	Polar Plot	T1
22.9.21	5	Polar Plot	T1
23.9.21	4	Nyquist plots, Design of compensators using Bode plots	T1
25.9.21	3	Cascade lead compensation-Cascade lag compensation	T1
29.9.21	5	Cascade lag-lead compensation	T1
TOTAL	**9**		

Target Hours : 9

Module IV

Date	Period No.	Topics to be Covered	Reference
6.10.21	1	Concept of stability, Bounded - Input Bounded - Output stability	T1
6.10.21	5	Routh stability criterion	T1
7.10.21	4	Routh stability criterion	T1
9.10.21	3	Routh stability criterion- Relative stability	T1
11.10.21	2	Root locus concept	T1
13.10.21	5	Guidelines for sketching root locus	T1
16.10.21	3	Guidelines for sketching root locus	T1
18.10.21	2	Nyquist stability criterion	T1
20.10.21	5	Nyquist stability criterion	T1
Total	**9**		

Target Hours : 9

Module V

Date	Period No.	Topics to be Covered	Reference
3.11.21	1	State variable representation	T1
3.11.21	5	Conversion of state variable models to transfer functions	T1
6.11.21	3	Conversion of transfer functions to state variable models	T1
8.11.21	2	Solution of state equations	T1
10.11.21	1	Concepts of Controllability and Observability	T1
11.11.21	4	Stability of linear systems	T1
13.11.21	3	Equivalence between transfer function and state variable representations	T1
15.11.21	2	State variable analysis of digital control system	T1
17.11.21	1	Digital control design using state feedback	T1
Total	**9**		

TEXT BOOK:

1. M.Gopal, "Control System Principles and Design", Tata McGraw Hill, 4th Edition, 2012

REFERENCES:

1. J.Nagrath and M.Gopal, "Control System Engineering", New Age International Publishers, 5 th Edition, 2007
2. K. Ogata, 'Modern Control Engineering', 5th edition, PHI, 2012
3. S.K.Bhattacharya, Control System Engineering, 3rd Edition, Pearson, 2013
4. Benjamin C.Kuo, "Automatic control systems", Prentice Hall of India, 7th Edition,1995

Staff in charge

HOD / ECE

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt.) - 624 401.

NPR COLLEGE OF ENGG & TECHNOLOGY
NATHAM

NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India
Phone No: 04544- 246 500, 246501 246502
Website: www.nprcolleges.org E-mail: nprgi@nprcolleges.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

LESSON PLAN EXECUTION

Subject Name: **CONTROL SYSTEM ENGINEERING**

Branch: **ECE**

Subject Code: **EC8391**

Semester: **III**

Name of the faculty: **Dr.M.Ameena Banu**

Theory Class : 5 Hrs/week

Target Hours : 9

Module I

Date	Period No.	Topics to be Covered	Reference
18.8.21	1	Control System: Terminology and Basic Structure-Feed forward and Feedback control theory	T1
18.8.21	5	Electrical and Mechanical Transfer Function Models	T1
19.8.21	4	Electrical and Mechanical Transfer Function Models	T1
21.8.21	3	Block diagram Models	T1
23.8.21 25.8.21	2 1	Block diagram Models	T1
25.8.21	5	Signal flow graphs models	T1
26.8.21 28.8.21	4 3	Signal flow graphs models	T1
1.9.21 2.9.21	5 4	DC and AC servo Systems- Synchronous	T1
4.9.21	3	Multivariable control system	T1
Total Hrs.	12		

Target Hours : 9

Module II

Date	Period	Topics to be Covered	Reference
6.9.21	2	Transient response, Steady state response	T1
8.9.21	1	Measures of performance of the standard first order and second order system	T1
8.9.21	5	Effect on an additional zero and an additional pole	T1
9.9.21	4	Steady error constant	T1

11.9.21	3	Steady error constant	T1
13.9.21	2	System- type number	T1
15.9.21	5	PID control	T1
16.9.21	4	Analytical design for PD, PI control systems	T1
18.9.21	3	Analytical design for PID control systems	T1
Total Hrs.	9		

Target Hours : 9

Module III

Date	Period No.	Topics to be Covered	Reference
20.9.21	2	Closed loop frequency response, Performance specification in frequency domain	T1
22.9.21	1	Frequency response of standard second order system	T1
22.9.21	5	Bode Plot	T1
23.9.21 25.9.21	4 3	Bode Plot	T1
29.9.21	5	Polar Plot	T1
6.10.21	1, 5	Polar Plot	T1
7.10.21 9.10.21	4 3	Nyquist plots, Design of compensators using Bode plots	T1
11.10.21	2	Cascade lead compensation-Cascade lag compensation	T1
13.10.21	5	Cascade lag-lead compensation	T1
TOTAL	12		

Target Hours : 9

Module IV

Date	Period No.	Topics to be Covered	Reference
20.10.21	5	Concept of stability, Bounded - Input Bounded - Output stability	T1
21.10.21	4	Routh stability criterion	T1
27.10.21	5	Routh stability criterion	T1
1.11.21	2	Routh stability criterion- Relative stability	T1
3.11.21	1	Root locus concept	T1
3.11.21	5	Guidelines for sketching root locus	T1
8.11.21	2	Guidelines for sketching root locus	T1

10.11.21	1	Nyquist stability criterion	T1
10.11.21	5	Nyquist stability criterion	T1
Total	9		

Target Hours: 9

Module V

Date	Period No.	Topics to be Covered	Reference
24.11.21	1	State variable representation	T1
24.11.21	5	Conversion of state variable models to transfer functions	T1
25.11.21	4	Conversion of transfer functions to state variable models	T1
1.12.21	1	Solution of state equations	T1
1.12.21	5	Concepts of Controllability and Observability	T1
2.12.21	4	Stability of linear systems	T1
4.12.21	3	Equivalence between transfer function and state variable representations	T1
6.12.21	2	State variable analysis of digital control system	T1
8.12.21	1	Digital control design using state feedback	T1
Total			

TEXT BOOK:

1. M.Gopal, "Control System – Principles and Design", Tata McGraw Hill, 4th Edition, 2012

REFERENCES:

1. J.Nagrath and M.Gopal, "Control System Engineering", New Age International Publishers, 5 th Edition, 2007
2. K. Ogata, 'Modern Control Engineering', 5th edition, PHI, 2012
3. S.K.Bhattacharya, Control System Engineering, 3rd Edition, Pearson, 2013
4. Benjamin.C.Kuo, "Automatic control systems", Prentice Hall of India, 7th Edition,1995

Staff in charge

HOD / ECE

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt.) - 624 401.

NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India.
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
An ISO 9001:2015 Certified Institution.
Phone No: 04544- 246 500, 246501, 246502.
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Register Number: | | | | | | | | | | | | |

INTERNAL EXAMINATION I – OCTOBER 2021

3rd Semester – ECE

EC8391- CONTROL SYSTEM ENGINEERING

Duration: **90 Minutes** Date: **01.10.2021** Maximum marks: **50**

Course Outcomes ,Question Number, Marks:

COs	CO1	CO2
Ques. No.	1,2,7	3,4,5,6,8
Max. Marks	20	30

COs & K-Level:

CO1: Students can be able to identify the various control system components and their representations.

CO2: Students will be able to attain the time response and steady state error of control systems.

K-Levels	K1: Remember	K2: Understand	K3:Apply	K4:Analyse	K5:Evaluate	K6:Create

Q.No	Answer All Questions		Bloom's Taxonomy K-level
	PART – A (5 x 2 = 10 marks)		
1.	Compare open loop and closed loop system.		K1
2.	What is a Gear train? What are electrical Analogous of gears?		K1
3.	How the system is classified based on depending ratio?		K1
4.	A second order system bas a dumping ratio of 0.6 and natural frequency of oscillation is 10 rad/sec. Determine the damped freq of oscillation.		K1
5.	What is the effect of PI controller on the system performance?		K1
	PART – B (1 x 8 = 8 marks)		
6.	A unit step input is applied to the unity feedback system for which open loop transfer function G(S)=16/S(S+8). Find, 1. Its closed loop transfer function, 2. Natural frequency of oscillation ω_n, 3. Damping ratio z, 4. Damped frequency of oscillations, ω_d	(8)	K2
	PART – C (2 x16 = 32 marks)		
7.	Obtain C(S)|R(S) using block diagram reduction rules.	(16)	K2

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University.
Accredited by NAAC WITH 'A' GRADE | Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401. Web: www.nprcet.org

ASSIGNMENT QUESTION PAPER

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University,
Accredited by NAAC WITH 'A' GRADE |Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401. Web: www.nprcet.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ASSIGNMENT SCHEDULE

EC8391-CONTROL SYSTEM ENGINEERING

UNIT-I-SYSTEM COMPONENTS AND THEIR REPRESENTATION

Sl.No.	Date of Intimation	Date of Submission	Multiple Topics
1	14.09.2021	21.09.2021	AC Servo motor and DC servo motor

UNIT-II-TIME RESPONSE ANALYSIS

Sl.No.	Date of Intimation	Date of Submission	Multiple Topics
2	05.10.2021	12.10.2021	Measures of performance of standard first ordered system

UNIT-III-FREQUENCY RESPONSE AND SYSTEM ANALYSIS

Sl.No.	Date of Intimation	Date of Submission	Multiple Topics
3	21.10.2021	28.10.2021	Response of over damped second order system for unit step input

UNIT-IV-CONCEPT OF STABILITY ANALYSIS

Sl.No.	Date of Intimation	Date of Submission	Multiple Topics
4	19.11.2021	26.11.2021	Root locus concept

UNIT-V- ANALYSIS USING STATE VARIABLE METHODS

Sl.No.	Date of Intimation	Date of Submission	Multiple Topics
5	10.12.2021	17.12.2021	Solution of state equations

STAFF INCHARGE

HoD/ECE

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University,
Accredited by NAAC WITH 'A' GRADE |Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401. Web: www.nprcet.org
NAAC

QUESTION BANK

EC8391-Control System Engineering – Model Question Bank with answer

Part-A

1. Differentiate Open loop system and Closed loop system.

Open loop	Closed loop
Inaccurate and unreliable.	Accurate and reliable.
Simple and economical	Complex and costlier.
Stable	Great efforts are needed to design a stable system.

2. Outline the Force current analogy for the elements of mechanical translational system.
   1. Force, F → Current, I
   2. Mass, M → Capacitance, C
   3. Spring Constant, K → inductance, 1/L
   4. Frictional coefficient or dashpot B → Conductance, 1/R

5. Differentiate DC servomotor and AC servomotor.
The main difference between the two motors is **their source of power**. AC servo motors rely on an electric outlet, rather than batteries like DC servo motors. While DC servo motor performance is dependent only on voltage, AC servo motors are dependent on both frequency and voltage.

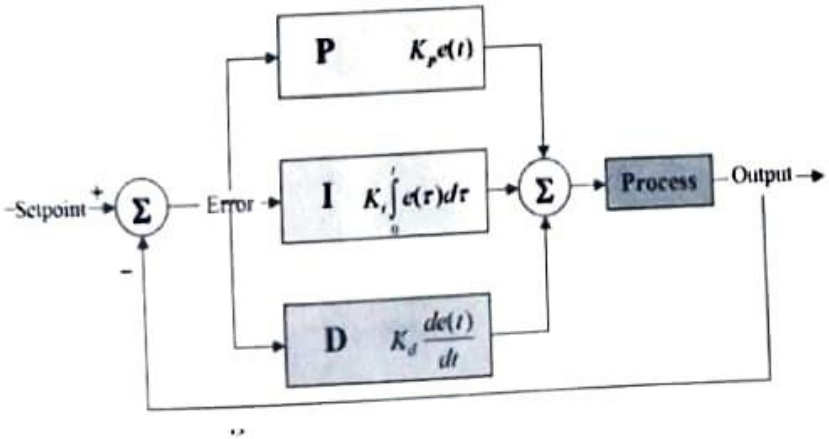
6. Write the force balance equation of ideal dashpot?

$$f_b = B\frac{dx}{dt} = f$$

where f – Force, B – Dashpot, x – Displacement

7. What is transient and steady state response?
The transient response is the response of the system when the input changes from one state to another. The response of the system as t □□ is called steady state response.

8. Draw the transfer function model for PID control.



9. A unity feedback system has a open loop transfer function of,

$$G(S) = \frac{10}{(S+1)(S+2)}$$

, Determine the steady state error for unit step input.

