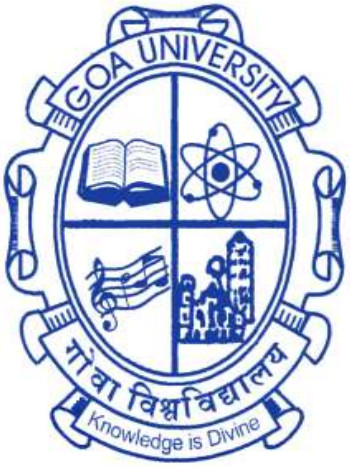
GOA UNIVERSITY



DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

MASTER OF COMPUTER APPLICATIONS(MCA)

ADMISSION INFORMATION BROCHURE

(2016-17)

Contents

Goa University

A brief introduction

Goa University was established in the year 1985 around the nucleus of the Post Graduate Centre and 17 Colleges affiliated to the Bombay University. Over the past decade, the University has grown steadily in size and the scope of its academic programmes.

The University is located on a beautiful campus spreading over nearly 173 hectares on the Taleigao Plateau, overlooking the river Zuari joining the Arabian Sea. The Taleigao Plateau is located at a distance of 5 km from Panajim city, which is the capital of Goa.

The University Campus is serviced by numerous infrastructure facilities such as Hostels, Health centre, Gymnasium and Recreation Centre, Post-office, Bank, Guest house, Kiosks and Canteens. Visit http://www.unigoa.ac.in for more details.

Hostel Accommodation

The University has full fledged hostels both for the men and women students. The hostels are located in close proximity to the Department and are well equipped with all modern facilities. There is a separate hostel for research students with limited accommodation. The students interested in seeking admission to the hostel are required to apply separately in the prescribed application form available from the respective Hostel Wardens.

Department of Computer Science and Technology (DCST)

A brief introduction

Anticipating the importance of Information Technology, Goa University established the Department of Computer Science and Technology in the year 1987, with the financial assistance from DOE/UGC under the Manpower Development Scheme. A full time, 3- year degree programme leading to the "Master of Computer Applications" (MCA) degree was started in the academic year 1987-88. This course is aimed at imparting comprehensive knowledge and practice covering various aspects of computer usage in the industry. Goa University thus became one of the select universities of our country imparting training and education in the field of Computer Science and Application at the post graduate level. The Curriculum keeps abreast of the technologies required by the industry.

Presently the department has seven full-time faculty members. The alumni of the Department are well placed and currently hold leading positions in reputed IT organizations in the country and abroad. Visit https://www.unigoa.ac.in/department.php?adepid=10&mpeid=3 for more details.

Laboratory Facilities

The Laboratory facilities in the Department are constantly upgraded to cater to the growing needs of students. Currently around 120 core i3 desktops are spread over the Department area – the laboratory as well as faculty offices. About one hundred and twenty students can simultaneously work on MS Windows / Linux platforms. Presently, the laboratory supports all computer languages, Integrated Development Environments and software tools available on Open Source Linux Platform. In addition the laboratory also provides students and faculty with the latest versions of development tools and application platforms such as Oracle, Eclipse, Visual Studio, CASE Tools, Rational Suite, Internet Information Server (IIS), and MATLAB etc. The Department subscribes to the Microsoft DreamSpark programme which provides legal copies of all Microsoft software available on workstation and Server platforms. The laboratories also provide Broadband Internet connectivity through wired and Wi-Fi networks.

Library Facilities

The Goa University Library started in June 1985 with a modest collection of 37678 books. Today the University Library is fully operational in a magnificent building of its own with holdings over 1,40,000 books and subscribes to over 458 technical journals and periodicals

including over fifty online journals in the field of Computer Science and Application. It houses a collection of rare books and documents and has been recognized as one of the repositories for all publications of the United Nations. A searchable online catalogue of titles in the Library as well as Abstracts of Technical articles from over 100 journals is currently available on the Campus wide network. On the subject of Computer Science alone there are over 4,000 books, technical journals and magazines. Resources from digital library of prestigious societies like Kluwer, Elsevier & Springer Verleg are now available inside the campus under INFLIBNET scheme. Visit https://www.unigoa.ac.in/library for more details.

Teaching Faculty

Presently the department has seven full-time faculty members. As and when necessary the department invites resource persons from prestigious institutions and industry to conduct guest lectures on the specialized topics. The list of faculty members along with their area of interest and contact details is listed below.

