



The Maharaja Sayajirao University of Baroda
Faculty of Science

Department of Computer Applications

PROSPECTUS
FOR

Bachelor of Computer Applications
(Honors)
(A Three Year Degree Programme)



Year 2016 - 2019

Website: www.msubaroda.ac.in

The Maharaja Sayajirao University of Baroda

Chancellor

RAJMATA SHUBHANGINIDEVI GAEKWAD

Vice Chancellor

PROF. PARIMAL VYAS

FACULTY OF SCIENCE

DEPARTMENT OF COMPUTER APPLICATIONS

PROF. A.C. SHARMA

Director

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Offg. Head



Shrimant Maharaja Sayajirao Gaekwad

B. C. A. (Hons.) Programme : 2016-2019

The University

The Maharaja Sayajirao University of Baroda, formerly known as the Baroda College, was founded by Late His Highness Shrimant Maharaja Sayajirao Gaekwad of Baroda in the Year 1881. The efforts of establishing a University at Baroda were also initiated by him in 1908. Although Shrimant Sayajirao Gaekwad conceived a residential university at Baroda, it became a reality only during the rule of Late His Highness Shrimant Pratapsinhrao Gaekwad. The Maharaja Sayajirao University of Baroda came into existence on 29th April 1949.

Faculty of Science

With the formation of the university, The Silver Jubilee Science Institute, a part of the Baroda College, was reconstituted as the Faculty of Science. Foundation stone of the Silver Jubilee Science Institute was laid by Sir Issac Rufus, then Viceroy and Governor General of India, in the year 1926 and the construction was completed in 1933.

Since 1949, the Faculty offers courses leading to B. Sc., M. Sc. and Ph. D. degrees in Botany, Chemistry, Geography, Geology, Mathematics, Physics, Statistics and Zoology. The Faculty added thereafter two more Departments: Departments of Biochemistry and Microbiology, both of which provide postgraduate programmes to students. From year 2000, faculty started offering self financed programmes at both UG and PG level. The Faculty has made significant strides in various disciplines of science that attracts students from all over India and other countries and it is a cosmopolitan centre of education.

DEPARTMENT OF COMPUTER APPLICATIONS

Addressing the grave need of quality education in computer applications at undergraduate level in the Country in general and Gujarat in particular, Faculty of Science introduced 3 year undergraduate Programme leading to Bachelor of Computer Applications (BCA) degree in year 2000 on a higher payment basis. The programme has earned a very good reputation in the state of Gujarat and is regarded as the most advanced BCA programme in this part of the country. From year 2010 the BCA programme has been restructured according to Choice Based Credit System (CBCS).

In year 2011 Faculty of Science introduced M. Sc. In Software Technologies programme, that is specially designed for the graduates in computer/IT discipline in CBCS pattern. This programme has also been received very well by the student's community and local software industry.

In order to provide the platform to strengthen the existing academic programs and to initiate and promote research activities in the field of Computer Applications, University established Department of Computer Applications through a senate resolution in 2013. The aims and objectives of this department are given below:

- To provide platform to strengthen the existing two academic programmes and to start new programmes in the field of computer applications.
 - To undertake and promote research activities in computer applications and related areas. To obtain grants from funding agencies for various academic/ research initiatives
 - To support the education of computer science in the faculty as well as University.
 - To support development and maintenance of software intensive systems for automation of services and operations of Faculty and University.
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Eligibility

A candidate fulfilling the following conditions will be considered eligible for BCA admission.

- i) A candidate must have passed H.S.C. (General/ Science/ Commerce) Examination of Gujarat State or an equivalent examination with 40% of marks in aggregate and English as one of the subjects as a regular candidate.
- ii) A candidate who has passed an equivalent examination from any other examining body will have to produce eligibility certificate from The M.S. University of Baroda during first year of admission

A candidate who has appeared in H.S.C. or equivalent examination may also apply. However, the candidate must have satisfied conditions (i) & (ii) stated above at the time of admission.