$K_p = \lim_{s\to 0} G(s)H(s) = 10/2=5$, hence $e_{ss}=1/(1+K_p) = 1/6$

10. What are the demands of good time response?
1. Less Settling time
2. Less overshoot
3. Less rise time
4. Smallest steady State error.

11. Enumerate the advantages of generalized error coefficient.
The advantages of generalized Error coefficients are
1. It gives error signal as a function of time.
2. It can be used to determine the steady state error for any type of input.

12. Write any three advantages of frequency response analysis.
1. The absolute and relative stability of the closed loop system can be estimated from the knowledge of their open loop response.
2. The practical testing of systems can be easily carried with available sinusoidal signal generators and precise measurement equipments.
3. The transfer function of complicated system can be determined experimentally by frequency response plots.

13. What is the effect on polar plot if a non – zero pole is added to the transfer function?
Addition of a non-zero pole to the transfer function results in further rotation of the end points of polar plot through an angle of 90^{o}.

14. What is the effect on polar plot if a pole at origin is added to the transfer function?
When a pole at origin is added to the transfer function it rotates the entire polar plot by a further angle of 90^{o}.

15. What is the necessary condition for stability of the system in characteristic equation?
a) All the coefficients of the characteristic equation should be positive.
b) There should be no missing terms in characteristic equation.

16. What is auxiliary polynomial?
In the construction of routh array a row of all zero indicates the existence of an even polynomial as a factor of the given characteristic equation. In an even polynomial the exponents of S are even integers or zero only. This even polynomial factor is called auxiliary polynomial. The coefficients of auxiliary polynomial are given by the elements of the row just above the row of all zero.

17. In routh array, what conclusion you can make when there is a row of all zeros?
The row of all zeros can be replaced by the coefficients of derivative of the auxiliary equation where the coefficients of auxiliary polynomial are given by the elements of the row just above the row of all zero.

18. What is Nyquist stability criterion?
If G(S) H(S) contour in the G(S) H(S) plane corresponding to Nyquist contour in s-plane encircles the point $-1+j0$ in the anti-clockwise direction as many times as the number of right half S-plane poles of G(S) H(S). Then the closed loop system is stable.

19. Determine the controllability of the system described by the state equation.
A system is said to be controllable if it is possible to transfer the system state from any initial state $x(t_0)$ to any desired state $x(t)$ in a specified finite time interval by a control vector $u(t)$

20. Illustrate Observability of the System.

A system is said to be observable if every state $x(t_0)$ can be completely identified by measurement of output $y(t)$ over a finite time interval.

21. Write the properties of State transition matrix.

Properties of state Transition matrix =>

1) $\phi(o) = e^{Ao} = I$
2) $\phi(t)=e^{At}=[\phi(-t)]^{-1}$ i.e. $\phi^{-1}(t)=\phi(-t)$
3) $\phi(t1+t2)=e^{A(t1+t2)}=e^{At1}.e^{At2}=\phi(t1).\phi(t2)$
4) $[\phi(t)]^n=[e^{At}]^n= \phi(nt)$
5) $\phi(t2-t1).\phi(t1-t0)=\phi(t2-t0)$

22. Define a digital control system.

A digital control system is **a control system that processes signals coming from sensors by means of a computer**. The analogue signal (continuous in value and time) has to be sampled and take discrete values at given time intervals. This process is known as signal digitalization.

23. What is the need of digital control system?

Digital control has advantages over analog control in that digital operations can be easily controlled by a program, i.e. a piece of software, **information storage** is easier, accuracy can be greater and digital circuits are less affected by noise.

24. What are the components of digital control system?

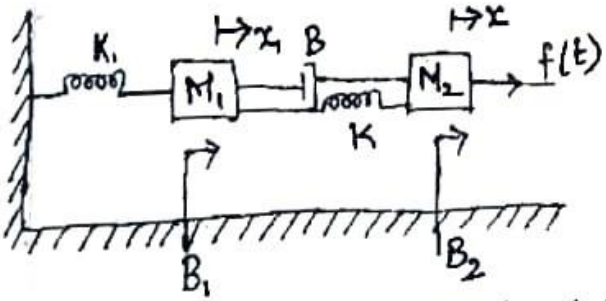
Digital-to-analog (D-A) converter, and system logic such as coincidence detection, gating and data transfer.

25. What are the 3 control systems?

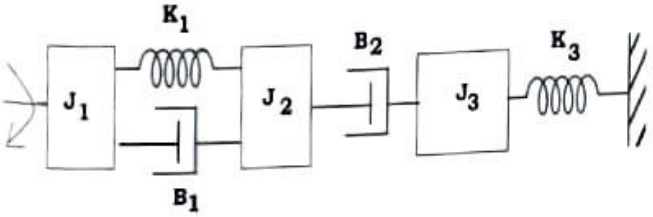
Three basic types of control systems are: **(1) output control, (2) behavioral control, and (3) clan control**.

Part-B

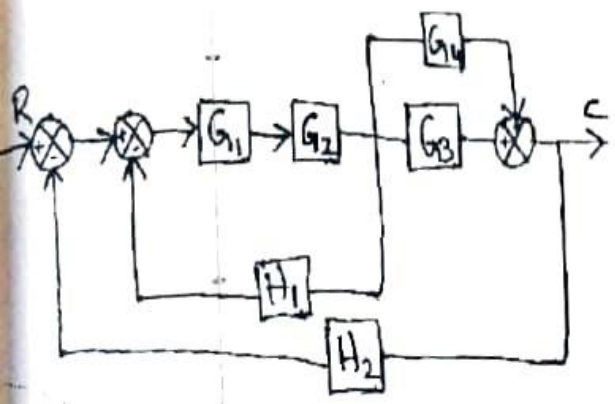
1. Write the differential equations governing the mechanical system and determine the transfer function.



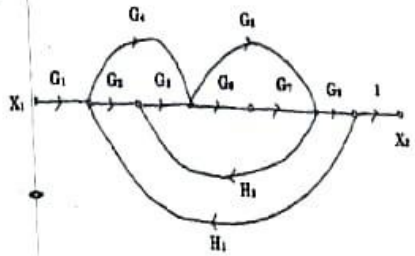
2. Write the equations of motion in s-domain for the system shown in figure. Determine the transfer function of the system.



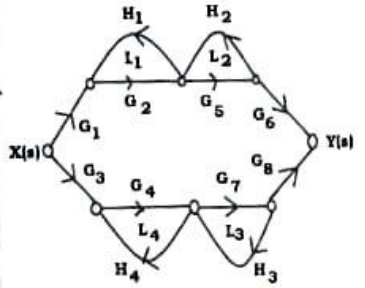
3. Obtain C(S)/R(S) using block diagram reduction rules.



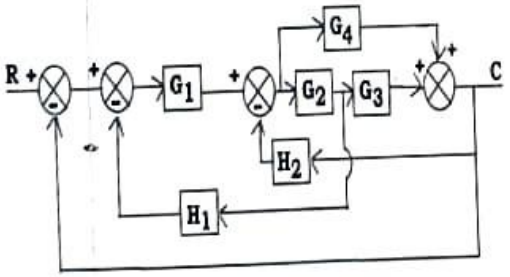
4. Derive the transfer function of field controlled DC motor.
5. Use Mason's gain formula for determining the overall Transfer Function of the system shown below.



6. Use Mason's gain formula for determining the overall Transfer Function of the system shown below.



7. Derive the transfer function of the system.



8. Obtain the response of second order over damped system with unit step input.
9. Obtain the response of second order under damped system with unit step input.
10. i) A unit step input is applied to the unity feedback system for which open loop transfer function.

$$G(s) = \frac{16}{S(S+8)}$$

Find

1. Closed loop transfer function
2. Natural frequency of oscillation
3. Damping ratio z
4. Damped frequency of oscillations. W_d

ii) For a unity feedback control system the open loop transfer function , find the position, velocity and acceleration error constants.

$$G(S)=\frac{10(S+2)}{S^2(S+1)}.$$

11. Draw the bode plot for the system whose open loop transfer function is given by,

$$G(S)=\frac{20}{S(1+3S)(1+4S)}$$

12. Discuss in detail about Cascade lag-lead compensation method.
13. Derive the transfer function of Cascade lead compensator.

14. The open loop transfer function of a unity feedback system is given by

$G(S)=\frac{1}{S(1+S)^2}$, sketch the polar plot and determine the gain and phase margin.

15. Sketch the root locus of the system whose open loop transfer function is and find the value of K

$$G(s)=\frac{K}{s(s^2+4s+13)}$$

16. i) Using Routh criterion, determine the stability of the system represented by the characteristic equation. Comment on the location of the roots of characteristic equation.
$S^6+2S^5+8S^4+12S^3+20S^2+16S+16=0$
ii) Determine the range of K for which system is stable.
$S^4+3S^3+3S^2+S+k=0$

17. Sketch the root locus of the system whose open loop transfer function is and find the value of K.

$$G(s)=\frac{K}{s(s+2)(s+4)}$$

18. Check the stability of the system whose open loop transfer function is, $G(S)=10/S^2(1+0.2S)(1+0.5S)$ by Nyquist criterion

19. A system is represented by State equation $\dot{X}=AX+BU$:
$Y=CX$ Where
$A=\begin{bmatrix}0 & 1 & 0\\ 0 & -1 & 1\\ 0 & -1 & -10\end{bmatrix}$, $B=\begin{bmatrix}0\\0\\10\end{bmatrix}$ and $C=[1\ 0\ 0]$. Determine the Transfer function of the System.

20. Mention the Transfer Function of the system. The State Space representation of a System is given below

$$\begin{pmatrix}\dot{x}_1\\ \dot{x}_2\\ \dot{x}_3\end{pmatrix}=\begin{pmatrix}-2 & 1 & 0\\ 0 & -3 & 1\\ -3 & -4 & -5\end{pmatrix}\begin{pmatrix}x_1\\ x_2\\ x_3\end{pmatrix}+\begin{pmatrix}0\\0\\1\end{pmatrix}u$$

$$Y=(0\quad 0\quad 1)\begin{pmatrix}x_1\\ x_2\\ x_3\end{pmatrix}$$

NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
An ISO 9001:2015 Certified Institution.
Phone No: 04544- 246 500, 246501, 246502
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

INTERNAL EXAMINATION I- October 2021

EC8391- CONTROL SYSTEM ENGINEERING

Answer Key

PART – A

1. **Compare open loop and closed loop system.**

Open loop	Closed loop
Inaccurate and unreliable.	Accurate and reliable.
Simple and economical	Complex and costlier.
Stable	Great efforts are needed to design a stable system.

2. **What is a Gear train? What are electrical Analogous of gears?**
   A gear train is a mechanical device that transmits energy from one part of the system to another part to attain Maximum power transfer. The electrical Analogous of gears is Transformers.

