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Meeting : 12

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Notice

Date	02-05-2024	No.	DOC202404130004
Subject	Meeting of BOS in Computer Science		

A meeting of the Board of Studies in Computer Science will be held on 06th May, 2024 at Room number 16 Admin Block at 3.30 pm.

Members of the Board of Studies:

1.	Ms. Zaiba Khan	Convener
2.	Mrs Sonam Pareek	Member
3.	Dr Devender Gehlot	External Member
4.	Er Maninder Singh	External Member (Industry)

The agenda of the Meeting shall be as follows:

Item No. 1: To discuss and approve the modification of the B.C.A syllabi, specifically replacing Mobile Computing with Android Programming in the fifth semester.

Item No. 2: To approve the syllabus for **optional** B.C.A subjects added in accordance with the New Education Policy 2020.

Item No. 3: To approve the modifications in B.C.A subjects added in accordance with the New Education Policy 2020.

Item No. 4: To examine the B. Tech syllabus and propose modifications based on requirements.

All members are requested to kindly make it convenient to attend the meeting.

RNB Global University Dean Bikaner

Convener
Ms Zaiba Khan

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Date	06-05-2024	No.	DOC202404130006
Subject	MOM of Board of Studies Meeting of Computer Science		

MINUTES OF THE BOARD OF STUDIES MEETING OF SCHOOL OF BASIC AND APPLIED SCIENCES HELD AT ROOM NO. 16, ADMIN BLOCK, RNB GLOBAL UNIVERSITY, ON 06th MAY 2024 AT 03.30 PM

The following members were present:

S.No.	Name	Designation
1.	Ms Zaiba Khan	Convener
2.	Ms Sonam Pareek	Member
3.	Dr. Devender Gehlot	External Member
4.	Er Maninder Singh	External Member (Industry)

The meeting of the Board of Studies of the School of Basic and Applied Sciences was held on 06th May 2024 AT 03.30 PM in room number 16, Admin Block, RNB Global University, Bikaner.

Ms Zaiba Khan, Convener, of the Board of Studies, welcomed all the members to the meeting. After confirming the quorum, the following agenda items were taken up for discussion:

Item No. 1: To discuss and approve the modification of the B.C.A syllabi, specifically replacing Mobile Computing with Android Programming in the fifth semester.

The BCA programme structure was considered in accordance with NEP standards. The proposed change aims to align the curriculum with current industry trends and demands. Android Programming is becoming increasingly relevant and offers more practical application opportunities for students and provides students with hands-on experience in developing mobile applications for one of the most widely used operating systems.
Also enhances job readiness by equipping students with skills that are highly sought after in the tech industry.

Item No. 2: To approve the syllabus for optional B.C.A subjects added in accordance with the New Education Policy 2020.

Brief overview of NEP 2020 and its objectives, particularly the emphasis on flexibility, multidisciplinary learning, and skill development and how the addition of optional subjects aligns with these objectives, offering students the opportunity to tailor their education according to their interests and career goals. The syllabus of the UG course of BCA was also

discussed and some changes were suggested in the syllabus Detailed descriptions of each subject, including course objectives, key topics covered, learning outcomes, and assessment methods. Examples of subjects may include Hindi, Data Science, Cybersecurity, Artificial Intelligence, Cloud Computing, and Android. It provides students with the flexibility to choose subjects that complement their core curriculum and align with their career aspirations.

Item No. 3: To approve the modifications in B.C.A subjects added in accordance with the New Education Policy 2020.

Overview of the New Education Policy (NEP) 2020, highlighting its objectives to transform higher education, promote interdisciplinary learning, and improve employability. Specific subjects that have been revised, including an overview of the changes in their content, structure, and learning outcomes. Examples of modifications may include integrating more project-based learning, updating content to reflect current technologies, and adding modules on emerging topics. Detailed timeline for implementing the modified subjects, including key milestones such as curriculum finalization, faculty workshops, and student orientation. Plans for monitoring and evaluating the effectiveness of the new curriculum, including feedback mechanisms and continuous improvement processes.

Item No. 4: To review and propose modifications to the B. Tech syllabus in alignment with industry requirements and academic advancements.

The objective is to ensure the B. Tech syllabus remains relevant, industry-aligned, and conducive to fostering innovation, critical thinking, and employability in line with global technological advancements and educational standards. This review will focus on updating course content, incorporating interdisciplinary approaches, and aligning with emerging industry trends such as artificial intelligence ,cyber security, data science, sustainability, and digital transformation. The proposed modifications aim to enhance students' technical competencies, practical skills, and adaptability to evolving professional demands.

Expected Outcomes:

- A future-ready B. Tech curriculum that equips students with cutting-edge technical knowledge and practical skills.
- Improved employability through stronger industry-academia collaboration and alignment with market demands.
- Enhanced student engagement and innovation through hands-on, interdisciplinary, and problem-based learning approaches.
- A robust framework for ongoing curriculum evaluation and adaptation to technological and societal changes.

As there was no further item to discuss the meeting ended with thanks to and from the chair.

BNB Global University Dean Bikaner

Convener
Ms Zaiba Khan

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Attendance Sheet

Meeting	Board of Studies		
School /Forum/Etc	Basic and Applied Sciences (Computer Science)		
Date	06-05-2024	**Meeting No:**	12
Venue	Room Number 16, Admin Block, RNBGU	**Time**	03:30 PM

S.No.	Name	Signature
1.	Dr Devender Gehlot	
2.	Ms Sonam Pareek	
3.	Ms Zaiba Khan	
4.	Er Maninder Singh	

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Action Taken Report of Eleventh Meeting-

Agenda Item No.	Action Taken
Item Number 11(1) Program scheme revision of BCA as per NEP	Revised the BCA program structure in alignment with NEP standards. Integrated and multifaceted courses were included for each semester, with multiple entry and exit options after each academic year.
Item Number 11(2) To discuss the syllabus of the UG course for any changes	Increased the set of practical programs in key subjects such as C Language and Data Structures based on suggestions.
Item Number 11(3) Any other item	No additional items were raised for discussion.

RNB Global University Dean Rikaner

w.e.f. 2024.

Detailed Program Scheme

Bachelor of Technology (B.Tech.)

(Computer Science Engineering)

Semester I-VIII
(2023-24)

DOC202306090061

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RNB GLOBAL UNIVERSITY
RNB Global City, Ganganagar Road,
Bikaner, Rajasthan 334601

Document Release Notice	
Program Scheme for all Semesters **Release: Version 1.0**	
Name of Program	Bachelor of Technology (Computer Science Engineering)
Abbreviated Program Name	B.Tech. (CSE)
Updated on	June 2023
Approved By	BOS

OVERVIEW

RNB Global University follows Semester System. Accordingly, each academic year is divided into two semesters, **Odd (July-December) and Even (January-June).** Besides this, the university follows a system of continuous evaluation along with regular updating in course curricula and teaching pedagogy.

Course Scheme

Name of Program	Bachelor of Technology (Computer Science Engineering)
Duration of Program	4 years
Number of Semester	8
Total Credits of Program	218

DETAILED CREDIT STRUCTURE

Year 1	Semester I	30 Credits 27
	Semester II	29 Credits
Year 2	Semester III	29 Credits
	Semester IV	28 Credits
Year 3	Semester V	31 Credits
	Semester VI	26 Credits
Year 4	Semester VII	25 Credits
	Semester VIII	20 Credits
Total Credits		218 Credits 215 Credits

PROGRAM OBJECTIVE

1. Graduate will establish himself/herself as effective professionals by solving real world problems using investigative and analytical skills along with the knowledge acquired in the field of Computer Science and Engineering.
2. Graduate will demonstrate his/her ability to adapt to rapidly changing environment in advanced areas of Computer Science and scale new height in their profession through lifelong learning.
3. Graduate will prove his/her ability to work and communicate effectively as a team member and /or leader to complete the task with minimal resources, meeting deadlines.
4. Graduate will embrace professional code of ethics in the profession while deliberately being part of projects which contributes to the society at large without disturbing the ecological balance.
5. Graduate will demonstrate the critical thinking and communication skills required in a technical environment.

DURATION OF THE PROGRAM/MAXIMUM DURATION

The B.Tech Program shall be of four years with eight semesters. A student will be required to complete the program within minimum 4 years and maximum a duration of 6 years from the date of first registration in the first Semester.

The student shall be required to undergo 5-6 weeks Summer Internship at the end of the Second year (4th Semester) & submits its report in the 5th Semester.

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[st], III[rd], and V[th], VII[th] semesters shall ordinarily be held in the month of November/December and of the II[nd], IV[th] ,VI[th] and VIII[th] 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[st] Year to 2[nd] year , Minimum CGPA of 4.0
- For promotion from 2[nd] Year to 3[rd] year , Minimum CGPA of 4.5
- For promotion from 3[rd] Year to 4[th] 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[st] 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 is 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[st]year and CGPA is less than 4.5 in 2[nd]year, he/she must be appear in summer semester to clear backlog papers.

For promotion to 3[rd] Year, a student must have to clear all his/her paper of 1[st]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

At RNB Global University the teaching pedagogy includes

- Teaching on white board,
- Explanation of scientific facts using power point presentation,
- Webinars,
- Seminars,
- Class room assignments,
- Home assignments,

- Quiz,
- Guest lectures,
- Activities

The University has a large library which includes thousands of books, along with digital library support through which students as well as faculties can approach national and international books and research journals so as to be updated with latest technologies and emerging scientific trends.

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

Continuous assessment means assessing aspects of students' knowledge and understanding throughout their course as opposed to a final examination. Continuous assessment looks at the student's overall capabilities in the form of regular assignments. It provides a more accurate and complete picture of the student's level and their understanding of what they have learned. Each assignment has original content based on a particular module or subject area and is evaluated by an expert coach. This allows the student to constantly and consistently demonstrate their level of knowledge which cannot be accomplished with a final examination alone. The continuous assessment of a student is accomplished by

- Regularity of student in classroom
- Class room assignment
- Home assignment
- Projects
- Experiments performed in the laboratories
- Maintenance of practical record book
- Presentations on course topics
- Overall behaviour towards classmates and faculty
- Participation in extracurricular activities

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 VIII 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

The students attended workshop and seminar on their respective field or subject will gain knowledge and develop new ideas in their fields. They will improve their skills in practical and also in experimental analysis. It is also helpful for the students to improve in their communication skills as well as in personality development. They will be able to learn about the basic features of Machines and Equipment by doing hands on practice to their related software.

Seminars offer students the opportunity to interact with top industry leaders, experienced business managers, entrepreneurs, venture capitalists, and small-business owners. Designed

to introduce students to different aspects of business and industry, the series also includes information on career opportunity and development. A post-seminar interaction allows students to talk one-on-one with speakers and network with their peers.

Workshops allow students to further develop marketable business skills in an intensive, interactive environment. Topics are selected through input from industry, program administrators, and students.

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 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 B.Tech, is follow: Real world experience, Networking, Resume Builder, Time Management, and Career Foundation.

Internships are taken after the end of the 4th semester and 7th Semester for a period of 4-5 weeks. It carries 6 credits & the student needs to submit his/her Summer Internship Report in the 5th semester and 7th Semester. For the ease of students understanding, summer internship is evaluated for a total of 150 marks for Weekly Reports, Project Report, and 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 B.Tech 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.

→ Course codes to be revised for all courses.

