

**Detailed Program Scheme**  
**Bachelor of Computer Applications (BCA)**

**Semester I-VI**  
**(2022-25)**

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**RNB**  
GLOBAL UNIVERSITY  
Educating stars for tomorrow

**RNB GLOBAL UNIVERSITY**

RNB Global City, Ganganagar Road,  
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## Document Release Notice

**Detailed Program Scheme for all Semesters**

**Release: Version 1.0**

<b>Name of Program</b>	Bachelor of Computer Applications
<b>Abbreviated Program Name</b>	BCA
<b>Updated on</b>	June'22
<b>Approved By</b>	BOS

## **OVERVIEW**

RNB Global University follows Semester System along with Choice Based Credit System as per latest guidelines of University Grants Commission (UGC). Accordingly, each academic year is divided into two semesters, **Odd(July-December)** and **Even (January-June)**. Also, the university follows a system of continuous evaluation along with regular updating in course curricula and teaching pedagogy.

<b>Name of Program</b>	Bachelor of Computer Applications (BCA)
<b>Program Code</b>	13007
<b>Duration of Program</b>	3 years
<b>Number of Semester</b>	6
<b>Total Credit of Program</b>	152

## **DETAILED CREDIT STRUCTURE**

<b>Year 1</b>	Semester1	24 credits
	Semester2	22 credits
<b>Year 2</b>	Semester 3	24 credits
	Semester 4	28 credits
<b>Year 3</b>	Semester 5	27 credits
	Semester 6	27 credits
<b>Total Credits</b>		152 Credits

## **PROGRAM OBJECTIVE**

- This course is designed and structured with intent to provide our students a dynamically stimulating environment, where the students can get transformed into highly skilled IT specialists.
- The curriculum has been designed to give the students an in-depth knowledge of various subjects related to Information Technology along with the basic concepts of management.
- This under graduate programme equips the students with an in-depth understanding of technical concepts coupled with intensive industry exposure.
- The course curriculum is designed after a deep analysis of the requisitions from the industry stakeholders and focusing on the industry expectations from IT professionals.
- The Programme also offers tremendous flexibility and learning opportunities through credit-based approach.
- The salient features of the programme include emphasis on enhancing the students' soft skills and providing them with optimum industry interaction through varied initiatives.
- To produce employable IT workforce, that will have sound knowledge of IT and business fundamentals that can be applied to develop and customize solutions for Small and Medium Enterprises.
- The Program prepares students with competent skill-sets and detailed knowledge of different verticals in the Computer Application field and helps them to take up different technical roles in the industry.
- The Program covers comprehensive technical knowledge, in demand by various industry domains and in the fields of Website Development, Software Development, Quality Assurance, Web Technology and Project Management etc.
- The approach adopted in this Program is unique and Industry oriented, as it explores and experiments with ideas.
- Demonstrate the critical thinking and communication skills required in a technical environment.
- Enable participants to be part of live projects to implement and test their computer application skills and provide feedback and a roadmap for progress.

## **DURATION OF THE PROGRAM/MAXIMUM DURATION**

The BCA Program shall be of three years with six semesters. A student will be required to complete the program within minimum 3 years and maximum a duration of 5 years from the date of first registration in the first Semester.

The student shall be required to undergo 4-5 weeks Summer Internship or Summer Project at the end of the Second year (4th Semester) & submits its report in the 5<sup>th</sup> Semester. Also, the student has to undertake a “**Major Project**” during the program, in the 6<sup>th</sup> semester during the final/third year. Major Project should be preferably with a local industry or with an IT firm, undertaking a live project or providing a web-based solution, for giving a practical solution of a problem, etc

An academic year consists two semester, Odd Semester (July-Dec) and Even Semester (Jan-June). Duration of Each semester can increase or decrease. Generally, each semester has 15-18 weeks of academic works.

The examination for the I, III, and V, semesters shall ordinarily be held in the month of November/December and of the II, IV and VI semesters in the month of April/May or on such dates as may be fixed by the University.

### **REGISTRATION AT THE START OF EVERY SEMESTER**

Every semester, students admitted to a program should register him/her for the next Semester. The student must also register for the elective courses, if any, (both discipline specific and open electives) that he/she wishes to take in that particular semester (especially in the final year/last 2 semesters).

### **PROMOTION FROM 1ST YEAR TO 2ND YEAR**

A student is eligible for promotion to next year, if he/she meets the below mentioned minimum CGPA Criteria (by combining odd and even semester).