1. V. V. Kamat, M.Sc.,M.Phil,Ph.D
   Professor & Head
   (Computer Graphics & CAD, Software Engineering, E-learning)
   Email: vvkamat@unigoa.ac.in
   Contact no: 0832- 6519072

2. Jyoti D. Pawar, B.Sc, M.C.A, Ph.D.
   Associate Professor
   (Data Mining, Data Structures, Natural Language Processing(NLP))
   Email: jdp@unigoa.ac.in
   Contact no: 0832- 6519325

3. Yma F. Pinto, B.Sc.,M.C.A.
   Associate Professor
   (Data Base Management Systems, Operating Systems, Computer Science Education)
   Email: yp@unigoa.ac.in
   Contact no: 0832- 6519324

4. Ramrao Wagh, B.Sc,MCA.
   Associate Professor
   (Software Architecture, Object Oriented Tech., Agile and Lean Methods, Geographical Information Systems, Aspect Oriented Programming, Refactoring, Design Patterns, e-Learning,Educational Tech.)
   Email: ramrao@unigoa.ac.in
   Contact no: 0832 - 6519328

5. S. Baskar, M.Sc. (Comp.Sc.)
   Associate Professor
   (Artificial Intelligence, Energy Aware Computing, Compiler, Cloud Computing)
   Email: baskar@unigoa.ac.in
   Contact no: 0832- 6519326

6. Ramdas N. Naik Karmali, B.Sc.,M.C.A.
   Assistant Professor
   (Natural Data Communications and Computer Networking, Natural Language Processing (NLP), Web Technology)
   Email: rnk@unigoa.ac.in
   Contact no: 0832-6519327

7. Payawasni P. , M.Sc (Computer Science)
   Assistant Professor
   (Computer Networks, Data Structures)
   Email: ppayaswini@unigoa.ac.in
   Contact no: - 0832-6519386

Research Activity of the department

The department conducts M.Phil and Ph.D degree program in Computer Science. Currently students have registered for the M.Phil and Ph.D degree in the area of Data mining, Computer Aided Design (CAD) and Natural Language Processing (NLP).

The department has carried out research projects funded by the All India Council of Technical Education (AICTE) and the Department of electronics and information technology (DeitY), New Delhi. It is currently working on two projects funded by DeitY, New Delhi for developing Resources and Tools for NLP in Konkani Language.

The Staff members of the department also mentor the students for M.Phil and B.E degree dissertation work.

The thrust areas of the department include Computer Graphics & CAD, Data Mining, Software Engineering, Databases, Computer Networks and Embedded Systems, Information Systems Security, Educational Technology and Natural Language Processing (NLP).

M.C.A Programme

Course Objective

The MCA course conducted by the University is aimed at imparting comprehensive knowledge and practice covering all aspects of computer use in the industry. The course content undergoes timely revisions. The course structure and syllabus has been revised in the academic year 2013-14.

The Curriculum includes a combination of three types of courses: Computer Science, Mathematics and Management Science. Semester-wise courses in the above-mentioned three disciplines are listed below. Every student is required to take up a system development project or Industrial Training work in the final (that is sixth) semester.

Course Structure

	First Semester				
		Contact Hours			**Credits**
Course Code	**Course Title**	**Lectures**	**Tutorial**	**Practicals**	
CS 101	Programming and Problem Solving	3	1	0	4
CS 102	Computer Organization and Architecture	3	1	0	4
MT 103	Probability and Statistics	3	1	0	4
MT 104	Discrete Mathematical structures	3	1	0	4
PL 105	Programming and Problem Solving Lab	0	0	6	4
PL 106	UNIX Environment and Tools Lab	0	0	6	4
	Total				24

	Second Semester				
		Contact Hours			**Credits**
Course Code	**Course Title**	**Lectures**	**Tutorial**	**Practicals**	
CS 201	Data and File Structure	3	1	0	4
CS 202	Operating Systems	3	1	0	4
MT 203	Applied Operations Research	3	1	0	4
MT 204	Applied Linear Algebra	3	1	0	4
PL 205	Data and File Structure Lab	0	0	6	4
PL 206	Operating Systems Lab	0	0	6	4
	Total				24