SEMESTER WISE COURSE DETAILS

Semester –I

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19002200	Introduction to Programming with C	3	0	0	3
2.	19002300	Programming with C Lab	0	0	2	1
3.	19000800	Electronics and Electrical Technology	3	1	0	4
4.	19000900	Electronics and Electrical Technology Lab	0	0	2	1
5.	19000600	Manufacturing Processes	2	0	0	2
6.	19000700	Manufacturing Process/Workshop Lab	0	0	4	2
7.	19000100	Applied Mathematics- I	3	1	0	4
8.	19000200	Applied Physics-I	3	1	0	4
9.	19000300	Applied Physics-I Lab	0	0	2	1
10.	19001100	Ability & Skill Enhancement - I	2	0	0	2
11.	99002200	Business Communication	3	1	0	4
12.	99002800	Workshops & Seminars	-	-	-	1
13.	99002700	Human Values & Social Service/ NCC/ NSS	-	-	-	1
		Total	**19**	**4**	**10**	**30**

WHNN99002800 1 credit

Semester –II

S. No.	Course Code	Course Name	L	T	P	Credits
1.	19001800	Applied Mathematics-II	3	1	0	4
2.	19001900	Applied Physics-II	3	0	0	3
3.	19002000	Applied Physics Lab-II	0	0	2	1
4.	19002100	Engineering Graphics	3	0	0	3
5.	19002500	Engineering Graphics lab	0	0	2	1
6.	19000400	Applied Chemistry	3	1	0	4
7.	19000500	Applied Chemistry Lab	0	0	4	2
8.	19002400	Basic Mechanical Engineering	3	0	0	3
9.	99001900	Environmental Studies	3	1	0	4
10.	19001100	Ability & Skill Enhancement - II	2	0	0	2
11.	99002800	Workshops & Seminars	-	-	-	1
12.	99002700	Human Values & Social Service/ NCC/ NSS	-	-	-	1
		Total	**20**	**3**	**8**	**29**

Semester -III

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19002600	Applied Mathematics-III	3	1	0	4
2.	19003700	Computer System Architecture	3	0	0	3
3.	19003500	Data Structures	3	0	0	3
4.	19003600	Data Structures Lab	0	0	2	1
5.	19008600	Object Oriented Programming with C/C++	3	1	0	4
6.	19008700	Object Oriented Programming with C/C++Lab	0	0	2	1
7.	19003800	Operating Systems	3	0	0	3
8.	19003900	Operating Functions Lab	0	0	2	1
9.	19004000	Digital Electronic Circuits	3	0	0	3
10.	19004100	Digital Electronic Circuits Lab	0	0	2	1
11.	11012200	Human Values, Business & Managerial Ethics	2	0	0	2
12.	19004200	Ability and Skill Enhancement -III	2	0	0	2
13.	99003300	Workshops/ Seminars/Human Values/ Social Service/NCC/NSS	-	-	-	1
		Total	**22**	**2**	**8**	**29**

Semester -IV

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19005300	Optimization Techniques	3	0	0	3
2.	19006100	Advanced Numerical Techniques Computation Lab (ANTC)	0	0	4	2
3.	19015100	Introduction to Machine Learning	3	0	0	3
4.	19006000	Software Engineering	3	0	0	3
5.	19005600	Computer Networks	3	0	0	3
6.	19005700	Computer Networks Lab	0	0	2	1
7.	19015200	Python	3	0	0	3
8.	19015300	Python Lab	0	0	2	1
9.	19005400	Web Technologies	3	0	0	3
10.	19005500	Web Technologies Lab	0	0	2	1
11.	11017100	Organizational Behavior (Basics good)	2	0	0	2
12.	19006200	Ability and Skill Enhancement -IV	2	0	0	2
13.	99003300	Workshops/ Seminars/Human Values/ Social Service/NCC/NSS	-	-	-	1
		Total	**22**	**0**	**10**	**28**

Semester - V

S. No.	Course Code	Course Title	L	T	P	Credits
1.		Elective -I	3	0	0	3
2.		Elective-I	0	0	2	1
3.	19007600	Analysis and Design of Algorithm	3	0	0	3
4.	19007700	Analysis and Design of Algorithm Lab	0	0	2	1
5.	19015400	Database Management Systems with MySQL	3	0	0	3
6.	19015500	Database Management Systems with MySQL Lab	0	0	2	1
7.	19008000	Computer Graphics	3	0	0	3
8.	19008100	Computer Graphics Lab	0	0	2	1
9.	19008200	Core Java	3	0	0	3
10.	19008300	Core Java Lab	0	0	2	1
11.	19008400	PHP & My SQL	3	0	0	3
12.	19008500	PHP & My SQL Lab	0	0	2	1
13.	19006300	Ability & Skill Enhancement - V	2	0	0	2
14.	19007300	Summer Internship and Report	0	0	8	4
15.	99003300	Workshops/ Seminars/Human Values/ Social Service/NCC/NSS	-	-	-	1
Total			**20**	**0**	**20**	**31**

Electives to be introduced.

Semester - VI

S. No.	CourseCode	Course Title	L	T	P	Credits
1.	19008800	Theory of Computation	3	0	0	3
2.	19008900	Theory of Computation Lab	0	0	2	1
3.	19009000	.NET Technologies	3	0	0	3
4.	19009100	.NET Technologies Lab	0	0	2	1
5.	19015600	Internet of Things (IOT)	3	0	0	3
6.		Elective II	3	0	0	3
7.		Elective II[7]	0	0	2	1
8.		Elective III	4	0	0	4
9.		Elective-IV	4	0	0	4
11.	19006400	Ability & Skill Enhancement– VI	2	0	0	2
12.	99003300	Workshops/ Seminars/Human Values/ Social Service/NCC/NSS	-	-	-	1
TOTAL			22	0	6	26

Semester -VII

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19010400	Capstone Project	0	0	10	5
2.	19010500	Compiler Construction	3	0	0	3
3.	19010700	Artificial Intelligence	4	0	0	4
5.		Elective-V	4	0	0	4
6.		Elective-VI	4	0	0	4
7.	19015700	Design Project	2	0	0	2
8.	19010200	Ability & Skill Enhancement – VII	2	0	0	2
9.	99003300	Workshops/ Seminars/Human Values/ Social Service/NCC/NSS	-	-	-	1
	Total		**19**	**0**	**10**	**25**

Semester - VIII

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19012200	Project Semester *(To be carried out in Industry / Research Institutions)	0	0	32	16
2.	19012300	Project Report Viva-Voce &Presentation	0	0	8	4
		Total	**0**	**0**	**40**	**20**

List of Elective Courses

ELECTIVE-I

S. No.	Course Code	Course Name	Credits
1	19007400	**Microprocessor**	3
2	19007500	**Microprocessor Lab**	1
3	19012600	LAMP Technologies	4
4	19012700	Embedded Systems	4
5	19012800	Mobile Application Programming	4
6		Any Related MOOC Course	4

ELECTIVE-II

S. No.	Course Code	Course Name	Credits
1	19012900	Database Administration with Oracle	4
2	19013000	Database Administration with IBM DB2	4
3	19012400	**Advanced Java**	3
4	19009400	**Advanced Java Lab**	1
5	19016500	Data warehouse and Data Mining	4
6		Any Related MOOC Course	4

ELECTIVE-III

S. No.	Course Code	Course Name	Credits
1	19013200	Network Programming	4
2	19013300	Advanced Data Structures	4
3	19013400	Advanced Database Management System	4
4	19013500	Linux Administration and Shell Programming	4
5	19013600	Wireless Networks	4
6	19013700	**Cloud Computing**	4
7		Any Related MOOC Course	4

ELECTIVE-IV

S. No.	Course Code	Course Name	Credits
1	19013800	Software Reuse	4
2	19009600	**Software Verification and Validation**	4
3	19013900	Software Design and Construction	4
4	19014000	Software Quality Management	4
5	19014100	Aspect Oriented Programming	4
6		Any Related MOOC Course	4

ELECTIVE-V

S. No.	Course Code	Course Name	Credits
1	19014200	Soft Computing	4
2	19014300	**Mobile Computing**	4
3	19014400	Parallel and Distributed Computing	4
4	19014500	Grid Computing	4
5	19014600	Ubiquitous and Pervasive Computing	4
6		Any Related MOOC Course	4

ELECTIVE-VI

S. No.	Course Code	Course Name	Credits
1	19014700	Natural Language Processing	4
2	19011100	**Network Security and Cryptography**	4
3	19014800	Image Processing	4
4	19010600	Multimedia Technologies	4
5	19014900	System Programming	4
6	19015000	Heterogeneous Computing with OpenCL	4
7		Any Related MOOC Course	4

Specialization Electives for AI & Machine Learning

SN	Course Code	Course Name	L	T	P	Credits
1.	19015800	Deep Learning **(E-I)**	3	0	0	3
2.	19015900	Deep Learning Lab **(E-I)**	0	0	2	1
3.	19016000	Data Visualization **(E-II)**	3	0	0	3
4.	19016100	Data Visualization Lab **(E-II)**	0	0	2	1
5.	19016200	Big Data Analytics **(E-III)**	4	0	0	4
6.	19009600	Software Verification andValidation **(E-IV)**	3	0	0	3
7.	19016300	Data Mining Techniques and Applications **(E-V)**	4	0	0	4
8.	19016400	Optimization Techniques in Machine Learning **(E-VI)**	4	0	0	4
9.		Any Related MOOC Course	4	0	0	4

EVALUATION SCHEME- THEORY

The evaluation of the theory paper of B. Tech 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 (50marks). Detailed scheme of Internal and External Assessments as follows:

Internal Assessment- Semester I

The distribution of Internal Assessment Marks is as follows:

Type	Details	Marks
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
TOTAL	**50**	

Internal Assessment- Semester II- VIII

The distribution of Internal Assessment Marks is as follows

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
TOTAL	**50**	

External Assessment

Type	Marks
Theory	50

EVALUATION SCHEME -PRACTICAL

The evaluation of the practical paper of B.Tech 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 (50marks). Detailed scheme of Internal and External Assessment is as follows:

Internal Assessment- Semester I- VIII

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
TOTAL	**50**	

External Assessment- Semester I- VIII

Type	Marks
Practical	50

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Meeting : 11

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Action Taken Report of Tenth Meeting-

Agenda Item No.	Action Taken
Item Number 10(1) To discuss syllabus of B. Tech (CS) and BCA for new value-added courses	Introduced new value-added courses on "Artificial Intelligence" and "Data Structures" in B. Tech and BCA programs.
Item Number 10(2) To discuss syllabus of B. Tech (CS) and BCA if required	Conducted a review of the existing syllabi; retained structure with minor updates to align with industry needs.
Item Number 10(3) To discuss MCA and M. Tech (CS) syllabus for the upcoming session	MCA and M. Tech syllabi reviewed; changes proposed to integrate emerging topics like "Cloud Computing."
Item Number 10(4) Suggestions for industrial trips	Planned industrial visits to tech companies to enhance students' practical exposure.
Item Number 10(5) To implement CBCS system	Choice-Based Credit System (CBCS) successfully implemented across all programs.
Item Number 10(6) To suggest implementing NEP 2020	Initiated steps for NEP 2020 implementation, including multi-disciplinary courses and multiple entry/exit options.
Item Number 10(7) To discuss projects/dissertation work	Encouraged dissertation topics aligned with industry trends; emphasized AI and IoT-based projects.
Item Number 10(8) To discuss guest lectures, workshops, and seminars	Organized seminars on emerging technologies and guest lectures from industry experts and academicians.

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Attendance Sheet

Meeting	Board of Studies		
School /Forum/Etc	Basic and Applied Sciences (Computer Science)		
Date	05-06-2023	**Meeting No:**	11
Venue	Room Number 16, Admin Block, RNBGU	**Time**	03:30 PM

S.No.	Name	Signature
1.	Dr Devender Gehlot	P
2.	Ms Sonam Pareek	P
3.	Ms Zaiba Khan	P

RNB Global University Dean Bikaner

Name & Signature

Convener:

Ms Zaiba Khan

B.Tech 2023-27 (Semester I)

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19002200	Introduction to Programming with C	3	0	0	3
2.	19002300	Programming with C Lab	0	0	2	1
3.	19000800	Electronics and Electrical Technology	3	1	0	4
4.	19000900	Electronics and Electrical Technology Lab	0	0	2	1
5.	19000600	Manufacturing Processes	2	0	0	2
6.	19000700	Manufacturing Process/Workshop Lab	0	0	4	2
7.	19000100	Applied Mathematics- I	3	1	0	4
8.	19000200	Applied Physics-I	3	1	0	4
9.	19000300	Applied Physics-I Lab	0	0	2	1
10.	19001100	Ability & Skill Enhancement - I	2	0	0	2
11.	99002200	Business Communication	3	1	0	4
12.	99003300	Workshops Seminars Human Values Social Service/NCC/NSS	-	-	-	1
Total			**19**	**4**	**10**	**29**

B.Tech 2023-27 (Semester II)

S. No.	Course Code	Course Name	L	T	P	Credits
1.	19001800	Applied Mathematics-II	3	1	0	4
2.	19001900	Applied Physics-II	3	0	0	3
3.	19002000	Applied Physics Lab-II	0	0	2	1
4.	19002100	Engineering Graphics	3	0	0	3
5.	19002500	Engineering Graphics lab	0	0	2	1
6.	19000400	Applied Chemistry	3	1	0	4
7.	19000500	Applied Chemistry Lab	0	0	4	2
8.	19002400	Basic Mechanical Engineering	3	0	0	3
9.	99001900	Environmental Studies	3	1	0	4
10.	19001100	Ability & Skill Enhancement - II	2	0	0	2
11.	99002800	Workshops & Seminars	-	-	-	1
12.	99002700	Human Values & Social Service/NCC/NSS	-	-	-	1
Total			**20**	**3**	**8**	**29**

Item No. 3: Any other item

As there was no other item to discuss the meeting ended with thanks to and from the chair.

