DEPARTMENT OF BCA

NALLAMUTHU GOUNDER MAHALINGAM COLLEGE
POLLACHI - 642001

21st Board of Studies Meeting in the Department of

BCA

Date & Time: 22.5.2021 & 2.00 P.M

Agenda

BoS / BCA16.1	:	Welcome address and Opening Remarks by Chairman, Board of studies in BCA
BoS / BCA16.2	:	Confirmation of the Minutes of the 21st / Previous meeting of Board of studies in BCA held on 22.5.2021 and Action taken report of 21st meeting of Board of studies
BoS / BCA16.3	:	16.3.1 Syllabus of I BCA under Regulation 2021- 2022
		16.3.2 Syllabus of II BCA under Regulation 2022 - 2023
		16.3.3 Syllabus of III BCA under Regulation 2023- 2024
		Any other Discussions if any
BoS / BCA16.4	:	Suggestion given by BOS Members
BoS / BCA16.5	:	Any other items

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NALLAMUTHU GOUNDER MAHALINGAM COLLEGE

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UG DEPARTMENT OF COMPUTER APPLICATIONS

MINUTES OF BOS MEETING

The 21st Meeting of the Board of studies of the BCA Department was held on 22.5.2021 at 2.00 P.M through Online Mode – Google Meet Platform.

1. The following members were present:

Dr.K.Haridas Head & Associate Professor, BCA Department	Chairman
Dr.S.Hemalatha Associate Professor, BCA	Internal Members
Ms.J.Umamaheswari Assistant Professor, BCA	
Dr.R.Malathi Ravindran Associate Professor, BCA	
Ms.N.Shyamala Assistant Professor, BCA	
Mr.S.DilipKumar Assistant Professor, BCA	
Ms.N.Divya Assistant Professor, BCA	
Mr.D.Poobathy Assistant Professor, BCA	
Mr.AMuruganandham Assistant Professor, BCA	
Ms.M.Kirthika Assistant Professor, BCA	
Dr.E.Chandra Professor and Head Department of Computer Science BharathiarUniversity,Coimbatore. Chandra.e@buc.edu.in	University Nominee
Dr.S.Britto Ramesh Kumar Associate professor, Department of Computer Science St.Joseph's College Tiruchirapalli. brittork@gmail.com	Academic Expert

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Dr.T.Revathi Head, Department of Computer Science(SF) PSG College of Arts and Science Coimbatore. revathi@psgcas.ac.in	Subject Expert	
Mr.E.Nivek Senior Analyst HCL Technologies,Bangalore nivek031996@gmail.com	Industry Expert	
Ms.J.Sangamithra Programmer Cognizant, Coimbatore sakthisangamithra53@gmail.com	Alumnus nominated by Principal / HoD	
Mr.E.Rajesh Kumar (18BC78) D3-BCA 'B' (2018- 2021)rajesheswaran27599@gmail.com	Student Member	

HoD   CDC Co-ordinator   COE   PRINCIPAL

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BoS/BCA12.1   WELCOME ADDRESS AND OPENING REMARKS BY CHAIRMAN, BOARD OF STUDIES IN THE BCA DEPARTMENT

The Chairman, BoS of the BCA Department welcomed and introduced the members of 16th Board of Studies and thanked each one of them for sparing their valuable time to attend the meeting.

BoS/BCA 12.2   TO CONFIRM THE MINUTES OF 20th BOS MEETING HELD ON 22.2.2020. The minutes of the 20th Board of Studies meeting held on 22.2.2020 were communicated to the members. The comments received have been incorporated and placed for confirmation. The same was approved by 20th Academic council.

~ Action Taken Report (Enclosed in Annexure 1)

1. Based on the feedback of University Nominee, the Fundamentals of Digital Computer is renamed as Digital Computer Fundamentals in Semester I.
2. RDBMS and Visual Programming both theory and lab, replaced as RDBMS due to the recommendation of Subject Expert in Semester III.
3. Based on the feedback of Subject Expert, DTP lab is replaced by Graphics Lab in Semester III.
4. Based on the recommendation of Industry Expert, Web Development is renamed as Web Technology which consists of 3 units from ASP.NET and 2 units from PHP Programming in Semester IV.
5. Based on the feedback of University Nominee, all the five phases should be included in the Software Engineering in Semester IV.
6. Based on the recommendation of Academic Auditor, Web Development is replaced by ASP.NET lab in Semester IV.
7. Based on the recommendation of Subject Expert, Scripting & HTML is renamed as Web Designing lab and Open source software lab is renamed as Photo Effects lab in semester IV and 2-D Animation lab is renamed as Animation lab.