3. **How the system is classified based on depending ratio?**
   The system is classified into 4 types
   1. Undamped system
   2. Underdamped system
   3. Critically damped system
   4. Over damped system

4. A second order system bas a dumping ratio of 0.6 and natural frequency of oscillation is 10 rad/sec. Determine the damped freq of oscillation.

$$\omega_d = \omega_n\sqrt{1-Z^2}$$
$$= 10\sqrt{1-(0.6)^2}$$
$$= 8 rad/\sec.$$

5. What is the effect of PI controller on the system performance?
   - The PI controller increases the order of the system by one, which results in reducing the steady state error.
   - The system becomes less stable

PART-B

6. A unit step input is applied to the unity feedback system for which open loop transfer function G(S)=16/S(S+8). Find, 1. Its closed loop transfer function, 2. Natural frequency of oscillation ω_n, 3. Damping ratio z, 4. Damped frequency of oscillations, ω_d

$$i)\ \frac{c(s)}{R(s)} = \frac{G(s)}{1+G(s)H(s)}$$

$$= \frac{\frac{16}{s(s+8)}}{1+\frac{16}{s(s+8)}}$$

$$= \frac{16}{s^2+8s+16}$$

ii) The standard equation is,

S2+2zwns+wn2

Comparing S2+8S +16 with standard equation,

Wn2 = 16 2zwn =8

Wn =√16 z= 8 / 8

= 4 rad / sec z = 1

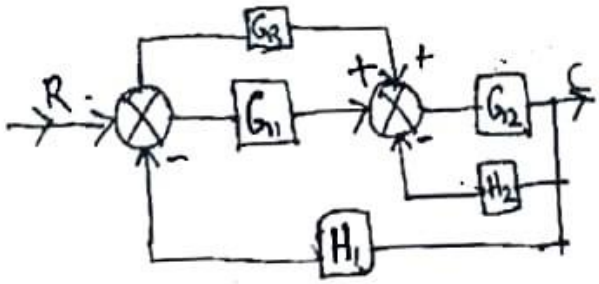
iv) wd = wn √1-z2

= 4√1-1

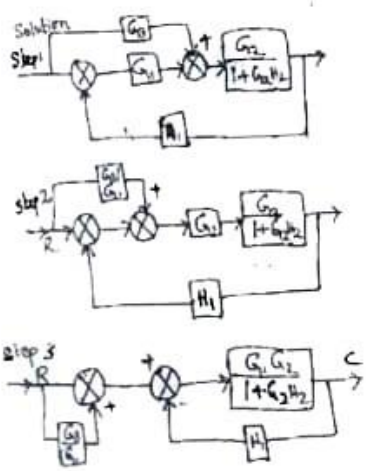
wd = 0 rad/sec

PART-C

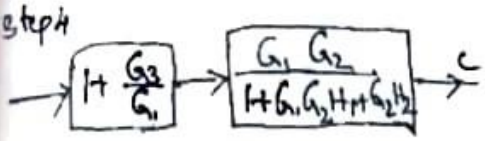
7. Obtain C(S)|R(S) using block diagram reduction rules.



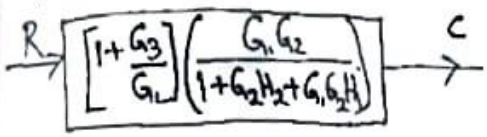
Soln:



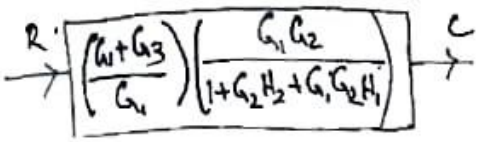
step 4



step 5



step 6



8. **For a unity feedback control system the open loop transfer function G(s) = 10(s+2)/s2 (s+1). Find (a) the position, velocity and acceleration error constants, (b) the steady state error when the input is R(s) where R(s)=**

Soln.

(a) To find the static error constants

For a unity feed back system, H(s) = 1

Position error Constant , $K_P = \lim_{s\to 0} G(s)H(s) = \lim_{s\to 0} G(s)$

$$= \lim_{s\to 0} \frac{10(s+2)}{s^2(s+1)} = \infty$$

Velocity error constant, $K_V = \lim_{s\to 0} s.G(s)H(s) = \lim_{s\to 0} s.G(s)$

$$= \lim_{s\to 0} s\frac{10(s+2)}{s^2(s+1)} = \infty$$

Acceleration error constant, $K_a = \lim_{s\to 0} s^2G(s)H(s) = \lim_{s\to 0} s^2G(s)$

$$= \lim_{s\to 0} s^2\frac{10(s+2)}{s^2(s+1)} = \frac{10\times 2}{1} = 20$$

b) To find steady state error

Error signal in s – domain, $E(s) = \frac{R(s)}{1+G(s)H(s)}$

$$\therefore \frac{E(s)}{R(s)} = \frac{1}{1+G(s)H(s)}, \text{ Given that } G(s)\frac{10(s+2)}{s^2(s+1)} \text{ and } H(s) = 1$$

$$\therefore \frac{E(s)}{R(s)} = \frac{1}{1+\frac{10(s+2)}{s^2(s+1)}} = \frac{s^2(s+1)}{s^2(s+1)+10(s+2)}$$

$$= \frac{s^3+s^2}{s^3+s^2+10s+20} = \frac{s^2+s^3}{20+10s+s^2+s^3} = \frac{s^2}{20}+\frac{s^3}{40}+\ldots.$$

$$E(s)=R(s)\left[\frac{s^2}{20}+\frac{s^3}{40}+\ldots\right]$$

$$= \frac{1}{20}s^2R(s)+\frac{1}{40}s^3R(s)+\ldots$$

On taking inverse laplace transform,

$$e(t) = \frac{1}{20}\ddot{r}(t)+\frac{1}{40}+\dddot{r}(t)+\ldots$$

Given that $R(s)=\frac{3}{s}-\frac{2}{s^2}+\frac{1}{3s^3}$

$$20+10s+s^2+s^3 \;\Big|\; \frac{s^2}{20}+\frac{s^3}{40}$$

$$s^2+s^3$$

$$s^2+\frac{s^3}{2}+\frac{s^4}{20}+\frac{s^5}{20}$$

$$\frac{s^3}{2}-\frac{s^4}{20}-\frac{s^5}{20}$$

$$\frac{s^3}{2}+\frac{s^4}{4}+\frac{s^5}{40}+\frac{s^6}{40}$$

$$\frac{-3}{10}s^4-\frac{3}{40}s^5-\frac{s^6}{40}$$

$$\therefore r(t) = L^{-1}[R(s)] = L^{-1}\left[\frac{3}{s}-\frac{2}{s^2}+\frac{1}{3s^3}\right] = \frac{1}{3}-2t+\frac{1}{3}\frac{t^2}{2!} = \frac{1}{3}-2t+\frac{t^2}{6}$$

$$\dot{r}(t) = \frac{d}{dt}r(t) = -2+\frac{1}{6}2t = -2+\frac{t}{3}$$

$$\ddot{r}(t) = \frac{d}{dt^2}r(t) = \frac{d}{dt}\dot{r}(t) = \frac{1}{3}$$

$$\dddot{r}(t) = \frac{d^3}{dt^3}r(t) = \frac{d}{dt}\ddot{r}(t) = 0$$

$\therefore$ Error signal in time domain, $e(t) = \frac{1}{20}\frac{d}{dt}\dot{r}(t) = \frac{1}{20}\left(\frac{1}{3}\right) = \frac{1}{60}$

Steady state error, $e_{ss} = \lim_{t\to\infty} e(t) = \lim_{t\to\infty}\frac{1}{60} = \frac{1}{60}$

NPR College of Engineering & Technology
NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
An ISO 9001:2015 Certified Institution
Phone No: 04544- 246 500, 246501, 246502
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

INTERNAL EXAMINATION II– NOVEMBER 2021

EC8391- CONTROL SYSTEM ENGINEERING

Answer Key

PART – A

1. **Write any three advantages of frequency response analysis.**

1.The absolute and relative stability of the closed loop system can be estimated from the knowledge of their open loop response.
2. The practical testing of systems can be easily carried with available sinusoidal signal generators and precise measurement equipments.
3. The transfer function of complicated system can be determined experimentally by frequency response plots.

2. **Define gain margin and phase margin.**

The gain margin is defined as the reciprocal of the magnitude of open – loop transfer function at phase cross over frequency.

The phase margin is the amount of additional phase lag at the gain cross over frequency required to bring the system to the verge of instability.

3. **What is the use of Nichol's chart?**

1. The complete closed loop frequency response can be obtained.
2. The value of Mr can be obtained
3. The 3 dB bandwidth of closed loop system can be obtained.
4. The frequency wr corresponding to Mr can be obtained.

4. What is the relation between stability and coefficient of characteristic polynomial?

If the coefficients of characteristic polynomial are negative or zero, then same of roots lies on right half of s-place. Hence the system is unstable. If the coefficient of characteristic polynomial are positive and if no coefficient is zero then there is a possibility of the system to be stable provided all the roots all the roots are lying on left half of s-plane.

5. What is centroid? How the centroid is calculated?

The meeting point of asymptotes with real axis is called centroid. The centroid is given by

Centroid = sum of poles - sum of zeros i.e n – m

PART-B

6. The open loop transfer function of unity feed back system in given by $G(S)=1/S^2(1+S)(1+2S)$. Sketch the polar plot and determine the gain margin and phase margin.

Solution:

$$G(S)=\frac{1}{S^2(1+S)(1+2S)}$$

Put S=jw

$$G(jw)=\frac{1}{(jw)^2(1+jw)(1+2jw)}$$

$$=\frac{1}{w^2<180^0\sqrt{1+w^2}<\tan^{-1}w\sqrt{1+4w^2}<\tan^{-1}2w}$$

$$|G(jw)|=\frac{1}{w\sqrt{(1+w^2)(1+4w^2)}}$$

$$<G(jw)=-180^0-\tan^{-1}w-\tan^{-1}2w$$

ω	0.45	0.5	0.55	0.6	0.65	0.7	0.75	1.0
|G(jw)|	3.3	2.5	1.9	1.5	1.2	1	-0.8	0.3
<G(jw)	-246	-251	-256	-261	-265	-269	-273	-288

Gain margin, Kg=0, Phase margin$\gamma=-90^0$

PART-C

7. The Open loop T.F. of an unity feed back system is given by

$$G(s)=\frac{10(s+3)}{s(s+2)(s^2+4s+100)}$$

Draw the bode plot and hence find the gain margin and phase margin.

Solution:

$$G(s) = \frac{10(s+3)}{S(S+2)(s^2+4s+100)}$$

$$G(s) = \frac{30\left(1+\frac{1}{3}s\right)}{2S\left(1+\frac{1}{2}s\right)(s^2+4s+100)}$$

$$G(s) = \frac{30\left(1+\frac{1}{3}s\right)}{S\left(1+\frac{1}{2}s\right)(s^2+4s+100)}$$

puts = jw

$$G(jw) = \frac{15\left(1+\frac{1}{3}jw\right)}{jw\left(1+\frac{1}{2}jw\right)\left((jw)^2+4jw+100\right)}$$

Corner frequency:-

Wc1 = 2 rad / sec
Wc2= 3rad / sec
Wc3= 10rad/ sec

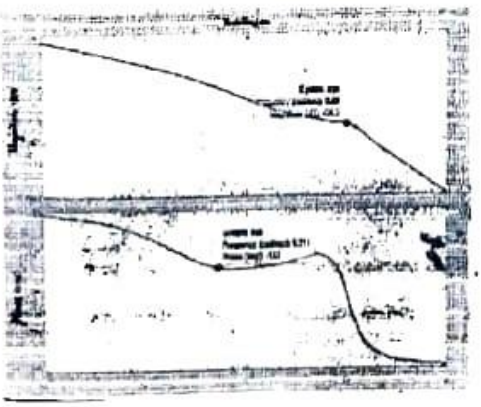
Magnitude plot:-

Term	C.L	Slope	Change in slope
$\frac{15}{jw}$	-	-20	-20
$\frac{1}{1+jw\frac{1}{2}}$	2	-20	-40
(1+1/3jw)	3	+20	-20
$\frac{1}{(jw)^2+4jw+100}$	10	+40	+20

Wgc =0.516 rad/sec
Wpc=9.52 rad / sec.
GM = - (-34.5)=+34.5db
PM=γ=180+ϕgc
ϕgc=-152
γ=180-152=28

P.M=28

Bode Plot



8. The characteristic equation of a given system is $S^4+6S^3+116S^2+6S+=0$. What restrictions must be placed upon the parameter K in order to ensure the system is stable?

Solution:-

Given characteristic equation is

$S^4 + 6S^3 + 116S^2 + 6S + K = 0$

S^4	1	16	K
S^3	6	6	
+6			
S^3	1	1	$\frac{116(1)-(1)1}{1}$
S^2	115	k – 1	=115
S^1	$\frac{115-(k-1)}{115}$		$\frac{115-(k-1)}{115}$
S^0	k – 1		–(k – 1)

For the system to be stable there should not be any sign change in the elements of first column.

