

SREE NARAYANA COLLEGE KOLLAM



CERTIFICATE COURSE ON

MICROPROCESSOR AND MICROCONTROLLER

CONDUCTED BY DEPARTMENT OF PHYSICS

This course will start with a discussion on a simple microprocessor, Starts on 10/01/2019
8085. Understanding this architecture is the basis to follow any other Ends on 08/05/2019
complex CPU architecture. It will be followed by a complete overview Available Seats: 45
of a range of microcontrollers covering 8051,8086, I/O interfacing and Admission starts on
microcontrollers. 16/12/2018.

For more Information, contact SRIJITH S (coordinator)

Ph. No: 9633500425

MICROPROCESSOR AND MICROCONTROLLER

COURSE OVERVIEW

Microprocessors are used extensively in the design of any computing facility. It contains units to carry out arithmetic and logic calculations, fast storage in terms of registers and associated control logic to get instructions from memory and execute them. A number of devices can be interfaced with them to develop a complete system application. On the other hand, microcontrollers are single chip computers, integrating processor, memory and other peripheral modules into a single System-On-Chip (SoC). Apart from input-output ports, the peripherals often include timers, data converters, communication modules, and so on. The single chip solution makes the footprint of the computational element small in the overall system package, eliminating the necessity of additional chips on board. However, there exists a large range of such products. While the simpler microcontrollers are cheap, their capabilities (in terms of program size and analog and digital peripherals) are also limited. Such processors may be suitable for small applications. Microcontrollers like 8051, belong to this category. On the other hand, advanced microcontrollers are often much more powerful, comparable to the very advanced microprocessors.

This course will start with a discussion on a simple microprocessor, 8085. Understanding this architecture is the basis to follow any other complex CPU architecture. It will be followed by a complete overview of a range of microcontrollers covering 8051, 8086, I/O interfacing and microcontrollers. The hardware intricacies of these processors and their programming will be covered.

Course Outcome

1. Develop an ALP in 8085 microprocessor using the internal organization for the given Specification.
2. Describe the architecture and functional block of 8051 microcontroller
3. Develop an embedded C and ALP in 8051 microcontroller using the internal functional blocks for the given specification

Dept of Physics
Annamalai University
Koduvayur-605 001

SYLLABUS (Theory: 32 Hrs and Practicals: 8 Hrs)

UNIT I THE 8086 MICROPROCESSOR (08 Hrs)

Introduction to 8086 – Microprocessor architecture – Addressing modes – Instruction set and assembler directives – Assembly language programming – Modular Programming – Linking and Relocation – Stacks – Procedures – Macros – Interrupts and interrupt service routines – Byte and String Manipulation.

UNIT II 8086 SYSTEM BUS STRUCTURE (08 Hrs)

8086 signals – Basic configurations – System bus timing – System design using 8086 – I/O programming – Introduction to Multiprogramming – System Bus Structure – Multiprocessor configurations – Coprocessor, Introduction to advanced processors.

UNIT III I/O INTERFACING (08 Hrs)

Memory Interfacing and I/O interfacing – Parallel communication interface – Serial communication interface – D/A and A/D Interface – Timer – LED display and LCD display.

UNIT IV MICROCONTROLLER (08 Hrs)

Architecture of 8051 – Special Function Registers(SFRs) – I/O Pins Ports and Circuits – Instruction set – Addressing modes – Assembly language programming.

Practical Exercises (08 Hrs)

1. Develop assembly language program for subtraction of two numbers using μ P 8085 kit.
2. Develop assembly language program for multiplication of two numbers using μ P 8085 kit.
3. Interface seven segment LED display with 8051 kit.
4. Interface LCD display with 8051 kit.
5. Control speed of stepper motor using 8051 kit.