BoS/BCA 12.3
BoS/BCA 12.3.1
I BCA (I &II SEMESTER)

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I SEMESTER

- ✓ 21UBC101 - Core - I : Programming In C
- ✓ 21UBC102 - Core – II : Digital Computer Fundamentals
- ✓ 21UBC1A1 - Allied - I :Mathematics I - Computer Oriented Numerical And Statistical Methods
- ✓ 21UBC103 - Core Lab -I : Programming In C

II SEMESTER

- ✓ 21UBC204 - Core - III : Object Oriented Programming With C++
- ✓ 21UBC205 - Core - IV : Data Structures
- ✓ 21UBC2A2 - Allied - II : Mathematics II –Mathematical Foundations Of Computer Applications
- ✓ 21UBC206 - Core Lab - II : Programming In C++

The presented syllabus was accepted by the experts and a **few suggestions** were given as follows:

- As suggested by our Subject Expert Dr.T.Revathi the edition of the text book and the reference books have been updated in C& C++ Programming.
- As suggested by our Subject Expert Dr.T.Revathi and the Alumni, theProgramming list has been updated in C++ Programming.
- As suggested by our Academic Auditor Dr.S.Britto Ramesh Kumar,Map Simplification topic have been included in the Second unit of the course Digital Computer Fundamentals.

The following papers from BCA were accepted by the experts fully without further suggestions:

- 21UBC1A1 - Allied - I:Mathematics I - Computer Oriented Numerical And Statistical Methods
- 21UBC103 - Core Lab -I: Programming In C
- 21UBC205 – Data Structures

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- 21UBC2A2 - Allied - II: Mathematics II –Mathematical Foundations Of Computer Applications

The following courses were revised with major / minor modifications
- 21UBC101 – PROGRAMMING IN C
- 21UBC102 - Digital Computer Fundamentals
- 21UBC204 - OBJECT ORIENTED PROGRAMMING WITH C++
- 21UBC206 LAB –II: PROGRAMMING IN C++

New Course Added: -NIL

BoS/BCA 12.3.2

<<II BCA (III & IV SEMESTER)>>

III SEMESTER
- ✓ 21UBC307 –Core - V :Relational Database Management System And Oracle
- ✓ 21UBC308 - Core - VI :Operating Systems
- ✓ 21UBC309 - Core - VII :Organizational Behaviour
- ✓ 21UBC3A3 - Allied - III :Accountancy For Decision Making
- ✓ 21UBC310 - Core Lab - III : Relational Database Management System And Oracle
- ✓ 21UBC311 - Core Lab - IV : Operating Systems
- ✓ 21UBC312 - Core Lab - V : Graphics
- ✓ 21UBC3N11 - Non Major Elective - I : Web Designing Lab /
- ✓ 21UBC3N12 - Non Major Elective - I : Desktop Publishing Lab

IV SEMESTER
- ✓ 21UBC413 - Core - VIII :Web Technology
- ✓ 21UBC414 - Core - IX :Computer System Architecture
- ✓ 21UBC415 - Core - X :Software Engineering
- ✓ 21UBC4A4 - Allied - IV :Mathematics III - Computer Based Optimization Techniques
- ✓ 21UBC416 - Core Lab - VI: ASP.NET
- ✓ 21UBC417 - Core Lab - VII : PHP Programming
- ✓ 21UBC418 - Core Lab - VIII: Web Designing

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✓ 21UBC4N21 - Non Major Elective - II : Photo Effects Lab/

✓ 21UBC4N22 - Non Major Elective – II: Animation Lab

The presented syllabus was accepted by the experts and a few suggestions were given as follows:

- As suggested by our University Nominee Dr.E.Chandra the paper titled'Relational Database Management System and Oracle'has been changed as 'Relational Database Management System' (both theory and lab papers).

- As suggested by our University Nominee Dr.E.ChandraReal Time Applications have been included in the List of programs of Relational Database Management System and Oracle' Lab.