	Third Semester				
		Contact Hours			Credits
Course Code	Course Title	Lectures	Tutorial	Practicals	
CS 301	Data Base Management Systems	3	1	0	4
CS 302	Computer Communications Networks	3	1	0	4
CS 303	Design and Analysis of Algorithms	3	1	0	4
CS 304	Object Oriented Technology	3	1	0	4
PL 305	Data Base Management lab	0	0	6	4
PL 306	Object Oriented Programming lab	0	0	6	4
	Total				24

	Fourth Semester				
		Contact Hours			Credits
Course Code	Course Title	Lectures	Tutorial	Practicals	
CS 401	Software Engineering	3	1	0	4
CS 402	Web Technology	3	1	0	4
EL – I	Elective Paper	3	1	0	4
EL – II	Elective Paper	3	1	0	4
PL 405	Software Engineering Lab	0	0	6	4
PL 406	Web Technology Lab	0	0	6	4
	Total				24

	Fifth Semester				
		Contact Hours			Credits
Course Code	Course Title	Lectures	Tutorial	Practicals	
CS 501	Machine Learning	3	1	0	4
CS 502	Network Security	3	1	0	4
EL – III	Elective Paper	3	1	0	4
EL – IV	Elective Paper	3	1	0	4
PL 505	Machine Learning Lab	0	0	6	4
PL 506	Network security Lab	0	0	6	4
	Total				24

	Sixth Semester				
		Contact Hours			Credits
Course Code	Course Title	Lectures	Tutorial	Practicals	
	Software Project Development/Industrial Internship				
	Total Credits				120

Academic Calendar

The academic year consists of two semesters referred to as odd and even semesters. The semesters start every year in the beginning of the month of June and January and each semester is of about 23 weeks duration. Students are required to attend at least 75% of the classes held in each course/subject and actively participate in study-seminars, tutorials and laboratory work prescribed from time to time to the satisfaction of the Department.

The arrangement for Academic Terms for MCA for the academic year 2016-17 shall be as follows.

Odd Semester – I, III, V

Term –I	06/06/2016 to 21/11/2016
Teaching begins	15/06/16
Teaching ends	02/11/16
Ganesh Chaturthi Break	07/09/2016 to 09/09/2016
Preparatory Break	03/11/2016 to 06/11/2016
Diwali Break	31/10/2016 to 01/11/2016
SEA/EndSemester Examination – Sem I/III/V & assessment	07/11/2016 to 21/11/2016

Even Semester – II, IV, VI

Term-II	22/11/2016 to 03/05/2017
Teaching begins	22/11/2016
Teaching ends	07/04/2017
Christmas Break	26/12/2016 to 30/12/2016
Preparatory Break	08/04/2017 to 11/04/2017
SEA/EndSemester Examination - Sem. II/IV/VI & assessment	12/04/2017 to 27/04/2017
Summer Vacation	04/05/2017 to 05/06/2017
Reopening	06/06/2017

Instructional Scheme

Instructional scheme for the MCA programme is based on a system of integrated units called courses. Each course shall mean one paper. Semester I to V shall have 4 theory papers and 2 lab papers. Semester VI shall be exclusively dedicated to project / training.

Course Credit: Each course will be of 100 marks and will have credits depending upon number of contact hours per week. The project will have no credits associated with it.

Cumulative Credits: The sum total of all the credits of all the courses taken in a semester.

Contact Hours: The total number of Lecture hours, Tutorial hours and Practical hours. Minimum of 45 contact hours are recommended for a 4 credit course, with 4 contact hours per week.

Instructor-in-Charge: Each course may have one or more instructors teaching the course. One of these is to be appointed as Instructor-in-charge.

Course coordinator: In case of courses taught by Visiting Faculty, one faculty member from the department/College shall be associated with the course as course-coordinator

Course File: For each course taught, a file shall be maintained by the Instructor-in-charge comprising of course plan, reading/teaching material used in class, assignments, question papers, answer papers, student feedback, student attendance record along with final evaluation and grading.

Academic Audit Committee: The task of the academic audit is to ascertain that all in-semester an end-semester evaluation is done in transparent and fair manner. The committee shall comprise of two members appointed by the Vice-Chancellor, one from the University Department and one expert from Industry. It shall meet every semester end and shall examine the course file. Any aberrations shall be reported to the Vice-chancellor for further action

Scheme of Evaluation

There shall be both an in-semester element and an end-semester element in the evaluation of the performance of candidates. The weight-age for in-semester evaluation will be 60% and end-semester evaluation will be of 40%

For a theory course, in semester evaluation is a continuous assessment worth 60 marks. At least 40 marks of the in-semester evaluation will be graded through one or more class test. The remaining could be evaluated through quizzes, assignments etc.