Maximum intake

Total number of seats	:	120 seats
• Higher Payment General Category	:	96 seats
• NRI/NRI sponsored/Special Category	:	24 seats

Admission procedure

1. A candidate desirous of admission is required to fill on-line application form available on University Website (msub.digitaluniversity.ac) by following the registration process. The registration fee must be paid on-line.
 2. The Entrance Test will be conducted by the faculty to decide the admission to the BCA programme.
 3. The admissions will be given entirely on the basis of the merit of the candidate's performance in the entrance test.
 4. Candidates will be called for spot admission in the order of merit (category wise). The schedule for the same will be announced in due course of time.
 5. Qualified candidates must bring all original documents and necessary fees when called for a spot admission.
 6. Admission to the programme will be confirmed only on paying the necessary fees.
 7. First, admissions will be given to those candidates who have passed the qualifying examination held in March/ April 2016 or a supplementary examination of 2015. If seats remain vacant, then those candidates who passed in earlier years will also be considered.
 9. Reservation rules of the Government of Gujarat will be applicable while granting admissions in Higher Payment Category of seats.
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10. Candidates applying for reserved seat must submit all necessary documents along with application form, failing which the form will be treated as incomplete and will not be accepted. **Candidate will not be allowed to change reservation category** once the form is submitted online .
11. If any of the reserved seats remains vacant then such a seat will be made available to the candidates of open category.
12. Admission in Special category will be granted against the unfilled seats in NRI sponsored category.
13. Rules framed by Government of Gujarat will be applicable while granting the admissions in NRI/ NRI sponsored category.

The Teaching Programme

The BCA (Hons.) Programme is designed as per choice based credit system. The BCA (Honors) degree requires minimum 144 credits to be earned. The teaching programme is divided into 6 semesters. In each semester student is required to choose three types of courses, viz. Core courses, Elective courses, and Foundation courses, as per the details given below:

Semester	Core & Supportive		Elective Courses & Extension Activity (Credits)	Foundation Courses & Social Awareness (Credits)	Total Credits
	Theory (Credits)	Laboratory / Fieldwork / Projects (Credits)			
I	10	5	5	4	24
II	10	5	5	4	24
III	12	6	4	2	24
IV	12	6	4	2	24
V	14	7	3	-	24
VI	-	24	-	-	24
Total	58	53	21	12	144

Credit System

- One hour of classroom teaching or two hours of Laboratory teaching/ field work/ dissertation work per week for a semester of 15 weeks duration is considered 1 course credit.
- In this system, every course has fixed credits assigned to it. If a student obtains minimum 5 grade points in a course, he/ she earns the credits assigned to that course.
- A student becomes eligible for the degree only when he/ she have earned the minimum 144 credits.

Outline of the Course

The Programme has been designed with the help of professionals in the software industry. During the first two semesters students will learn fundamental concepts in computer science. In semesters 3 & 4, the students will be equipped with more specific skills in computer applications. In each of the last three semesters, student will be required to take up a project work

by associating himself/herself with some organization, where in he/she will undergo a practical training. They have to prepare a dissertation report on the project work and get it approved by project committee. Time to time syllabus is critically reviewed and necessary changes are incorporated by experts in the field. Details of the courses taught currently are given below along with respective credits.

Course Code	Semester - I	Credits	Course Code	Semester - II	Credits
BCA1101	PC Databases	3	BCA1201	Introduction to OOP	3
BCA1102	Computer Organization	2	BCA1202	Data Structures and Algorithms	3
BCA1103	Operating Systems	2	BCA1203	Database Management Systems	2
BCA1104	Computer Programming	3	BCA1204	SQL	2
BCA1105	PC Software and Database Lab	6	BCA1205	OOP Lab	4
BCA1106	Programming Lab	4	BCA1206	Data Structures Lab	2
BCA1107	Mathematical Foundations-I	2	BCA1207	SQL Lab	2
BCA1108	Communication Skills	2	BCA1208	HTML-I Lab	2
BCAxxx	Elective Courses#	5	BCA1209	Mathematical Foundation-II	2
			BCA1210	Environmental Science	2
			BCAxxx	Elective Courses#	5

Course Code	Semester - III	Credits	Course Code	Semester - IV	Credits
BCAxxx ⁺	Any One of BCA1301, BCA1302, BCA1303	4			
BCA1304	Shell Programming	2	BCAxxx ⁺	BCA1401 OR BCA1402	4
BCA1305	Database Application Programming	3	BCA1403	Web Technology	2
BCA1306	Computer Networks-I	3	BCA1404	Software Engineering-I	3
	HTML-II Lab	1	BCA1405	Computer Networks-II	3
BCAxxx	Any One of BCA1307, BCA1308, BCA1309	4	BCAxxx	BCA1406 OR BCA1407	2
BCA1310	Shell Programming Lab	2	BCA1408	Web technology Lab	2
BCA1311	Database Application Programming Lab	4	BCA1409	Computer Networks-II Lab	1
BCA1312	Computer Networks-I Lab	2	BCA1410	Business Modeling Project	1
BCA1313	Data Exploration	2	BCA1411	Soft Skills	1
BCA1314	Data Exploration Lab	2	BCAxxx	Elective Courses#	5
BCAxxx	Elective Courses#	3			

