

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 15/01/2018
8085. Understanding this architecture is the basis to follow any other Ends on 15/05/2018
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. 10/12/2018.

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

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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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K. J. Somaiya College
Kalam - 581 001

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_home1_1.htm

Dept of Physics
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Sunil Harayil
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 2017-18.

	Name	Designation
1	Dr. Anirudhan	Principal, Associate Professor, Department of Botany, 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



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Kollam-691 001

SREE NARAYANA COLLEGE, KOLLAM
DEPARTMENT OF PHYSICS

Minutes of the Meeting

The minutes of the meeting of the BoS of Certificate courses was held on 25th July, 2017 in the Department of Physics, Sree Narayana College, Kollam at 10.00 a.m. The following members were present for the meeting.

- 1 Dr. Anirudhan
- 2 Dr. Sankar S
- 3 Smt. Asitha L R
- 4 Sri. Srijith S
- 5 Sri. Baiju V
- 6 Dr. Roxy M S
- 7 Dr. Dedhila Devadathan
- 8 Dr. Vidya S
- 9 Smt. Rehna R
- 10 Dr. Sajeev Kumar G
- 11 Sri. Vipin Kumar C

The following points were discussed in the meeting.

- The BoS has decided to initiate the following courses in the academic year 2017-18.
 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 01 2017 and ends on Jan 02 2018.


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- 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.

Smt. Roxy M.S proposed vote of thanks and the meeting was ended.



Dept. of Physics
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Vashi - 401 306

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 2017-18.

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 - 691 001

SREE NARAYANA COLLEGE, KOLLAM
DEPARTMENT OF PHYSICS
CERTIFICATE COURSE TIME TABLE

Name: Microprocessor and Microcontroller (MM)

Duration: 30 Hrs

Start Date: JAN 10 2018

End Date: MAY 10 2018

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



Date of Issue
Department of Physics
Sree Narayana College
Kollam 201 001

SREE NARAYANA COLLEGE ,KOLLAM
DEPARTMENT OF PHYSICS
CERTIFICATE COURSE

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

Duration : 30 Hrs

Start Date: JAN 10 2018

END DATE:

MAY 10 2018

LIST OF STUDENTS

Sl. No.	Name of the student	Gender	Class	Mobile No:	Year of Admission
1	AMBIKA PRASAD	F	MSC Physics	9447064602	2017
2	AMINSHAH S U	F	MSC Physics	9446900213	2017
3	AMRITHA L	F	MSC Physics	9633500425	2017
4	ANANDU P RAJU	M	MSC Physics	9995213881	2017
5	ANANTHU A	M	MSC Physics	8281856366	2017
6	ANJU B M	F	MSC Physics	9446454083	2017
7	ANUPAMA S	F	MSC Physics	9496260308	2017
8	ANZIA A	F	MSC Physics	9495243029	2017
9	APARNA G	F	MSC Physics	9745464525	2017
10	ARYA C R	F	MSC Physics	8281328303	2017
11	ASWATHY VARMA V	F	MSC Physics	9995154591	2017
12	ATHIRA V L	F	MSC Physics	9746400006	2017
13	GOPIKRISHNA M	M	MSC Physics	9446908450	2017
14	HARSHA P	F	MSC Physics	7034835244	2017
15	IVAN JOSE	M	MSC Physics	9946635799	2017
16	MEGHNA BABU	F	MSC Physics	9446556866	2017
17	RAKHI CHANDRAN S	F	MSC Physics	9447029436	2017
18	RANI KRISHNAN M	F	MSC Physics	8921473656	2017
19	SREELEKSHMI S	F	MSC Physics	9567609653	2017
20	VENI C S	F	MSC Physics	9446258067	2017
21	VINDHUJA KRISHNAN K P	F	MSC Physics	9495075366	2017
22	ABHIJITH AJAYAN	M	MSC Physics	8848782082	2016
23	ABHIRAMI M S	F	MSC Physics	9497691864	2016
24	AGISHA S CHITHAN	F	MSC Physics	9400202626	2016
25	AKSHAY S NAIR	M	MSC Physics	9746921447	2016
26	ARYA.H	F	MSC Physics	9415611844	2016
27	ARYACHANDRAN	F	MSC Physics	9801473515	2016
28	ATHULYA S RAJ	F	MSC Physics	9496464119	2016
29	BHAIRAVY RENGAN	F	MSC Physics	8086070088	2016
30	JINNY NARAYANAN K C	F	MSC Physics	8848782082	2016
31	LEKSHMI P	F	MSC Physics	9961003006	2016
32	MANEESHA S	F	MSC Physics	9495741770	2016