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Sree Narayana College
Kottam-651 301

Books for Study

1. Microprocessor Architecture, Programming and Applications with 8085: Gaonkar, Ramesh S. Penram International Publishing (India) Pvt. Ltd. New Delhi (5th Edition)
2. Fundamentals of Microprocessors and Microcontrollers: Ram, B. Dhanpat Rai Publications, New Delhi
3. Microprocessors and Interfacing Programming and Hardware: Hall, Douglass V. TMH publication, New Delhi, (latest Edition)
4. The 8051 Microcontroller Architecture, Programming and Applications: Ayala, Kenneth J. Penram International Publishing (I) Pvt. Ltd. New Delhi
5. The 8051 Microcontroller and Embedded Systems using Assembly and C: Ali, Muhamad Mazidi, Janice Mazidi Gillispie, Rolin D. Mckinleay, PHI Learning, New Delhi, (latest Edition)

List of Software/Learning Websites

1. www.keil.com/
2. www.allaboutcircuits.com
3. www.nmbtc.com
4. [http://nptel.ac.in/courses/Webcoursecontents/IITKANPUR/microcontrollers/micro/ui/Course_](http://nptel.ac.in/courses/Webcoursecontents/IITKANPUR/microcontrollers/micro/ui/Course_home1_1.htm)
[home1_1.htm](http://nptel.ac.in/courses/Webcoursecontents/IITKANPUR/microcontrollers/micro/ui/Course_home1_1.htm)

Turtha Alharayil
Principal
Sree Narayana College
Kollam



SREE NARAYANA COLLEGE, KOLLAM

DEPARTMENT OF PHYSICS

Certificate Courses

Members of the Board Studies

The following faculties are selected as Members of Board of studies for Certificate courses (Microprocessor and Microcontrollers, Python Programming) Conducted by Department of Physics, Sree Narayana College, Kollam in the academic year 2018-19.

	Name	Designation
1	Dr. Anitha Sankar	Principal, Associate Professor, Department of English, Sree Narayana College, Kollam.
2	Dr. G. Sajeevkumar	Associate Professor, Department of Physics, Sree Narayana College, Kollam
3	Sri. Srijith S	Assistant Professor, Department of Physics, Sree Narayana College, Kollam
4	Smt. Asitha L.R	Assistant Professor, Department of Physics, Sree Narayana College, Kollam
5	Sri. Baiju V	Assistant Professor, Department of Physics, Sree Narayana College, Kollam
6	Dr. Dedhila Devadathan	Assistant Professor, Department of Physics, Sree Narayana College, Kollam
7	Dr. Sankar S	Assistant Professor, Department of Physics, Sree Narayana College, Kollam
8	Dr. Roxy M S	Assistant Professor, Department of Physics, Sree Narayana College, Kollam
9	Dr. Vidya S	Assistant Professor, Department of Physics, Sree Narayana College, Kollam
10	Smt. Rehna R	Assistant Professor, Department of Physics, Sree Narayana College, Kollam



Tushar Haraji
Principal
Sree Narayana College
Kollam



SREE NARAYANA COLLEGE, KOLLAM
DEPARTMENT OF PHYSICS

The following faculties are selected as trainers for Certificate courses (Microprocessor and Microcontrollers, Python Programming) Conducted by Department of Physics, Sree Narayana College, Kollam in the academic year 2018-19.

List of Teachers - Microprocessor and Microcontrollers				
	Name	College	Mobile no:	mail id
1	Dr.Sankar S	SNCK	9496260308	sukusankar@yahoo.co.in
2	Sri. Srijith S	SNCK	9633500425	srijithkeanu@gmail.com
3	Smt.Asitha L.R	SNCK	9995213881	asitha85@gmail.com
4	Sri. Baiju V	SNCK	8281856366	baijuvkollam@gmail.com

List of Teachers - Python Programming				
	Name	College	Mobile no:	mail id
1	Dr.Dedhila Devadathan	SNCK	9446454083	dedhila@gmail.com
2	Dr Roxy M S	SNCK	9495243029	roxyms@gmail.com
3	Dr Vidya S	SNCK	9745464525	vidyaasnair@gmail.com
4	Smt Rehna R	SNCK	8281328303	rehnaraju@gmail.com



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Kollam



SREE NARAYANA COLLEGE, KOLLAM

DEPARTMENT OF PHYSICS

CERTIFICATE COURSE TIME TABLE

Name: Microprocessor and Microcontroller (MM)

Duration: 30 Hrs

Start Date: SEP 10 2018

End Date: JAN 10 2019

Day /03:30 Pm to 04:30 Pm	Handled by
Monday	Dr.Sajeevkumar G
Tuesday	Practical Hours (Rehna R and Dedhila)
Wednesday	Asitha L.R
Thursday	Srijith S
Friday	Dr. Muhammed Salim / Aparna L R