- For promotion from 1<sup>st</sup> Year to 2<sup>nd</sup> year , Minimum CGPA of 4.0
- For promotion from 2<sup>nd</sup> Year to 3<sup>rd</sup> year , Minimum CGPA of 4.5

**Meaning:** If for a Student, if CGPA is 4.0(**Minimum 40% marks are required to get promoted**) or more than 4.0 in 1<sup>st</sup> year having any number of subject backlog/fail, he/she shall be promoted to next year. That, it is his/her choice to clear his/her backlog in summer semester or with semester end examination as per ODD backlog with ODD semester and EVEN Backlog in EVEN Semester.

If student CGPA is less than 4.0, having any number of backlog in the 1<sup>st</sup> year and CGPA is less than 4.5 in 2<sup>nd</sup> year, he/she must be appear in summer semester to clear backlog papers.

For promotion to 3<sup>rd</sup> Year, a student must have to clear all his/her paper of 1<sup>st</sup> year. Student cannot carry internal backlog to next year, he/she must clear his/her internal backlog before commencement of next year session.

### **TEACHING PEDAGOGY**

The evolution of teaching pedagogy applied at RNBGU makes the curriculum more dynamic as it incorporates not just learning through lectures but also applying the concepts with the help of Role Plays, Case Studies and other creative exercises.

- Practical Based Learning – Case Studies, Role Play Sessions, Debates, Simulations, Brain Storming, Presentations etc.
- Academia Industry Interface – Industrial Visits, 45 days intense industry practice, Live Projects, Guest Lectures, Webinar and Workshops, etc
- Club Activities – Games Club, Marketing, Finance, HR, Sports and Cultural Club etc.

The teaching pedagogy at RNBGU can be divided into three modules focusing upon developing three major core competency areas of our students. These modules are –

**Module-I:** Computer Skills Training program that focuses on imparting the Fundamental & advanced Computer Knowledge of different relevant topics & subjects, deemed essential for the working and operations of the modern corporate world & the IT industry.

**Module-II:** A rigorous personality development training and soft skill development program that aims at enhancing the English & Soft Skills of the students.

**Module-III:** Concentrates on development of right Aptitude (Job Oriented Skills) along with focus on industry interactions, Project based studies, workshops & seminars for hands on experience

In the networking world of today, communication skills are becoming very important. A manager's main role is to communicate his/her vision and strategy to others and get them to work with him/her towards that vision. RNBGU places special importance on the communication and interpersonal skills of students by imparting subjects like 'Ability & Skill Enhancement'

### **CONTINUOUS ASSESSMENT**

A continuous assessment system in semester system (also known as internal assessment/comprehensive assessment) is spread throughout the duration of the course and is done by the teacher teaching the course/subject. The student gets an opportunity to learn more using the continuous learning method. The students do not keep the things for

last one month and would learn throughout the semester. The continuous assessment provides a feedback on teaching learning process. The feedback after being analyzed is passed on to the concerned student for implementation and subsequent improvement. As a part of concurrent evaluation, the learners shall be evaluated on a continuous basis by the University to ensure that student learning takes place in a graded manner

Project based learning and regular assignments form an integral part of academic curriculum at RNBGU, Assignments help the students to apply the concepts which results in deeper understanding of the subject and related topic. Students are expected to apply the concepts to real life management problems in such assignments and projects. It also increases the efficiency of students.

**Students can refer to the semester/year wise “Program Assignment chart”** to get a better idea on the format/style & number of assignments they need to take in a particular semester/year. The assignments are designed in such a way that helps in the holistic growth of the students along with creating confidence & bettering the communication skills.

### **ASE- ABILITY AND SKILL ENHANCEMENT**

Ability and Skill Enhancement (ASE) is the umbrella under which various spikes like training modules on communication skills, business etiquettes, technical terminology, vertical study, understanding requirements of various specializations and many such topics are taught which render in helping the students prepare for the Global Entrant. ASE has been conceptualized with a view to explore the dynamics and techniques of effective interpersonal communication and to reinforce confidence in students by concentrating on what works about the individual. We believe that students need to not only develop academically but develop the ability to survive in the modern world.

#### **Aim of ASE is:**

1. To convert the conceptual understanding of communication into everyday practice and to train students to apply concepts/ideas in their own experience.
2. To create a learner-language interface enabling students to exercise control over language use.
3. To exercise control over language use and sensitize students to the nuances of the four basic communication skills – Listening, Speaking, Reading and Writing.
4. To give them the skill sets that would help them grow professionally.

Along with imparting education and academic proficiency to students, we prepare them for situations beyond academics also. Inclusion of co-curricular and extracurricular activities under ASE is facilitating a comprehensive development of students. ASE focuses on body language, communication interpersonal and presentation skills by teaching them the art of developing, creating and executing their presentation with a professional approach and attitude.