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33	NANDU G S	M	MSC Physics	9947971278	2016
34	NEERAJA S M	F	MSC Physics	8754796595	2016
35	NIMMI M B	F	MSC Physics	9994172689	2016
36	SAGARA SL SURENDRAN	F	MSC Physics	7736346988	2016
37	SALMA SANTHOSH	F	MSC Physics	9486673595	2016
38	SINNY N P	M	MSC Physics	9007502145	2016
39	SONY RAJ.R	F	MSC Physics	7025057449	2016



Dept. of Physics
 Anna University
 Chennai-600 025

DEPARTMENT OF PHYSICS

CERTIFICATE COURSE

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

Duration : 30 Hrs

Start Date: **JAN 10 2018**

End Date:

MAY 10 2018

ATTENDENCE STATEMENT

SI No	Name of the Student	Register No:	% of Attendance	
1	AMBIKA PRASAD	MM01	90	Ambika
2	AMINSHAH S U	MM02	88	Di
3	AMRITHA L	MM03	89	Amritha
4	ANANDU P RAJU	MM04	90	Anandu
5	ANANTHU A	MM05	89	Ananthu
6	ANJU B M	MM06	88	Anju
7	ANUPAMA S	MM07	87	Anupama
8	ANZIA A	MM08	80	Anzia
9	APARNA G	MM09	89	Aparna
10	ARYA C R	MM10	80	Arya
11	ASWATHY VARMA V	MM11	88	Ashu
12	ATHIRA V L	MM12	89	Athira
13	GOPIKRISHNA M	MM13	80	Gopi
14	HARSHA P	MM14	90	Harsha
15	IVAN JOSE	MM15	91	Ivan
16	MEGHNA BABU	MM16	92	Megha
17	RAKHI CHANDRAN S	MM17	91	Rakhi
18	RANI KRISHNAN M	MM18	92	Rani
19	SREELEKSHMI S	MM19	90	Sree
20	VENI C S	MM20	88	Veni
21	VINDHUJA KRISHNAN K	MM21	89	Vindhu
22	ABHIJITH AJAYAN	MM22	90	Abhi
23	ABHIRAMI M S	MM23	91	Abhirami
24	AGISHA S CHITHAN	MM24	92	Agisha
25	AKSHAY S NAIR	MM25	90	Akshay
26	ARYA.H	MM26	91	Arya
27	ARYACHANDRAN	MM27	90	Arya
28	ATHULYA S RAJ	MM28	88	Athulya
29	BHAIRAVY RENGAN	MM29	87	Bhairavy
30	JINNY NARAYANAN K C	MM30	88	Jinny
31	LEKSHMI P	MM31	89	Lekshmi
32	MANEESHA S	MM32	90	Maneesha
33	NANDU G S	MM33	90	Nandu
34	NEERAJA S M	MM34	91	Neeraja
35	NIMMI M B	MM35	91	Nimmi
36	SAGARA SL SURENDRAN	MM36	82	Sagara
37	SALMA SANTHOSH	MM37	80	Salma
38	SINNY N P	MM38	82	Sinny
39	SONY RAJ.R	MM39	89	Sony

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SREE NARAYANA COLLEGE ,KOLLAM
DEPARTMENT OF PHYSICS
CERTIFICATE COURSE

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

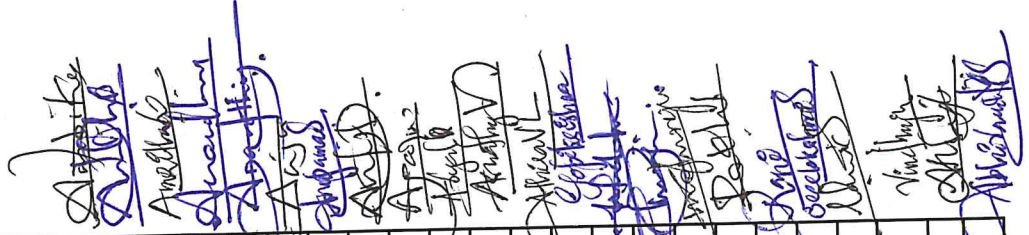
Duration : 30 Hrs

Start Date: JAN 10 2018

End Date: MAY 10 :