- As suggested by our Academic Auditor Dr. S. Britto Ramesh Kumar in the BOS meeting, the latest edition of text books have been updated in Organizational Behaviour.

- As suggested by our Subject Expert Dr.T.Revathi in the BOS meeting new textbook has been included in the course Web technology.

- As suggested by our Academic Auditor Dr.S.Britto Ramesh Kumar, in Software Engineering course
  - o The number of Text Books has been reduced from 4 to 3 numbers.
  - o The Reference Book has been changed as "Software Engineering Concepts"by Richard Fairley, McGraw Hill Publications, 2001.

- As suggested by our Academic Auditor Dr. S. Britto Ramesh Kumar & Subject Expert Dr.T.Revathi, the Programming list have been updated in Web Designing Lab.

The following papers from BCA were accepted by the experts fully without further suggestions:

- 21UBC308 - Core - VI :Operating Systems
- 21UBC3A3 - Allied - III :Accountancy For Decision Making
- 21UBC311 - Core Lab - IV : Operating Systems
- 21UBC312 - Core Lab - V : Graphics
- 21UBC3N11 - Non Major Elective - I : Web Designing Lab /

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- 21UBC3N12 - Non Major Elective - I : Desktop Publishing Lab
- 21UBC414 - Core - IX :Computer System Architecture
- 21UBC4A4 - Allied - IV :Mathematics III - Computer Based Optimization Techniques
- 21UBC416 - Core Lab - VI: ASP.NET
- 21UBC417 - Core Lab - VII : PHP Programming
- 21UBC4N21 - Non Major Elective - II : Photo Effects Lab/
- 21UBC4N22 - Non Major Elective – II: Animation Lab

The following courses were revised with major / minor modifications.
- 21UBC307 – Core - V :Relational Database Management System And Oracle
- 21UBC309 - Core - VII :Organizational Behaviour
- 21UBC310 - Core Lab - III : Relational Database Management System And Oracle
- 21UBC413 - Core - VIII :Web Technology
- 21UBC415 - Core - X :Software Engineering
- 21UBC418 - Core Lab - VIII: Web Designing

New Course Added: NIL

BoS/BCA12.3.3

<<III BCA (V&VI SEMESTER)>>

V SEMESTER
- ✓ 21UBC519 - Core - XI: Java Programming
- ✓ 21UBC520 - Core - XII: Skill Enhanced Course Software Testing
- ✓ 21UBC5E11 / - Networks
- ✓ 21UBC5E12 / - Grid Computing
- ✓ 21UBC5E13 - Data Science
- ✓ 21UBC521 - Core Lab - IX: Java Programming
- ✓ 21UBC522 - Core Lab - X : Software Testing
- ✓ 21UBC523 - Project
- ✓ 21UBC5S11 – Mobile Phone Services/

✓ 21UBC5S12 -   Internet of Things/

✓ 21UBC5S13 -   Desktop Publishing Lab

VI SEMESTER

✓ 21UBC624 -   Core - XIII : Python Programming

✓ 21UBC625 -   Core - XIV : Mobile Application Development

✓ 21UBC6E21 -   Storage Management

✓ 21UBC6E22 -   Current Trends And Technologies

✓ 21UBC6E23 -   Information Security

✓ 21UBC6E31-   Data Mining And Warehousing

✓ 21UBC6E32 -   Cloud Computing

✓ 21UBC6E33 -   Nano Computing

✓ 21UBC626 -   Core Lab - XI : Python Programming

✓ 21UBC627 -   Core Lab - XII : Mobile Application Development

✓ 21UBC6S21 -   Corporate Systems

✓ 21UBC6S22 -   Multimedia And Animation

✓ 21UBC6S23-Personality Development Skills

The presented syllabus was accepted by the experts and a few suggestions were given as follows:

- As suggested by our Alumni Ms.J.Sangamithra the topics related with Win runner tool is replaced with Selenium in the fifth unit of the course Software Testing.

- As suggested by our Alumni Ms.J.Sangamithra the list of programs related with Win runner tool is replaced with the list of programs of Selenium tool.

- As suggested by our Academic Auditor Dr. S. Britto Ramesh Kumar, Subject Expert Dr.T.Revathi and the AlumniMs.J.Sangamithra, the Program list have been updated in Desktop Publishing Lab.