Ms Zaiba Khan

RNB Global University Dean Bikaner

BCA Semester I

S. No.	Course Code	Course Category	Course Name	L	T	P	Credits
1	13004300	DSC 1 (a)	Fundamentals of Programming with C	3	0	0	3
2	13004400	DSC 1 (b)	Programming with C Lab	0	0	2	1
3	13004200	DSC 2	Mathematics- I	3	1	0	4
4	13011100	DSC 3	Software Engineering	3	1	0	4
5.	99002200	GE 1	Business Communication	3	1	0	4
6	13002700	SEC -1	Ability and skill enhancement-I	2	0	0	2
7	13004100	VAC -1	Introduction to Computers and IT	2	0	0	2
8	99003300		Workshops & Seminars/ Human Values & Social Service/NCC/NSS	-	-	-	1
			Total	**16**	**3**	**2**	**21**

BCA Semester II

S. No.	Course Code	Course Category	Course Name	L	T	P	Credits
1.	13004900	DSC 4 (a)	Digital Electronics	3	0	0	3
2.	13005000	DSC 4 (b)	Digital Electronics Lab	0	0	2	1
3.	13004700	DSC 5 (a)	Data Structure using C	3	0	0	3
4.	13004800	DSC 5 (b)	Data Structure using C Lab	0	0	2	1
5.	13005100	DSC 6 (a)	Operating System	3	0	0	3
6.	13005200	DSC 6 (b)	Operating System Lab	0	0	2	1
7.	11011100	GE 2	Principles of Management	3	1	0	4
8.	13002800	SEC 2	Ability and skill enhancement-II	2	0	0	2
9.	99001900	AEC	Environmental Studies	4	0	0	4
10.	99003300		Workshops & Seminars/ Human Values & Social Service/NCC/NSS	-	-	-	1
			Total	**18**	**1**	**6**	**23**

Item No. 2: To Discuss the syllabus of the B.Tech (CSE) programme and any changes, if required

The syllabus of the UG course of BCA was also discussed and some changes were suggested in the syllabus such as to increase the set of practical programs in C language, Data Structure, etc. The syllabus and subjects of B.Tech (CSE) are hereby approved for the session 2023-24.

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Date	05-06-2023	No.	DOC202306050027
Subject	MOM of Board of Studies Meeting of Computer Science		

MINUTES OF THE BOARD OF STUDIES FOR COMPUTER SCIENCE HELD AT ROOM NO. 16, ADMIN BLOCK, RNB GLOBAL UNIVERSITY, ON 05th JUNE 2023 AT 03.30 PM

The following members were present:

S.No.	Name	Designation
1.	Ms Zaiba Khan	Convener
2.	Ms Sonam Pareek	Member
3.	Dr. Devender Gehlot	External Member

The meeting of the Board of Studies of the School of Basic and Applied Sciences was held on 05th June 2023 AT 03.30 PM in room number 16, Admin Block, RNB Global University, Bikaner.

Ms Zaiba Khan, Convener, of the Board of Studies, welcomed all the members to the meeting. After confirming the quorum, the following agenda items were taken up for discussion:

Item No. 1: Program scheme revision of BCA as per NEP

The BCA programme structure was considered in accordance with NEP standards. There are currently integrated and multifaceted courses available in the curriculum. These courses were considered and recognized for each semester. Multiple entry and exit options were included after the completion of every academic year.

The following subjects were approved for the first year for the batch 2023-27 as per NEP guidelines –

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Notice

Date	03-06-2023	No.	DOC202306030003
Subject	Meeting of BOS in Computer Science		

A meeting of the Board of Studies in Computer Science will be held on 05th June, 2023 at Room number 16 Admin Block at 3.30 pm.

Members of the Board of Studies:

1.	Ms. Zaiba Khan	Convener
2.	Mrs Sonam Pareek	Member
3.	Dr Devender Gehlot	External Member

The agenda of the Meeting shall be as follows:

Item No.1: To discuss and approve the programme scheme and syllabus of BCA as per the NEP guidelines

Item No. 2: To discuss the syllabus of the UG Course for any changes if required

Item No. 3: Any other item with the permission of the Chair.

All the members are requested to kindly make it convenient to attend the meeting.

RNB Global University Dean Bikaner 3/6/23

Mrs Sonam Pareek

(Member)

Draft as per NEP, 2020
To be implemented
w.e.f 2023

Detailed Program Scheme

Bachelor of Computer Applications (BCA)

Semester I-VI

(2022-25)

DOC202205260003

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RNB GLOBAL UNIVERSITY

RNB Global City, Ganganagar Road,
Bikaner, Rajasthan 334601

Document Release Notice	
Detailed Program Scheme for all Semesters **Release: Version 1.0**	
Name of Program	Bachelor of Computer Applications
Abbreviated Program Name	BCA
Updated on	June'22
Approved By	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.

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

DETAILED CREDIT STRUCTURE

Year 1	Semester1	24 credits
	Semester2	22 credits
Year 2	Semester 3	24 credits
	Semester 4	28 credits
Year 3	Semester 5	27 credits
	Semester 6	27 credits
Total Credits		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 5th Semester. Also, the student has to undertake a **"Major Project"** during the program, in the 6th 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 1st Year to 2nd year , Minimum CGPA of 4.0
- For promotion from 2nd Year to 3rd 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 1st 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 1stYear and CGPA is less than 4.5 in 2ndyear, he/she must be appear in summer semester to clear backlog papers.

For promotion to 3rd Year, a student must have to clear all his/her paper of 1st 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 4th semester for a period of 4-5 weeks. It carries 4 credits & the student needs to submit his Summer Internship Report in the 5th 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 6th 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) .

Implement NEP, 2020

SEMESTER WISE COURSE DETAILS

Semester -I

Revision of course category as per NEP 2020

S. No.	Course Code	Course Name	L	T	P	Credits
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
Total			**17**	**4**	**4**	**24**

Semester- II

S. No.	Course Code	Course Name	L	T	P	Credits
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 Value & Social Service/NCC/NSS	-	-	-	1
Total			**17**	**1**	**6**	**22**

Semester- III

S. No	Course Code	Course Name	L	T	P	Credits
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 (DSE)	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 (VAC)	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
Total			**17**	**2**	**8**	**24**

→ Hindi (AEC)

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 (DSE)	3	0	0	3
10.	13010900	Web Technology Lab (DSE)	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
Total			**20**	**3**	**8**	**28**

→ Hindi II (AEC)

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
Total			**17**	**3**	**12**	**27**

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
Total			**15**	**2**	**18**	**27**

As per NEP

→ General Electives (GE)

→ VAC's

→ AEC & SEC

→ IAPC to be implemented

list annexed

Sem VII
→ 10 T (core)
electives.
→ Cyber laws → Adv. Dev. technology → Intelligent system

→ Research project (6 credit) to be implemented.

List of Elective-I

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

List of Elective- II

S. No.	Course Code	Course Name
1.	13014100	**Unix & Shell Programming**
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- I st Semester

The distribution of Internal Assessment Marks is as follows:

Type	Details	Marks
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
TOTAL	**50**	

Sem VIII
→ Blockchain technology (core) + Research project (6 credit)
→ DIP
→ Advanced Internet Programming] electives.
→ TCP / IP

Internal Assessment- Semester II[nd]- VI[th]

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
TOTAL	**50**	

External Assessment- Semester I[st]- VI[th]

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[st] - VI[th]

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
TOTAL	**50**	

External Assessment- Semester Ist - VIth

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.

----------End of document----------

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Meeting : 10

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16 CIRCULAR

Date	16.05.2022	DOCID	DOC202205160016
Subject	AGENDA OF BOS		

Item 1: To discuss syllabus of B.Tech (CS) and BCA if any change required

Item 2: To discuss syllabus of B.Tech (CS) and BCA for addition of any new value added course if required

Item 3: To discuss M.Tech (CS) and MCA syllabus for coming session

Item 4: To recommend the names of paper setters and External Examiners for Practical's

Item 5: Suggestions for the industrial tie ups

Item 6: To suggest the Guest Lectures, workshops, seminars etc.

Item 7: To discuss short term projects/ dissertation work

Item 8: Any other item with the permission of chair

Item 9: To Implement CBCS System

Item 10: Suggestion for implementation of NEP 2020.

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DOC ID	DOC202205170001

MINUTES OF THE BOARD OF STUDIES (BoS) FOR COMPUTER SCIENCE HELD AT GOOGLE MEET, RNB GLOBAL UNIVERSITY, RNB GLOBAL CITY, GANGANAGAR ROAD, BIKANER (RAJASTHAN) ON WEDNESDAY 17th MAY 2022 AT 01:00 PM

Following faculty members were present:

S.No.	Faculty Member	Designation
1.	Mr. Kailash Kumar Pareek	Assistant Professor
2.	Ms. Zaiba Khan	Assistant Professor
3.	Dr. Devendra Gehlot	External Member

Item No. 1: To discuss the syllabus of B.Tech (CS) and BCA if any change required :

Dr. Devendra Ghalot suggested adding a few advanced courses like "Artificial Intelligence" & Data Structure in B Tech. and BCA Programs in view of the current demand for these courses. This will help in skill development and the employability of computer graduates.

Item No. 2: To discuss syllabus of B.Tech (CS) and BCA for addition of any new value added course if required:

Dr. Devendra Ghalot suggested the following Courses to be added:

- B. Tech. in Data Science
- B. Tech. in AI
- B. Tech. in Machine Learning
- B. Tech. in Robotics
-

Item No. 3: To discuss M.Tech(CS) and MCA syllabus for coming session:

Dr. Devendra Ghalot said no suggestions for M.Tech & MCA.

Item No. 4: To recommend the names of paper setters and External Examiners for Practical's:

Dr. Devendra Ghalot recommend the following Names:

- Dr. Rakesh Poonia
- Mr. Kunal Bhushan Ranga
- Mr. Rahul Ranga

Item No. 5: Suggestions for the industrial tie ups:

Dr. Devendra Ghalot have no idea about the industry tie ups. But he assured if he will have any suggestion then near future he definitely update to the university.

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Item No. 6: To suggest the Guest Lectures, workshops, seminars etc:

Dr. Devendra Ghalot suggested that university need to organize Guest Lectures/ Workshops/ Seminars on Machine Learning/AI/Data Science and if in the near future he got any reference then he will update to the university.

Item No. 7: To discuss short term projects/ dissertation work:

He suggested that students should work on Product-Based learning instead of Project-Based learning. It means university should be aware to the students about IOT & Robotics.

Item No. 8: Any other item with the permission of chair:

Dr. Devendra Ghalot appreciates university curriculum/Infrastructure/Academics/Labs etc.

Item No. 9: To Implement CBCS System:

Dr. Devendra Ghalot also agrees with this point. That it should be implement in the University.

Item No. 10: To Suggestion for implementation of NEP 2020:

Dr. Devendra Ghalot also suggests implementing this policy in the University.