ASE Modules I To VI are specifically designed so as to gradually increase the learning approach of the student, helping students train their mind keeping themselves in the realistic world. It enables a student to develop key professional qualities.

ASE helps in achieving the University's mission to promote 'True Learning' and discourage 'Rot Learning'. Use of tutorials, assignments, debates, quizzes, presentations, case studies, projects, practical test, viva voce and many more modern tools promotes the learning quotient among the students.

**This is one of the exclusive features of RNBGU's skill enhancement efforts.**

### **WORKSHOPS & SEMINARS**

Inviting eminent personalities who have achieved some feat in their field to take some seminars and workshops for the students greatly help them interact with present and ongoing advancements in the technology and market. Seminars and workshops are capable of keeping the students updated with the technology. Active participation in a workshop provides continuing resource of ideas, suggestions and possible solutions to the problems. Besides, workshops do tend to address issues faced by organizations which may be helpful in resolving many severities.

Students get an opportunity to connect their theoretical knowledge with practicing managers. It enhances the confidence level of student's aspiring their dreams. It is always a nice option to exercise the textbook tools with technological knowhow. Students attending such workshops, seminars can demonstrate their capabilities and can further more update their knowledge through such platforms.

**This is one of the key features of RNBGU's learning pedagogy.**

### **SUMMER INTERNSHIP**

- Internship is the best option to develop skills and experience in particular field which is dependent on student choice or company according. Basically, the internship is a first stage to learn the technical language (Java, Android, PHP, Web designing, .Net, SEO) which is beneficial for the student.
- Internships are key to building experience as a student or recent graduate. Employers are much more likely to hire someone with internships and work experience rather than someone with a generic resume, lacking experience.
- Some specific reasons to include internships in BCA, is follow: Real world experience, Networking, Resume Builder, Time Management, and Career Foundation.



Internships are taken after the end of the 4<sup>th</sup> semester for a period of 4-5 weeks. It carries 4 credits & the student needs to submit his Summer Internship Report in the 5<sup>th</sup> semester. For the ease of students understanding, Summer internship is evaluated for a total of 150 marks for Weekly Reports, Project report, Presentation & Viva Voce & later converted into grade & grade points as per the University Examination Policy.

Complete document/guidelines are available for the help/assistance of the students for SIP. **Students can refer to the BCA Summer Internship & Project Instructions & Assistance Document**” to get a better idea on the Formats, Style, Project reports, Marks breakup & scoring criteria, etc; enabling students a better perspective & understanding on benefiting the maximum from such dedicated & sincere efforts by RNB Global University for organizing such Summer Internship program for its students.

**The complete SIP reporting & evaluation pattern is again a very unique & well-structured industry academia learning efforts of RNBGU.**

### **MAJOR PROJECT**

- The Bachelor of Computer Applications (BCA) program prepares the students to take up positions as Programmers, Systems Analysts, Systems Designers in the field related to computer science and information technology or students may go for higher studies in this area.
- The courses studied by you during your BCA program provide you the basic background to work on diverse application domains. The theoretical background of various courses provides you the necessary foundation, principles, and practices to develop effective ways to solve computing problems. The hands-on experience gained from the practical courses provide you the knowledge to work with various operating systems, programming languages and software tools.
- This project work is kept in BCA program to give you an opportunity to develop quality software solution.
- The primary emphasis of the project work is to understand and gain the knowledge of the principles of software engineering practices and develops good understanding of SDLC (Software Development Life Cycle).
- The BCA students are encouraged to involve themselves completely on the project work in their final semester. It is advised to students to develop their project for solving problems of software industry or any research organization. Doing this will give more exposure to handle real life problems of project development. Students should take this project work very seriously. Topics selected, should be complex and large enough to justify as a BCA project.

Every student needs to take up a Major Project in the 6<sup>th</sup> semester. It carries 8 credits. The projects are mainly IT Industry oriented.

The project is to be pursued by him / her under the supervision of an Internal Faculty supervisor, which is to be appointed by the Dean.

Prior to starting the project, students must go through the proposal stage, during which students will develop their proposal and have it reviewed by his/her research advisor.

The student needs to submit his Major Project report induplicate at least four weeks prior to the commencement of the End Term Examination of the Sixth Semester.

