

KADI SARVA VISHWAVIDYALAYA - GANDHINAGAR

Teaching & Examination scheme
Effective from Academic Year June 2011 onwards

BACHELOR OF COMPUTER APPLICATIONS**B C A SEMESTER-VI**

Sr. No./ Subject Code	Subject Title	Credit	Teaching Scheme		Exam Scheme					
			Th. Pr.	Tut	Theory		Practical		T.W +Sessional Marks	Total Marks
					Hrs.	Max Marks	Hrs	Max Marks		
BCA601	Emerging Technologies & tools-II	4	3	1	3	60	-	-	40	100
BCA602	Project –II (Industrial Project)	26	2	24*	-	-	3	500	150	650
Total			5	25						750
Total Hours			30							
Total Credits of semester			30							

* Project based learning hrs for mini project

KADI SARVA VISHWAVIDYALAYA
BCA- SEM- VI
BCA 601 EMERGING TECHNOLOGIES & TOOLS - II

Rationale: The goal of the course is to have the awareness of latest technologies among the students. To understand the concepts and architecture of the various hardware technologies. To get aware about the need of new technologies in the real world scenario.

Learning Outcome: Students will be exposed to various emerging technologies such as RFID, Biometrics, and Ubiquitous Computing etc.

Teaching and Evaluation Scheme: The objective of evaluation is not only to measure the performance of students, but also to motivate them for better performance. Students are evaluated on the basis of internal examinations which consist of Term Work such as class test, quizzes, class participation, home assignments, presentation, Regular Attendance (i.e. Minimum 85%), Internal marks which consist of 40 (20 Term Work + 20 Sessional Exams) marks and External marks which consist of 60 for University examination.

Sr. No./ Subject Code	Subject Title	Teaching Scheme			Exam Scheme					
		Th./ Tut	Pr.	Tot	Theory		Practical		T.W + Sessional Marks	Total Marks
					Hrs	Max Marks	Hrs	Max Marks		
BCA 601	Emerging Technologies & Tools - II	4	-	4	3	60	-	-	40	100

UNIT 1: RFID

20%

Introduction to Radio Frequency Identification (RFID)

- Background and definitions
- Automatic identification technology (Auto-ID)
- RFID – bar code comparison

Elements of an RFID system

- Radio frequencies: LF, HF and UHF Systems
- Tag-reader communication
- RFID tags: Power sources of passive, semi-passive, and active tags and relationships between frequencies (LF, HF and UHF), tag-reader communication and how tags are powered.
- RFID readers
 - 1) Reader forms: fixed, modules, printers, and portables
 - 2) Reader components
 - 3) Reader configurations and frequency ranges
- Applications of RFID

No. of Lectures: 6

UNIT 2: Ubiquitous computing

25%

- Software infrastructure for ubiquitous computing that can support the integration between our physical space and virtual computing space
- Embedding computing into everyday objects
- User interfaces for ubiquitous computing
- Security and privacy to protect access to user context information
- Migration where an application context can migrate from one computing environment to another computing environment
- Spontaneous interaction where appliances and services can seamlessly interact and interoperate with each other with little or no prior agreements
- Social computing that applies ubiquitous computing techniques and everyday computing artifacts to improve our social lives.

No. of Lectures: 8

UNIT 3: Biometrics

25%

- **Introduction to Biometrics**
What is Biometrics? Why Biometrics? Authentication, Data Acquisition, Identification, Verification, Key Biometrics terms, System Model, Different Biometrics technologies, Comparison of Biometrics technologies
- **Fingerprint Identification & Facial scan Systems**
History, Components, Working of Fingerprint technology, Deployment, Strengths, Weaknesses, Applications Facial scan: Components, Face detection, Working of Facial scan technology, Deployments, Strengths, Weaknesses, Face recognition technologies.
- **Voice Recognition and Signature scan system**
Voice recognition Components, Working, Deployments, Strengths, Weaknesses, Performance issues, Applications. Signature scan recognition details.
- **Smart card Technologies**
Introduction to smart-card. Smart-card chips, Temper resistance, Smart-card characteristics, Smartcard Reader, Current applications of Smart-card, Smart-card platforms and operating systems, Smart-card security.