Hence, choose the value of K so that the first column elements are positive from S1 row, for the system to be stable,

$\frac{115-(k-1)}{115} > 0$

$115 - (K - 1) > 0$

$115 - K + 1 > 0$

$116 - K > 0$

$116 > K$

, Should be less than 116. From S0 row, for the system to be stable,

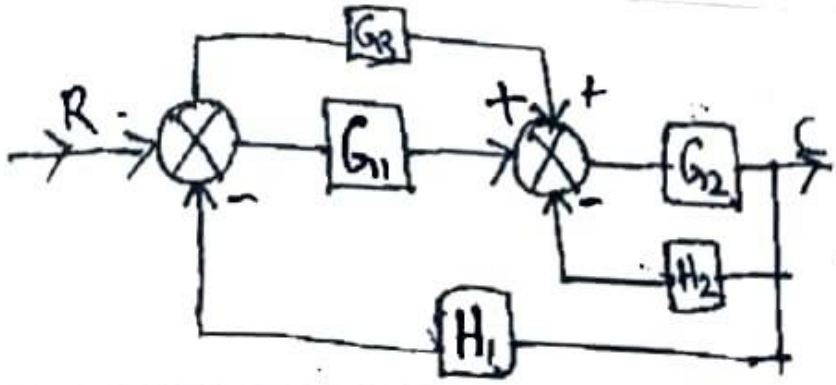
$K - 1 > 0$

$K > 1$

Since $K - 1 > 0$, K should be greater than +1.

The range of K for the system to be stable is

$1 < k , 116.$



8.	For a unity feedback control system the open loop transfer function G(s) = 10(s+2)/s2 (s+1). Find (a) the position, velocity and acceleration error constants. (b) the steady state error when the input is R(s) where R(s)=	(16)	K2

FACULTY IN-CHARGE **HoD**

Note: In Part C, questions can be set for 16 marks if the answer is very lengthy otherwise two or more sub-divisions can be included in each full question with break-up of marks indicated in brackets.

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

NPR COLLEGE OF ENGINEERING & TECHNOLOGY • NATHAM

8.	The open loop transfer function of a unity feed back control system is given by $G(S) = (1+2S)/S^2(1+S)$. Determine the Nyquist stability locus for the system when $H(s) = (1+2S)$. Test+ the stability.	(16)	K2

FACULTY IN-CHARGE

HoD

Note: In Part C, questions can be set for 16 marks if the answer is very lengthy otherwise two or more sub-divisions can be included in each full question with break-up of marks indicated in brackets.

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

COLLEGE OF ENGG & TECHNOLOGY NATHAM

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University,
Accredited by NAAC WITH 'A' GRADE Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401 Web: www.nprcet.org

INTERNAL TEST

SAMPLE TEST PAPER

NPR College of Engineering & Technology
NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India.
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
An ISO 9001:2015 Certified Institution
Phone No. 04544- 246 500, 246501, 246502
Website : www.nprcolleges.org, www.nprcet.org, Email:nprceprincipal@nprcolleges.org

INTERNAL TEST – I / II

a) Register Number : 920820106006

b) Year & Department : III - ECE

c) Subject code & Title : EC8391 - Control System Engineering

d) Date & Session (FN/AN) : FN & 1-10-2021

e) Number of pages used :

S. Priyadharsini 1/10/21
Name and Signature of the Hall Superintendent with Date

Students has to put a tick (✓) mark for the questions attended in tick mark column

PART-A

Question No.	✓	CO..1.. Marks	CO..2.. Marks
1.		2	
2.		2	
3.			2
4.			2
5.			2
TOTAL		4	6
TOTAL MARKS		10	

Students has to put a tick (✓) mark for the questions attended in tick mark column

PART-B & C

Question No.		(i) ✓	i CO..1.. Marks	i CO..2.. Marks	(ii) ✓	ii CO..1.. Marks	ii CO..2.. Marks	Total Marks
6.				8				8
7.	a)		16					16
	b)							
8.	a)			15				15
	b)							
TOTAL								39

CO. No.	Total Marks	Attained Marks
CO...1...	20	20
CO...2...	30	29

Grand Total	49
	50

M. Ameena Banu.
(M. AMEENA BANU)
Name and Signature of the Faculty

Name and Signature of the HoD
(Dr. A. Soni Sam Nobbon)

Verified

Part-A

(1)

Open loop	Closed loop
* Inaccurate and unreliable.	* Accurate and reliable.
* Simple and economical.	* Complex and costlier
* It's stable.	* Great efforts are needed to design a stable system.

(2) **Gear train :-**

A gear train is a mechanical device that transmits energy from one part of the system to another part to attain maximum power transfer. The electrical Analogous of gears is transformers.

(3) **System is classified based on depending ratio:-**

The System is classified into 4 types,

* Undamped system
* underdamped System
* Critically damped system
* Over damped system.

(4) Given:-

damping ratio = 0.6

Natural frequency of oscillation is 10 rad/sec

Solv

$$\omega_d = \omega_n \sqrt{1-\zeta^2}$$

$$= 10\sqrt{1-(0.6)^2}$$

$$= 8 \text{ rad/sec}$$

(5) PI Controller:-

⇒ The PI Controller increases the order of the system by one, which results in reducing the steady state error.

⇒ The system becomes less stable.

Part-B

(6)

Solv

i) $$\frac{C(s)}{R(s)} = \frac{G(s)}{1+G(s)H(s)}$$

$$= \frac{16/s(s+8)}{1+\frac{16}{s(s+8)}} = \frac{16}{s^2+8s+16}$$

ii) The standard equation is,

$s^2 + 2\zeta\omega_n s + \omega_n^2$

Comparing $s^2 + 8s + 16$ with standard equation,

$\omega_n^2 = 16$ $\quad 2\zeta\omega_n = 8$

$\omega_n = \sqrt{16}$ $\quad 2\zeta = 8/8$

$= 4$ rad/sec $\quad \zeta = 1$

$\omega_d = \omega_n \sqrt{1-\zeta^2}$

$= 4\sqrt{1-1}$

$= 0$ rad/sec

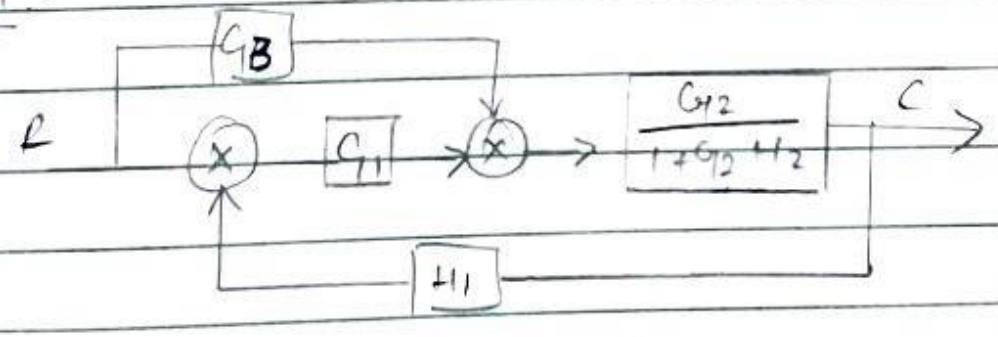
Part-C

(7)

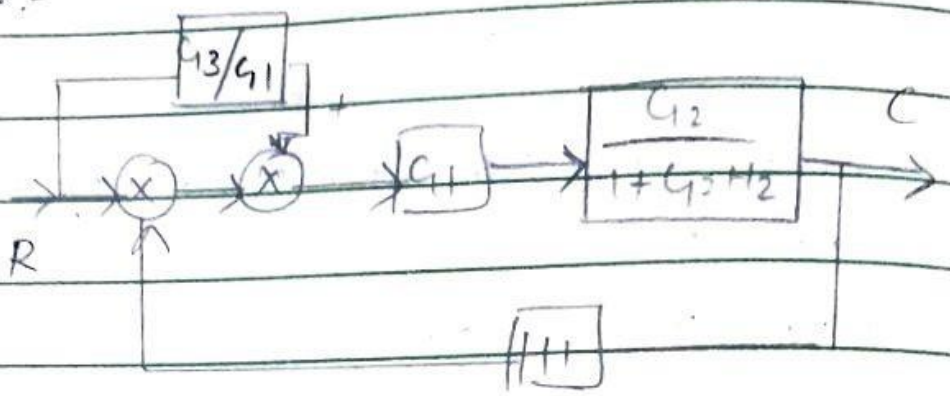
by solving, using a reduction rules.

Solv

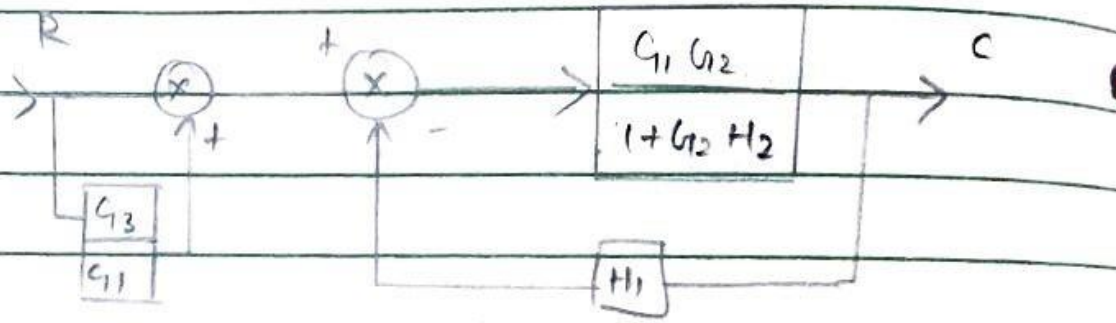
Step 1 :-



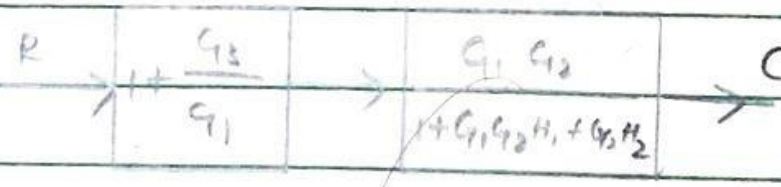
Step 2:-



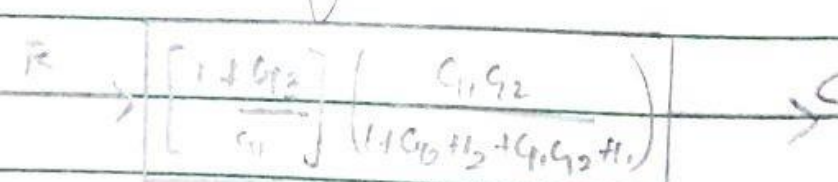
Step 3:-



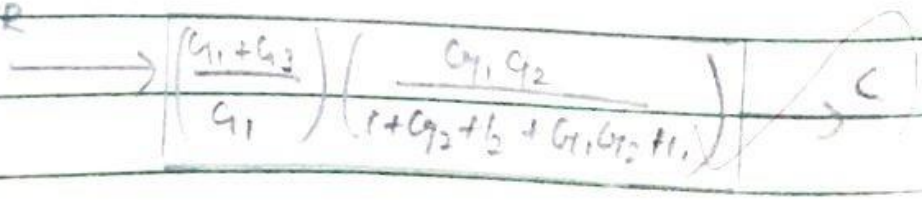
Step 4:-



Step 5:-



Step 6:-



(8) Given: $G(s) = \frac{10(s+2)}{s^2(s+1)}$

Solv

a) To find the static error constants

$H(s) = 1 \Rightarrow$ unity feedback System

Position error Constant $K_p = \lim_{s\to 0} G(s)H(s) = \lim_{s\to 0} G(s)$

$$= \lim_{s\to 0} \frac{10(s+2)}{s^2(s+1)} = \infty$$

Velocity error Constant, $K_v = \lim_{s\to 0} s.G(s)H(s) = \lim_{s\to 0} s.G(s)$

$$= \lim_{s\to 0} s.\frac{10(s+2)}{s^2(s+1)} = \infty$$

cancellation ?