For the ease of students understanding, Major Project is evaluated for a total of 300 marks of which 50 marks are for 5 Working Reports of 10 marks each (minimum duration between 2 reports is 1 week & maximum duration between 2 reports is 1 fortnight), 50 marks for final Project Report, 100 marks for successfully showcasing the live project executed by the student &100 marks towards Presentation on his learning, use of technology, program coding, use of software, etc & followed by question & answers(Viva Voce). Marks obtained are later converted into grade & grade points as per the University Examination Policy.

50 marks based on the 5 working reports will be evaluated internally by the Supervising Faculty. Project Report, showcasing of live project, along with Presentation & Viva Voce shall be evaluated by an External Examiner appointed by the University for a total of 250 marks (50 marks for Project Report, 100 marks for showcasing of live project & 100 marks for Presentation & Viva Voce) .

## **SEMESTER WISE COURSE DETAILS**

### **Semester -I**

<b>S. No.</b>	<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
1.	13004200	Mathematics- I	3	1	0	4
2.	13004100	Introduction to Computers and IT	3	1	0	4
3.	13004300	Fundamentals of Programming with C	3	1	0	4
4.	13011100	Software Engineering	3	0	0	3
5.	99002200	Business Communication	3	1	0	4
6.	13004400	Programming with C Lab	0	0	4	2
7.	13002700	Ability & Skill Enhancement - I	2	0	0	2
8.	99003300	Workshops & Seminars/ Human Values & Social Service/NCC/NSS	-	-	-	1
<b>Total</b>			<b>17</b>	<b>4</b>	<b>4</b>	<b>24</b>

### **Semester- II**

<b>S. No.</b>	<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
1.	13004900	Digital Electronics	3	0	0	3
2.	13005000	Digital Electronics Lab	0	0	2	1
3.	11011100	Principles of Management	3	0	0	3
4.	13005100	Operating System	3	0	0	3
5.	13005200	Operating System Lab	0	0	2	1
6.	13004700	Data Structure using C	3	0	0	3
7.	13004800	Data Structure using C Lab	0	0	2	1
8.	99001900	Environmental Studies	3	1	0	4
9.	13002800	Ability & Skill Enhancement - II	2	0	0	2
10.	99003300	Workshops & Seminars/ Human Values & Social Service/NCC/NSS	-	-	-	1
<b>Total</b>			<b>17</b>	<b>1</b>	<b>6</b>	<b>22</b>

### **Semester- III**

<b>S. No</b>	<b>Course Code</b>	<b>Course Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
1.	13013800	Python	3	0	0	3
2.	13032800	Python Lab	0	0	2	1

3.	13008200	Database Management System	3	0	0	3
4.	13008300	Database Management System Lab	0	0	2	1
5.	13008400	Computer Architecture	3	1	0	4
6.	13008500	Object Oriented Programming with C/C++	3	1	0	4
7.	13008600	Object Oriented Programming with C/C++ Lab	0	0	4	2
8.	13033000	Principal of Accounting	3	0	0	3
9.	13002900	Ability & Skill Enhancement - III	2	0	0	2
10.	99003300	Workshops & Seminars/ Human Values & Social Service/NCC/NSS	-	-	-	1
<b>Total</b>			<b>17</b>	<b>2</b>	<b>8</b>	<b>24</b>

### Semester - IV

S. No	Course Code	Course Name	L	T	P	Credits
1.	13010200	Java Programming Language	3	0	0	3
2.	13010300	Java Programming Language Lab	0	0	2	1
3.	13010600	Computer Networks	3	1	0	4
4.	13010700	Computer Networks Lab	0	0	2	1
5.	13010400	Computer Graphics	3	0	0	3
6.	13010500	Computer Graphics Lab	0	0	2	1
7.	13011000	Optimization Technique	3	1	0	4
8.	13032600	Cyber Security	3	1	0	4
9.	13010800	Web Technology	3	0	0	3
10.	13010900	Web Technology Lab	0	0	2	1
11.	13003000	Ability & Skill Enhancement - IV	2	0	0	2
12.	99003300	Workshops & Seminars/ Human Values & Social Service/NCC/NSS	-	-	-	1
<b>Total</b>			<b>20</b>	<b>3</b>	<b>8</b>	<b>28</b>

### Semester- V

S. No	Course Code	Course Name	L	T	P	Credits
1.	13012400	Analysis and Design of Algorithm	3	1	0	4
2.	13012500	Analysis and Design of Algorithm Lab	0	0	2	1
3.	13012600	Data Warehousing and Data Mining	3	0	0	3