Dept of Physics
Sree Narayana College
Kollam-691 004

**SREE NARAYANA COLLEGE ,KOLLAM
DEPARTMENT OF PHYSICS**

CERTIFICATE COURSE

Name : Microprocessor and Microcontroller (MIM)

Duration : 30 Hrs

Start Date: JAN 10 2019

End Date: MAY 08 2019

LIST OF STUDENTS

Sl. No.	Name of the student	Gender	Email ID	Class	Mobile No:	Year of Admission
1	ABHINANDANA B.	FEMALE	abhinandanaabhi28@gmail.com	B.Sc. Physics	9400146284	2018
2	AJIN DEV	MALE	ajindev2000@gmail.com	B.Sc. Physics	9847249667	2018
3	ATHULYA RAVIKUMAR	FEMALE	athulyaravikumar777@gmail.com	B.Sc. Physics	9744010326	2018
4	POOJA RAJ	FEMALE	poojarajmangakunnu@gmail.com	B.Sc. Physics	9446008995	2018
5	AKSHAY S.KUMAR	MALE	akshaykumar366@gmail.com	B.Sc. Physics	9048086106	2018
6	VISHNU RAVEENDRAN	MALE	vishnuraveendran2018@gmail.com	B.Sc. Physics	9605493969	2018
7	VARSHA BABU	FEMALE	varshababu121131@gmail.com	B.Sc. Physics	9495348319	2018
8	AKHIL RAJ R.	MALE	akhilrajgeetha@gmail.com	B.Sc. Physics	9562381945	2018
9	POOJA RAJ A.	FEMALE	poojaraja080700@gmail.com	B.Sc. Physics	7034047483	2018
10	ANJANA BABU A.	FEMALE	ambikaambikababu134@gmail.com	B.Sc. Physics	9544410173	2018
11	FERNA FARHEEN M. K.	FEMALE	fernafarheenmk@gmail.com	B.Sc. Physics	9745014852	2018
12	AHALYA A.	FEMALE	ahalyaa60@gmail.com	B.Sc. Physics	7025489229	2018
13	ARUNIMA A. S.	FEMALE	arunimasureshezhucone@gmail.com	B.Sc. Physics	9645943179	2018
14	ARUN J. K.	MALE	arunj2000@gmail.com	B.Sc. Physics	9746568780	2018
15	BINIL B.	MALE	binilbalu369@gmail.com	B.Sc. Physics	8547000730	2018
16	REEJA K. GEORGE	FEMALE	reejakgeorge@gmail.com	B.Sc. Physics	9447911680	2018
17	GOKUL RAJ	MALE	Gokulrajreevinayakasdp@gmail.com	B.Sc. Physics	7356105048	2018
18	SEETHA RAJAN L.	FEMALE	seetharajan2000@gmail.com	B.Sc. Physics	9947447841	2018
19	BHAGYA CHANDRAN	FEMALE	bhagyachandran200@gmail.com	B.Sc. Physics	9567215072	2018
20	PRINCE S.KRISHNAN	MALE	princepranavam054@gmail.com	B.Sc. Physics	9567762116	2018