Mr. Kailash Kumar Pareek
MOM Prepared & Compiled by

Meeting Details:

Meeting	Board of Studies for Computer Science		
School of	School of Engineering & Technology		
Date	17.05.2022		
Venue	Room No. 15, Admin Block	Time	01:00 PM

Attendance Sheet:

S.No.	Name	Signature
1.	Mr. Kailash Kumar Pareek	
2.	Ms. Zaiba Khan	
3.	Dr. Devendra Gehlot	

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Attendance Sheet

Meeting	BOS		
School /Forum/Etc	School of Engineering & Technology		
Date	17.05.2022	Meeting No. (in case of regular meetings)	
Venue	Room No. 15, Admin Block	Time	01:00 PM

S.No.	Name	Signature
1.	Dr. Devender Gahlot	
2.	Zaiba Khan	
3.	Kailash Kumar Rameet	

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Action Taken Report of Ninth Meeting-

Agenda Item No.	Action Taken
Item Number 9(1) Syllabus updates for B. Tech and BCA	Updated B. Tech and BCA syllabi with new content relevant to industry demands.
Item Number 9(2) To discuss syllabus of B. Tech (CS) and BCA for new value-added courses	Introduced value-added courses such as "Python Programming" and "Data Science" for enhanced employability.
Item Number 9(3) To discuss M. Tech (CS) and MCA syllabus for the coming session	Evaluated and retained the existing syllabus; no major updates required for the upcoming session.
Item Number 9(4) To recommend the names of paper setters and external examiners	Finalized and approved the panel of paper setters and external examiners for practical evaluations.
Item Number 9(5) Suggestions for industrial tie-ups	Initiated discussions with companies for industrial tie-ups and enhanced internship opportunities.
Item Number 9(6) To suggest guest lectures, workshops, and seminars	Organized seminars and workshops on emerging technologies like AI, Data Analytics, and Networking.
Item Number 9(7) To discuss short-term projects/dissertation work	Aligned short-term projects with real-world applications; encouraged dissertation topics in AI and IoT.

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Meeting : 09

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Notice

Date	09-02-2021	No.	DOC202102090001
Subject	**Minutes of the Board of Studies (BoS) for Computer Science**		

MINUTES OF THE BOARD OF STUDIES (BoS) FOR COMPUTER SCIENCE WILL BE HELD ON WEDNESDAY 10th FEBRUARY 2021 AT 01:00 PM ON GOOGLE MEET(ONLINE)

Following faculty members:

S.No.	Board Members	Designation
1.	Mr. Kailash Kumar Pareek	Convener
2.	Mr. Akhand Pratap Singh	Internal Member
3.	Dr. Devendra Gahlot	External Member

Item No. 1 : To discuss syllabus of B.Tech (CS) and BCA if any change required:

Item No. 2: To discuss syllabus of B.Tech (CS) and BCA for addition of any new value added course if required:

Item No. 3: To discuss M.Tech (CS) and MCA syllabus for coming session:

Item No. 4: To recommend the names of paper setters and External Examiners for Practical's:

Item No. 5: Suggestions for the industrial tie ups:

Item No. 6: To suggest the Guest Lectures, workshops, seminars etc:

Item No. 7: To discuss short term projects/ dissertation work:

Item No. 8: Any other item with the permission of chair:

Convener

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Date	10.02.2021	No.	DOC20210210003
Subject	Minutes of the Board of Studies (BoS) for Computer Science		

MINUTES OF THE BOARD OF STUDIES (BoS) FOR COMPUTER SCIENCE HELD ON WEDNESDAY 10th FEBRUARY 2021 AT 01:00 PM ON GOOGLE MEET

Following faculty members were present:

S.No.	Board Members	Designation
1.	Mr. Kailash Kumar Pareek	Convener
2.	Mr. Akhand Pratap Singh	Internal Member
3.	Dr. Devendra Gahlot	External Member

Item No. 1 : To discuss syllabus of B.Tech (CS) and BCA if any change required:

Dr. Devendra Gahlot suggested "Python" programming language to be added in B.Tech III Sem & BCA II Sem. He also suggested "Machine Learning/Data Science" for B.Tech. final year Students because this is the job oriented course.

Item No. 2: To discuss syllabus of B.Tech (CS) and BCA for addition of any new value added course if required:

Dr. Devendra Gahlot suggested that B.Tech in Data Science may be added due to its broad scope.

Item No. 3: To discuss M.Tech (CS) and MCA syllabus for coming session:

Any change was not suggested by any board member.

Item No. 4: To recommend the names of paper setters and External Examiners for Practical's:

Dr. Devendra Gahlot recommended following Names to be added in examiner's panel.

- Dr. Rakesh Poonia
- Mr. Kunal Bhushan Ranga

Item No. 5: Suggestions for the industrial tie ups:

The board members disussed about the industry tie ups. Dr. Gahlot assured that if he will have any suggestion then in near future he will definitely update to the university.

Item No. 6: To suggest the Guest Lectures, workshops, seminars etc:

Dr. Devendra Gahlot suggested that university need to organize Guest Lectures/ Workshops/ Seminars on Machine Learning and if in the near future he gets any reference of such events, then he will update to the university.

Registrar

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Item No. 7: To discuss short term projects/ dissertation work:

He suggested that students should work on Product-Based learning instead of Project-Based learning. It means university should be aware to the students about IOT.

Item No. 8: Any other item with the permission of chair:

Dr. Devendra Ghalot appreciate university curriculum/Infrastructure/Academics/Labs etc.

Mr. Kailash Kumar Pareek
MOM Prepared & Compiled by

Meeting Details:

Meeting	Board of Studies for Computer Science		
School of	School of Engineering & Technology		
Date	10.02.2021		
Venue	Google Meet	Time	01:00 PM

Attendance Sheet:

S.No.	Name	Signature
1.	Mr. Kailash Kumar Pareek	
2.	Mr. Akhand Pratap Singh	
3.	Dr. Devendra Gehlot	

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Action Taken Report of Eighth meeting-

Agenda Item No.	Action Taken
Item Number 8(1) Discussion on B. Tech and BCA syllabi changes, if any	Existing syllabus structure retained as no major changes were deemed necessary.
Item Number 8(2) Finalization of syllabi for upcoming semesters	Reviewed and finalized syllabi for upcoming semesters of B. Tech (CSE) and BCA.
Item Number 8(3) To discuss M. Tech (CSE) syllabus	M.Tech (CSE) syllabus was evaluated; no significant changes were proposed.
Item Number 8(4) Recommendations for paper setters and external examiners	Recommended and approved a new panel of paper setters and external examiners.
Item Number 8(5) Suggestions for industrial tie-ups and internships	Strengthened ties with industries; organized collaborations for internships and project work.
Item Number 8(6) To suggest guest lectures, workshops, and seminars	Conducted workshops and seminars on emerging technologies like Machine Learning and AI.
Item Number 8(7) Use of new technologies in teaching	Integrated modern teaching aids and platforms to enhance classroom learning and interactivity.

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Meeting : 08

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9. Notice

Date	27-11-2019	No.	DOC201911270008
Subject	Meeting of the Board of Studies SOET-CSE		

A meeting of the Board of Studies for the Department of Computer Science Engineering will be held on Friday **29.11.2019 at 1:00 PM** in Admin Block in Room No.16 to discuss **the following Agenda items:**

Item No. 1: To discuss syllabus of B.Tech. (CSE) if any change required

Item No. 2: Finalization of Syllabus for upcoming even Semester

Item No. 3: To discuss M.Tech. (CSE) syllabus

Item No. 4: To recommend the names of paper setters and External Examiners for Practical Examinations

Item No. 5: Suggestions for the industrial tie-ups

Item No. 6: To suggest the Guest Lectures, workshops seminars etc.

Item No. 7: Use of new technologies and webinars in teaching

RNB Global University Bikaner

Registrar

Registrar

Doc-2019 113 0009

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A MEETING OF THE BOARD OF STUDIES OF THE SCHOOL OF ENGINEERING AND TECHNOLOGY FOR COMPUTER SCIENCE ENGINEERING WAS HELD IN ROOM NO. 16 ADMIN BLOCK, RNB GLOBAL UNIVERSITY, RNB GLOBAL CITY, GANGANAGAR ROAD, BIKANER (RAJASTHAN) ON WEDNESDAY 29th NOVEMBER 2019 AT 1:00 PM

BOS members are as follows:

S.No.	Faculty Member	Designation
1.	Mr. Sandeep Srivastava	Convener
2	Mr.Kailash Pareek	Member
3	Dr. Devendra Gahlot	External Member
4	Dr.Dipali Gupta	Registrar

A meeting of the Board of Studies for the Computer Science Engineering (SOET) was held on 29th November 2019 in Admin Block Room Number 16 at 01.00 PM to prepare and finalize the syllabi for B.Tech. CSE.

At the outset Dr. Dipali Gupta welcomed the members, highlighted the learning objectives and emphasized on the relevance of the course contents being presented before the Board.

The Board took up the following agenda for discussion:

Item No. 1: To discuss syllabus of B.Tech. CSE if any change required

Detailed program scheme of B.Tech. (CSE) was discussed by the Chair among the members. The members have shown satisfaction with the present syllabus and no change has been recommended by members of board.

Item No. 2: Finalization of Syllabus for upcoming Semesters

The syllabus for semesters of B.Tech. (CSE) was tabled by Mr. Sandeep Srivastava. It was as such recommended by board members. The following subjects are adopted –

Batch 18-22 (Semester III)

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19002600	Applied Mathematics-III	3	1	0	4
2.	19003400	Analysis and Design of Information Systems	3	0	0	3
3.	19003500	Data Structures	3	0	0	3
4.	19003600	Data Structures Lab	0	0	2	1
5.	19008600	Object Oriented Programming with C/C++	3	1	0	4
6.	19008700	Object Oriented Programming with C/C++ Lab	0	0	2	1
7.	19003800	Operating Systems	3	0	0	3
8.	19003900	Operating Functions Lab	0	0	2	1
9.	19004000	Digital Electronic Circuits	3	0	0	3
10.	19004100	Digital Electronic Circuits Lab	0	0	2	1
11.	11012200	Human Values, Business & Managerial Ethics	2	0	0	2
12.	19004200	Ability and Skill Enhancement -III	2	0	0	2
13.	99002700	Human Values & Social Service/NCC/NSS	-	-	-	1
14.	99002800	Workshops & Seminars	-	-	-	1
Total			22	2	8	30

Batch 18-22 (Semester IV)

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19005300	Optimization Techniques	3	0	0	3
2.	19006100	Advanced Numerical Techniques Computation Lab (ANTC)	0	0	4	2
3.	19003700	Computer Architecture	3	0	0	3
4.	19006000	Software Engineering	3	0	0	3
5.	19005600	Computer Networks	3	0	0	3
6.	19005700	Computer Networks Lab	0	0	2	1
7.	19005800	Principles of Programming Languages	3	0	0	3
8.	19005900	Principles of Programming Languages Lab	0	0	2	1
9.	19005400	Web Technologies	3	0	0	3
10.	19005500	Web Technologies Lab	0	0	2	1
11.	11017100	Organizational Behavior	2	0	0	2
12.	19006200	Ability and Skill Enhancement-IV	2	0	0	2
13.	99002800	Workshops & Seminars	-	-	-	1
14.	99002700	Human Values & Social Service/NCC/NSS	-	-	-	1
Total			22	0	10	29

Batch 17-21 (Semester V)

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19007400	Micro processor	3	0	0	3
2.	19007500	Micro processor Lab	0	0	2	1
3.	19007600	Analysis and Design of Algorithm	3	0	0	3
4.	19007700	Analysis and Design of Algorithm Lab	0	0	2	1
5.	19007800	Database Management Systems	3	0	0	3
6.	19007900	Database Management Systems Lab	0	0	2	1
7.	19008000	Computer Graphics	3	0	0	3
8.	19008100	Computer Graphics Lab	0	0	2	1
9.	19008200	Core Java	3	0	0	3
10.	19008300	Core Java Lab	0	0	2	1
11.	19008400	Elective -I PHP & My SQL	3	0	0	3
12.	19008500	Elective-I PHP & My SQL Lab	0	0	2	1
13.	19006300	Ability & Skill Enhancement – V	2	0	0	2
14.	19007300	Summer Internship and Report	0	0	8	4
15.	99002700	Human Values & Social Service/NCC/NSS	-	-	-	1
16.	99002800	Workshops & Seminars	-	-	-	1
Total			20	0	20	32

Batch 17-21 (Semester VI)