- As suggested by our University Nominee Dr.E.Chandra and Subject Expert Dr.T.Revathi Unit -4 has been changed from Data Science topics to topics related with Machine Learning in the course Current Trends and Technologies.

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- As suggested by our Academic Auditor Dr. S. Britto Ramesh Kumar, in Unit 5, the contents has been added and case studies in "Research Topics in the field of Cloud Computing" is also included in the course Cloud Computing.
- As suggested by our Subject Expert Dr.T.Revathi, the latestedition of text books and reference books have been updated in Information Security.

The following papers from BCA were accepted by the experts fully without further suggestions:

- 21UBC519 - Core - XI: Java Programming
- 21UBC5E11 / - Networks
- 21UBC5E12 / - Grid Computing
- 21UBC521 - Core Lab - IX: Java Programming
- 21UBC523 - Project
- 21UBC5S11 – Mobile Phone Services/
- 21UBC5S12 - Internet of Things/
- 21UBC624 - Core - XIII :Python Programming
- 21UBC625 - Core - XIV : Mobile Application Development
- 21UBC6E21 - Storage Management
- 21UBC6E31-Data Mining And Warehousing
- 21UBC626 - Core Lab - XI : Python Programming
- 21UBC627 - Core Lab - XII : Mobile Application Development
- 21UBC6S21 - Corporate Systems
- 21UBC6S22 - Multimedia And Animation
- 21UBC6S23-Personality Development Skills

The following courses were revised with major / minor modifications.

- 21UBC520 - Core - XII: Skill Enhanced Course Software Testing
- 21UBC522 - Core Lab - X : Software Testing
- 21UBC5S13 - Desktop Publishing Lab
- 21UBC6E22 - Current Trends And Technologies

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- 21UBC6E23 - Information Security
- 21UBC6E32 - Cloud Computing

New Course Added:

The following papers from BCA were accepted by the experts fully without further suggestions

- 21UBC5E13 - Data Science
- 21UBC6E33 - Nano Computing
- 21UBC5AL1 - Advanced Learner Course – I: Adhoc And Sensor Networks - Self Study
- 21UBC6AL2 - Advanced Learner Course – II: Disaster Management

These changes have been made effect for the students admitted in 2021 with I to VI Semesters accordingly.

BoS/BCA12.4   SUGGESTIONS GIVEN BY THE BoS MEMBERS

12.4.1: University Nominee

✓ Machine Learning topic to be included in Current Trends

✓ SBE can be handled as complete theory or complete practical paper according to the convenience

✓ Networks paper to be handled as core paper instead of elective paper.

✓ Nano Computing is difficult for UG students.

12.4.2 Academic Auditor

✓ Elaborate the Unit-V in Cloud Computing

✓ Simplification of Sum of Products and Product of Sums to be included in DCF.

✓ Latest book edition to be prescribed for Organizational Behaviour

✓ Sommerville book can be followed for Software Engineering

✓ Case studies can be accepted in RDBMS

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- ✓ Appropriate modifications expected in IOT
- ✓ William Stallings book can be followed for Information Security

12.4.3 Subject Expert

- ✓ List of exercises can be changed for Web Designing(Major) and NME
- ✓ Text book can be prescribed for Web Technology
- ✓ Syllabus for Data Science can be re-organized
- ✓ In Current Trends and Technologies Data Science topic to be removed.
- ✓ Machine Learning subject can be added as Major subject.
- ✓ Topics in Introduction to C++ and Java can be removed.
- ✓ Hands on Training for Mobile Phone Services.

12.4.4 Industry Expert

- ✓ Advanced Programs can be included for II years and III years.
- ✓ Workshops can be conducted for other OS.

12.4.5 Alumni

- ✓ Selenium can be replaced for WinRunner in ST.
- ✓ Deep Learning, Digital Forensics, Artificial Intelligence can be inserted instead of Nano Computing.