For a theory course, the end-semester evaluation consists of an 'end-semester' examination of 40 marks of 2 hour duration conducted by the college/department. A candidate is eligible to appear for the end-semester examination if she/he has a minimum of 75% attendance in the theory course.

For a laboratory course, the assessment will be continuous with 60 marks for the in-semester evaluation consisting of lab experiments, assignments etc. and 40 marks being reserved for the end-semester examination which includes a viva-voce and an online examination jointly conducted by an internal and external examiner. An external examiner is to be appointed from the panel of examiners approved according to the University ordinance OB-4. A candidate is eligible to appear for the end-semester examination if he has a minimum of 75% attendance in the laboratory course.

The final grades for the course would be awarded by the Instructor-in-charge/course-coordinator taking into account the total performance.

Project viva would be jointly conducted by an internal and an external examiner as per the guidelines of the project evaluation. An external examiner is to be appointed from the panel of examiners approved according to the University ordinance OB-4.

There shall be no revaluation. The students can make an appeal to the Chairman Departmental Council through the Principal of College in case of any discrepancies in evaluation. The Chairman shall refer the matter to academic audit committee who shall decide and recommend appropriate action to the Vice-Chancellor.

Grading Scheme

For each course taken by a student, a letter grade is assigned based on the performance in all assessments. These grades are defined as:

AA, AB, BB, BC, CC, CD, DD, EE, II and FF

Each grade not only indicates a qualitative assessment of the student's performance but also carries an equivalent number called the grade point.

The grade points corresponding to different letter grades are defined below:

Letter Grade	Grade point	Letter Grade	Grade point
AA	10	CD	5
AB	9	DD	4
BB	8	EE	0
BC	7	II	0
CC	6	FF	0

A student passes the courses if he/she gets any grades in the range AA to DD.

The letter grade EE and the letter grade II makes the student eligible to take a supplementary examination in that course.

The letter grade II is given to a student on account of absence from the end-semester examination for valid reason.

The letter grade EE is given to a student on account of poor performance in the end semester examination. The letter grade EE and II are not awarded in supplementary examination

A student who fails in the supplementary examination is awarded FF grade and has to repeat the entire course. The student who fails to appear for the supplementary examination or remains absent is awarded FF and has to repeat the entire course

A student shall be considered to have passed a course at first attempt, provided he/she passes with a letter grade of DD or better, at the regular examination.

In addition to the above, a student getting a letter grade of II at the regular examination and subsequently passing the course at the supplementary examination with letter grade of DD or better, will be considered to have passed the course at first attempt. However a candidate getting a letter grade of EE at the regular examination shall be deemed to get letter grade DD in the supplementary examination, if successful.

All other cases would be treated as second attempts.

The final year Project shall carry only qualitative evaluation such as Excellent, Good, Satisfactory, Pass and Fail. A student getting a Fail grade shall have to repeat the project.

Supplementary Examination shall be held at the beginning of every semester.

A student is allowed to repeat a year or a semester in order to improve the performance. In such a situation his previous performance in that year or a semester shall be considered null and void.

Performance Indices

Semester Performance Index (SPI): The performance of a student in a semester is indicated by a number called SPI. The SPI is the weighted average of the grade points obtained in all the courses during the semester. For example, with five courses in a semester, having credits C1, C2, C3, C4, C5 and the grade points in the semester being g1, g2, g3, g4 and g5 respectively then the SPI is equal to (up to two decimal places).

$$\frac{\sum_{i=1}^{5} C_i g_i}{\sum_{i=1}^{5} C_i}$$

Cumulative Performance Index (CPI): The overall performance of a student for the entire programme is obtained by calculating a number called CPI. The CPI is the weighted average of the grade points obtained in all the courses for the programme. The CPI is also calculated to two decimal places.

Award of Class

Each semester grade report for the student shall carry his/her SPI. The final semester mark-sheet will indicate the CPI and the project performance. The final class for the MCA degree would be awarded as per the following scheme –

- **Distinction**: CPI equal to or greater than 8.5 and a minimum "Good" performance in the project.
- **First class**: CPI equal to or greater than 6.5 but less than 8.5 and a minimum performance of "Satisfactory" in the project.
- **Second Class**: CPI equal to or greater than 5.0 but less than 6.5 and a minimum performance of "Pass" in the Project.
- **Pass Class**: CPI equal to or greater than 4.0 but less than 5.0 and a minimum performance of "Pass" in the project.