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19008800	Theory of Computation	3	0	0	3
2.	19008900	Theory of Computation Lab	0	0	2	1
3.	19009000	.NET Technologies	3	0	0	3
4.	19009100	.NET Technologies Lab	0	0	2	1
5.	19009200	Engineering Economics	3	0	0	3
6.	19009300	Elective II - Database Administration with MySQL	3	0	0	3
7.	19009400	Elective II- Database Administration with MySQL Lab	0	0	2	1
8.	19009500	Elective III- Cloud Computing	4	0	0	4
9.	19009600	Elective IV- Software Verification and Validation	1	0	0	1
10.	19006400	Ability & Skill Enhancement – VI	2	0	0	2
11.	99002700	Human Values & Social Service/NCC/NSS	-	-	-	1
12.	99002800	Workshops & Seminars	-	-	-	1
Total			19	0	6	24

Batch 16-20 - (Semester VII)

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19010500	Compiler Construction	3	0	0	3
2.	19010700	Artificial Intelligence	4	0	0	4
3.	19010600	Multimedia Technologies	3	0	0	3
4.	19010900	**Elective V**- Data Warehouse & Data mining	4	0	0	4
5.	19011100	**Elective VI**- Network Security & Cryptography	3	0	0	3
6.	19011200	**Elective VI**- Network Security & Cryptography Lab	0	0	2	1
7.	19010400	Capstone Project	0	0	12	6
8.	19012000	Summer Internship & Report II	0	0	12	6
9.	19012100	Professional Development (CLD)	2	0	0	2
10.	99002700	Human Values & Social Service/NCC/NSS	-	-	-	1
11.	99002800	Workshops & Seminars	-	-	-	1
		Total	**19**	**0**	**26**	**34**

Batch 16-20 - (Semester VII)

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19011400	Project Semester *(To be carried out in Industry / Research Institutions)	-	-	32	16
Project Semester Consists of:						
1st Seminar Presentation			2	-	-	2
2nd Seminar Presentation			2	-	-	2
Final Project Report; Viva-Voce & Presentation			4	-	-	4
		Total	**2**	**0**	**40**	**24**

Item No. 3: To discuss M. Tech. CSE syllabus

The board discussed that Syllabus of M. Tech. CSE must incorporate course curriculum that matches to IITs and NITs syllabus. The committee observed that the syllabus covers all the subdisciplines of Computer Science Engineering.

Item No. 4: To recommend the names of paper setters and External Examiners for Practicals

The Board recommended the panel of examiners for the Computer Science Engineering. The names were also suggested for the practical examinations.

Item No. 5: Suggestions for the industrial tie ups

Dr. Devendra Gahlot suggested some institutes and companies for internship. Industry visit should be incorporated in the curriculum of B.Tech. (CSE).

Item No. 6: To suggest the Guest Lectures, workshops seminars etc.

The names of guest lecturers were also suggested by Dr. Devendra Gahlot, as experts in different fields from Govt. Engineering Colleges and other Institutes.

Item No.7: Use of new technologies and webinars in teaching

New technologies included for lectures and classes should be more interactive. The names of experts were also suggested for webinar.

The meeting came to an end with a vote of thanks to the Chair.

RNB Global University Registrar Bikaner

Registrar

Attendance Sheet

Meeting	Board of Studies		
School	SOET- CSE		
Date	29.11.2019	Meeting number	
Venue	R016	Time	1:00 p.m.

S. No.	Name	Signature
1.	Dr. Devendra Gahlot	
2.	Dr. Dipali Gupta, Registrar	29/11/19
3.	Mr. Sandeep Srivastava, Convener	
4.	Mr. Kailash Pareek, Member	

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Action Taken Report of Seventh meeting-

Agenda Item No.	Action Taken
Item Number 7(1) To discuss Syllabus revision for B. Tech (CSE) and BCA	Revised syllabi for B. Tech and BCA, incorporating additional lab courses on relevant technologies.
Item Number 7(2) Finalization of the syllabus for the upcoming session	Syllabi for all courses were finalized and distributed for implementation.
Item Number 7(3) Updates to M.Tech and MCA syllabi	Included practical courses on Artificial Intelligence, Networking, and updated lab structures.
Item Number 7(4) Recommendations for paper setters and examiners	Finalized and approved a panel of paper setters and external examiners.
Item Number 7(5) Suggestions for industrial tie-ups	Initiated discussions with industries; guest lectures from industry professionals were organized.
Item Number 7(6) Emphasis on guest lectures and workshops involving industry experts	Conducted workshops and seminars on AI and Networking led by industry experts.

Detailed Program

Bachelor of Technology (B.Tech.)

(Computer Science Engineering)

Semester-VIII

(2016-20)

DOCID201911220001

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RNB Global City, Ganganagar Road,
Bikaner, Rajasthan 334601

OVERVIEW

RNB Global University follows Semester System. Accordingly, each academic year is divided into two semesters, **Odd (July-December) and Even (January-June)**. Besides this, the university follows a system of continuous evaluation along with regular updating in course curricula and teaching pedagogy.

The curriculum for B.Tech. Program for **(January-June)** Even Semester, 2020 along with examination pattern is as follows:

Course Scheme

Semester -VIII

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19011400	Project Semester *(To be carried out in Industry / Research Institutions)	-	-	32	16
Project Semester Consists of:						
1st Seminar Presentation			2	-	-	2
2nd Seminar Presentation			2	-	-	2
Final Project Report; Viva-Voce & Presentation			4	-	-	4
		Total	**2**	**0**	**40**	**24**

EVALUATION SCHEME-

The total evaluation will be done out of 1200 marks for 24 credits.
Students are advised to refer to the document "**B.Tech (CSE) "Project Semester & Project Report" Instructions and Assistance Document"** for :

a. General Guidelines
b. Format of reports
c. How to score maximum
d. Evaluation pattern
e. Distribution of marks
f. Time lines
g. Etc ,etc

Note: The review of Syllabus happens on periodic basis for the benefit of the students. In case there are changes in curriculum due to review, students would be intimated in writing.

---------- **End of document**----------

RNB Global University

Detailed Program

Bachelor of Technology (B.Tech.)

(Computer Science Engineering)

Semester-VI

(2019-20)

DOC201901070041

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RNB GLOBAL UNIVERSITY
RNB Global City, Ganganagar Road,
Bikaner, Rajasthan 334601

OVERVIEW

RNB Global University follows Semester System. Accordingly, each academic year is divided into two semesters, **Odd (July-December) and Even (January-June).** Besides this, the university follows a system of continuous evaluation along with regular updating in course curricula and teaching pedagogy.

The curriculum for B.Tech. Program for (January-June) Even Semester, 2021 along with examination pattern is as follows:

Course Scheme

Semester -VI

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19008800	Theory of Computation	3	0	0	3
2.	19008900	Theory of Computation Lab	0	0	2	1
3.	19009000	.NET Technologies	3	0	0	3
4.	19009100	.NET Technologies Lab	0	0	2	1
5.	19009200	Engineering Economics	3	0	0	3
6.	19009300	Elective II - Database Administration with MySQL	3	0	0	3
7.	19009400	Elective II- Database Administration with MySQL Lab	0	0	2	1
8.	19009500	Elective III- Cloud Computing	4	0	0	4
9.	19009600	Elective IV- Software Verification and Validation	1	0	0	1
10.	19006400	Ability & Skill Enhancement – VI	2	0	0	2
11.	99002700	Human Values & Social Service/NCC/NSS	-	-	-	1
12.	99002800	Workshops & Seminars	-	-	-	1
Total			**19**	**0**	**6**	**23**

EVALUATION SCHEME- THEORY

The evaluation of the theory paper of B.Tech 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

The distribution of Internal Assessment Marks is as follows:

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
TOTAL	**50**	

External Assessment

Type	Marks
Theory	50

EVALUATION SCHEME -PRACTICAL

The evaluation of the practical paper of B.Tech 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

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
TOTAL	**50**	

External Assessment

Type	Marks
Practical	50

EVALUATION SCHEME- WORKSHOPS & SEMINARS & NCC/NSS

1. NCC/NSS will be completed from Semester I – Semester IV. It will be evaluated internally by the institute. The credit for this will be given at the end of each Semester.

2. The students have to join club/clubs 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.

CURRICULUM

Course Name: Theory of Computation

Course Code: 19008800

Objectives

- This course introduces basic theory of computer science and formal methods of computation. The course exposes students to the computability theory, as well as to the complexity theory.

- Study of Finite Automata, Regular Expressions, Grammars.
- Pushdown Automata, Turing Machines
- Undecidability problems.

Course Outline:

Unit I: Finite State Machine
Recursive definitions, Regular Expressions, definitions of Finite State Machine, Transition Graphs, Deterministic & Non Deterministic. Finite State Machines, Thomson's & Subset Algorithm to convert regular Expression to NDFSM & NDFSM to FSM, Regular Grammar: left linear and right linear. Finite State Machine with output (Moore machine and Melay Machine) Conversion of Moore machine to Melay Machine & Vice-Versa, Pumping Lemma, Properties and limitations of finite state machine.

Unit II: Push Down Stack Machine
Context free Grammar design, Chomsky Normal Form, Push down Stock machine, Context free Grammar and Push down stock machine, Properties of context free grammar: Union, Closure & Intersection, Pumping lemma for context free grammar, Parser Design and Push Down stock machine, CYK algorithm, Earley's Algorithm.

Unit III: Turing Machine
Turing machine, Post machine, conversion of Turing to Post-Wang and vice versa, Combining Turing machine, Chomsky Hierarchy; Church's Thesis, Primitive Recursion Functions, Godelization, Universal Turing machine;

Unit IV: Uncomputability
Halting Problem, Turing Enumerability, Turing Acceptability and Turing Decidabilities. Unsolvable problems about Turing machines, Unsolvable problems about Grammar and similar system .**Computation Complexity:** P, NP and NP complete problems

Suggested Readings:

1. Daniel A. Cohen, Introduction to Computer Theory, John Wiley and Sons (1996)
2. Hopcroft John E., Ullman Jeffrey D. and Motwani R., Introduction to Automata Theory, Languages and Computation, Pearson Education (2006).
3. Michael Sipser, Introduction to the Theory of Computation, Thomson (2007).
4. Lewis Harry R., Elements of Theory of Computation, PHI (1997).

Course Name: Theory of Computation Lab

Course Code: 19008900

Course Outline

- Create a Deterministic Finite Automata (DFA) for the following problems. State the 5 Tuples of the DFA. Construct the Transition Diagram for the DFA as well
- -Program to convert Non-deterministic finite automaton (NFA) to Deterministic finite automaton(DFA)
- Program to generate lexical tokens
- Algorithm:
- Declare an array of characters, as buffer to store the tokens ,that is,'lexbuffer';
- Get token from user put it into character type of variable, say 'c'.
- If 'c' is blank then do nothing.
- If 'c' is new line character line=line+1.
- If 'c' is digit, set token_val ,the value assigned for a digit and return 'NUMBER'.
- If 'c' is proper token then assign the token value. Print the complete table with
    - Token entered by the user
    - Associated token value.
- Study of LEX/FLEX tool and write LEX program to identify tokens: integer numbers, decimal numbers, identifiers, keywords, arithmetic operators, relational operators.
- : Program to implement any one code optimization technique.

Course Name: .NET Technology

Course Code: 19009000

Objectives

- Understand the importance and architecture of multi-tier Client Server systems
- Analyze and evaluate various components of .net framework
- Design web based client server applications using .net technologies and relevant tools

Course Outline:

Unit I: Introduction

Microsoft .net Platform, Design Goals and Overview; Common Language Runtime: CLR Environment and Executables, Metadata, Assemblies, Intermediate Language, CLR Execution, CLR Functions, CLR Structure.

Programming in .net Framework: Common Programming Model, Features and Languages, Language Integration. Framework Class Library; .net Framework Components: Deployment options, Distributed components, COM+ services, Message queuing.

Unit II: C#

The Basics and Console Applications in C#: Name Spaces - Constructor and Destructors, Function Overloading & Inheritance, Operator Overloading, Modifiers Property and

Indexers , Attributes & Reflection API, When to use Console Applications - Generating Console Output, Processing Console Input.
C#.NET: Language Features and Creating .NET Projects, Namespaces Classes and Inheritance -, Namespaces Classes and Inheritance -, C, Exploring the Base Class Library -, Debugging and Error Handling -, Data Types -, Exploring Assemblies and Namespaces, String Manipulation ,Files and I/O ,Collections.

