CMS COLLEGE KOTTAYAM (AUTONOMOUS)

Affiliated to the Mahathma Gandhi University, Kottayam, Kerala

BACHELOR OF COMPUTER APPLICATION (BCA)

Starts on 2nd December 2019

Value Added Course for BCA 3rd Year Students

PYTHON FOR IOT

BCA Semester IV

ADD ON COURSE: Python for IOT

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO No.	***Intended Programme Specific Outcomes Upon completion of Bachelor of Computer Applications Programme, the graduates will be able to:***	***GPO No.***
PSO-1	**A**pply knowledge of mathematics, management, logic and allied engineering subjects as applicable to Computer Science and Engineering	1
PSO-2	**U**nderstand how to identify, formulate and design solutions in the areas of Computer Science and Engineering	**1**
PSO-3	**D**emonstrate the abilities to design and develop algorithms and implement them as programs, with analysis and interpretation of data	**1**
PSO-4	**D**evelop skills in software development so as to enable the graduates to take up employment/self-employment in local, Indian & global software market	**1**
PSO-5	**A**ddress the challenges of complex and computation intensive problems	**1,2**
PSO-6	**L**earn theoretical foundations of different branches of Computer Science so that students can pursue for higher studies	**1**
PSO-7	**A**dopt any modern engineering tool or software for analyzing and solving various computer engineering problems	**1,2**
PSO-8	**H**ave the knowledge of contemporary issues and able to apply various software engineering approaches for project management	**1,2,3**
PSO-9	**U**nderstand the impact of professional engineering solutions in environmental contexts and the need for sustainable development.	**1,2,3**
PSO-10	**T**ackle the real life problems using the internationally accepted latest technologies	**1,3**
PSO-11	**C**ommunicate effectively on complex programming activities with the IT community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.	**1,3,5**
PSO-12	**E**nhance Employability by developing leadership, effective communication & time management skills and also by incorporating ethics & team work ability	**3-6**
PSO-LG	**O**rganize and deliver relevant applications of knowledge through effective written verbal, graphical/ virtual communication and interact productively with people from diverse background.	**3**

Course	Details
Code	
Title	**Python for IOT**
Degree	**BCA**
Branch(s)	**Computer Science**
Year/Semester	**Sixth semester**
Type	**Addon**
Credits	2

Advantages of Learning Python

Availability of huge open source Libraries and Frameworks suitable for IOT

Suitable for developing IOT applications

SL. No.	*Course Objectives* *Upon completion of this course, the students will be able to*:
1	**Design** Python Programmers for real life problems.
2	**Develop** Prototypes quickly because it is so easy to work with.
3	**Design** GUI interface

CO No.	***Expected Course Outcomes*** *Upon completion of this course, the students will be able to*:	Cognitive Level	PSO No.
1	Understand fundamental concepts of Python	R	1,2
2	Develop programmes using the Expressive Language approach of Python Programming	C	1,2
3	Develop programmes using Object Oriented programming principles using Python aiming at IOT	C	1,2,4,9
4	Design GUI interface using GUI programming	C	1,2,4,9

Hours:2 hours /week *Total Hours: 36 (Including Seminar and formative assessment)

Module	Course Description	Hrs	CO.No.
1.0	**Overview**	**12**	
1.1	Environment	1	1
1.2	Basic Syntax	1	1
1.3	Variable types	1	1
1.4	Basic Operators	1	1
1.5	NET Framework features	1	1
1.6	Installing Python	1	1
1.7	Very simple Programs	1	1
1.8	Scripts Loops	1	2

1.9	Conditional functions	1	2
1.10	Tuples	1	2
1.11	Lists	1	2
1.12	Dictionaries for loop	1	2
1.13	Classes	1	2
1.14	Importing modules	1	2
1.15	File I/O Error Handling	1	2
2.0	**Structures**	**12**	
2.1	If .. else	1	3
2.2	While loop	1	3
2.3	For loop	1	3
2.4	Loop control	1	3
2.5	Numbers, Strings,Lists	2	3
2.6	Tuples	2	3
2.7	Dictionary	2	3
2.8	Date and Time	1	3
3.0	**Advanced features**	**12**	
3.1	Function	1	3
3.2	Modules	1	3
3.3	Files I/O	1	3
3.4	Exceptions	2	3
3.5	Classes/Objects	2	3
3.6	Reg Expressions	1	3
3.7	GUI Programming	2	4

Reference Book

1. *Dr. John* M. *Zelle, Franklin, Beedle & Associates Inc.,* **Python Programming: An Introduction to Computer Science.**
2. Allen B. Downey, *Green Tea Press,* **Think Python**
3. *Dr. Steven Lawrence Fernandes, Sai Yamanoor*, Packt Publishing (February, 2019), **Getting Started with Python for the Internet of Things**,

Teaching and learning Methods

- Practical oriented teaching
- ICT enabled classes
- Activity oriented modules such as stage performance, talk show, seminars, classes by experts in the domain and speeches.
- Outdoor classes for effective applications of photography and videography.
- Familiarize online certification organizations

Evaluation Methods

- Performance may be evaluated based on Discussions, lab exercises, demonstration, quizzes, creative assignments, module exams and group task.
- All types of performances are mapped to the respective cognitive levels of

course outcome.

- At the end of each module there will be a composite test consisting of theory, practical and viva.
- A maximum 5 mark is given for meeting the criteria of each cognitive level, as shown below in Table 1. Note that levels below 'Apply' are not rewarded here.