4.	13012700	Mobile Computing	3	1	0	4
5.	13032700	Artificial Intelligence	3	1	0	4
6.	13012900	Elective-I PHP & My SQL	3	0	0	3
7.	13013000	Elective-I PHP & My SQL Lab	0	0	2	1
8.	13012300	Summer Internship or Summer Project	0	0	8	4
9.	13003100	Ability & Skill Enhancement - V	2	0	0	2
10.	99003300	Workshops & Seminars/ Human Values & Social Service/NCC/NSS	-	-	-	1
<b>Total</b>			<b>17</b>	<b>3</b>	<b>12</b>	<b>27</b>

### **Semester - VI**

S. No.	Course Code	Course Name	L	T	P	Credits
1.	13013100	Software Testing and Quality Assurance	3	1	0	4
2.	13013200	Theory of Computation	3	1	0	4
3.	13013300	Elective-II Unix & Shell Programming	4	0	0	4
4.	13013400	Elective-II Unix & Shell Programming Lab	0	0	2	1
5.	13013500	Cloud Computing	3	0	0	3
6.	13013600	Major Project	0	0	16	8
7.	13003100	Ability & Skill Enhancement - VI	2	0	0	2
8.	99003300	Workshops & Seminars/ Human Values & Social Service/NCC/NSS	-	-	-	1
<b>Total</b>			<b>15</b>	<b>2</b>	<b>18</b>	<b>27</b>

### **List of Elective-I**

<b>S. No.</b>	<b>Course Code</b>	<b>Course Name</b>
1.	13013700	Intelligent System
2.	13012900	<b>PHP &amp; My SQL</b>
3.	13032900	Internet of Things (IOT)
4.	13013900	ADT ( Advance Development Technologies)
5.	13014000	Cyber Laws

### **List of Elective- II**

<b>S. No.</b>	<b>Course Code</b>	<b>Course Name</b>
1.	13014100	<b>Unix &amp; Shell Programming</b>
2.	13014200	Advanced Internet programming
3.	13014300	System Programming
4.	13014400	TCP/IP
5.	11018700	E-Commerce

### **EVALUATION SCHEME- THEORY**

The evaluation of the theory paper of BCA would be based on Internal and External Assessments. Internal Assessment would consist of 50% of the marks (50 marks) and external assessment (in form of End Term Exam) would consist of remaining 50% marks (50 marks). Detailed scheme of Internal and External Assessments as follows:

#### **Internal Assessment- 1<sup>st</sup> Semester**

The distribution of Internal Assessment Marks is as follows:

<b>Type</b>	<b>Details</b>	<b>Marks</b>
Mid Term	One Mid-term Sessional	25
Marks obtained in various Tests, Assignments, Presentations, Quiz, Tutorials, etc.	Average of marks obtained	20
Attendance	75% + : 5 marks	5
<b>TOTAL</b>	<b>50</b>	

**Internal Assessment- Semester II<sup>nd</sup>- VI<sup>th</sup>**

Type	Details	Marks
Mid Term	Two Mid-term Sessional of 15 marks each (15+15)	30
Marks obtained in various Tests, Assignments, Presentations, Quiz, Tutorials, etc.	Average of marks obtained	15
Attendance	75%+ : 5 marks	5
<b>TOTAL</b>	<b>50</b>	

**External Assessment- Semester I<sup>st</sup>- VI<sup>th</sup>**

Type	Marks
Theory	50

**EVALUATION SCHEME -PRACTICAL**

The evaluation of the practical paper of BCA would be based on Internal and External Assessments. Internal Assessment would consist of 50% of the marks (50 marks) and external assessment (in form of End Term Exam) would consist of remaining 50% marks (50 marks). Detailed scheme of Internal and External Assessment is as follows:

**Internal Assessment- Semester I<sup>st</sup> - VI<sup>th</sup>**

The distribution of Internal Assessment Marks is as follows:

Type	Details	Marks
Marks obtained in various manuals, practical file, participation, any model prepared, output of practical	Average of marks obtained	45
Attendance	75%+: 5 marks	5
<b>TOTAL</b>	<b>50</b>	

**External Assessment- Semester I<sup>st</sup> - VI<sup>th</sup>**

Type	Marks
Practical	50

**EVALUATION SCHEME- WORKSHOPS & SEMINARS AND HUMAN VALUES & SOCIAL SERVICE/NCC/NSS**

1. The evaluation of Workshops & Seminar and Human Values & Social Service/NCC/NSS will be completed from Semester I – Semester VI. It will be evaluated internally by the various Forums & Schools Concerned. The credit for this will be given at the end of each Semester.
2. The students have to join club/clubs/Forums with the active participation in different activities of club. The students would be continuously assessed from Semester-I to Semester-IV and credits and marks would be given after the end of each Semester.

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