Unit III: ADO.NET
ADO.NET Architecture, Benefits of ADO.NET, ADO.NET compared to classic ADO -, Datasets, Managed Providers -, Data Binding: Introducing Data Source Controls -, Reading and Write Data Using the Sql Data Source Control.
Windows Forms and Controls in details: The Windows Forms Model, Creating Windows Forms Windows Forms Properties and Events, Windows Form Controls, Menus - Dialogs – ToolTips.
Visual Inheritance in C#.NET: Apply Inheritance techniques to Forms, Creating Base Forms, Programming Derived Forms.

Unit IV: Web services
Web services in practice, Web services Framework, Provider, Customer and Security. Web forms: ASP, ASP.NET, Web Form syntax, Data binding, Use of templates, State management and scalability, Application development, ASP.NET and Web services. Windows forms: Introduction, System. Windows, Forms Namespace, Windows Forms development, Windows Forms and Web services;

Suggested Readings:

1. Hoang Lam, Thuan L. Thai, .NET Framework Essentials, O'Reilly Publications.
2. Joe Duffy, Professional .Net Framework 2.0, Wrox Library Books.
3. Jeffrey Richter, Applied Microsoft .NET Framework Programming, Microsoft

Course Name: .NET Technology Lab

Course Code: 19009100

Course Outline

1. Simple application using web controls
2. Finding factorial Value
   a) Money Conversion
   b) Quadratic Equation
   c) Temperature Conversion
   d) Login control
3. Adrotator Control
4. Calendar control

a) Display messages in a calendar control
b) Display vacation in a calendar control
c) Selected day in a calendar control using style
d) Difference between two calendar dates

5. Treeview control
   a) Treeview control and datalist
   b) Treeview operations
6. Validation controls
7. Query textbox and Displaying records
8. Display records by using database
9. Data list link control
10. Data binding using drop down list control
11. Inserting record into a database
12. Deleting record into a database
13. Data binding using data list control
14. Datal ist control templates
15. Data binding using data grid
16. Data-grid control template
17. data grid hyperlink
18. data grid button column
19. Data List event
20. Data grid paging
21. Creating own table format using data grid

Course Name: Engineering Economics

Course Code: 19009200

Objectives:

- Explain elasticity of demand and demand forecasting.
- Describe market structure and pricing theory.
- Do estimation, cost accounting and depreciation calculation.
- Do breakeven analysis and take investment decisions.

Course Outline:

Unit I : Introduction and Scope of Engineering Economics
Demand and Supply: Meaning of Demand and supply, Determinants of demand and Supply.

Unit II: Demand Forecasting
Purpose of Forecasting Demand, Determinants of demand forecasting, Methods of Demand Forecasting, Criteria for the good forecasting method;

Cost of Production: Explicit and Implicit costs, Marginal, Incremental and Sunk costs, Opportunity cost, Short-run cost function, Total Average and Marginal costs, Long-run costs, Break-even analysis.

Unit III: Theory of Production
Law of Variable Proportions and Laws of returns to scale.
Depreciation: Definite and characteristics of term Depreciation, causes of Depreciation, computation of Depreciation.
Markets Structures and Pricing Theory: Perfect competition, Monopoly, Monopolistic competition, and Oligopoly (Payback Period, IRR, NPV, BCR).

Unit IV: Investment Decision
Capital Budgeting, Methods of Project Appraisal
Overview of Financial Markets: Money Market, Stock Market, Mutual Fund.
National Accounting: Meaning, Methods and Current Trends.
Inflation &Deflation: Meaning, Measures and Impact on Indian economy.

Suggested Readings:

1. Salvatore, D. And Srivastav, R., Managerial Economics: Principles and Worldwide Applications, Oxford University Press, Sixth Edition. (2008) 6th ed.
2. Peterson, H. Craig & Lewis, W. Chis. & Jain, Sudhir K Managerial Economics, Prentice Hall of India (2008) 4th ed.
3. Dwivedi, D.N., Managerial Economics, Vikas Publishing House Pvt. Ltd (2008) 7thed.
4. Sikdar, S., Principles Macro Economics, Oxford University Press (2006).
5. Bhole, L.M., Financial Institutions and Markets, Tata McGraw Hill (2007) 6thed.
6. Pindyck, R.S. and Rubinfeld, D.I, Microeconomics, MacMillan (2007).
7. Dutt, R. and Sundaram, K.P.M., Indian Economy, S. Chand & Company Ltd.

Course Name: Database Administration with MySQL

Course Code: 19009300

Course Outline

Unit I: An Introduction to MySQL
MySQL overview, MySQL Enterprise Edition, MySQL on the Web, MySQL in the Cloud, Installing MySQL, Installed Files and Directories, Initial Configuration, Starting and Stopping MySQL, Upgrading MySQL.

Unit II: MySQL Architecture
Architectural Overview, How MySQL Transmits Data, How MySQL Processes Requests, How MySQL Stores Data, Tablespaces, Redo and Undo Logs, How MySQL Uses Memory,Plug-in Interface.

Configuring MySQL: Server Options, Variables, and the Command Line, Option Files, System Variables, Launching Multiple Servers on the Same Host, Monitoring MySQL, Monitoring MySQL with Log Files, Monitoring MySQL with Status Variables , Monitoring MySQL with Performance Schema.

User Management: MySQL Privilege System, Creating and Modifying User Accounts, Configuring Passwords and Account Expiration, Authentication Plug-Ins, Granting Permissions, Grant Tables. Resetting a Forgotten Root Password.

Unit III: MySQL Security
Security Risks, Network Security, Secure Connections, Password Security, Operating System Security, Protecting Against SQL Injections, MySQL Enterprise Firewall.
Maintaining a Stable System: Stability, Why Databases Fail, Capacity Planning, Troubleshooting, Identifying the Causes of Server Slowdowns, InnoDB Recovery.
Optimizing Query Performance: Identifying Slow Queries, The EXPLAIN statement, working with Indexes, Index Statistics.

Unit IV: Administering a Replication Topology
Failover, MySQL Utilities, Replication Threads, Monitoring Replication, Troubleshooting Replication.

Course Name: Database Administration with MySQL Lab

Course Code: 19009400

Course Outline:

Laboratory work:

1. MySQL architecture –client and utility programs ,
2. MySQLl threads , connectors Installing , Starting up and shutting down , locking – general , advisory , explicit table locking , storage engines , information-schema database ,Creating, altering, dropping - database,
3. User management – connecting to server , privilege provided , password management ,adding, deleting user account; back up and restoring data , use of stored routines and triggers for performance and security, optimizing –schemas and server.

Suggested Readings:

1. Vikram Vaswani, MySQL database usage and administration, Tata McgrawHills
2. Ian Gilfillan, A Database Journal Guide to MySQL 5 Certification: The DBA Stream, BPB.

3. Ivan Bayross, Using MySql on linux, BPB.

Course Name: Cloud Computing

Course Code: 19009500

Objectives:

- To analyze the components of cloud computing and its business perspective.
- To evaluate the various cloud development tools.
- To collaborate with real time cloud services.
- To analyze the case studies to derive the best practice model to apply when developing and deploying cloud based applications.
- To learn the concepts of cloud infrastructure and services in addition with its implementation for assessment of understanding the course by the students.

Course Outline:

Unit I: Evolution of Computing Paradigms
Overview of Existing Hosting Platforms, Grid Computing, Utility Computing, Autonomic Computing, Dynamic Datacenter Alliance, Hosting / Outsourcing, Introduction to Cloud Computing, Workload Patterns for the Cloud, "Big Data", IT as a Service, Technology Behind Cloud Computing,

Unit II: A Classification of Cloud Implementations
Amazon Web Services - IaaS, The Elastic Compute Cloud (EC2), The Simple Storage Service (S3), The Simple Queuing Services (SQS), VMware vCloud - IaaS, vCloud Express, Google AppEngine - PaaS, The Java Runtime Environment,

Unit III: The Python Runtime Environment
The Datastore, Development Workflow, Windows Azure Platform - PaaS, Windows Azure, SQL Azure, Windows AzureAppFabric,

Unit IV: Salesforce.com
SaaS / PaaS, Force.com, Force Database - the persistency layer, Data Security, Microsoft Office Live - SaaS, LiveMesh.com, Google Apps - SaaS, A Comparison of Cloud Computing Platforms, Common Building Blocks. **Case studies on latest paradigms**

Suggested Readings:

1. Raj Kumar Buyya, James Broberg, Andrezei M.Goscinski, Cloud Computing: Principles and paradigms, 2011
2. Michael Miller, Cloud Computing, 2008.

3. Judith Hurwitz, Robin Bllor, Marcia Kaufman, Fern Halper, Cloud Computing for dummies, 2009.

Course Name: Software Verification and Validation

Course Code: 19009600

Objectives:

- This course makes students understand the concepts and theory related to software testing. Understand different testing techniques used in designing test plans, developing test suites, and evaluating test suite coverage. Understand how software developers can integrate a testing framework into code development in order to incrementally develop and test code.

Course Outline:

Unit I : Introduction
Terminology, error, fault and failures, design for testability, objectives, principles, Purpose of testing, testing and debugging.

Unit II: Limitations
Theoretical foundations: impracticality of testing all data, impracticality of testing all paths, no absolute proof of correctness.
Role of V&V in Software Evolution: Types of Products: requirements, specifications, designs, implementations, changes, V&V objectives: correctness, consistency, necessity, sufficiency, performance.

Testing Techniques and Strategies: Static and dynamic testing, software technical reviews, Software testing: levels of testing - module, integration, system, regression, Testing techniques and their applicability-functional testing and analysis, structural testing and analysis, error-oriented testing and analysis, hybrid approaches, integration strategies, transaction flow analysis, stress analysis, failure analysis, concurrency analysis, performance analysis.

Unit III: Flow graphs and Path Testing
Path Testing Basics, Path Predicates, Application of Path Testing.
Transaction Flow Testing: Generalizations, Transaction Flows, Transaction-Flow testing techniques.

Data Flow Testing: Basics, Data flow model, Data flow testing strategies, Applications.

Unit IV: Software Testing and Regular Expression
Path products, path sums, Loops, Reduction procedure, Applications, Approximate number of paths, The mean processing time of any routine, Regular expression and Flow-anomaly detection.
Program Mutation Testing: Introduction, Mutation and mutants, Mutation operators, Equivalent mutants, Fault detection using mutants, Types of mutants, Mutation operators for C and Java.

Laboratory Work: Developing various exercises like cyclomatic complexity, boundary value analysis and data flow testing etc. Developing a small project/tool to generate test data, to execute test data etc. Exposure to automated testing tool;

Suggested Readings:

1. Boris Beizer, Software Testing Techniques, John Wiley & Dreamtech(2002).
2. William Perry, Effective Methods for Software Testing, John Wiley & Sons, Inc. (2006) 3rd edition.
3. Aditya P. Mathur, Foundations of Software Testing, Pearson Education (2008).
4. Glenford J. Myers, The Art of Software Testing, Wiley India Pvt. Ltd 2nd edition (2006).

Course Name: Ability and Skill Enhancement - VI

Course Code: 19006400

Objectives:

- This three year syllabus is a journey that aims to explore the dynamics and techniques of effective interpersonal communication.

Course Outline – Final Assessment – Report/Presentation

Unit I: Verbal Reasoning & English Aptitude
Logical Sequence of Words, Verbal Analogy, Classification, Blood Relation Test, Syllogism, Reading Comprehension.

Unit II: Winning Attitude
Attitude is the most important thing for success, how to develop a winning attitude, what is it, when we need it, what is mindset, how to have a winning and positive mindset, how to win in difficult situations, Positive thinking, passion, dedication, confidence, well preparation, focus, hard work, planning, never give up, etc - some traits that help in developing winning attitude.

Unit III: Understanding the News
Reading Current News, Comparing & Analysing the news, Write an editorial, News Vocabulary, Presentation on any major news (political/social/sports/economics).

Unit IV: Be a Journalist
Chat Show, Panel Discussion, Parliamentary debate, News Inspired Theatrical Performance.

Unit V: Report
Preparing a report on major National/International News – Insights/ review of major newspapers and news channels.

Note: The review of Syllabus happens on periodic basis for the benefit of the students. In case there are changes in curriculum due to review, students would be intimated in writing.

---------- **End of document**----------

Detailed Program

Bachelor of Technology (B.Tech.)