Acceleration error Constant $K_a = \lim_{s\to 0} s^2 G(s)H(s) = \lim_{s\to 0} s^2 G(s)$

$$= \lim_{s\to 0} s^2 \frac{10(s+2)}{s^2(s+1)} = \frac{10\times 2}{1} = 20$$

b) To find Steady state error

Error signal in s-domain, $E(s) = \frac{R(s)}{1+G(s)H(s)}$

$\therefore \frac{E(s)}{R(s)} = \frac{1}{1+G(s)H(s)}$, given that $G(s)\ \frac{10(s+2)}{s^2(s+1)}$, $H(s)=1$

$= \frac{1}{1+\frac{10(s+2)}{s^2(s+1)}} = \frac{s^2(s+1)}{s^2(s+1)+10(s+2)}$

$= \frac{s^3+s^2}{s^3+s^2+10s+20} = \frac{s^2+s^3}{20+10s+s^2+s^3} = \frac{s^2}{20} + \frac{s^3}{40} + \ldots$

$E(s) = R(s)\left[\frac{s^2}{20} + \frac{s^3}{40} + \ldots\right]$

$= \frac{1}{20} s^2 R(s) + \frac{1}{40} s^3 R(s) + \ldots$

on taking inverse laplace transform

$e(t) = \frac{1}{20} r(t) + \frac{1}{40} \dot{r}(t) + \ldots$

$R(s) = \frac{3}{s} - \frac{2}{s^2} + \frac{1}{3s^3}$

$\frac{s^2}{10} + \frac{s^3}{40}$

$20+10s+s^2+s^3 \quad | \quad s^2+s^3$

$s^2+\frac{s^2}{3}+\frac{s^4}{30}+\frac{s^5}{30}$

$\frac{s^2}{2} - \frac{s^4}{2} - \frac{s^5}{30}$

$\frac{s^2}{2} + \frac{s^4}{4} + \frac{s^5}{40} + \frac{s^6}{40}$

$\frac{-3}{10} \quad \frac{4}{40} \quad \frac{5}{40} \quad \frac{6}{40}$

$\therefore r(t) = \mathcal{L}^{-1}[R(s)]$.

$= \mathcal{L}^{-1}\left[\frac{3}{s} - \frac{2}{s^2} + \frac{1}{3s^3}\right]$

$= \frac{1}{3} - 2t + \frac{1}{3}\frac{t^2}{2!} = \frac{1}{3} - 2t + \frac{t^2}{6}$

$\dot{r}(t) = \frac{d}{dt} r(t) = -2 + \frac{1}{6} 2t = -2 + t/3$

$\ddot{r}(t) = \frac{d}{dt^2} r(t) = \frac{d}{dt} \dot{r}(t) = \frac{1}{3}$

$\dddot{r}(t) = \frac{d^3}{dt^3} r(t) = \frac{d}{dt} \ddot{r}(t) = 0$

$\therefore$ Error Signal in time domain, $e(t) = \frac{1}{20} \frac{d}{dt} r(t)$

$= \frac{1}{20}\left(\frac{1}{3}\right) = \frac{1}{60}$

Steady state error, $e_{ss} = \lim_{t \to \infty} e(t)$.

$= \lim_{t \to \infty} \frac{1}{60}$

$= \frac{1}{60}$ //

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University.
Accredited by NAAC WITH 'A' GRADE | Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401. Web: www.nprcet.org

CLASS COMMITTEE MEETING

NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
An ISO 9001:2015 Certified Institution
Phone No: 04544- 246 500, 246501, 246502.
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

CLASS COMMITTEE MEETING

Date: 03.09.2021

CIRCULAR

The first class committee meeting of the third year ECE 2021-2022 ODD semester has been planned to conduct on 08.09.2021at 1:00P.M at DSP Laboratory. The subject handling faculties and student representatives are informed to attend the meeting without fail.

S.NO	Agenda
1	Academic schedule
2	Syllabus and Assessment Pattern
3	Attendance requirements
4	Department Activities
5	Subject feedback
6	General Discipline

Chair Person
Mr.C.Vijaya Kumar,AP/civil

HoD/ECE

Name of the faculty	Subject Alloted	Designation/Department	Signature
Mr.S.Sudhakar	Digital Communication	AP/ECE	
Mr.J.G.Sabarish	Discrete Time Signal Processing	AP/ECE	
Mrs.J.Nayanadhara	Computer Architecture and Organisation	AP/ECE	
Dr.M.Ameena Banu	Computer Networks, Computer Networks Laboratory	Professor/ECE	
Mr.K.Sundarapandi	Medical Electronics	AP/ECE	
Mr.K.Jayaprakasam	Basics of Bio-Medical Instrumentation, Communication Systems Laboratory	AP/ECE	
Mrs.C.Kannika parameshwari	Digital Signal Processing Laboratory	AP/ECE	

Name of the student	Class	Signature
Ms.I.Christiya	III-ECE	Christiya
Ms.N.SingaraBrindha	III-ECE	N. Singara Brindha
Ms.S.Devisri	III-ECE	S. Devi Sri
Mr.M.Balaji	III-ECE	M. Balaji
Mr.M.Dinesh	III-ECE	M. Dinesh
Mr.R.P.Ramvignesh	III-ECE	Ram Vignesh

NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India.
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
An ISO 9001:2015 Certified Institution.
Phone No: 04544- 246 500, 246501, 246502.
Website: www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Minutes of the Class Committee Meeting –I

CLASS-III-ECE	DATE:08.09.2021	TIME:1:00 P.M	VENUE:DSP Laboratory

Members: III-ECE Subject handling Faculty Members &Student Representatives

S.NO	Agenda
1	Academic Schedule
2	Syllabus and Assessment Pattern
3	Attendance requirements
4	Department Activities
5	Subject Feedback
6	General Discipline

NPR COLLEGE OF ENGG & TECHNOL NATHAM

First Class Committee Meeting for third year ECE was conducted on 08.09.2021 at 1:00 P.M to... following points were discussed in the meeting.

1. **Academic Schedule**
   - ❖ Students are elucidated about the academic schedule for the current academic year (2021-2022-(ODD))
   - ❖ As per Anna University academic schedule the institution academic calendar was prepared, which consists of two internal tests and one model examination test.
2. **Syllabus Assessments Pattern**
   - ❖ Overview of syllabus for each subject are discussed in the meeting by the respective faculty
   - ❖ Weightages of theory and laboratory course are discussed with the students.
3. **Attendance Requirements**
   - ❖ Students are expected to attend all the classes of all the subjects and secure 100 percentage attendance.
   - ❖ In case of unavoidable reasons (Medical/Sports) the student is expected to attend at least 75% of the classes.
4. **Department Activities**
   - ❖ Students are informed about the department activities such as webinar, work shop, symposium for the current semester.
   - ❖ Students are encouraged to participate in those activities and to give the cooperation.
5. **Subject Feedback**
   - ❖ Students are insisted to give feedback about the faculties regarding the teaching learning process.
6. **General Discipline**
   - ❖ Students are advised to attend the internal test and model exam without fail.
   - ❖ Assignments given for practice and that should be submitted on date.
   - ❖ Students have to get prior permission to take leave.

NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India.
Approved by AICTE, New Delhu & Affiliated to Anna University, Chennai
An ISO 9001:2015 Certified Institution
Phone No: 04544- 246 500, 246501, 246502
Website www.nprcolleges.org www.nprcet.org Email nprcetprincipal@nprcolleges.org

Date:13.09.2021

ACTION TAKEN REPORT: CLASS COMMITTEE MEETING-I

CLASS COMMITTEE MEETING-I		ACADEMIC YEAR-2021-2022 (ODD)	
Class: III-ECE	Date:08.09.2021	Time: 1:00 P.M	Venue : DSP Laboratory

S. No.	SUGGESTIONS	CORRECTIVE ACTION
1	Students requested Important Two mark questions for the subject Digital Communication	Two mark material are given to the students
2	Students request some real time example videos for the subject Basics of Bio-Medical Instrumentation	Related Example videos are shown to the students While teaching
3	Students request voice audibility need be improved and need more Examples for Computer Architecture & Organisation	Informed to concern faculties and it cleared by the following classes

Chair Person
Mr.C.Vijaya Kumar,AP/civil

HoD-ECE

Dr. J.SUNDARAPANDIAN
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology,
Natham, Dindigul (Dt) - 624 401.

Grievances from the students:

1. Students requested important two mark questions for the subject Digital Communication.
2. Students requested some real time example videos for the subject Basics of Bio-Medical Instrumentation

Members Present:

S.No.	Members	Name	Designation/Department	Signature
1	Chairperson	Mr.C.Vijaya Kumar	AP/ Civil	
2	Faculty Members handling the Subjects	Mr.S.Sudhakar	AP/ECE	
		Mr.J.G.Sabarish	AP/ECE	
		Mrs.J.Nayanadhara	AP/ECE	
		Dr.M.Ameena Banu	Professor/ECE	
		Mr.K.Sundarapandi	AP/ECE	
		Mr.K.Jayaprakasam	AP/ECE	
		Mrs.C.Kannika parameshwari	AP/ECE	
3	Student Representatives	Ms.I.Christiya	III-ECE	
		Ms.N.SingaraBrindha	III-ECE	
		Ms.S.Devisri	III-ECE	
		Mr.M.Balaji	III-ECE	
		Mr.M.Dinesh	III-ECE	
		Mr.R.P.Ramvignesh	III-ECE	

Chair Person
Mr.C.Vijaya Kumar,AP/civil

HoD-ECE

ENGG. & TECHNOLOGY NATHAM

12

FEEDBACK FROM STUDENTS

S.No	Subject Code	Subject Name	Name of the Faculty	Designation/ Dept	Syllabus Completion	Feedback from Students	Signature of the Faculty
1	EC8501	Digital Communication	Mr.S.Sudhakar	AP/ECE	Two units completed	Need Two marks Questions	
2	EC8553	Discrete Time Signal Processing	Mr.J.G.Sabarish	AP/ECE	Two units completed	Good	
3	EC8552	Computer Architecture &Organisation	Mrs.J.Nayanadhara	AP/ECE	Unit-2 is in progress	Voice audibility need be improved	
4	EC8551	Computer Networks	Dr.M.Ameena Banu	Professor/ECE	Two units completed	Good	
5	EC8073	Medical Electronics	Mr.K.Sundarapandi	AP/ECE	Unit-2 is in progress	Good	
6	OMD551	Basics of Bio-Medical Instrumentation	Mr.K.Jayaprakasam	AP/ECE	Two units completed	Need more Examples	
7	EC8562	Digital Signal Processing Laboratory	Mrs.C.Kannika parameshwari	AP/ECE	Two units completed	Good	
8	EC8561	Communication Syst Laboratory	Mr.K.Jayaprakasam	AP/ECE	Two units completed	Good	
9	EC8563	Communication Networks Laboratory	Dr.M.Ameena Banu	Professor /ECE	Two units completed	Good	

NATHAM

DR. T. SUNDARAJAN, M.E., Ph.D.,
Principal
NPR. College of Engineering & Technology
Natham - 624 401.

FEEDBACK FROM STUDENTS

S.No	Subject Code	Subject Name	Name of the Faculty	Designation/ Dept	Syllabus Completion	Feedback from Students
1	EC8501	Digital Communication	Mr.S.Sudhakar	AP/ECE	Two units completed	Need Two marks Questions
2	EC8553	Discrete Time Signal Processing	Mr.J.G.Sabarish	AP/ECE	Two units completed	Good
3	EC8552	Computer Architecture &Organisation	Mrs.J.Nayanadhara	AP/ECE	Unit-2 is in progress	Voice audibility need be improved
4	EC8551	Computer Networks	Dr.M.Ameena Banu	Professor/ECE	Two units completed	Good
5	EC8073	Medical Electronics	Mr.K.Sundarapandi	AP/ECE	Unit-2 is in progress	Good
6	OMD551	Basics of Bio-Medical Instrumentation	Mr.K.Jayaprakasam	AP/ECE	Two units completed	Need more Examples
7	EC8562	Digital Signal Processing Laboratory	Mrs.C.Kannika parameshwari	AP/ECE	Two units completed	Good
8	EC8561	Communication Syst Laboratory	Mr.K.Jayaprakasam	AP/ECE	Two units completed	Good
9	EC8563	Communication Networks Laboratory	Dr.M.Ameena Banu	Professor /ECE	Two units completed	Good

NATHAM

Dr. J. SUNDARARAJAN,
Ph.D.,
NPR College of ... Technology
Natham ... 401.