Elective Core Courses

Course Code		Credits	Course Code		Credits
BCA1301	Java Programming	4	BCA1401	Advanced Java Programming	4
BCA1302	.Net Programming in C#	4	BCA1402	Advanced .Net Programming	4
BCA1303	.Net Programming in VB	4	BCA1406	Advanced Java Programming Lab	4
BCA1307	Java Lab	2	BCA1407	Advanced .Net Programming Lab	4
BCA1308	.net in C# Lab	2			
BCA1309	.net in VB Lab	2			

To be selected from the list of elective courses * To be selected from the list of Elective Core Courses
 + To be selected from the list of elective core courses

Course Code	Semester - V	Credits	Course Code	Semester - VI	Credits
BCA1501	Software Engineering-II	4		Mini Project	24
BCA1502	XML Technology	2		OR	
BCA1503	XML Technology Lab	2		Internship	24
BCA1504	Mini Project	4			
BCAxxxx	Elective Core Courses *	8			
BCAxxxx	Elective Core Lab Courses	4			
BCAxxxx	Elective Courses #	3			

Elective Core Courses

Elective Core Courses

Course	Title	Credits	Course	Title	Credits
BCA1505	Same as BCA1301	4	BCA1524	Same as BCA1307 Same as BCA1308	2
BCA1506	Same as BCA1302	4	BCA1525	Net VB Lab.	2
BCA1507	Same as BCA1303	4	BCA1526	CG Lab	2
BCA1508	E-Business	3	BCA1527	Web Designing Lab	2
BCA1509	Computer Graphics	4	BCA1528	Java Frameworks Lab	2
BCA1510	Application Frameworks in Java	4	BCA1529	.Net Frameworks Lab	2
BCA1511	Application Frameworks in .Net	4	BCA1530	Web Application Lab	2
BCA1512	Discrete Mathematics	3	BCA1531	Network Admin Lab	2
BCA1513	Web Application Development	4	BCA1532	Oracle DBA Lab	1
BCA1514	Network Administration	4	BCA1533	SQL Server DBA Lab	1
BCA1515	Oracle DBA	3	BCA1534	Multimedia Lab	2
BCA1516	SQL Server DBA	3	BCA1535	Data warehousing Lab	1
BCA1517	Multimedia Programming	3	BCA1536	Simulation Lab	2
BCA1518	Data warehousing	3	BCA1537	Systems Programming Lab	2
BCA1519	System Simulation	4	BCA1538	Artificial Intelligence Lab	2
BCA1520	Unix Systems Programming	2	BCA1539	Mobile computing Lab	2
BCA1521	Artificial Intelligence	4	BCA1540	Cyber Security	2
BCA1522	Elements of Theory of Computation	4			
BCA1523	Mobile Computing	4			

Elective Courses

Course Code	Elective Courses	Credits	Course Code	Elective Courses	Credits
BCA1001	Desktop Publishing	2	BCA1013	Disaster Management	2
BCA1002	Basic Electronics	2	BCA1014	Numerical Methods	2
BCA1003	Fundamentals of Accounting	3	BCA1015	Optimization Techniques	2
BCA1004	Discrete Mathematics	2	BCA1016	Project Management	2
BCA1005	French-I	2	BCA1017	Enterprise Resource Planning	3
BCA1006	Probability Models	2	BCA1018	Inventory Management	2
BCA1007	Computerized Accounting	2	BCA1019	Human Resource Management	2
BCA1008	Basics of Computer Hardware	2	BCA1020	Customer Relationship Management	2
BCA1009	Web Publishing	2	BCA1021	Knowledge Management	2
BCA1010	Introduction to Multimedia	2	BCA1022	Enterprise Resource Planning Lab	2
BCA1011	French-II	2	BCA1023	Cyber Law	2
BCA1012	Fundamentals of Management	2			

Note: (i) Elective papers will be offered depending on the availability of faculty

(ii) The University reserves right to add or delete elective papers from the above list as well as change their course code.

Evaluation

Each Course in the curriculum is an independent entity and will be evaluated separately using grade points system as shown below:

Grade Points	Description	% of marks	Division/Grade
10	Outstanding	90 – 100	First/O
9	Excellent	80 – 89.99	First/ A
8	Very Good	70 – 79.99	First/ B
7	Good	60 – 69.99	First/ C
6	Fair	50 – 59.99	Second/ D
5	Average	40 – 49.99	Pass / E
4	Dropped	< 40	F

There will be an internal evaluation for each theory course in each semester, which will carry a weightage of 30%. For other courses, the evaluation will be completely internal and will be carried out on a continuous basis.