(Computer Science Engineering)

Semester-IV

(2019-20)

DOC201901070039

RNB
GLOBAL UNIVERSITY
Educating stars for tomorrow

RNB GLOBAL UNIVERSITY
RNB Global City, Ganganagar Road,
Bikaner, Rajasthan 334601

OVERVIEW

RNB Global University follows Semester System. Accordingly, each academic year is divided into two semesters, **Odd (July-December) and Even (January-June).** Besides this, the university follows a system of continuous evaluation along with regular updating in course curricula and teaching pedagogy.

The curriculum for B.Tech Program for (January-June) Even Semester, 2020 along with examination pattern is as follows:

Course Scheme

Semester – IV

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19005300	Optimization Techniques	3	0	0	3
2.	19006100	Advanced Numerical Techniques Computation Lab (ANTC)	0	0	4	2
3.	19003700	Computer Architecture	3	0	0	3
4.	19006000	Software Engineering	3	0	0	3
5.	19005600	Computer Networks	3	0	0	3
6.	19005700	Computer Networks Lab	0	0	2	1
7.	19005800	Principles of Programming Languages	3	0	0	3
8.	19005900	Principles of Programming Languages Lab	0	0	2	1
9.	19005400	Web Technologies	3	0	0	3
10.	19005500	Web Technologies Lab	0	0	2	1
11.	11017100	Organizational Behavior	2	0	0	2
13.	19006200	Ability and Skill Enhancement-IV	2	0	0	2
12.	99002800	Workshops & Seminars	-	-	-	1
	99002700	Human Values & Social Service/NCC/NSS	-	-	-	1
Total			**22**	**0**	**10**	**29**

EVALUATION SCHEME- THEORY

The evaluation of the theory paper of B.Tech 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

The distribution of Internal Assessment Marks is as follows:

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
TOTAL	**50**	

External Assessment

Type	Marks
Theory	50

EVALUATION SCHEME -PRACTICAL

The evaluation of the practical paper of B.Tech 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

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
TOTAL	**50**	

External Assessment

Type	Marks
Practical	50

EVALUATION SCHEME- WORKSHOPS & SEMINARS & NCC/NSS

1. NCC/NSS will be completed from Semester I – Semester IV. It will be evaluated internally by the institute. The credit for this will be given at the end of each Semester.

2. The students have to join club/clubs 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.

CURRICULUM

Course Name: Optimization Techniques

Course Code: 19005300

Objectives

- The main objective of the course is to formulate mathematical models and to understand solution methods for real life optimal decision problems. The emphasis will be on basic study of linear programming problem, Integer programming problem, Transportation problem, two person zero sum games with economic applications and project management techniques using PERT and CPM.

Course Outline

Unit I: Scope of Operations Research
Introduction to linear and non-linear programming formulation of different models; **Linear Programming:** Geometry of linear programming, Graphical method, Linear programming (LP) in standard form, Solution of LP by simplex and revised simplex methods, Exceptional cases in LP, Duality theory, Dual Simple method, Sensitivity analysis.

Unit II: Network Analysis
Transportation problem (with transshipment), Assignment problem, Traveling-salesman problem, shortest route problem, Minimal spanning tree, Maximum flow problem; **Integer Programming:** Branch and bound algorithm, Traveling salesman problem.

Unit III: Dynamic programming
Forward recursions, General problem, Reliability problem, Capital budgeting problem, Cargo-loading problem; **CPM and PERT:** Drawing of networks, Removal of redundancy, Network computations, Free slack, Total slack, Crashing, Resource allocation.

UnitIV: Non-Linear Programming
Characteristics, Concepts of convexity, maxima and minima of functions of n-variables using Lagrange multipliers and Kuhn-Tukerconditions, One dimensional search methods, Fibonacci, golden section method and gradient methods for unconstrained problems. **Software:** Introduction to software for optimization techniques (TORA).

Suggested Readings:

1. Taha, H.A., Operations Research: An Introduction, Prentice Hall of India (2007) 8th ed.

2. Kasana, H.S., Introductory Operation Research: Theory and Applications, Springer Verlag (2005).
3. Rardin, Ronald L., Optimization in Operations research, Pearson Education (2005).
4. Ravindran A, Phllips D.T. and Solberg J.J. Operation Research: Principles and Practice, John Wiley (2007).

Course Name: Advanced Numerical Techniques Computation Lab (ANTC)

Course Code:19006100

Course Outline

Laboratory Work

Programming exercises on numerical and Statistical methods using C or C++ languages.

1. To detect the interval(s) which contain(s) root of equation f(x)=0 and implement bisection Method to find root of f(x)=0 in the detected interval.
2. To find the root of f(x)=0 using Newton-Raphson and fixed point iteration methods.
3. To evaluate the Newton's Forward Lagrange and divided difference interpolating polynomials of degree ≤ n, Based on (n+1) points.
4. To solve linear system of equations using Gauss elimination (without pivoting) method.
5. To solve linear system of equations using Gauss- seidel method.
6. To find the dominant eigen-value and associated eigen-vector by Rayleigh power method.
7. To integrate a function numerically using trapezoidal and Simpson's rule.
8. To solve the initial value problem using modified Euler's and Runge-kutta methods.
9. Generation of random numbers for Binomial and Poisson distributions using Linear Congruential Genrator Algorithm.
10. Regression analysis using least square principle.
11. Correlation analysis for bivariate distribution.

Suggested Readings:

1. Conte, S.D and Carl D. Boor, Elementary Numerical Analysis: An Algorithmic approach, Tata McGraw Hill, New York (2005).
2. Johnson, R., Miller, I. and Freunds, J., Miller and Freund's Probability and Statistics for Engineers, Pearson Education(2005) 7th ed.
3. Gerald C.F and Wheatley P.O., Applied Numerical Analysis, Pearson Education (2008) 7th ed.
4. Mathew, J.H., Numerical Methods for Mathematics, Science and Engineering, Prentice Hall Inc.[(2002).
5. Meyer, P.L.. Introductory Probability and Statistical Applications, Oxford (1970) 2nd ed.

6. Jain M.K., Iyengar, S.R.K., and Jain, R.K. Numerical Methods for Scientific and Engineering Computation, New Age International (2008) 5th ed.
7. Walpole, Ronald E., Myers, Raymond H., Myers, Sharon L. and, Keying Ye, Probability and Statistics for Engineers and Scientists, Pearson Education (2007) 8th ed.

Course Name: Computer Architecture

Course Code: 19003700

Objectives

- To equip the students with the internal architecture, organization and design of computer systems.
- To understand the basic structure and operation of digital computer
- To study the design of arithmetic and logic unit and implementation of fixed point and floating-point arithmetic operations
- To study the two types of control unit techniques and the concept of pipelining
- To study the hierarchical memory system including cache memories and virtual memory To study the different ways of communicating with I/O devices and standard I/O interfaces

Course Outline:

Unit I: Basics of Digital Electronics
Codes, Logic gates, Flip flops, Registers, Counters, Multiplexer, Demultiplexer, Decoder, Encoder. **Register Transfer and Micro operations:** Register transfer Language, Register transfer, Bus & memory transfer, Logic micro operations, Shift micro operation. **Basic Computer Organization:** Instruction codes, Computer instructions, Timing & control, Instruction Cycles, Memory reference instruction, Input/Output & Interrupts, Complete computer description & design of basic computer.

Unit II: Control Unit
Hardwired vs. Micro programmed control unit. **Central Processing Unit**: General register organization, Stack organization, Instruction format, Data transfer & manipulation, Program control, RISC, CISC.
Computer Arithmetic: Addition & subtraction, Multiplication Algorithms, Division algorithms.

Unit III: Input-Output Organization
Peripheral devices, I/O interface, Data transfer schemes, Program control, Interrupt, DMA transfer, I/O processor.

Memory Unit: Memory hierarchy, Processor vs. memory speed, High-speed memories, Cache memory, Associative memory, Interleave, Virtual memory, Memory management.

Unit IV: Introduction To Parallel Processing
Pipelining, Characteristics of multiprocessors, Interconnection structures, Interprocessor arbitration, Interprocessor communication & synchronization.

Suggested Readings:

1. Mano, Morris M., Computer System Architecture, Prentice Hall (1992) 3rd ed.
2. Hayes, J.P., Computer Architecture and Organization, McGraw Hill (1998) 3rd ed.
3. Hennessy, J.L., Patterson, D.A, and Goldberg, D., Computer Architecture A Quantitative Approach, Pearson Education Asia (2006) 4th ed.
4. Leigh, W.E. and Ali, D.L., System Architecture: software and hardware concepts, South Wester Publishing Co. (2000).

Course Name: Software Engineering

Course Code: 19006000

Objectives:

- Planning and Estimation of Software projects
- Software Requirements Specification, Software Design Concepts
- Implementation issues ,Validation and Verification Procedures
- Maintenance of Software and methodologies
- To apply principles of software development and evolution. To specify, abstract, verify, validate, plan, develop and manage large software and learn emerging trends in software engineering.

Course Outline:

Unit I: Introduction
Introduction to Software Engineering, importance of Software, The Software Evolution, Software Characteristics, Software Applications, Software Crisis: Problem and Causes .**Software Development Life Cycle:** Waterfall model, Incremental and Evolutionary process models, Personal Software process (PSP) and Team Software process (TSP), Overview of agile process and aspect oriented programming

Unit II : Software Requirement Specification
Problem Analysis, Requirement elicitation and Validation, Requirements modeling, Scenarios, Information and analysis classes, flow and behavioral modeling, documenting Software Requirement Specification (SRS);

System Design: Design Concepts, design models for architecture, component, data and user

Interfaces; Problem Partitioning, Abstraction, Cohesiveness, Coupling, Top Down and Bottom Up design approaches; Functional Versus Object Oriented Approach, Design Specification, 4GL.

Unit III:Coding
TOP-DOWN and BOTTOM-UP structure programming, Information Hiding, Programming Style, and Internal Documentation, Verification. **Software Testing:** Levels of Testing, Functional Testing, Structural Testing, Test Plan, Test Case Specification, Software Testing Strategies, Verification & Validation, Unit, Integration Testing, Top Down and Bottom Up Integration Testing, Alpha & Beta Testing, White box and black box testing techniques, System Testing and Debugging.
Software Quality Assurance: Software Configuration Management, Overview of Software Quality Control and Quality Assurance, ISO 9000 Certification for Software Industry, SEI Capability Maturity Model (CMM) and Comparison between ISO & SEI CMM.

Unit IV: Technical Metrics for Software
A Framework for Technical Software Metrics, Metrics for the Analysis Model, Metrics for Design Model, Metrics for Source Code, Metrics for Testing, Metrics for Maintenance.

CASE (Computer Aided Software Engineering): CASE and its Scope, CASE support in Software Life Cycle, Documentation Support, Architecture of CASE Environment. Exposure to CASE tools like Rational Software suit, Turbo Analyst, SilkSuite.

Suggested Readings:

1. Roger S. Pressman, Software Engineering, A Practitioner's Approach, McGrawHill International Edition (2009) 7th edition.
2. Ian Sommerville, Software Engineering, Addison-Wesley Publishing Company, (2006) 8th ed.
3. Watts Humphery, A discipline for Software Engineering, Addison Wesley, Massachusetts (1995).
4. James F. Peter, Software Engineering - An Engineering Approach, John Wiley (2004).
5. Pankaj Jalote, An integrated Approach to Software Engineering, Narosa (2005).

Course Name: Computer Networks

Course Code: 19005600

Objectives

- To develop an understanding of modern network architectures from a design and performance perspective.
- To introduce the student to the major concepts involved in wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs).

- To provide an opportunity to do network programming
- To provide a WLAN measurement ideas.
- The subject will introduce the basics of computer networks to students through a study of layered models of computer networks and applications

Course Outline:

Unit I:Introduction
Motivation, OSI model, Signals and media, Bits over signals, Synchronous communication, Modulation and modems, Bandwidth, Throughput, and noise, Time division and Frequency division multiplexing, Standards.

Unit II : Packet Transmission
Multiplexing, Frames, Error correction techniques, LAN/WAN topologies, Shared media and media access, Bus topology, CSMA/CD, Wireless and CSMA/CA, Ethernet addressing and Wiring, hubs.

Unit III:Other LAN technologies
Ring topology, Token passing rings, FDDI, Star topologies, Asynchronous transfer mode, IEEE 802.3, 802.5.
Routing Algorithms: Distance-Vector, Link-State, Shortest path computation, Dijkstra's algorithm, WAN technologies including frame relay, X.25, and ATM.