2018

Sl. No.	Enrollment No.	Name of the student	Name of the Department	Completed (Yes or No)	MARKS		
					THEORY	PRACTICALS	TOTAL
					MAX: 50	MAX: 25	MAX: 75
1	MM01	AMBIKA PRASAD	Physics	Yes	40	23	63
2	MM02	AMINSHAH S U	Physics	Yes	41	23	64
3	MM03	AMRITHA L	Physics	Yes	42	22	64
4	MM04	ANANDU P RAJU	Physics	Yes	44	23	67
5	MM05	ANANTHU A	Physics	Yes	40	23	63
6	MM06	ANJU B M	Physics	Yes	36	24	60
7	MM07	ANUPAMA S	Physics	Yes	37	23	60
8	MM08	ANZIA A	Physics	Yes	39	23	62
9	MM09	APARNA G	Physics	Yes	40	24	64
10	MM10	ARYA C R	Physics	Yes	41	24	65
11	MM11	ASWATHY VARMA V	Physics	Yes	41	23	64
12	MM12	ATHIRA V L	Physics	Yes	38	22	60
13	MM13	GOPIKRISHNA M	Physics	Yes	39	23	62
14	MM14	HARSHA P	Physics	Yes	43	24	67
15	MM15	IVAN JOSE	Physics	Yes	41	23	64
16	MM16	MEGHNA BABU	Physics	Yes	41	24	65
17	MM17	RAKHI CHANDRAN S	Physics	Yes	40	23	63
18	MM18	RANI KRISHNAN M	Physics	Yes	38	23	61
19	MM19	SREELEKSHMI S	Physics	Yes	35	24	59
20	MM20	VENI C S	Physics	Yes	36	23	59
21	MM21	VINDHUJA KRISHNAN K P	Physics	Yes	39	23	62
22	MM22	ABHIJITH AJAYAN	Physics	Yes	40	22	62
23	MM23	ABHIRAMI M S	Physics	Yes	36	21	57



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24	MM24	AGISHA S CHITHAN	Physics	Yes	39	23	62
25	MM25	AKSHAY S NAIR	Physics	Yes	41	24	65
26	MM26	ARYA.H	Physics	Yes	33	22	55
27	MM27	ARYACHANDRAN	Physics	Yes	34	23	57
28	MM28	ATHULYA S RAJ	Physics	Yes	43	23	66
29	MM29	BHAIRAVY RENGAN	Physics	Yes	33	24	57
30	MM30	JINNY NARAYANAN K C	Physics	Yes	43	23	66
31	MM31	LEKSHMI P	Physics	Yes	34	23	57
32	MM32	MANEESHA S	Physics	Yes	37	23	60
33	MM33	NANDU G S	Physics	Yes	34	23	57
34	MM34	NEERAJA S M	Physics	Yes	45	23	68
35	MM35	NIMMI M B	Physics	Yes	45	23	68
36	MM36	SAGARA SL SURENDRAN	Physics	Yes	43	23	66
37	MM37	SALMA SANTHOSH	Physics	Yes	44	23	67
38	MM38	SINNY N P	Physics	Yes	35	23	58
39	MM39	SONY RAJ.R	Physics	Yes	45	23	68

Agisha S C
 Akshay S Nair
 Arya H
 Aryachandran
 Athulya S Raj
 Bhairavy Rengan
 Jiny N
 Lekshmi P
 Maneesha S
 Nandug S
 Neeraja S M
 Nimmi M B
 Sagara S L Surendran
 Salma Santhosh
 Sinny N P
 Sony Raj R

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 Sri Narayana College
 Kollam - 691 001

SREE NARAYANA COLLEGE, KOLLAM

DEPARTMENT OF PHYSICS

Minutes of the Meeting

The minutes of the meeting of the BoS of Certificate courses was held on Jan 04th, 2018 in the Department of Physics, Sree Narayana College, Kollam at 10.00 a.m. The following members were present for the meeting.

- 1 Dr. Sunilkumar R
- 2 Dr. Sankar S
- 3 Smt. Asitha L R
- 4 Sri. Srijith S
- 5 Sri. Baiju V
- 6 Dr. Roxy M S
- 7 Dr. Dedhila Devadathan
- 8 Dr. Vidya S
- 9 Smt. Rehna R
- 10 Dr. G. Sajeevkumar
- 11 Sri. Vipin Kumar C

The following points were discussed in the meeting.

- The BoS has decided to initiate the following courses in the academic year 2017-18.
- There will be no change in the syllabus for the above courses.
- The committee has framed the time- table apart from the academic hours.
- The Committee decided to charge minimum fees for the courses.
- The Microprocessor and Microcontrollers Classes will start on Jan 10 2018 and ends on May 10 2018.
- The committee has suggested to consider the suggestions of the stake holders about the timing of the class.

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Kollam 31 01 2018

- 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 and approval of I.Q.A.C.

Sri. Asitha L.R proposed vote of thanks and the meeting was ended.



Dept. of Physics
Sri. Asitha L.R. College
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REPORT ON CERTIFICATE COURSE IN MICROPROCESSOR AND MICROCONTROLLER AND PYTHON PROGRAMMING

DEPARTMENT OF PHYSICS

ACADEMIC YEAR 2017-18

The BoS has decided to initiate the following courses in the academic year 2017-18.

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 01 2017 and ends on Jan 02 2018.
- 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.

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Faculty of Science
K. J. Somaiya Institute of
Engineering & Technology
Warananagar, Andheri (W), Mumbai - 400 075

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 2017- January 2018.

Total Students Successfully Completed: 36

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 2018-May2018.

Total Students Successfully Completed: 39



Turha Alharayil
Principal
Sree Narayana College
Kollam



Dept of IT/PG
Sree Narayana College
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