Internal evaluation will be taken in to account only for the regular students.

Semester-end examination will be conducted for each theory course, which will carry 70% weightage

A candidate has to secure at least 5 grade points in a course to earn the credits assigned to the course.

The grade sheet for a semester examination will show the semester grade point average (SGPA) obtained by the candidate in that examination.

A candidate will be allowed to go to 3rd semester onwards only if he/she has earned all the credits on the lines with the scheme circulated in the circular of The M. S. University of Baroda.

A student will be awarded BCA (Hons) degree only after earning the minimum 144 credits prescribed for the degree.

Awards of Class

Mark sheets of semester I to V will not indicate a class; it will simply indicate the result as either PASS or DROPPED or ABSENT.

A candidate will be awarded a class in his/ her mark sheet of the 6th semester examination. The class will be determined on the basis of cumulative GPA (CGPA) as shown below.

CGPA Range	≤ 4	4.01 - 5	5.01 - 6	6.01 - 7	7.01 - 8	8.01 - 9	9.01 - 100
Division/Grade	Dropped/F	Pass/E	Second/D	First/C	PIDIST/First/B	PIDIST/First/A	PIDIST/First/O

Facilities

The Faculty

The experienced teachers from the university and professionals from the IT industry are involved in teaching the courses. This help in providing the academic excellence with professional expertise to the students of the programme. In addition the reputed personalities from all over the country will be invited to deliver lectures from time to time.

Computer Laboratory

Well-equipped computer laboratories are available to the students of the BCA programme. All the computers in these laboratories have high configuration and are connected to a LAN, which provides a networked environment to the students. A wireless access to the network is also available through Wi-Fi. Qualified instructors give the practical training. The laboratory contains all necessary software, and audio-visual teaching aids to impart the training more effectively.

The Internet facility with high bandwidth is also available to the students at no extra cost so that they can have an access to the unlimited wealth of information on the net.

Library

The students have an access to the University Library, which is one of the biggest libraries in the country. The library contains a large number of books and journals, and excellent reading room facility. The library also subscribes a large number of periodicals on various subjects. In addition to this, a separate library with reading room is available for the BCA students having large number of books, which contains all the prescribed books as well as large number of specialized reference books on various aspects of information technology. This library also subscribes important periodicals in the subject to keep the students abreast with latest happenings in the field.

Fee Structure

Category	Annual Fee(Rs.)	Semester Exam Fee(Rs.)
Higher Payment	42,500=00	As Per University Rules
Special	1,06,100=00	
NRI Sponsored	US\$3,000=00	

- Likely to be increased by 10%

Full amount of fees for each year, as mentioned above, must be paid in cash or by crossed Demand Draft or by Banker's cheque in favour of "The Director, Computer Applications, Faculty of Science" payable at Baroda, in the beginning of each academic year. Fees for the first year must be paid at the time of admission.

In addition to the above fees, all students will be required to pay other regular University Fees (Total Rs. 3400/-) in the beginning of each academic year. Fees mentioned above is tentative. Exact University fees will be notified at the time of admission by the Faculty / University.

Refund of Fee

On cancellation of admission, the tuition fees will be refunded, after deducting 10% processing charges, only if the seat vacated by the cancellation is filled with another candidate. The fees will not be refundable if the admission is cancelled after **19th July, 2016**, the last day of admission.

[N. B. : The admission policy and fees structure are subject to revision as per the guidelines of authorities of The Maharaja Sayajirao University of Baroda, as and when applicable]

NATURE OF ENTRANCE TEST

At the time of entrance test candidates must bring:

- (a) Payment Slip & Registration Form
- (b) Hall ticket, failing which he/she will not be allowed to appear in the examination.
- (c) **Black Ball pen, HB Pencil & Eraser.**

The following will be the syllabus for the entrance test:

- I. The question paper of the entrance test will be in English and Gujarati languages. Candidates will be allowed to answer in either of the languages.
- II. All questions will be of multiple-choice type.
- III. **There is negative marking. Each correctly answered question carries 2 mark, and wrongly answered question carries – 0.5 marks.**
- IV. Candidate are advised to bring printed Hall ticket downloaded from the University Website and one set of printed application form with necessary self attested copies of documents.
- V. Candidate should report in the examination hall 30 minutes before the commencement of the entrance test.