Unit IV: Internet working
Motivation, Concept, Goals, IP addressing, Address binding with ARP, IP Datagram, Encapsulation IP fragmentation and reassembly, ICMP, TCP, UDP concept and datagrams, **Network Services:** Electronic mail, File transfer, Remote login-introduction to protocol specification, Validation and testing.

Suggested Readings:

1. Forouzan, B.A., Data communication and Networking, McGraw Hill (2006) 4th ed.
2. Tanenbaum, A.S., Computer Networks, Prentice Hall (2003) 4th ed.
3. Comer, D.E., Internetworking with TCP/IP Vol. 1 Principles, Portals and Architecture, Prentice Hall of India (2005) 5th ed.
4. Stallings, W., Computer Networking with Internet Protocols and Tech., Prentice Hall of India (2007).

Course Name: Computer Networks Lab

Course Code: 19005700

Course Outline

1. Study of different Network cables and practically implement the cross-wired cable and straight through wire using clamping tool.
2. Study Network tools and basic devices
3. Study of Network IP addressing
4. To study about different physical equipment's used for networking.
5. To study different internetworking devices in a computer network
6. Aim: To study the working of Basic Networking Commands
7. To assign IP address to the PC connected to the internet
8. To connect the computers in Local Area Network

Course Name: Principles of Programming Languages

Course Code: 19005800

Objectives

- Concepts of High level languages and its grammar
- Study of Imperative languages (Pascal and C)
- Study of Object oriented Programming (C++ and JAVA)
- Study of Functional Programming (Haskell / Lisp)
- Study of Logic Programming (Prolog and SQL)

Course Outline:

Unit I Introduction
Study of principles and major concepts in various programming paradigms like imperative, Functional, Object-oriented and logic programming; Introduction to various phases of compilers, Formal translation models: BNF Grammars and Macroprocessors.

Imperative programming: Location, reference and expressions, Assignment and control, Data types, Blocks, Procedures and Modules.

Unit II: Object Oriented Programming
Concept of classes and objects, Introduction to abstraction and encapsulation, Inheritance and Polymorphism; **Functional Programming:** Functions as first class objects, Higher order functions, Polymorphic data types, Type checking and Type inferencing.

Unit III: Logic Programming
Introduction to logic, Unification, Backtracking; **Introduction to storage management:** Introduction to storage management from programmer's view, Static storage management, Heap storage management.

Unit IV: Concurrent Programming

Concept of concurrent programming, Processes, and Synchronization primitives; Case study/ Seminar on State-of-the-art topics in Programming Languages: Markup Languages, Wireless Markup Languages, Mobile agent paradigm, Cloud Computing etc. Illustration of the above concepts using representative languages: C, C++, Java, LISP and Prolog etc.

Course Name: Principles of Programming Languages Lab

Course Code:19005900

Course Outline

Laboratory work

1. Implementation of object oriented concepts like inheritance, Polymorphism.
2. Programming in PHP, PERL, Markup Languages.
3. Implementation of concurrent programming, logic programming and use of open source tools (eg. LAMP).
4. Approximately four projects will be assigned on different languages/platforms.

Suggested Readings

1. Pratt, T.W. and Zelkowitz, M.V., Programming Languages - Design and Implementation, Prentice Hall (2006) 4th ed.
2. Sebesta, R.W., Concepts of Programming Languages, Addison Wesley (2008) 8th ed.
3. Sethi, Ravi, Programming Languages-Concepts and Constructs, Addison-Wesley (1996).
4. Tucker, A.B. and Noonan, R., Programming Languages-Principles and Paradigms, McGraw Hill (2007) 2nd ed.

Course Name: Web Technologies

Course Code:19005400

Objectives:

- Basic web concept and Internet protocols.
- CGI Concepts & CGI Programming
- SCRIPTING LANGUAGES
- Study of DHTML, XML
- Study of On-Line web application & Internet Concepts

Course Outline:

Unit I: Basics of Internet

Concepts, Architecture: Internet, Intranet and Extranet, Design Goals, Issues and related aspects, addressing schemes, protocols, applications - e-mail, ftp, telnet, WWW, IRC.

Unit II: Intranet Connectivity
Connection concepts, FDDI, ISDN, ADSL, PPP and ATM, Web servers and browser's , web server, proxy server, web browser.

Unit III: Network Security
Network Security attacks and vulnerabilities of Network system, Data Security Encryption, key protocols, Document signatures, firewalls;

Client Side Scripting: Introduction to Javascript and DHTML.

Unit IV: Web Programming
Introduction to Web Pages, HTML, HTTP, SHTTP and XML, Front Page Forms and Form Handlers, Site design and Navigation, Java Programming - class design, inheritance, overloading, polymorphism, exception handling, file streams and their manipulation, servlets, JSP, JDBC,.NET technologies.

Course Name: Web Technologies Lab

Course Code: 19005500

Course Outline

Laboratory Work:

- Exploring various web browsers and web servers ,
- Designing web pages in HTML and XML.
- Using Front Page express.
- Programming for web in Java and JSP.

Suggested Readings:

1. Raj Kamal, Internet and Web Technologies , TMH,200
2. Bayross, Web Enable Commercial Application Development Using HTML, DHTML, Javascript, Perl CGI , BPB Publications, 2000.
3. C Xavier , World Wide Web Design, TMH, 2001
4. Monica D'Souza , Web publishing TMH, 2001
5. HeithMorneau , Active Server Pages, Vikas Publishing House,2000
6. Ravi Kalkota, Frontiers of electronic commerce, Addison Wesley, 2000

Course Name: Organizational Behavior

Course Code: 11017100

Objectives

- Subject OB prepares students about basic psychology of job. It makes pupil understand about various behavioral aspects when working in an organization at any level.
- To understand the implications of individual and group behaviour in organizational Context. The students will conceptualize the components of individual and group behaviour, understand the practicability of communication and understand the various work, situations and apply behavioural techniques

Course Outline:

Unit I: Introduction to Organizational Behaviour
Today's Organizations, Challenges, Foundations of Organizational Behaviour, Individual Behaviour: Perception, Values, Attitudes Motivation theories. Employees Motivations in Organization, Management by Objectives Learning Processes, Reward and Punishment;

Unit II: Foundations of Group Behaviour
Interpersonal Communication, Leadership, Emotional Intelligence. Power & Polities, Conflict Process, Negotiations, Stress and Coping, Inter-Group Relations, Team Working.

Unit III: A Macro Perspective of Organizational Behaviour
Organization Structure – Key Elements, Types and Basic Models, Work Design, Organizational Change, and Learning Organizations;

Unit IV: Organizational Behaviour
Future Challenges Gender Diversity at the place of work, changing world Scenario, Role of External Environment.

Achieving Competitive: Advantage Management of change, International issues in Organizational Behaviour;

Suggested Readings

1. Robbins, S.P., Organizational Behaviour, PHI (2007) 8th ed.
2. Lufthans F., Organizational Behaviour, Irwin Mc-Graw Hill. (2007) 11th ed.
3. Hellriegal, D., and Slocum, J.W., Organizational Behaviour, Southwestern Educational Publishing (2008).

Course Name: Ability & Skill Enhancement - IV

Course Code: 19006200

Objectives:

- The objectives of the module are to make students self-confident individuals by developing leadership and organizing skills; to guide students in making appropriate and responsible decisions; to give each student a realistic perspective of work related skills and to help students prepare effective interview questions to conduct effective interviews.

Course Outline - Final Assessment – Mock Interviews & PI Kit Submission

Unit I: Tele – Etiquettes
Receiving Calls, Placing a call, Ending Calls, Transferring calls, Taking Message/ Voice Mails, Placing call on hold, Handling Complaints.

Unit II: Confidence Building & Brain Storming
How to build confidence by positive thinking, identifying negative thoughts, how to control negative thoughts entering our mind, identifying personal talents, and its ways to improve, how to develop good habits and having principles and follow them at all times.
Need to learn new things, ideas and skills, what is brain storming, why do we need it, what are the different ways of brain storming through logics and reasoning, Brain Storming Session.

Unit III: PI Kit
What is resume, Format of Resume, Formatting, Resume Preparation, Covering Letter, PI Kit.

Unit IV: Interview Skills
Mastering the art of giving interviews in - selection or placement interviews, web /video conferencing, Mock Interview, HR Expert Mock Interview, Telephonic Interviews;

Unit V: Internship Preparation: Company Specific Research and Presentation
Identifying domain specific industries, researching the industry, Industry analysis, Presentation on specific industry/company.

Note: The review of Syllabus happens on periodic basis for the benefit of the students. In case there are changes in curriculum due to review, students would be intimated in writing.

---------- **End of document**----------

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Meeting : 07

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Notice

Date	01-04-2019	No.	DOC201904010001
Subject	Meeting of the Board of Studies for the Department of Computer Science		

A meeting of the Board of Studies for the Department of Computer Science Engineering will be held Friday **5th April 2019 at 4:00 PM** at Academic Block in Room No.108 to discuss **the following Agenda items:**

1 To discuss syllabus of B.Tech. (CS) and BCA if any change required

2 Finalization of Syllabus for upcoming Odd Semester

3 To discuss M.Tech. (CS) and MCA syllabus

4 To recommend the names of paper setters and External Examiners for Practical Examinations

5 Suggestions for the industrial tie-ups

RNB Global University Registrar

Registrar

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Circular

Date	05-04-2019	No.	DOC201904050015
Subject	Minutes of Meeting of the BOS for the Department of Computer Science		

MINUTES OF THE MEETING OF BOARD OF STUDIES OF THE FACULTIES OF SCHOOL OF ENGINEERING & TECHNOLOGY FOR COMPUTER SCIENCE HELD IN ROOM NO. R108 ACADEMIC BLOCK, RNB GLOBAL UNIVERSITY, BIKANER (RAJASTHAN) ON FRIDAY 5th APRIL 2019 AT 4:00 PM

Following faculty members were present:

S.No.	Faculty Member	Designation
1.	Dr. Kumud Sarin	Dean
2.	Mr. Sandeep Srivastava	Convener
3.	Mr. Kailash Pareek	Member

A meeting of the Board of Studies for the School of Engineering & Technology for Computer Science was held on 5th April 2019 in Academic Block Room Number 108 at 04.00 PM to prepare and finalize the syllabi for various B.Sc. courses.

At the outset Prof. (Dr.) Kumud Sarin welcomed the members, highlighted the learning objectives and emphasized on the relevance of the course contents being presented before the Board.

The Board took up the agenda for discussion:

Item No. 1: To discuss syllabus of B.Tech. (CS) and BCA if any change required

Detailed program scheme of B.Tech. (CS) and BCA was discussed by the Chair with the member as standard format.(*Refer Annexure*)

Item No. 2: Finalization of Syllabus upcoming Semester:

The board members finalized that UGC choice-based credit system should be followed for B.Tech. and BCA.

Item No. 3: To discuss M.Tech. (CS) and MCA syllabus:

Syllabus to be revised keeping in view of AICTE and UGC NET syllabus. Papers based on recent technology and Lab course(s) to be conduct on new frameworks which is used by IT Industry.

Item No. 4: To recommend the names of paper setters and External Examiners for Practical's Examination.

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The Board recommended the panel of examiners for the Department of Physics. The names were also suggested for the practical examinations.

Item No. 5: Suggestions for the industrial tie-ups:

It was discussed that expert lectures from Industries should also be incorporated in the curriculum of M.Tech and MCA .

The meeting came to an end with a vote of thanks to the Chair.

RNB Global University Dean Bikaner

Annexure

The following subjects and its draft syllabus has been approved by the Board of Studies for the Academic Session 2019-20 and further sessions unless otherwise approved at a subsequent meeting :-

B.Tech VII Semester – Computer Science

B.Tech (CSE) VII	19010500	Compiler Construction
B.Tech (CSE) VII	19010700	Artificial Intelligence
B.Tech (CSE) VII	19010600	Multimedia Technologies
B.Tech (CSE) VII	19010900	Data Warehouse & Data mining
B.Tech (CSE) VII	19011100	Network Security & Cryptography
B.Tech (CSE) VII	19011200	Network Security & Cryptography Lab

The Eight Semester shall be continued as project semester.