Table: 1

Cognitive Level	**End Module Tests (Max 5 marks)**
Remember	
Understand	
Apply	5
Analyze	5
Evaluate	5
Create	5

- Continuous evaluation is based on
  1. Assignment/Seminar
  2. Individual task
  3. Group task.
- Each of the above has a **1** or **0** one cognitive point, whether one has accomplished the cognitive level or not. This is explained in the following table.

Table: 2

Cognitive Level	**Assignment (0 or 1mark)**	**Individual Task (0 or 1mark)**	**Group task (0 or 1mark)**
Remember			
Understand			
Apply	1	1	1
Analyze	1	1	1
Evaluate	1	1	1
Create	1	1	1
Total Cognitive Points	4	4	4

Table 3: Module Cognitive Level Indicator

	MODULE Name/Number				
Outcome	**Assessment (0 or1 point)**	**Individual Task (0 or1 point)**	**Group task (0 or1 point)**	**End Module Test (Max. 5 points)**	**Module cognitive point (Max. 8 points)**
Remember					
Understand					
Apply	1	1	1	5	8
Analyse	1	1	1	5	8
Evaluate	1	1	1	5	8

Create	1	1	1	5	8

Table 3: Consolidated Cognitive Level Indicator

Cognitive Level	**Module I (Max. 8 points)**	**Module II (Max. 8 points)**	**Module III (Max. 8 points)**	**Total Cognitive points (Max. 8 points)**	**Attendance (Max. 4 marks)**	**Total Marks (Max. 100)**
Remember					4	100
Understand						
Apply	8	8	8	24		
Analyse	8	8	8	24		
Evaluate	8	8	8	24		
Create	8	8	8	24		

Grading is done similar other courses based on the Total Mark.

Teacher's Attendance Register of..... School.....for.....20.....

Serial No	Designation	NAME	Day's Date	2/12/2019	3/12/2019	05/12/19	10/12/19	12/12/19	13/12/19	Casual Leave: Up to the month	Casual Leave: Previous two 20	Casual Leave: Total	Particulars of other Leave: Kind	Particulars of other Leave: Duration	Particulars of other Leave: Order Sanctioning the Leave	Remarks
1		ABHISITH S	Morning	ABSENT												
2		ALLEN SHAJI	Evening													
3		ANN MARIYA JOY	Morning													
4		ANJALI K M	Evening													
5		AISWARYA BAIJU	Morning													
6		AKSHAYA RAJEEV	Evening	ABSENT	ABSENT											
7		AJAY K. C	Morning													
8		AHINA K M	Evening													
9		AMAL S	Morning													
10		ARYA SURESH	Evening													
11		ARAVIND K O	Morning													
12		CHINCHU THOMAS	Evening													
13		FIROZ NAZAR	Morning	ABSENT		Absent		Absent	Absent							
14		GOPIKRISHNAN G	Evening													
15		JOHNSON P SABU	Morning													
16		JOSHMIN JOSHUA	Evening	ABSENT		Absent		Absent								
17		KEZIYA JP BARNABAS	Morning													
18		LINET OLIVER	Evening													
19		ROBIN CHERIYAN	Morning													
20		RICHU FATHIMA	Evening													
21		SHINU MATHAI	Morning	ABSENT				Absent								
22		SREEJITH PS.	Evening													
23		VISHAL M NAIR	Morning													
24		Adarsh N S	Evening				Absent									

1. No. of working days in the month.....
2. No. of working days till the end of last month from the reopening on.....20

Place.....
Date.....

3. Total No. of working days during the educational year 20..... 20..... till the end of this

H. Mater/ H. Mistress/ Manager
HoD

Dept. of Computer Sc. KOTTAYAM

Teacher's Attendance Register of............ School............ for............ 20...... 2

Serial No	Designation	NAME	Days / Date	2/12/19	3/12/19	5/12/19	10/12/19	12/12/19	13/12/19	Casual Leave: In the month	Previous from 20...	Total	Particulars of other Leave: Kind	Duration	Order Sanctioning the Leave	Remarks
25		BHAGYALAKSHMI	Morning	[signature] →	[signature]	[signature]	[signature]	[signature]	[signature]							
26		PREETHI KURUVILA	Evening	[signature] →	[signature]	[signature]	[signature]	[signature]	[signature]							
27		ANJU BALACHANDRAN	Morning	ABSENT	~~Absent~~	Absent	~~Absent~~	~~Absent~~	Absent							
28		SIDHARTHAN K S	Evening	[signature] →	Sidhu	Sidhu	Sidhu	Sidhu	Sidhu							
29		PARVATHI PRADEEP	Morning	ABSENT	Parvathy	Parvathy	Parvathy	Parvathy	Parvathy							
30		AMRUTHA REJIMON	Evening	[signature] →	ABSENT	[signature]	[signature]	[signature]	[signature]							
~~30~~		~~ADARSH N S~~	Morning	~~ABSENT~~												
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No. of working days in the month............

No. of working days till the end of last month from the reopening in............ 20

3. Total No. of working days during the educational year 20............ 20......... till the end of this

Dept. of Computer Science, C.M.S. College, Kottayam

[signature]

~~H. Mater/ H. Mistress/~~ Manager

HOD

DEPARTMENT OF COMPUTER SCIENCE

PYTHON FOR IOT

Conducted an add on course for 3rd year students as a part of value added course on 2nd December 2019. The title of the course was Python for IOT. 30 students participated and attended various assignments and tests for checking students understanding on the topic. Classes were organised under the supervision of ATHIRAMOL S , Assistant professor , Department of computer science. Peer teaching by 3 students, Allen Shaji, Vishal M Nair, Parvathy Pradeep were the resource persons.

Dept. of Computer Science
KOTTAYAM