No. of Lectures: 6

UNIT 4: GSM/GPRS Modem

30%

- Introduction to SMS Messaging
- Example Applications of SMS Messaging
- What is an SMS Center / SMSC?
- Basic Concepts of SMS Technology
- Intra-operator SMS Messages
- Inter-operator SMS Messages
- What is an SMS Gateway?
- How to Send SMS Messages from a Computer / PC?
- How to Receive SMS Messages Using a Computer / PC?
- Introduction to GSM / GPRS Wireless Modems
- Introduction to AT Commands
- General Syntax of Extended AT Commands
- Result Codes of AT Commands
- AT Command Operations: Test, Set, Read and Execution
- Testing the Communication between the PC and GSM/GPRS Modem or Mobile Phone
- Checking if the GSM/GPRS Modem or Mobile Phone Supports the Use of AT Commands to Send, Receive and Read SMS Messages

- Operating Mode: SMS Text Mode and SMS PDU Mode
- Setting or Reading the Service Center Address / SMSC Address (AT+CSCA)
- Preferred Message Storage (AT+CPMS)
- Writing SMS Messages to Memory / Message Storage (AT+CMGW)
- Sending SMS Messages from a Computer / PC Using AT Commands (AT+CMGS, AT+CMSS)
- Reading SMS Messages from a Message Storage Area Using AT Commands (AT+CMGR, AT+CMGL)

No. of Lectures: 10

TOTAL NO OF LECTURES : [30]

Reference Books:

- RFID: Radio Frequency Identification by Steven Shepard
- RFID Systems: Research Trends and Challenges by Midrib Bolic, David Simplot-Ryl, Ivan Stojmenovic
- Ubiquitous computing: smart devices, environments and interactions by Stefan Poslad
- Ubiquitous computing fundamentals by John Krumm
- Biometrics: identity verification in a networked world by Samir Nanavati, Michael Thieme, Raj Nanavati
- Biometrics: Theory, Methods, and Applications by N.V.Boulgouris
- API: GSM/GPRS modem user interface by Hua Qian, The University of Texas at Dallas
- Mobile computing by Asoke. K Talukder, Roopa R. Yavagal, Asoke K. Talukder

Instructional Strategies:

1. Building Background & gain attention
2. Classroom Instructions
3. Review and check of Prior knowledge through interaction (Q&A)
4. Guided Practice through examples.
5. Independent Practice through assignments
6. Demonstration for visualization
7. Problem Solving methodologies
8. Use of graphics organizers for reference and output visualization
9. Problem Solving

KADI SARVA VISHWAVIDYALAYA
BCA – VI
BCA 602 - Project II

Rationale:

The main motive behind this subject is to give practical exposure of the topics learnt in parts in various subjects of BCA course.

Project is an integral part of the BCA curriculum, which is carried out in the last semester. The students will design, develop and implement real systems which can be either extension or application of the courses learnt during BCA course. The students have to carry out work in an actual IT organization or take project of a non-IT organization.

Teaching and Evaluation Scheme: The objective of evaluation is not only to measure the performance of students, but also to motivate them for better performance. Students are evaluated on the basis of internal examinations consisting of 150 marks (1st Phase presentation: 50 marks, 2nd Phase presentation: 50 marks, 3rd Phase presentation: 50 marks) and External marks which consist of 500 for viva-voice presentation on Project Work in University Examination.