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University,
Accredited by NAAC WITH 'A' GRADE |Recognised by UGC under 2 (f)
Natham, Dindigul - 624 401. Web: www.nprcet.org

FINAL YEAR POJECTS

&

PROJECT REVIEW

NPR College of Engineering & Technology
NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
An ISO 9001:2015 Certified Institution
Phone No: 04544- 246 500, 246501, 246502
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Class / Semester : IV ECE /VIII **ACADEMIC YEAR : 2021-22**

PROJECT TITLE

S.NO	REGISTER NO	STUDENTS NAME	TITLE	GUIDE
1	920818106001	ABILASHA.M	AN DEEP LEARNING MODEL FOR BRAIN TUMOR SEGMENTATION AND CLASSIFICATION.	K.JAYAPRAKASAM
	920818106010	ILAKKIYA.B		
	920818106031	SOWMIYA.P		
2	920818106005	DHARSHINI.V	REAL TIME AUTHENTICATION SYSTEM BASED ON VOTING USING EMBEDDED TECHNOLOGY	J.G.SABARISH
	920818106007	DURGADEVI.B		
	920818106037	VENNILA.A		
3	920818106004	BLESSING.X	DEEP CONVOLUTION NEURAL NETWORK ON BREAST CANCER DIAGNOSTIC METHODOLOGY.	C.KANNIKA PARAMESHWARI
	920818106032	SREE RAGA SUDHA.K		
	920818106036	VARSHIINI.B		
4	920818106002	ABINAYA .S	LIFI BASED AUTOMATED SMART TROLLEY USING RFID	K.JAYAPRAKASAM
	920818106018	NISHA.M		
	920818106040	VIVEKA.S		
5	920818106008	DURGADEVI.S	SENSORY NERVE CONDUCTION WITH NON- INVASIVE GLUCOSE MONITORING USING IOT	S.SUDHAKAR
	920818106023	PUSHPA PRIYADHARSHINI.R		
	920818106026	SARITHA RANI.K		
6	920818106009	HARIPRIYA.M	MINE RESCUE ENSEMBLES FOR UNDERGROUND COAL MINING	J.G.SABARISH
	920818106029	SEEMA FATHIMA.S		
7	920818106019	NIVETHA.K.S	BLOCKCHAIN BASED SECURE AND ENERGY EFFICIENT ROUTING PROTOCOL FOR WSN	S.M.VIJAYARAJAN
	920818106027	SARUMATHI.R		
	920818106039	VISHALINI.B		

COLLEGE OF ENGG & TECHNOLOGY NATHAM

8	920818106013	KIRUTHIKA.R	SMART PHONE BASED ON OBJECT RECOGNITION GUIDANCE FOR VISUALLY CHALLENGED PEOPLE.	S.M.VIJAYARAJAN
	920818106035	SWETHA.M		
9	920818106014	MANOJ PRABHAKAR,.V	DESIGN OF TIRE PRESSURE MONITORING SYSTEM WITH VEHICLE TO VEHICLE COMMUNICATION USING IOT	PON MALAR
	920818106017	MUTHU VIGNESH.M		
	920818106038	VIGNESH.R		
10	920818106020	PONBHARATHI.V	M2M (MACHINE TO MACHINE COMMUNICATION)	PRIYA DHARSINI
	920818106022	PUGALARASU.S		
	920818106028	SATHISH KUMAR.G		
11	920818106011	JAYA PRATHAP.S	MACHINE LEARNING MODEL FOR FATIGUE LEVEL DETECTION	Dr.M.AMEENA BANU
	920818106012	JEYARAJ.S		
	920818106024	RAJKUMAR.K		
12	920818106016	MUKESH KANNA.G	WATER QUALITY MONITORING AND WASTE MANAGEMENT USING IOT FOR SMART CITY.	A .GOPI SWAMINATHAN
	920818106033	SURYA PRAKASH.V.M		
	920818106302	VIGNESH.S		

Project Co-coordinator

Mr.K.JAYAPRAKASAM AP/ECE

N.P.R. COLLEGE OF ENGG & TECHNOLOGY NATHAM

Dr. J.SUNDARARAJAN, B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

HOD/ECE

Dr.S.PONMALAR

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University,
Accredited by NAAC WITH 'A' GRADE Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401. Web: www.nprcet.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
Class: IV ECE **ACADEMIC YEAR: 2021-22**

PROJECT ZEROTH REVIEW MARKS

Register No.	Students Name	PPT (10)	Presentation (10)	Attendance (5)	Total (25)
920818106001	ABILASHA.M	10	10	5	25
920818106002	ABINAYA .S	10	10	5	25
920818106004	BLESSING.X	9	9	5	23
920818106005	DHARSHINI.V	0	0	0	AB
920818106007	DURGADEVI.B	10	9	5	24
920818106008	DURGADEVI.S	10	9	5	25
920818106009	HARIPRIYA.M	9	10	5	24
920818106010	ILAKKIYA.B	10	10	5	25
920818106011	JAYA PRATHAP.S	10	6	5	21
920818106012	JEYARAJ.S	10	6	5	21
920818106013	KIRUTHIKA.R	9	10	5	24
920818106014	MANOJ PRABHAKAR,.V	5	10	5	20
920818106016	MUKESH KANNA.G	10	5	5	20
920818106017	MUTHU VIGNESH.M	9	10	5	24
920818106018	NISHA.M	8	10	5	23
920818106019	NIVETHA.K.S	9	10	5	24
920818106020	PONBHARATHI.V	10	5	5	20
920818106022	PUGALARASU.S	10	5	5	20
920818106023	PUSHPA PRIYADHARSHINI.R	9	10	5	24
920818106024	RAJKUMAR.K	10	9	5	24
920818106026	SARITHA RANI.K	9	9	5	23
920818106027	SARUMATHI.R	9	10	5	24
920818106028	SATHISH KUMAR.G	10	9	5	24
920818106029	SEEMA FATHIMA.S	9	10	5	24
920818106031	SOWMIYA.P	10	10	5	25
920818106032	SREE RAGA SUDHA.K	9	10	5	24
920818106033	SURYA PRAKASH.V.M	10	5	5	20
920818106035	SWETHA.M	9	9	5	23
920818106036	VARSHINI.B	9	10	5	24
920818106037	VENNILA.A	9	9	5	23
920818106038	VIGNESH.R	9	6	5	20
920818106039	VISHALINI.B	7	8	5	20
920818106040	VIVEKA.S	9	10	5	24
920818106302	VIGNESH.S	10	5	5	20

Project Co-ordinator
Mr.K.JAYAPRAKASAM

HOD/ECE
Dr.A.GOPISAMINATHAN

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Class : IV ECE **ACADEMIC YEAR : 2021-22**

PROJECT REVIEW 1 MARKS

No	Register No	Students Name	PPT (10)	Presentation (10)	Attendance (5)	Total (25)
1	920818106001	ABILASHA.M	10	10	5	25
2	920818106002	ABINAYA .S	10	10	5	25
3	920818106004	BLESSING.X	10	10	5	25
4	920818106005	DHARSHINI.V	0	0	0	AB
5	920818106007	DURGADEVI.B	10	10	5	25
6	920818106008	DURGADEVI.S	10	10	5	25
7	920818106009	HARIPRIYA.M	10	10	5	25
8	920818106010	ILAKKIYA.B	10	9	5	24
9	920818106011	JAYA PRATHAP.S	10	6	5	21
10	920818106012	JEYARAJ.S	10	10	5	25
11	920818106013	KIRUTHIKA.R	10	10	5	25
12	920818106014	MANOJ PRABHAKAR..V	10	5	5	20
13	920818106016	MUKESH KANNA.G	8	7	5	20
14	920818106017	MUTHU VIGNESH.M	10	9	5	24
15	920818106018	NISHA.M	10	9	5	24
16	920818106019	NIVETHA.K.S	10	9	5	24
17	920818106020	PONBHARATHI.V	10	8	5	23
18	920818106022	PUGALARASU.S	10	8	5	23
19	920818106023	PUSHPA PRIYADHARSHINI.R	10	10	5	25
20	920818106024	RAJKUMAR.K	10	7	5	22
21	920818106026	SARITHA RANI.K	10	10	5	25
22	920818106027	SARUMATHI.R	10	9	5	24
23	920818106028	SATHISH KUMAR.G	10	9	5	24
24	920818106029	SEEMA FATHIMA.S	10	10	5	25
25	920818106031	SOWMIYA.P	10	10	5	25
26	920818106032	SREE RAGA SUDHA.K	10	10	5	25
27	920818106033	SURYA PRAKASH.V.M	8	7	5	20
28	920818106035	SWETHA.M	9	9	5	23
29	920818106036	VARSHIINI.B	10	10	5	25
30	920818106037	VENNILA.A	10	10	5	25
31	920818106038	VIGNESH.R	10	8	5	23
32	920818106039	VISHALINI.B	10	8	5	23
33	920818106040	VIVEKA.S	10	8	5	23
34	920818106302	VIGNESH.S	7	8	5	20

Project Co-ordinator
Mr.K.JAYAPRAKASAM

HOD/ECE
Dr.A.GOPISAMINATHAN

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University
Accredited by NAAC WITH 'A' GRADE|Recognised by UGC under 2 (f)
Natham, Dindigul - 624 401. Web: www.nprcet.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Class: IV ECE **ACADEMIC YEAR: 2021-22**

PROJECT REVIEW 2 MARKS

Register No.	Students Name	PPT (10)	Presentation (10)	Attendance (5)	Total (25)
920818106001	ABILASHA.M	10	9	5	24
920818106002	ABINAYA .S	10	9	5	24
920818106004	BLESSING.X	10	10	5	25
920818106005	DHARSHINI.V	0	0	0	AB
920818106007	DURGADEVI.B	10	9	5	24
920818106008	DURGADEVI.S	10	10	5	25
920818106009	HARIPRIYA.M	10	10	5	25
920818106010	ILAKKIYA.B	10	10	5	25
920818106011	JAYA PRATHAP.S	10	10	5	25
920818106012	JEYARAJ.S	10	6	5	21
920818106013	KIRUTHIKA.R	10	9	5	24
920818106014	MANOJ PRABHAKAR,.V	9	9	5	23
920818106016	MUKESH KANNA.G	9	9	5	23
920818106017	MUTHU VIGNESH.M	10	9	5	24
920818106018	NISHA.M	10	9	5	24
920818106019	NIVETHA.K.S	10	9	5	24
920818106020	PONBHARATHI.V	10	8	5	23
920818106022	PUGALARASU.S	10	7	5	22
920818106023	PUSHPA PRIYADHARSHINI.R	10	9	5	24
920818106024	RAJKUMAR.K	8	7	5	20
920818106026	SARITHA RANI.K	10	9	5	24
920818106027	SARUMATHI.R	10	10	5	25
920818106028	SATHISH KUMAR.G	10	10	5	25
920818106029	SEEMA FATHIMA.S	10	10	5	25
920818106031	SOWMIYA.P	10	10	5	25
920818106032	SREE RAGA SUDHA.K	10	9	5	24
920818106033	SURYA PRAKASH.V.M	8	7	5	20
920818106035	SWETHA.M	10	8	5	23
920818106036	VARSHIINI.B	10	10	5	25
920818106037	VENNILA.A	10	9	5	24
920818106038	VIGNESH.R	10	8	5	23
920818106039	VISHALINI.B	9	9	5	23
920818106040	VIVEKA.S	10	8	5	23
920818106302	VIGNESH.S	7	9	5	21

Project Co-ordinator
Mr.K.JAYAPRAKASAM

HOD/ECE
Dr.A.GOPISAMINATHAN

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University,
Accredited by NAAC WITH 'A' GRADE |Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401 Web www.nprcet.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Class: IV ECE **ACADEMIC YEAR: 2021-22**

PROJECT REVIEW 3 MARKS

Register No.	Students Name	PPT (10)	Presentation (10)	Attendance (5)	Total (25)
920818106001	ABILASHA.M	10	10	5	25
920818106002	ABINAYA .S	10	10	5	25
920818106004	BLESSING.X	10	10	5	25
920818106005	DHARSHINI.V	0	0	0	AB
920818106007	DURGADEVI.B	10	10	5	25
920818106008	DURGADEVI.S	10	8	5	23
920818106009	HARIPRIYA.M	10	9	5	24
920818106010	ILAKKIYA.B	10	10	5	25
920818106011	JAYA PRATHAP.S	8	8	5	21
920818106012	JEYARAJ.S	8	8	5	21
920818106013	KIRUTHIKA.R	10	9	5	24
920818106014	MANOJ PRABHAKAR,.V	9	8	5	22
920818106016	MUKESH KANNA.G	9	8	5	22
920818106017	MUTHU VIGNESH.M	10	9	5	24
920818106018	NISHA.M	10	9	5	24
920818106019	NIVETHA.K.S	10	9	5	24
920818106020	PONBHARATHI.V	10	7	5	22
920818106022	PUGALARASU.S	10	6	5	21
920818106023	PUSHPA PRIYADHARSHINI.R	10	10	5	25
920818106024	RAJKUMAR.K	8	8	5	21
920818106026	SARITHA RANI.K	10	10	5	25
920818106027	SARUMATHI.R	10	9	5	24
920818106028	SATHISH KUMAR.G	10	9	5	24
920818106029	SEEMA FATHIMA.S	10	10	5	25
920818106031	SOWMIYA.P	10	9	5	24
920818106032	SREE RAGA SUDHA.K	10	10	5	25
920818106033	SURYA PRAKASH.V.M	10	5	5	20
920818106035	SWETHA.M	10	10	5	25
920818106036	VARSHIINI.B	10	10	5	25
920818106037	VENNILA.A	10	10	5	25
920818106038	VIGNESH.R	10	7	5	22
920818106039	VISHALINI.B	9	10	5	24
920818106040	VIVEKA.S	10	6	5	21
920818106302	VIGNESH.S	10	9	5	24