There is no provision for gracing in the individual paper. However, for candidates representing University in the National / State level event, a maximum of 7 grade points could be awarded before calculating CPI and Class.

Placement activity

The Department has a very active placement cell and many reputed companies come for campus recruitment almost one and half year in advance. Majority of the students get their placement offers in the fourth semester itself.

Companies that visited for campus recruitment in the past include the following -

1. TCS, Mumbai
2. Sabre Technologies, Bangalore
3. Cognizant Technology Solution, Pune
4. Infosis, Pune
5. IBM, Bangalore
6. PSPL, Pune / Goa
7. Zensar, Pune
8. HSBC, Pune
9. Torry Harris, Bangalore
10. BMC Software, Pune
11. Light Bulb, Pune
12. Wipro, Banglore
13. Accenture, Bangalore
14. Hexaware
15. L & T Infotech, Mumbai
16. HONEYWELL Bangalore
17. Carritur, Bangalore
18. ADOBE, Bangalore

Ragging

The U.G.C. has instructed that ragging in all forms be strictly banned by the institutions and to ensure that the campus environment be made free from ragging. All the students are strictly instructed not to indulge in ragging of any form. Strict disciplinary action will be taken against any student found guilty of ragging. The residents of the Goa University hostels are required to take special note of the above.

Further, under the Goa Prohibition of Ragging Bill 2007 strict, disciplinary action will be taken against those convicted for ragging directly or indirectly, so also those who commit, participate in abet or propagate ragging within or outside any educational institution, which may include removal from the roll of the institution for three years. Any student removed for such offense shall not be admitted in any other educational institution in the state.

Students indulging in ragging shall also be debarred from claiming scholarships or other benefits, representing in events, examinations. In case individuals committing or abetting ragging are not identified, collective punishment shall be imposed against those involved.

Head of Post Graduate Department will obtain an annual undertaking from every student stating that they have read the relevant instructions / regulations against ragging as well as punishments detailed therein.

M.C.A Admissions

Eligibility for Admission

Admission to the three year, six semester, full time course leading to the degree of "Master of Computer Applications" (MCA), is open to any Indian National satisfying all of the following conditions:

1. Graduate in any discipline with at least 55% aggregate marks at the first degree examination (50% for candidates in reserved category - OBC, ST, SC, PH, FF).

Or

Minimum CPI must be 6.00 in the scale of 1 to 10 at the first degree examination (minimum CPI must be 5.5 in the scale of 1 to 10 for candidates in reserved category –OBC, ST, SC, PH, FF).

Or

For any other method of declaration of the result, the equivalent percentage of the above cases will be decided by the university after the applications have been received. The decision of the university is final.

2. Candidate must have taken Mathematics as one of the subjects at HSSCE (10+2) level or at a higher level (documentary proof is essential).

3. The admission to first year of MCA program for the year 2016-17 will be strictly based on the Ranking obtained in the ENTRANCE TEST which will be conducted by the Department of Computer Science and Technology, Goa University on 7th June 2016.

Candidates who have appeared for a degree examination and are awaiting results are also eligible to apply. In case such candidates are selected and their results are not available at the time of admission, these candidates will be given provisional admission. Such candidates will have to furnish the proof of fulfilling the eligibility criteria, preferably at the time of Admission but not later than 30th June 2016, failing which, their admission shall be cancelled.

Students are admitted to the first year MCA programme once every year.

Tie Breaking

The method of breaking the tie in case of candidates having an equal score in the Entrance test is as follows.

1. The candidate securing higher percentage of marks in the Mathematics component of the entrance test examination will be ranked higher. In case the scores are equal in this component, the scores obtained in the Aptitude component will be used to resolve the tie. If the tie still persists, the English component followed by the component on Computer awareness will be used.
2. In case the tie still persists across the candidates, the marks obtained at XIIth Std. will be considered.

Availability and Reservation of Seats

The MCA degree program has total 60 seats, with distribution of seats and reservation policy*(may be subjected to change) as follows:

SC – 2%	1 seat	PH - 3%	2 seats	Other Universities	2 seats
ST – 12%	7 seats	FF – 1%	1 seat		
OBC -27%	16 seats	General	31 seats		

*The reservation is only for candidates from Goa. Candidates applying for admission under these categories shall be REQUIRED TO SUBMIT a VALID CERTIFICATE to that effect issued by the appropriate authorities.