The members had a brainstorming discussion and interaction among themselves. After discussion, fruitful suggestions were incorporated appropriately in the Curriculum and Syllabi.
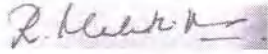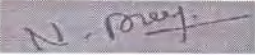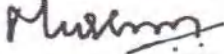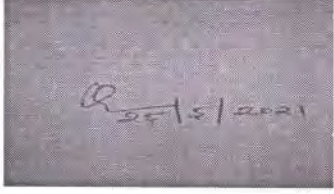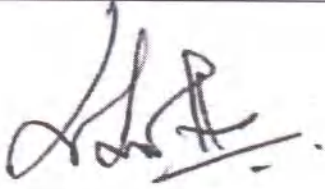
Based on the suggestions given by the members, BOS resolved to recommend the following to the Academic Council for further approval.

- a) The syllabus of First Year BCA under Regulation <<Regulation Number>>.
- b) The syllabus of Second Year BCA under Regulation <<Regulation Number>>.
- c) The syllabus of Third Year BCA under Regulation <<Regulation Number>>.
- d) Any other discussion

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Members Present:

Chairman	
Dr.K.Haridas Head, Department of BCA	
Internal Members	
Dr.S.Hemalatha Associate Professor, BCA	
Ms.D.Umamaheswari Assistant Professor, BCA	
Dr.R.MalathiRavindran Associate Professor, BCA	
Ms.N.Shyamala Assistant Professor, BCA	
Mr.S.DilipKumar Assistant Professor, BCA	
Ms.N.Divya Assistant Professor, BCA	
Mr.D.Poobathy Assistant Professor, BCA	
Mr.AMuruganandham Assistant Professor, BCA	
Ms.M.Kirthika Assistant Professor, BCA	
University Nominee	
Dr.E.Chandra Professor and Head Department of Computer Science BharathiarUniversity,Coimbatore. Chandra.e@buc.edu.in	
Academic Expert	
Dr.S.Britto Ramesh Kumar Associate professor, Department of Computer Science St.Joseph's College Tiruchirapalli. brittork@gmail.com	
Subject Expert	

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Industrial Expert	
Mr.E.Nivek Senior Analyst HCL Technologies, Bangalore nivek031996@gmail.com	
Alumnus nominated by Principal / HoD	
Ms.J.Sangamithra Programmer Cognizant, Coimbatore sakthisangamithra53@gmail.com	
Student Members	
Mr.E.Rajesh Kumar (18BC78) D3-BCA 'B' (2018-2021) rajesheswaran27599@gmail.com	

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ANNEXURE I

Minutes of the 20th / Previous Meeting – Action Taken Report

S.No	Suggestion given by expert members	Action taken
1	Fundamentals of Digital Computer is renamed as Digital Computer Fundamentals	Reviewed and Implemented
2	RDBMS and Visual Programming (Theory and Lab) should be replaced as RDBMS	Reviewed and Implemented
3	Web Development is replaced as Web Technology (3 units in ASP.Net and 2 units in PHP Programming)	Reviewed and Implemented
4	In Semester IV, Unit-IV of Software Engineering – all the SDLC phases should be included.	Reviewed and Implemented
5	Web Development Lab is replaced by ASP.Net Lab in Semester IV.	Reviewed and Implemented
6	In Semester IV Script and HTML is renamed as Web Designing Lab and Open Source Software lab is renamed as Photo Effects lab and 2-D Animation Lab is renamed as Animation Lab.	Reviewed and Implemented

HoD

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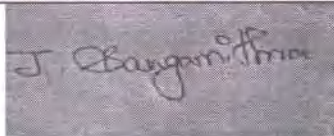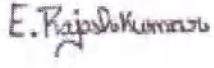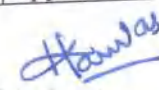# List of Courses having focus on local, national, regional and global developmental needs offered by BCA

UG DEPARTMENT OF COMPUTER PPLICATIONS

Programme: BCA | Year: 2021

Course Code	Course Title	Local	National	Regional	Global	Rationale
21UBC101	Core - I : Programming In C				✓	It is used in Embedded systems for developing desktop applications.
21UBC102	Core – II : Digital Computer Fundamentals	✓	✓			To meet the requirements to appear for NET& SET.
21UBC1A1	Allied - I :Mathematics I - Computer Oriented Numerical And Statistical Methods	✓		✓		Gain an experience in the implementation of numerical methods using a computer.
21UBC103	Core Lab -I : Programming In C				✓	It constitutes easier time solving problems.
21UBC204	Core - III : Object Oriented Programming With C++				✓	Powerful General Purpose Programming Language used to develop OS, Browsers, games and so on.
21UBC205	Core - IV : Data Structures			✓	✓	Key Component of Computer Science, back functionality in Internet Browser, largely used in Artificial Intelligence
21UBC2A2	Allied - II : Mathematics II –Mathematical Foundations Of Computer Applications	✓	✓			Tool for improving reasoning and problem-solving capabilities
21UBC206	Core Lab - II : Programming				✓	Helps to create computer applications that can be used to