Project Co-ordinator
Mr.K.JAYAPRAKASAM

HOD/ECE
Dr.A.GOPISAMINATHAN

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University
Accredited by NAAC WITH 'A' GRADE | Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401. Web: www.nprcet.org

NAAC

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
Class: IV ECE **ACADEMIC YEAR: 2021-22**

PROJECT ALL REVIEW CONSOLIDATED MARKS

	Register No.	Students Name	Zeroth Review(25)	Review 1 (25)	Review 2 (25)	Review 3 (25)	Total Marks(100
1	920818106001	ABILASHA.M	25	25	24	25	99
2	920818106002	ABINAYA .S	25	25	24	25	99
3	920818106004	BLESSING.X	23	25	25	25	98
4	920818106005	DHARSHINI.V	AB	AB	AB	AB	AB
5	920818106007	DURGADEVI.B	24	25	24	25	98
6	920818106008	DURGADEVI.S	25	25	25	23	98
7	920818106009	HARIPRIYA.M	24	25	25	24	98
8	920818106010	ILAKKIYA.B	25	24	25	25	99
9	920818106011	JAYA PRATHAP.S	21	21	25	21	88
10	920818106012	JEYARAJ.S	21	25	21	21	88
11	920818106013	KIRUTHIKA.R	24	25	24	24	97
12	920818106014	MANOJ PRABHAKAR,.V	20	20	23	22	85
13	920818106016	MUKESH KANNA.G	20	20	23	22	85
14	920818106017	MUTHU VIGNESH.M	24	24	24	24	96
15	920818106018	NISHA.M	23	24	24	24	95
16	920818106019	NIVETHA.K.S	24	24	24	24	96
17	920818106020	PONBHARATHI.V	20	23	23	22	88
18	920818106022	PUGALARASU.S	20	23	22	21	86
19	920818106023	PUSHPA PRIYADHARSHINI.R	24	25	24	25	98
20	920818106024	RAJKUMAR.K	24	22	20	21	87
21	920818106026	SARITHA RANI.K	23	25	24	25	97
22	920818106027	SARUMATHI.R	24	24	25	24	97
23	920818106028	SATHISH KUMAR.G	24	24	25	24	97
24	920818106029	SEEMA FATHIMA.S	24	25	25	25	99
25	920818106031	SOWMIYA.P	25	25	25	24	99
26	920818106032	SREE RAGA SUDHA.K	24	25	24	25	98
27	920818106033	SURYA PRAKASH.V.M	20	20	20	20	80
28	920818106035	SWETHA.M	23	23	23	25	94
29	920818106036	VARSHINI.B	24	25	25	25	99
30	920818106037	VENNILA.A	23	25	24	25	97
31	920818106038	VIGNESH.R	20	23	23	22	88
32	920818106039	VISHALINI.B	20	23	23	24	90
33	920818106040	VIVEKA.S	23	23	23	21	90
34	920818106302	VIGNESH.S	20	20	21	24	85

Project Co-ordinator
Mr.K.JAYAPRAKASAM

HOD/ECE
Dr.A.GOPISAMINATHAN

Value Added Courses-Sample Certificates

NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India.
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
An ISO 9001:2015 Certified Institution.
Phone No: 04544- 246 500, 246501, 246502.
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CERTIFICATE OF COMPLETION

This certificate is presented to

Ms.S.Vivaka, IV-ECE

for the successful completion of Certificate Course on
"INTRODCUTION TO IOT"
Conducted from 11.08.2021 to 13.08.2021 &16.08.2021 to 17.08.2021(5 days)

HOD-ECE
Dr.A.Gopisaminathan

Dr. J.SUNDARARAJAN, B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

PRINCIPAL
Dr.J.Sundararajan

NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India.
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
An ISO 9001:2015 Certified Institution.
Phone No: 04544- 246 500, 246501, 246502.
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CERTIFICATE OF COMPLETION

This certificate is presented to

Mr. S. Maraj, II-ECE

for the successful completion of Certificate Course on
"INTRODCUTION TO IOT"
Conducted from 11.08.2021 to 13.08.2021&16.08.2021 to 17.08.2021(5 days)

HOD-ECE
Dr.A.Gopisaminathan

Dr. J.SUNDARARAJAN, B.E., M.Tech., Ph.D
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

PRINCIPAL
Dr.J.Sundararajan

NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India.
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
An ISO 9001:2015 Certified Institution.
Phone No: 04544- 246 500, 246501, 246502.
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CERTIFICATE OF COMPLETION

This certificate is presented to

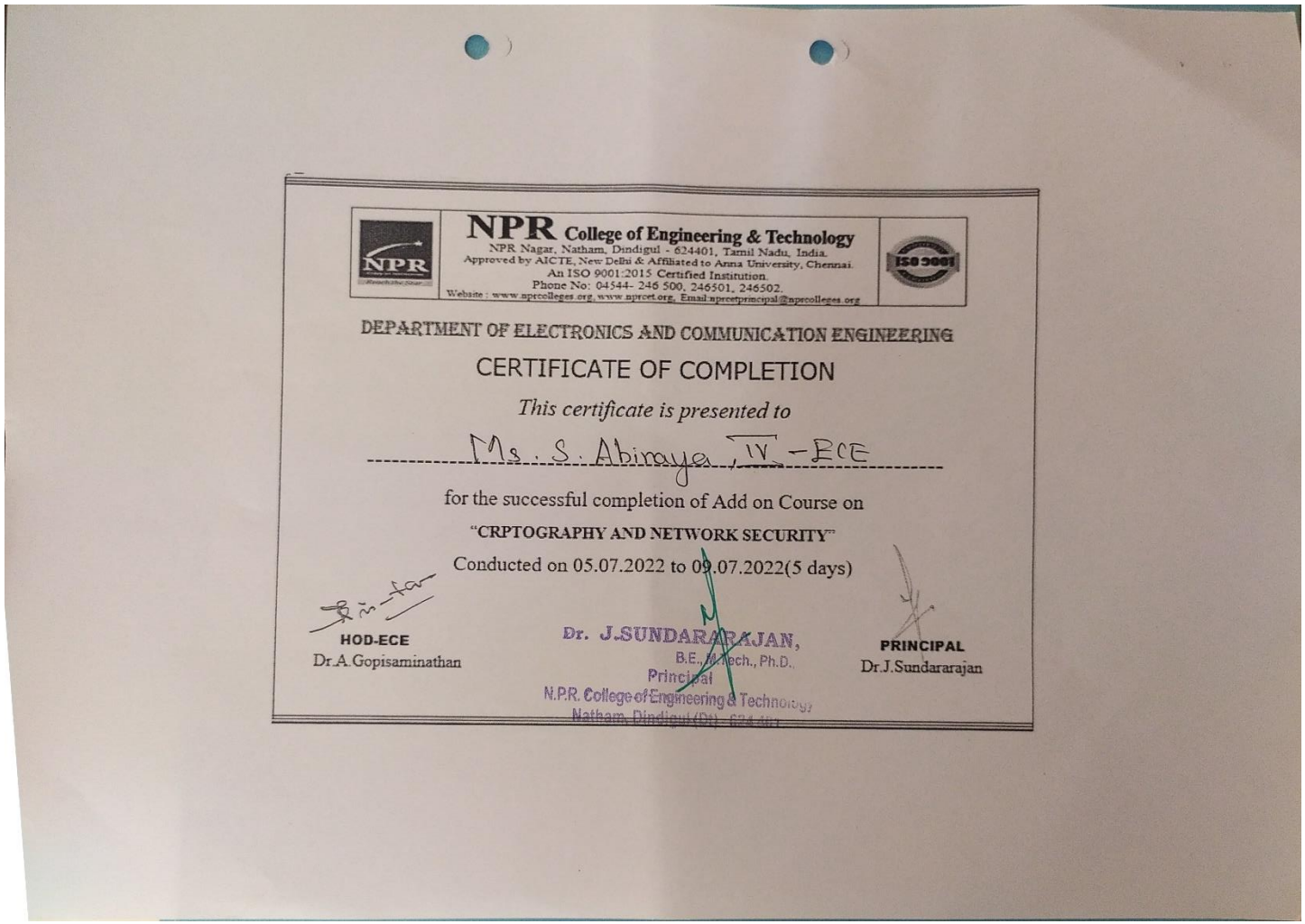
Mr. M. Balaji, III - ECE

for the successful completion of Certificate Course on
"INTRODCUTION TO IOT"
Conducted from 11.08.2021 to 13.08.2021&16.08.2021 to 17.08.2021(5 days)

HOD-ECE
Dr.A.Gopisaminathan

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

PRINCIPAL
Dr.J.Sundararajan



NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India.
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
An ISO 9001:2015 Certified Institution.
Phone No: 04544- 246 500, 246501, 246502.
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CERTIFICATE OF COMPLETION

This certificate is presented to

Ms. S. Abinaya, IV - ECE

for the successful completion of Add on Course on

"CRPTOGRAPHY AND NETWORK SECURITY"

Conducted on 05.07.2022 to 09.07.2022(5 days)

HOD-ECE
Dr.A.Gopisaminathan

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul(Dt), 624 401.

PRINCIPAL
Dr.J.Sundararajan

NPR College of Engineering & Technology
NPR Nagar, Natham, Dindigul – 624401, Tamil Nadu, India.
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
An ISO 9001:2015 Certified Institution.
Phone No: 04544- 246 500, 246501, 246502.
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CERTIFICATE OF COMPLETION

This certificate is presented to

Ms. D. Sandhiya, II - ECE

for the successful completion of Add on Course on

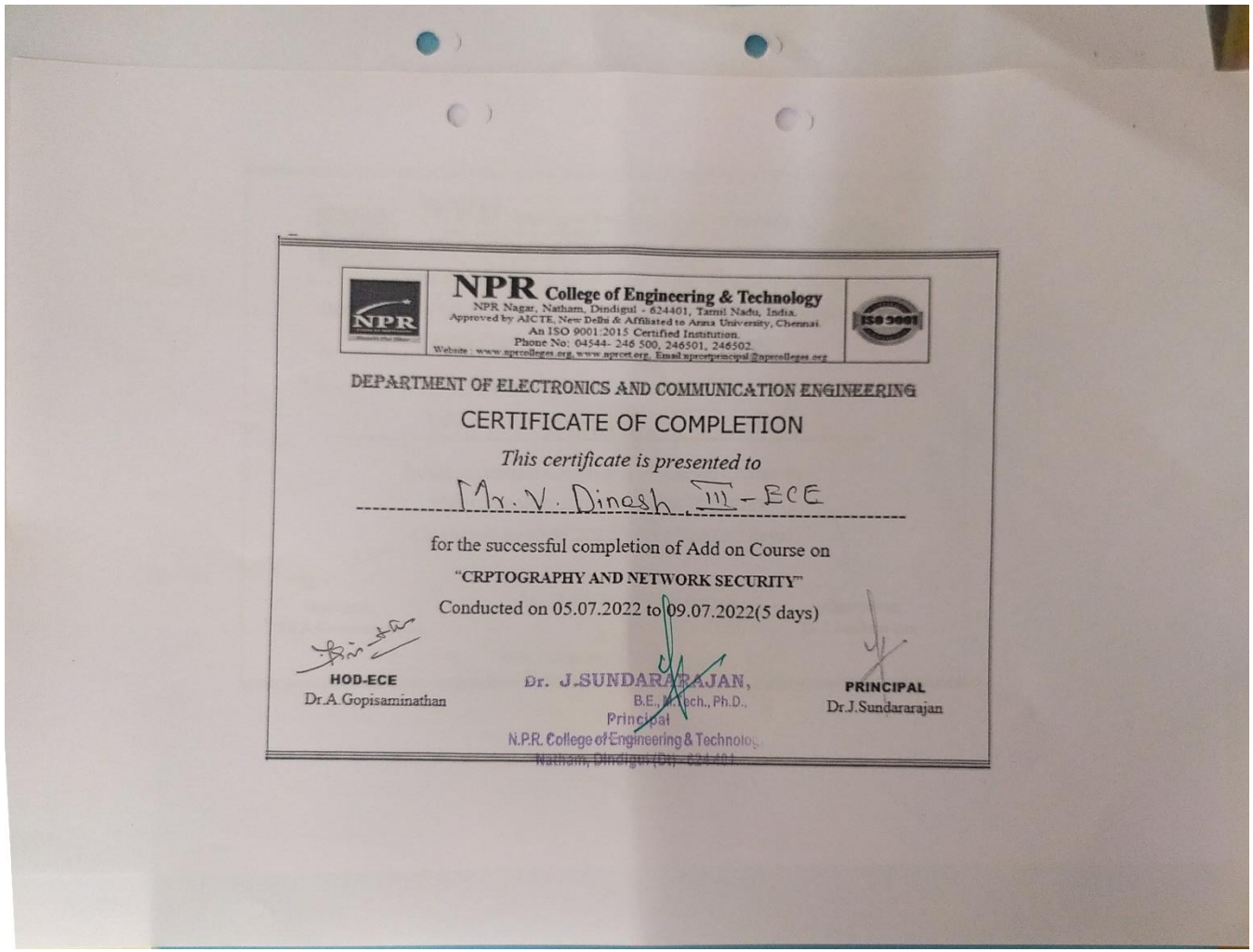
"CRPTOGRAPHY AND NETWORK SECURITY"