The seats under the GENERAL category are available to students who have graduated with first degree from colleges affiliated to Goa University.

Seats falling vacant after exhausting respective waiting lists, under any of the above reserved categories, shall be filled from the general category as per the University rules.

Foreign students interested in seeking admission to the course may write/e-mail to the Admission Coordinator along with their bio-data and details of academic qualification.

Important Dates for Admission to MCA Programme for the Academic Year 2016 – 2017

Online Availability of Prospectus & Application Form	13th May 2016 (Friday)
Last date for receipt of completed Application Form	3rd June 2016 (Friday)
Entrance Test Date and Time	**7th June 2016 (Tuesday) (2.00pm to 4.00pm)**
Display of the First Provisional List of candidates for Admission (including the waiting list) - (Adm Rnd 1)	10th June 2016 (Friday)
Last date for payment of fees by candidates in the First List.	15th June 2016 (Wednesday)
Display of the Second Provisional List of candidates for Admission (including the waiting list) - (Adm Rnd 2)	16th June 2016 (Thursday)
Last date for payment of fees by candidates in the Second List.	17th June 2016 (Friday)
Final list of candidates for Admission(Final round)	20th June 2016 (11 a.m.) (Wednesday)
Last date for the payment of fees for those admitted in the Final round	22nd June 2016 (Wednesday)

For any details contact –

The Admission Coordinator, 2016 - 2017
Department of Computer Science & Technology,
Goa University, Taleigao Plateau,
Goa 403206.
E-mail: admission.mca@unigoa.ac.in / jdp@unigoa.ac.in
Phone: 6519272/6519087/6519325

Entrance Test Modalities

The duration of the Entrance Test will be for a period of two hours and will consist of 90 multiple choice questions with four choices for each question. Each correctly answered question will carry **THREE** marks and each wrongly answered question will lead to **NEGATIVE ONE** mark.

Candidates have to bring their own HB pencil, eraser and black ball point pen. Calculators, mobile phones or any other material shall not be allowed in the examination hall.

Produce the print out of the HALL TICKET you received via email at the time of the examination.

Entrance Test is scheduled on 7th June 2016 (2.00 pm – 4.00 pm) at the Goa University Campus.

Entrance Test Pattern

There are 4 broad subject areas covered in the entrance test – Analytical Ability & Logical Reasoning, General English, Mathematics and Computer Awareness. The Distribution of Questions will be as follows

The question paper will contain 90 multiple choice questions covering the following topics:

1.	**Analytical Ability & Logical Reasoning**	**40 questions**
2.	**General English**	**10 questions**
3.	**Mathematics**	**30 questions**
4.	**Computer Awareness**	**10 questions**

Eligible candidates for Entrance Test

All candidates who have submitted completed application forms as per the eligibility requirements are eligible to answer the entrance test. However, the eligibility for admission to the MCA program will be subject to the candidate fulfilling all eligibility criteria.

No separate intimation about the entrance test will be sent.

The candidates shall have to produce the HALL TICKET for **identification at the Test Centre**, at the time of the entrance test.

Admission Procedure

The following procedure will be followed in selection of candidates for admission.

1. **Merit List Round (Round 1):** A separate merit list and waiting list will be prepared for candidates graduating from Goa University and those graduating from other universities. These lists will be prepared in the descending order of the score obtained in the entrance test and rules applied for breaking the tie. These lists will be uploaded on the University website (http:// www.unigoa.ac.in); and displayed on the Notice Boards of the Department of Computer Science and Technology on **10th June 2016**.

   No separate intimation will be sent to candidates.

   All the candidates whose names appear in the merit list must pay their fees and register by **15th June 2016**. Candidates in merit list who fail to deposit fees by 15 th June 2016 will lose their claim to admission and the same seat would be offered to the candidate in the waiting list.

2. **Waiting List (Round 2)**: On **16th June, 2016**, admissions will be offered to candidates in the respective waiting list (in the order of merit) against vacancies in the merit list. The names of these candidates will be displayed on the notice board of the department

and on the University website. Candidates will have to make the **payment of fees and register on or before 17th June 2016**, failing which the same seat will be offered to the next candidate in the waiting list.