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Code	Course					Description
	In C++					solve real world problems
21EVS201	Environmental Studies				✓	To acquire the knowledge of environmental issues and enrich them to take responsible decisions
21UBC307	Core - V :Relational Database Management System And Oracle				✓	It is possible to store complex business models in a relational database.
21UBC308	Core - VI :Operating Systems				✓	It allows communicating with the computer without knowing how to speak the computer's language.
21UBC309	Core - VII :Organizational Behaviour	✓	✓	✓		It helps to understand one's own behaviors, attitudes, ethical views, and performance.
21UBC3A3	Allied - III :Accountancy For Decision Making		✓			To know financial transactions of a business.
21UBC310.	Core Lab - III : Relational Database Management System And Oracle				✓	Gains Practical experience for data storage in order to perform complex business applications.
21UBC311	Core Lab - IV : Operating Systems				✓	Provides Problem-Oriented Learning.
21UBC312	Core Lab - V : Graphics	✓	✓			Enhances the knowledge of web page appearances.
21UBC3N11/	Non Major Elective - I : Web Designing Lab				✓	1) Can learn in a short period of time. 2) Need limited skills. 3) Freelancing projects can be done.
21UBC3N12	Non Major Elective - I : Desktop Publishing Lab	✓				It is used to create documents like leaflets, brochures and newsletters.
21UBC413	Core - VIII :Web Technology				✓	Web technology concepts are required for developing web applications
21UBC414	Core - IX		✓	✓		To enhance the knowledge of

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Course Code	Course Name						Description
	:Computer System Architecture						designing, building and operating the Computers and knowing what is inside and how it works.
21UBC415	Core - X :Software Engineering		✓	✓			To gain the knowledge to solve the software and system challenges with a comprehensive set of skills
21UBC4A4	Allied - IV :Mathematics III - Computer Based Optimization Techniques			✓			By doing quantitative methods and techniques for effective decision making, model formulation and applications, it helps the students to equip them to solve business/job decision problems.
21UBC416.	Core Lab - VI: ASP.NET					✓	Reliable, fast, easy and open source framework to develop dynamic, rich web sites and web applications
21UBC417	Core Lab - VII : PHP Programming					✓	Extensively used for building web applications, web sides, cloud computing and machine learning also.
21UBC418	Core Lab - VIII: Web Designing					✓	Designing a web site is most essential in every sector which reflects in better business and revenue
21UBC4N21 /	Non Major Elective - II : Photo Effects Lab/	✓					To understand the expectations of industry and to improve employability skills
21UBC4N22	Non Major Elective – II: Animation Lab	✓					Every promotion in industry is closely related to animation. Due to its extensive and ever expanding field, animators are highly demanded persons
21UBC519	Core - XI : Java Programming					✓	It is primarily used for Internet-based applications.
21UBC520	Core - XII :Skill Enhanced Course Software Testing		✓				It provides the opportunity and knowledge for a client to develop and strengthen the necessary skills to gain, maintain, and advance in a chosen area
21UBC5E11	Core Elective -					✓	Interconnects the people and

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Code	Course					Description
/	I Networks					companies across the world.
21UBC5E12	Grid Computing			✔		It provides Collaborative computingsupport.
21UBC5E13	Data Science				✔	Students are recruited for most highly paid jobs
21UBC521	Core Lab - IX: Java Programming				✔	It is used for creating internet based applications.
21UBC522	Core Lab - X : Software Testing				✔	To identify any errors, gaps or missing requirement versus the actual requirement.
21UBC523	Project	✔				Project allows the students to study, do research and act by themselves using their abilities, interests, personal experience and aptitudes.
21UBC5AL1	Advanced Learner Course – I: Adhoc And Sensor Networks - Self Study	✔	✔	✔		It is helpful during meetings or in any location where a network doesn't exist.
21UBC5S11 /	Skill Based Elective – I Mobile Phone Services				✔	Business and personal use.
21UBC5S12	Internet of Things				✔	To know about physical objects that is embedded with sensors.
21UBC5S13	Desktop Publishing Lab	✔				It is used to create documents like leaflets, brochures and newsletters.
21UBC624	Core - XIII :Python Programming				✔	Faster growing, easily written and executed much faster than other programming language, highly demand for job
21UBC625	Core - XIV : Mobile Application Development		✔	✔		Hiring more mobile app developers by the enterprises are increased day by day
21UBC6E21 /	Core Elective - II : Storage Management				✔	Provides a comprehensive learning on storage technology
21UBC6E22	Current Trends And				✔	To determine what is currently accepted to be the best and to