Sr. No./ Subject Code	Subject Title	Teaching Scheme				Exam Scheme					
		Cr.	Th.	Pr.	Tut.	Theory		Practical #		T.W +Sessional Marks	Total Marks
						Hrs	Max Marks	Hrs	Max Marks		
BCA 602	Project II	26	-	2	24	-	-	3	500	150	650

Project - II description:

- The project in-charge will be assigned for the subject, who will perform various tasks related with subject which are mentioned below. The in-charge shall be group of faculties who will work together for the coordination of the project execution.
- A team of 3 to 4 students can be formed for this project and work together to learn working collaboratively.
- The team will be assigned an internal guide for the project, who will mentor the team during the project execution.
- The team has to take prior permission from the guide for any project that they have chosen.
- The team needs to report to the guide periodically and inform about the project progress. The timings for the reporting time will be informed at the beginning of the semester.
- The student team shall be assigned an external guide, who shall be the person familiar with the project definition and should be belonging to the organization.

Project documentation format:

Acknowledgement
 Preface

Index:

1. Project definition
2. Objective and scope of the project
3. Existing system

- a. Introduction
- b. Problem analysis
 - i. Study operating problems
 - ii. Study informational problems
 - iii. Feasibility study
- c. Present system model (Use any design tools / technique)
- d. What's new in the proposed system (*if applicable*)
4. Proposed system
 - a. Functional requirements
 - b. Non-functional requirements
 - c. Project plan
5. Software requirement analysis and specification
 - a. General description
 - b. Specific functional and non-functional requirements
6. System design
 - a. Proposed system model (Use any design tools / technique)

Development based projects:

7. Development
 - a. Source code (for major processes)
8. Implementation
 - a. Implementation of the project
 - b. Screenshots of the interface
 - c. Post-implementation and software maintenance

OR

Analysis based projects:

9. Working outcomes of the existing system
10. Working outcomes of the proposed system
 - a. Predicted working outcomes of the proposed system
 - b. Comparison of working of proposed system and existing system
11. Technical and managerial lessons learnt
12. Future enhancement
13. References

Instructions for the student team:

- The students' team will choose a project in the area of their choice.
- The team has to work at the organization from where they have got the project or at their own residence.
- The student team has to provide all the information about the organization and external guide. It is desirable that the internal guide can communicate with the external guide as and when required.
- The internal guide will monitor the project progress and update the data of the project completion every week.
- The student team has to maintain a report of meetings arranged with the internal guide and external guide. The format for the meeting report will be provided separately at the beginning of the semester.
- The following has to be submitted from time to time to the internal guide (please refer to the index point numbers in the documentation format given with this syllabus):

Index Point Number	Week Number
1, 2	1
3	3
4, 5	5
6	8
7, 8	11
9, 10, 11	12

Instructions for the project in-charge:

- The project in-charge is the organizing body for the subject. S/he is responsible for taking care of getting the various submissions from time to time.
- The project in-charge also has to look for communicating with the organizations where student team has been working on the project.
- The project in-charge with the help of all the internal guides has to monitor the progress of students and maintain the continuous evaluation report of all the student teams.

Instructions for the internal guide:

- The internal guide has to oversee the work done by the team that is assigned to the guide. Starting from the course, the internal guide has to see if the chosen project is appropriate to be considered as a Project. The chosen project can also be discussed with the Project in-charge for any clarifications (if needed).
- It is necessary for the student team to report to the internal guide once in every week on the decided day. Any day of the week can be decided by the internal guide and the student team mutually. Apart from the weekly one day, the students can be called any time for any other project related tasks.
- The internal guide will fill in the data in the continuous progress report. The format for the continuous progress report will be provided separately at the beginning of the semester.
- Apart from the above list, the team will also have to submit the required reports / documents as and when asked for, by the internal guide.

Instructions for the external guide:

- The student team shall be assigned an external guide to direct them towards completion of project. The external guide can be any person familiar with the project definition and should be belonging to the organization from where the team has obtained project definition.
- The external guide has to submit the mid-term project evaluation report and final project evaluation report. The format for these evaluation reports will be provided separately.