21	ABHIRAMI S.	FEMALE	abhirami3knpv@gmail.com	B.Sc. Physics	9645213649	2018
22	ASWAJITH A.	MALE	aswajith7777@gmail.com	B.Sc. Physics	8156885471	2018
23	STEPHI MANOJ	FEMALE	stephimanoj1999@gmail.com	B.Sc. Physics	9847948230	2018
24	APARNA A. P.	FEMALE	mail4aparnaap@gmail.com	B.Sc. Physics	9961484142	2018
25	AKASH B.S.	MALE	bsakash385@gmail.com	B.Sc. Physics	9809728091	2018
26	BHAMINI KRISHNAVENI A.	CFEMALE	bhaminikrishnaveniag05511@gmail.com	B.Sc. Physics	9497254463	2018
27	ARAVIND S. LAL	MALE	aravindslal1@gmail.com	B.Sc. Physics	9447416854	2018
28	AKHIL KRISHNAN R.	MALE	shajikundara06041967@gmail.com	B.Sc. Physics	7907372018	2018
29	GAYATHRI SATHYAN	FEMALE	gayathrisathyvan2000@gmail.com	B.Sc. Physics	9745927910	2018
30	ABIN ALEXANDER	MALE	abinalexander15@gmail.com	B.Sc. Physics	8547792993	2018
31	KAVYA S.	FEMALE	kavya6885@gmail.com	B.Sc. Physics	9995358739	2018
32	ANJALI S.	FEMALE	anjalipvm98@gmail.com	B.Sc. Physics	8281042980	2018
33	MEGHA K.	FEMALE	meghamply2000@gmail.com	B.Sc. Physics	9747038186	2018
34	VISHNU S.	MALE	vishnuresh34595@gmail.com	B.Sc. Physics	8593058591	2018
35	VISWAJITH S.	MALE	viswajithrevathy@gmail.com	B.Sc. Physics	9496546800	2018
36	APARNA P.	FEMALE	aparnaprakashan5@gmail.com	B.Sc. Physics	9946387801	2018
37	DEEPEESH S. G..	MALE	deepesh2555634@gmail.com	B.Sc. Physics	9446828678	2018
38	AKHILA A. L.	FEMALE	akhilani897@gmail.com	B.Sc. Physics	9446181554	2018
39	GREESHMA BABU	FEMALE	sreedharanbabu022@gmail.com	B.Sc. Physics	7902881629	2018
40	AKHIL S.	MALE	akhilsktr2000@gmail.com	B.Sc. Physics	9744427706	2018
41	VISMAYA	FEMALE	benansonkundara@gmail.com	B.Sc. Physics	8078482132	2018
42	ADHIN PRADEEP	MALE	adhinpradeep007@gmail.com	B.Sc. Physics	9447569512	2018
43	PRANAV J. S.	MALE	pranavs56@gmail.com	B.Sc. Physics	8156917829	2018
44	V. S. VISHNU MOHAN	MALE	me.hivishnu@gmail.com	B.Sc. Physics	9744539905	2018

Dept. of Physics
Sree Narayana College
Kollam, Kerala

DEPARTMENT OF PHYSICS

CERTIFICATE COURSE

Name : **Microprocessor and Microcontroller (MM)**

Duration : 30 Hrs

Start Date: **JAN 10 2019**

End Date:

MAY 08 2019


ATTENDANCE STATEMENT

Sl No	Name of the Student	Register No:	% of Attendance
1	ABHINANDANA B.	MM01	90
2	AJIN DEV	MM02	88
3	ATHULYA RAVIKUMAR	MM03	89
4	POOJA RAJ	MM04	90
5	AKSHAY S.KUMAR	MM05	89
6	VISHNU RAVEENDRAN	MM06	88
7	VARSHA BABU	MM07	87
8	AKHIL RAJ R.	MM08	80
9	POOJA RAJ A.	MM09	89
10	ANJANA BABU A.	MM10	80
11	FERNA FARHEEN M. K.	MM11	88
12	AHALYA A.	MM12	89
13	ARUNIMA A. S.	MM13	80
14	ARUN J. K.	MM14	90
15	BINIL B.	MM15	91
16	REEJA K. GEORGE	MM16	92
17	GOKUL RAJ	MM17	91
18	SEETHA RAJAN L.	MM18	92
19	BHAGYA CHANDRAN	MM19	90
20	PRINCE S.KRISHNAN	MM20	88
21	ABHIRAMI S.	MM21	89
22	ASWAJITH A.	MM22	90
23	STEPHI MANOJ	MM23	91
24	APARNA A. P.	MM24	92
25	AKASH B.S.	MM25	90
26	BHAMINI KRISHNAVEN	MM26	91
27	ARAVIND S. LAL	MM27	90
28	AKHIL KRISHNAN R.	MM28	88
29	GAYATHRI SATHYAN	MM29	87
30	ABIN ALEXANDER	MM30	88
31	KAVYA S.	MM31	89
32	ANJALI S.	MM32	90
33	MEGHA K.	MM33	90
34	VISHNU S.	MM34	91
35	VISWAJITH S.	MM35	91
36	APARNA P.	MM36	82
37	DEEPESH S. G..	MM37	80
38	AKHILA A. L.	MM38	82
39	GREESHMA BABU	MM39	90
40	AKHIL S.	MM40	87
41	VISMAYA	MM41	88