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Code	Course					Reason
	Technologies					take a constructivist approach to develop a leadership vision for implications of past, current and future developments in Technology
21UBC6E23	Information Security				✓	Everything is online and information security is more important, exciting job opportunities
21UBC6E31 /	Core Elective – III: Data Mining And Warehousing				✓	Very popular to analyze and explore the data in many different sectors of business
21UBC6E32 /	Cloud Computing				✓	Future of computing is cloud based computing, More user friendly and affordable
21UBC6E33	Nano Computing		✓			Rapidly developing field, able to work in one of the fastest growing occupations
21UBC626	Core Lab - XI : Python Programming				✓	Faster growing, easily written and executed much faster than other programming language
21UBC627	Core Lab - XII : Mobile Application Development				✓	Hiring more mobile app developers by the enterprises are increased day by day
21UBC6S21 /	Skill Based Elective - II: Corporate Systems		✓			Essential to learn about the operations of the Corporate industry and prepare themselves to meet their requirement.
21UBC6S22	Multimedia And Animation	✓				Every promotion in industry is closely related to animation. Due to its extensive and ever expanding field, animators are highly demanded persons
21UBC6S23	Personality Development Skills				✓	Mandatory for everyone to sustain and survive in the field

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List of Courses having focus on employability/ entrepreneurship/ skill development offered by BCA

<table>
<tr><th colspan="6">UG DEPARTMENT OF COMPUTER APLICATIONS</th></tr>
<tr><td colspan="3">Programme: BCA</td><td colspan="3">Year: 2021-2024</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2">Course Title</td><td colspan="3">Employability (EM) / Entrepreneurship (EN) / Skill Development (SD)</td><td rowspan="2">Focus</td><td rowspan="2">Year of Introduction</td></tr>
<tr><td>EM</td><td>EN</td><td>SD</td></tr>
<tr><td>21UBC101</td><td>Core - I : Programming In C</td><td></td><td></td><td>✓</td><td>SD:Programming Skills</td><td></td></tr>
<tr><td>21UBC102</td><td>Core – II : Digital Computer Fundamentals</td><td></td><td>✓</td><td></td><td>EN: Digital Components</td><td></td></tr>
<tr><td>21UBC1A1</td><td>Allied - I :Mathematics I - Computer Oriented Numerical And Statistical Methods</td><td></td><td></td><td>✓</td><td>SD: Correlation, Integration and Interpolation</td><td></td></tr>
<tr><td>21UBC103</td><td>Core Lab -I : Programming In C</td><td></td><td></td><td>✓</td><td>SD: Programming Skills</td><td></td></tr>
<tr><td>21UBC204</td><td>Core - III : Object Oriented Programming With C++</td><td></td><td></td><td>✓</td><td>SD: Programming Skills</td><td></td></tr>
<tr><td>21UBC205</td><td>Core - IV : Data Structures</td><td></td><td></td><td>✓</td><td>SD: Structural Representations</td><td></td></tr>
<tr><td>21UBC2A2</td><td>Allied - II : Mathematics II –Mathematical Foundations Of Computer Applications</td><td></td><td></td><td>✓</td><td>SD: Matrices and Probability</td><td></td></tr>
</table>