3. **Final round**: On **20th June, 2016**, admission will be offered to candidates in the waiting lists provided there are vacant seats. **All candidates who are eligible for admission can report to the dept office at 11.00 am sharp.** Admission will be offered according to the merit only to those candidates who report to the department **along with the original certificates**. First attempt will be made to fill these seats from the respective list in the order of merit. In case, one of the list is over, the seats will be filled by the candidates from the general merit list. The students who have been offered admission should pay their fees by 22nd June 2016.

4. The candidates who are offered admission and fulfil the eligibility criteria should deposit full fees in the mode specified (instructions regarding the payment of fee will be put up on the website) Students whose results are not available at the time of admission, should also make the full payment of the fees after giving an undertaking that they are paying fees at their own risk and would be able to fulfil the eligibility criteria by **30th June, 2016**. These candidates will be admitted provisionally.

5. **All those candidates who are admitted provisionally should submit the relevant mark sheets and passing certificates by 30th June 2016, failing which their admission shall be cancelled.**

6. The original copies of all mark sheets and relevant documents should be produced by the candidate at the time of admissions and will be retained in the department till the admission procedure is completed.

Fee structure

The total fees prescribed for the academic year 2016 – 2017 is Rs. 37,610/- for Goa University graduates and Rs. 39,580/- for graduates from other universities. The details of the fee break-up is as under –

	Breakup of fees for the Academic year 2016-2017	
Sr. No.	**Particulars**	**Fees**
1.	**Tuition Fee (Yearly)**	**15,540.00**
2.	**MCA Course development Fee**	**17,530.00**
3.	**Registration Fee**	
a.	Goa University Students	**530.00**
b.	Outside University Students	**2500.00**
4.	**Gymkhana, Student Union, ID Card Fee**	**450.00**
5.	**Student Aid Fund**	**130.00**
6.	**Laboratory Fee/Computer Fee**	**850.00**
7.	**Annual Internet Fee**	**250.00**
8.	**Annual Library Fee**	**490.00**
9.	**Caution Deposit (Refundable)**	**1,840.00**
	Total Fees (for graduates from Goa University)	**37,610.00**
	Total Fees (for graduates from Other Universities)	**39,580.00**

For Students requiring hostel accommodation, the University has full fledged hostels both for the men and women students. The hostel fees and hostel mess charges are as decided and made applicable by the university.

Refund of Fees

1. In the event of a student withdrawing before the FinalRound of admission (20th June 2016), the entire fee collected from the student, after a deduction of the processing fee of not more than Rs. 1000/- (one thousand only) shall be refunded and returned by the University to the student withdrawing from the programme.

2. If the student leaves after joining the course and if the seat consequently falling vacant has been filled by another candidate by the last date of admission, the Institution shall return the fee collected with proportionate deductions of monthly fee and proportionate hostel rent, where applicable.

3. No refund of fee is admissible if the student withdraws admission after the last date (20th June 2016) or later. The above rule shall be applicable to all items of fee except refundable deposits.

4. Students, who have already been admitted to a department/centre of the university and have paid the fee and are subsequently admitted to another department/centre on or before the last day of admission, will have to pay the fee for the final admission and claim refund of fee paid earlier.

5. All other cases of refund of fees will be decided on case to case basis, based on its merit.

APPENDIX

ENTRANCE TEST SYLLABUS

ANALYTICAL ABILITY AND LOGICAL REASONING: (40 questions)

The questions in this section will cover analytical and logical reasoning and based on Series, Relationships, Classification, Coding, Permutations and Combinations and Inference

GENERAL ENGLISH: (10 questions)

Questions in this section will be designed to test the candidates' general understanding of the English language. There will be questions on the following topics:

Comprehension, vocabulary, basic English Grammar (like usage of correct forms of verbs, prepositions and articles), word power, synonyms and antonyms, meaning of words and phrases, technical writing.

MATHEMATICS: (30 questions)

Set Theory: Concepts of sets – Union, Intersection, Cardinality, Elementary counting; permutations and combinations.

Probability and Statistics: Basic concepts of probability theory, Averages, Dependent and independent events, frequency distributions, measures of central tendencies and dispersions.

Algebra: Fundamental operations in algebra, expansions, factorization, simultaneous linear /quadratic equations, indices, logarithms, arithmetic, geometric and harmonic progressions, determinants and matrices.

Coordinate Geometry: Rectangular Cartesian coordinates, distance formulae, equation of a line, and intersection of lines, pair of straight lines, equations of a circle, parabola, ellipse, and hyperbola.