Ajinder
Athulya Ravikumar
Pooja Raj
Akshay
Vishnu
Varsha Babu
Akhil
Pooja Raj A.
Anjana Babu A.
Ferna Farheen M. K.
Ahalya A.
Arunima A. S.
Arun J. K.
Binil B.
Reeja K. George
Gokul Raj
Seetha Rajan L.
Bhagya Chandran
Prince S. Krishnan
Abhirami S.
Aswajith A.
Stephi Manoj
Aparna A. P.
Akash B.S.
Bhamini Krishnaven
Aravind S. Lal
Akhil Krishnan R.
Gayathri Sathyan
Abin Alexander
Kavya S.
Anjali S.
Megha K.
Vishnu S.
Viswajith S.
Aparna P.
Deepesh S. G..
Akhila A. L.
Greeshma Babu
Akhil S.
Vismaya

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42	ADHIN PRADEEP	MM42	89			
43	PRANAV J. S.	MM43	90			
44	V. S. VISHNU MOHAN	MM44	91			



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Kollam



SREE NARAYANA COLLEGE, KOLLAM
DEPARTMENT OF PHYSICS
CERTIFICATE COURSE

Name : **Microprocessor and Microcontroller (MM)**

Duration : 30 Hrs

Start Date: JAN 10 2019

End Date: MAY 08 : 2019

MARK LIST

Sl. No.	Enrollment No.	Name of the student	Name of the Department	Completed (Yes or No)	MARKS		
					THEORY MAX: 50	PRACTICALS MAX: 25	TOTAL MAX: 75
1	MM01	ABHINANDANA B.	Physics	Yes	40	23	63
2	MM02	AJIN DEV	Physics	Yes	41	23	64
3	MM03	ATHULYA RAVIKUMAR	Physics	Yes	42	22	64
4	MM04	POOJA RAJ	Physics	Yes	44	23	67
5	MM05	AKSHAY S.KUMAR	Physics	Yes	40	23	63
6	MM06	VISHNU RAVEENDRAN	Physics	Yes	36	24	60
7	MM07	VARSHA BABU	Physics	Yes	37	23	60
8	MM08	AKHIL RAJ R.	Physics	Yes	39	23	62
9	MM09	POOJA RAJ A.	Physics	Yes	40	24	64
10	MM10	ANJANA BABU A.	Physics	Yes	41	24	65
11	MM11	FERNA FARHEEN M. K.	Physics	Yes	41	23	64
12	MM12	AHALYA A.	Physics	Yes	38	22	60
13	MM13	ARUNIMA A. S.	Physics	Yes	39	23	62
14	MM14	ARUN J. K.	Physics	Yes	43	24	67
15	MM15	BINIL B.	Physics	Yes	41	23	64
16	MM16	REEJA K. GEORGE	Physics	Yes	41	24	65
17	MM17	GOKUL RAJ	Physics	Yes	40	23	63
18	MM18	SEETHA RAJAN L.	Physics	Yes	38	23	61
19	MM19	BHAGYA CHANDRAN	Physics	Yes	35	24	59
20	MM20	PRINCE S.KRISHNAN	Physics	Yes	36	23	59
21	MM21	ABHIRAMI S.	Physics	Yes	39	23	62
22	MM22	ASWAJITH A.	Physics	Yes	40	22	62