The syllabus for the entrance test would be as follows:-

Section	Syllabus	Weightage
Quantitative Aptitude	Ratio-Proportion, Trigonometry, Height & Distances, Area-Volume, HCF & LCM, Profit and Loss, Averages, Roots & Percentages, Partnerships, Simple Interest and Compound Interest, Time and Distance	25
Logical Reasoning	Series Completion, Coding and Decoding, Blood Relation, Analogy	25
English Language	Synonyms and Antonyms, Fill in blanks, Comprehension, Sentence Correction	15
Computer Awareness	MS Office (Word , Excel, PowerPoint) , Internet Basics, basics of hardware and software	20
General Awareness		15
Marks		100

Duration of the Entrance test	90 minutes
Nature of Examination	Multiple Choice Questions
Questions	50 questions each carrying 2 marks
Date of entrance test	Wednesday, 8 th June, 2016
Time	02.30 pm to 04.00 pm

Sample Questions:

1.	In the game of Hockey, each team has ____ players on the field at any one time A) 11 C) 9 B) 13 D) 10
2.	The average of 11, 23, K is 40, the value of K is A) 86 C) 120 B) 35 D) 12
3.	From what location are the 1st computer instructions available on boot up? A)ROM BIOS C) CPU B)boot.ini D) CONFIG.SYS
4.	The LCM of 24, 39, 60 and 150 is A) 7800 C) 3900 B) 15600 D) 5200
5.	Wimbledon is associated with A) Football C) Tennis B) Basketball D) Cricket
6.	In a certain code KNIFE is written as \$3%#5 and LAKE is written as 7@\$5. How is FAIL written in that code? A) %\$#7 C) #@%7 B) \$@%7 D) \$%@7
7.	A train travels 82.6 km/hour. How many meters will it travel in 15 minutes? A) 20.65 C) 206.50 B) 2065 D) 20650
8.	Who was known as Iron man of India? A)Govind Ballabh Pant C) Jawaharlal Nehru B)Jawaharlal Nehru D) Sardar Vallabhbhai Patel
9.	The brain of any computer system is A)ALU C)Memory B)CPU D)control unit
10.	$(95.6 \times 910.3) \div 92.56256 = 9?$ A) 13.14 C) 12.96 B) 12.43 D) 13.34
11.	Insert the missing number 857, 969, 745, 1193, ? A) 2093 C) 297 B) 1400 D) 2089
12.	Nothing happened at the meeting, _____ it? A)didn't C)does B)did D)do
13.	We a lovely three weeks in the south of Spain last year. A)Took C)did B)spent D)passed
14	SKEPTICAL : DOUBT A) Resolute : Determination

	B) Pristine : Grace C) Tainted : Honour D) Stringent : Suggestions
15	75% of 48 is A) 64 C) 48 B) 36 D) 0.36
16	Did you remember _____ the parcels? A)post C)to post B)posting D)posted
17	Landscape is? A) A font style C) Paper Size B)Page Layout D)Page Orientation
18	The Student _____ not reach on time _____ of the transport strike. can-as A) could-because C) may-account B) will-despite D) should-for
19	What is the theme of 2016 World Health Day (WHD)? A)Healthy heart beat, Healthy blood pressure B)Beat Diabetes C)Healthy blood pressure D)Save lives: Make hospitals safe in emergencies
20	Which is not a font style? A)Bold C)Superscript B)Italic D)Regular

Contact Information:

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GENERAL RULES GOVERNING THE CONDUCT OF STUDENTS IN THE UNIVERSITY

1. A student must do nothing either inside or outside the University that will interfere with its orderly working and discipline.

This comprehensive rule covers most cases that are likely to arise. It forbids, for instance:

- (a) Impolite or unseemly behaviour in classroom or University premises during working hours of the College and the Faculty.
 - (b) Attempt to persuade other students to abstain themselves from regular classes.
 - (c) Damage to or defacement of University furniture, fittings and property.
 - (d) Disobedience of notifications or instructions issued by the Principals/Deans/Heads of the Departments and Members of the staff duly authorized.
2. No Society in any Faculty or College may be formed and no person may be invited to address any existing society or meeting without the previous permission of the Head of the Institution concerned.
 3. As per UGC regulation, 75% attendance is required for permitting students to appear for final examination. If unavoidably absent on account of health, urgent private affairs or other reasons, they must be prepared to state the exact reason for absence.
 4. Students are expected to behave with courtesy towards the members of the staff, their fellow students and all visitors to the Institution.
 5. Sexual harassment will lead to severe punishments like suspension, rustication from the University / College/ Institution. The disciplinary action is as prescribed under The M.S. University of Baroda rules.
 6. Ragging is prohibited on MSU Campus, ragging is a criminal offence and is liable to severe punishment, including suspension, rustication and imprisonment.