Conducted on 05.07.2022 to 09.07.2022(5 days)

HOD-ECE
Dr.A.Gopisaminathan

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

PRINCIPAL
Dr.J.Sundararajan



NPR College of Engineering & Technology

NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India.
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
An ISO 9001:2015 Certified Institution.
Phone No: 04544- 246 500, 246501, 246502.
Website : www.nprcolleges.org, www.nprcet.org, Email:nprcetprincipal@nprcolleges.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CERTIFICATE OF COMPLETION

This certificate is presented to

Mr. V. Dinesh III - ECE

for the successful completion of Add on Course on

"CRPTOGRAPHY AND NETWORK SECURITY"

Conducted on 05.07.2022 to 09.07.2022(5 days)

HOD-ECE
Dr.A.Gopisaminathan

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology,
Natham, Dindigul (Dt), 624 401

PRINCIPAL
Dr.J.Sundararajan

Date: 09.08.2021

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. AFRIN SHIFANA S (920819106002)** doing Third B.E. Electronics and Communication Engineering in NPR College of Engineering & Technology, Natham has undergone the In-plant training program offered by our organization during the period of 02.08.2021 – 09.08.2021.

We wish her every success in life.

Megatronics

NPR COLLEGE OF ENGG. & TECHNOLOGY • NATHAM

NATHAM

Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401

Megatronics
65, R.K. Mills 'B' Colony, Peelamedu Pudur, Coimbatore - 641 004
Cell 98422-85001 Phone 0422 - 256 5001 E-mail megatronicsindia@gmail.com
Web : www.megatronicsindia.in

Vi Microsystems Pvt. Ltd.,

Plot No.75, Electronics Estate, Perungudi, Chennai - 600096
Tel : 044-2496 1842, 2496 1852
E-mail : sales@vimicrosystems.com Website : www.vimicrosystems.com
GSTIN : 33AAACV0909J1ZJ PAN No. : AAACV0909J

70

Date: 15.03.2022

TO WHOM IT MAY CONCERN

This is to certify that **Ms.Aarthy M** (920820106001) studying in Second year Electronics and Communication Engineering of NPR College of Engineering & Technology, Natham has undergone In-Plant training in our organization for 8 days from 08.03.2022 to 15.03.2022.

During the period, her conduct was found to be good.

With Regards

For VI Microsystems

Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401

Superfect Solutions

Date: 07.03.2022

Ref No: SUP/INT/21128

INTERNSHIP TRAINING CERTIFICATE

TO WHOM IT MAY CONCERN

This is to certify that **Ms. Durgadevi.S** pursuing her Final year ECE at NPR College of Engineering & Technology, Natham, has undergone her Internship Training in our concern **from 24.02.2022 to 07.03.2022.**

We appreciate her participation with interest towards the training program.

With Regards,

For SUPERFECT SOLUTIONS,

AUTHORIZED SIGNATORY

Principal
N.P.R. College of Engineering & Technol:
Natham, Dindigul (Dt) - 624 401

SUPERFECT SOLUTIONS

Tel: 9025-655-523, **Mail:** info@superfectsolutions.com, **Web:** www.superfectsolutions.com

ELYSIUM TECHNOLOGIES PRIVATE LIMITED
GST No: 33AACC82234E1ZA
CIN No: U72200TN2006PTC060466
NASSCOM MEMBER

Date: 26.08.2021

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the students of Third year ECE of NPR College of Engineering & Technology, Natham have successfully done the Internship in our concern from 11.08.21 to 26.08.2021.

During this period they were sincere and hardworking.

S.No.	Name of the student	Register Number	Year& Branch
1.	Mohan Babu B	920819106034	III ECE
2.	Muthu Moorthy M	920819106036	III ECE
3.	Prasanna D	920819106046	III ECE
4.	Singarabrindha N	920819106059	III ECE
5.	Vishali K	920819106069	III ECE

With Regards

(For Elysium Technologies)

Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401

227-230, Church Road, Annanagar,
Madurai-625 020, Tamilnadu, India.
Ph - 452 - 4390702, 4392702
Ph - 884-479-3398
info@elysiumtechnologies.com
www.elysiumtechnologies.com

CURRICULUM COMPLIANCES

NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University
Accredited by NAAC WITH 'A' GRADE|Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401 Web: www.nprcet.org

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

COMPLAINCES OF CURRICULUM-ECE

	COURSE COMPONENT	COURSE TITLE	NUMBER OF CREDITS	TOTAL NUMBER OF CREDITS	NUMBER OF CONTACT PERIODS	TOTAL NUMBER OF CONTACT PERIODS	CURRICULUM CONTENT
1.	Humanities and Social Sciences(HS)	1Professional English-I	3	9	45	120	5.45%
		2.Professional English - II	3		30		
		3. Management - Elective	1		15		
		4. Professional Ethics	2		30		
2.	Basic Sciences(BS)	1.Engineering Mathematics - I	4	29.5	60	465	17.88%
		2. Engineering Physics	3		45		
		3.Engineering Chemistry	3		45		
		4.Physics and Chemistry Laboratory	1.5		60		
		5.Engineering Mathematics - II	4		60		
		6.Physics for Electronics Engineering	3		45		
		7. Environmental Science and Engineering	3		30		
		8.Transforms and its applications	4		60		
		9. Random Processes And Linear Algebra	4		60		
3.	Engineering Sciences(ES)	1.Problem Solving and Python Programming	3	16	45	345	9.70%
		2.Engineering Graphics	4		90		
		3.Problem Solving and Python Programming Laboratory	1.5		60		
		4. Basic Electrical and Instrumentation Engineering	3		45		
		5.Engineering Practices Laboratory	2		60		
		6. Data Structures Using C	3		45		
4.	Professional Core(PC)	1.Circuit Analysis	4	69	60	1305	41.82%
		2. Circuit Analysis Laboratory	2		30		
		3.Analog Circuit	3		45		
		4.DIGITAL SYSTEM DESIGN (Integrated Course)	4		75		
		5.Signals & Systems	4		60		
		6.Analog Communication	3		45		
		7.Analog Circuits Laboratory	1.5		45		
		8.Data Structures Using C Laboratory	1.5		45		
		9.Electromagnetic Fields	3		45		
		10.Linear Integrated Circuits	3		45		

COLLEGE OF ENGG & TECHNOLOGY NATHAM

		11.Digital Signal Processing	4		75		
		12.Microprocessors & Microcontrollers (Integrated Course)	4		60		
		13.Digital Signal Processing Laboratory	1.5		45		
		14.Linear Integrated Circuits Laboratory	1.5		45		
		15.Digital Communication	3		45		
		16.Networks & Security	3		75		
		17.Transmission Lines, Waveguides & RF Systems	3		45		
		18.VLSI Design (Integrated Course)	4		60		
		19.Communication System Laboratory	1.5		45		
		20.Network Lab	1.5		45		
		21. Embedded System & Internet Of Things	3		45		
		22. Artificial Intelligence & Machine Learning	3		45		
		23. Embedded & Iot Laboratory	1.5		45		
		24. AI & Machine Learning Laboratory	1.5		45		
		25. Antenna & Microwave Engineering	3		45		
		26.Advanced Communication Lab	1.5		45		
5.	Employability Enhancement Courses (EEC)	1.English Laboratory - 1	1	13.5	30	345	8.18%
		2.English Laboratory -II	1		60		
		3.Communication Skills Lab	1		60		
		4. Professional Development	1		30		
		5. Mini Project	1.5		45		
		6.Project Work	8		120		
	Elective(E)	1. Professional Elective-I	3	28	45	420	16.97%
		2. Open Elective-I	2		30		
		3.Professional Elective-II	3		45		
		4.Professional Elective-III	3		45		
		5. Open Elective-II	2		30		
		6. Open Elective-III	2		30		
		7.Professional Elective-IV	3		45		
		8.Professional Elective-V	3		45		
		9. Professional Elective-VI	3		45		
		10.Open Elective-IV	2		30		
		11.Open Elective-V	2		30		
	TOTAL			165		3000	100%

HoD-ECE

COLLEGE OF ENGG & TECHNOLOGY NATHAM

PRINCIPAL
Dr. J.SUNDARARAJAN, ..., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

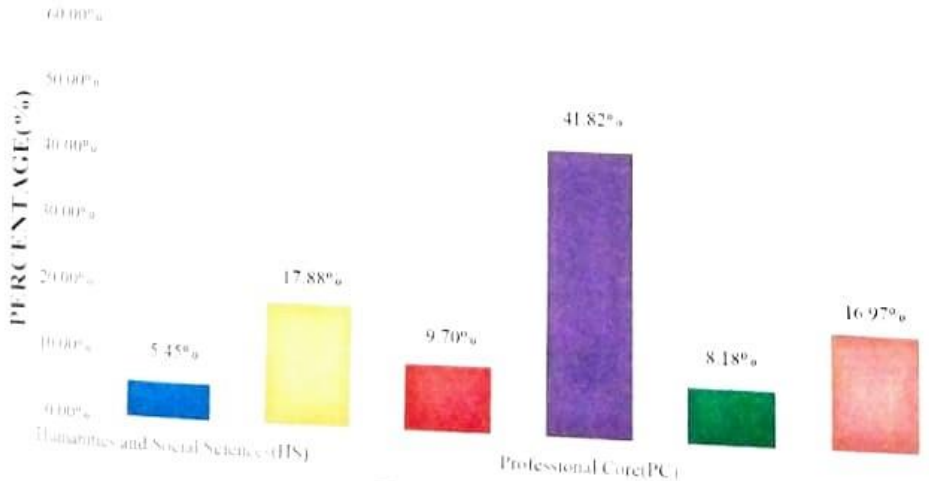
NPR
College of Engineering & Technology
Approved by AICTE, Affiliated to Anna University,
Accredited by NAAC WITH 'A' GRADE |Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401. Web: www.nprcet.org

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CONTRIBUTION OF CURRICULUM COMPONENTS

Course Component	Credits Total	Curriculum Content
Humanities and Social Sciences(HS)	9	5.45%
Basic Sciences(BS)	29.5	17.88%
Engineering Sciences(ES)	16	9.70%
Professional Core(PC)	69	41.82%
Employability Enhancement Courses (EEC)	13.5	8.18%
Elective(E)	28	16.97%
TOTAL	165	100%

COURSE COMPONENT vs PERCENTAGE



HOD - ECE

COLLEGE OF ENGG & TECHNOLOGY NATHAM

Dr. J. SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.
PRINCIPAL