Calculus**:** Limit of functions, continuous function, differentiation of function, tangents and normals, simple examples of maxima and minima. Integration of function by parts, by substitution and by partial fraction; definite integrals, applications of definite integrals to areas.

Vectors**:** Position vector, addition and subtraction of vectors, scalar and vector products and their applications to simple geometrical problems and mechanics.

Trigonometry: Simple identities, trigonometric equations properties of triangles, solution of triangles, heights and distances, general solutions of trigonometric equations

COMPUTER AWARENESS: (10 questions)

Computer Basics: Organization of a computer, Central Processing Unit (CPU), structure of instructions in CPU, input/output devices, computer memory, and back-up devices. Data Representation: Representation of characters, integers and fractions, binary and hexadecimal representations, binary arithmetic: addition, subtraction, multiplication, division, simple arithmetic and two's complement arithmetic, floating point representation of numbers, Boolean algebra, truth tables, Venn diagrams.

SAMPLE QUESTIONS OF ENTRANCE TEST

ANALYTICAL ABILITY AND LOGICAL REASONING

1. Unscramble the letters of words and find the odd one out.
(a) TLAES (b) KOBO (c) PPREA (d) NCEPLI

2. A man works for 2 days and then rests for one day, then works for 2 days and rests for one day and so on. For everyday he works, he earns Rs. 100. How much will he earn from Monday to Saturday?
(a) Rs. 200 (b) Rs. 300 (c) Rs. 400 (d) Rs. 500

3. If RUNNER is coded by SUMMER, the code for WINTER will be :
(a) XIMSER (b) VINTER (c) SINVER (d) VIOUER

4. Ram started his journey at 9.00 a.m. at 8 km/hour. Shyam started from the same direction at 9.30 a.m. at 10 km/hour. Shyam spot in the same overtakes Ram at :
(a) 11.00 a.m. (b) 12.30 p.m. (c) 12.00 noon (d) 11.30 a.m.

5. VCL, UEI, TGF, ?
(a) SJC (b) THI (c) SIC (d) RHD

MATHEMATICS

1. If a, b, c, d, e, f are in A.P., then e – c is equal to
(a) 2(c – a) (b) 2(d – c) (c) 2(f – d) (d) d – c

2. The distance between the lines $5x - 12y + 2 = 0$ and $5x - 12y - 3 = 0$ is
(a) 3/13 (b) 5/13 (c) 7/13 (d) 1/13

3. A square park is surrounded by a path of uniform width 2 metres all round it. The area of the path is 288 sq. metres. The perimeter of the park is
(a) 142 m (b) 128 m (c) 136 m (d) 118 m

4. Which of the following is INCORRECT?
(a) |a+b| <= |a|+|b| (b) |a-b| <= |a|+|b| (c) |a-b| <= |a|-|b| (d) |a-b|=0 □ a=b

5. The value of $\cos(2\pi/7) + \cos(4\pi/7) + \cos(6\pi/7)$
(a) 1 (b) -1 (c) 1/2 (d) -1/2

COMPUTER AWARENESS

1. Rotational delay time is also known as
(a)Seek time (b) Shift time (c) Latency (d) Access time

2. The memory which is utmost accessible to the processor is
(a)Cache memory (b) RAM (c) Hard disk (d) Flash memory

3. A terabyte comprises
(a)1024 gigabyte (b) 1024 kilobyte (c) 1024 megabyte (d) 1024 byte

4. The binary equivalent of $(231)_{10}$ is
(a) 011100111 (b) 010011001 (c) 001110011 (d) 010111001

5. Which of the following is a programming language
(a)C# (b)Access (c) MS-Word (d)PowerPoint

GENERAL ENGLISH

1. Shoot is to Gun as Eat is to....
   (a) Hunger (b) Thirst (c) Dinner (d) Fruit

2. Clever is to Beautiful as Sour is to....
   (a) Lemon (b) Cunning (c) Loathing (d) Taste

3. The passive form of the sentence "They are not going to play the match today" is
   (a) The match cannot be played today
   (b) The match had not been played today
   (c) The match was not played today
   (d) The match is not going to be played today

4. The loan will be repaid __ 12 months
   (a) by (b) for (c) in (d) from

5. Choose the correct meaning for the word Bizzare
   (a) Breezy (b)Very strange (c) Depressing (d) Bright