23	MM23	STEPHI MANOJ	Physics	Yes	36	21	57
24	MM24	APARNA A. P.	Physics	Yes	39	23	62
25	MM25	AKASH B.S.	Physics	Yes	41	24	65
26	MM26	BHAMINI KRISHNA VENI A	Physics	Yes	33	22	55
27	MM27	ARA VIND S. LAL	Physics	Yes	34	23	57
28	MM28	AKHIL KRISHNAN R.	Physics	Yes	43	23	66
29	MM29	GAYATHRI SATHYAN	Physics	Yes	33	24	57
30	MM30	ABIN ALEXANDER	Physics	Yes	43	23	66
31	MM31	KAVYA S.	Physics	Yes	34	23	57
32	MM32	ANJALI S.	Physics	Yes	37	23	60
33	MM33	MEGHA K.	Physics	Yes	34	23	57
34	MM34	VISHNU S.	Physics	Yes	45	23	68
35	MM35	VISWAJITH S.	Physics	Yes	45	23	68
36	MM36	APARNA P.	Physics	Yes	43	23	66
37	MM37	DEEPESH S. G..	Physics	Yes	44	23	67
38	MM38	AKHILA A. L.	Physics	Yes	35	23	58
39	MM39	GREESHMA BABU	Physics	Yes	45	23	68
40	MM40	AKHIL S.	Physics	Yes	42	24	66
41	MM41	VISMAYA	Physics	Yes	43	23	66
42	MM42	ADHIN PRADEEP	Physics	Yes	43	23	66
43	MM43	PRANAV J. S.	Physics	Yes	45	25	70
44	MM44	V. S. VISHNU MOHAN	Physics	Yes	42	23	65

REPORT ON CERTIFICATE COURSE IN MICROPROCESSOR AND MICROCONTROLLER AND PYTHON PROGRAMMING

DEPARTMENT OF PHYSICS

ACADEMIC YEAR 2018-19

The BoS has decided to initiate the following courses in the academic year 2018-19.

1. MICROPROCESSOR AND MICROCONTROLLER (MM)

2. PYTHON PROGRAMMING (PY)

- The syllabus for the above courses was designed by the committee by considering the global needs and demand of the market.
- It was decided to conduct the above courses for more than 30 hours.
- The committee has framed the time- table apart from the academic hours.
- The Python Programming Classes will start on September 10 2018 and ends on Jan 10 2019.
- While running the course there are some expenditures such remuneration for the trainers, stationery and miscellaneous. Therefore, the minimum affordable fees should be charged.
- The committee has suggested to appoint the trainers for the above courses.
- The minimum attendance for the successful completion of the course is decided to be 75%.
- The minimum marks required for the qualification is decided to be 50 marks for Theory and 25 marks for Practicals.
- The submission of the assignment is compulsory for the successful completion of the course.
- The board has decided to initiate the certificate courses as per the demand of the stakeholders and approval of I.Q.A.C.

The Python Fundamentals for Beginners course offers a base knowledge of various Python concepts, starting from its introduction. The Course was intended to learn about variables in programming, decision-making statements, looping statements, algorithmic approaches, object-oriented programming concepts, and functions which are the essential elements that contribute to structuring any programming language.

After inheritance, students completed an assignment and an exam to test their knowledge to complete the course and earned a free certificate. After completing this free, self-paced, beginner's guide to Python, you can embark on your **Software and IT** career with a professional Post Graduate certificate and learn various concepts with millions of aspirants across the globe.

Duration: 08 hrs Practical and 32 hrs theory

The students have completed 30 sessions including theory and practical during the period September 2018- January 2019.

Total Students Successfully Completed: 43

Microprocessor and Microcontroller course will start with a discussion on a simple microprocessor, 8085. Understanding this architecture is the basis to follow any other complex CPU architecture. It will be followed by a complete overview of a range of microcontrollers covering 8051,8086, I/O interfacing and microcontrollers. The hardware intricacies of these processors and their programming will be covered. Students developed an in-depth understanding of the structure and operations of Microprocessors & Microcontrollers, and interfacing techniques and basic understanding of hardware and software interaction and integration.

Duration: 08 hrs Practical and 32 hrs theory

The students have completed 30 sessions including theory and practical during the period January 2019- May 2019.

Total Students Successfully Completed: 44



Dept of Physics
Sree Narayana College
Kollam-201 001

Turkathurayil
Principal
Sree Narayana College
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Sree Narayana College, Kollam

Re-Accredited by NAAC with "A" Grade

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Dr. Sunilkumar R.

M.A, M.Phil., Ph.D

Principal

Mob No.: 9387500997

Email : sunilanena@gmail.com

Ref: PL/8032/2022

Date
05.01.2022

Certificate

Certified that **Sajna N.K, Associate Professor, Department of Physics, TKM College of Arts and Science, Kollam** is a member of the Board of studies for framing the syllabus and curriculum for the certificate courses offered by the Department of Physics of this college during the academic year 2018-19.

PRINCIPAL