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21UBC206	Core Lab - II : Programming In C++			✓	SD: Programming Skills	
21UBC307	Core - V :Relational Database Management System And Oracle	✓		✓	EM: Oracle SD: Database Management System	
21UBC308	Core - VI :Operating Systems	✓		✓	EM: Linux & Shell Programming SD:Functioning of OS	
21UBC309	Core - VII :Organizational Behaviour	✓			EM: Human Behaviour	
21UBC3A3	Allied - III :Accountancy For Decision Making			✓	SD: Problems in Accounting	
21UBC310	Core Lab - III : Relational Database Management System And Oracle	✓		✓	EM: Oracle SD: Database Management System	
21UBC311	Core Lab - IV : Operating Systems			✓	SD: OS Commands	
21UBC312	Core Lab - V : Graphics	✓		✓	EM: Graphical Designing SD: Scaling, Rotation&Transformation	
21UBC3N11 /	Non Major Elective - I : Web Designing Lab	✓			EM: Web Page Development	
21UBC3N12	Non Major Elective - I : Desktop Publishing Lab	✓	✓		EM: Desktop Publishing EN: Filtering & Retouching	
21UBC413	Core - VIII :Web Technology	✓			EM: .Net Technologies	

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21UBC414	Core - IX :Computer System Architecture	✓		EM: Computer Organisation
21UBC415	Core - X :Software Engineering	✓		EM: Software Development Process
21UBC4A4	Allied - IV :Mathematics III - Computer Based Optimization Techniques		✓	SD: Transportation and Assignment Problems
21UBC416	Core Lab - VI: ASP.NET	✓		EM: .Net Technologies
21UBC417	Core Lab - VII : PHP Programming		✓	SD: Programming Skills
21UBC418	Core Lab - VIII: Web Designing	✓		EM: Web Page Development
21UBC4N21 /	Non Major Elective - II : Photo Effects Lab/		✓	SD: Photo Effects
21UBC4N22	Non Major Elective – II: Animation Lab		✓	SD: Animated Effects
21UBC519	Core - XI : Java Programming		✓	SD: Programming Skills
21UBC520	Core - XII :Skill Enhanced Course Software Testing	✓	✓	EM: Selenium SD: Testing Skills
21UBC5E11 /	Core Elective - I Networks	✓	✓	EM: Error detection and Error Correction SD: Networking Concepts
21UBC5E12	Grid Computing		✓	SD: Grid Concepts

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Code	Course				Description	Year
21UBC5E13	Data Science	✓		✓	EM: Python and R-Programming SD: Machine Learning	2021
21UBC521	Core Lab - IX: Java Programming			✓	SD: Programming Skills	
21UBC522	Core Lab - X : Software Testing	✓		✓	EM: Selenium SD: Testing Skills	
21UBC523	Project	✓		✓	EM & SD: Software Design and Development	
21UBC5S11 /	Skill Based Elective – I Mobile Phone Services	✓			EM: Service and Techniques	
21UBC5S12	Internet of Things	✓			EM: Internet Concepts	
21UBC5S13	Desktop Publishing Lab	✓	✓		EM: Desktop Publishing EN: Filtering & Retouching	
21UBC624	Core - XIII :Python Programming			✓	SD: Programming Skills	
21UBC625	Core - XIV : Mobile Application Development	✓	✓	✓	EM: Developing Android Apps EN: Designing Interfaces SD: SMS, Location based services	
21UBC6E21 /	Core Elective - II : Storage Management	✓			EM: Memory Management	
21UBC6E22	Current Trends And Technologies	✓			EM: Latest Technologies	
21UBC6E23	Information Security	✓	✓	✓	EM: Cyber security & Cryptography EN: Security based infrastructures SD: Security Features & Concepts	

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21UBC6E31 /	Core Elective – III: Data Mining And Warehousing	✓			EM: Mining Concepts	
21UBC6E32 /	Cloud Computing	✓	✓		EM: Cloud Security & Services EN: Cloud Storage Providers	
21UBC6E33	Nano Computing	✓			EM: Computing Concepts	2021
21UBC626	Core Lab - XI : Python Programming			✓	SD: Programming Skills	
21UBC627	Core Lab - XII : Mobile Application Development	✓	✓	✓	EM: Desktop Publishing EN: Filtering & Retouching	
21UBC6S21 /	Skill Based Elective - II: Corporate Systems	✓			EM: Software Industry Domains	
21UBC6S22	Multimedia And Animation			✓	SD: Animation Effects	
21UBC6S23	Personality Development Skills			✓	SD: Soft Skills	

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Percentage of Revision of BCA Syllabus under Regulation 2021-2024

S. No	Course Code	Course Title	Change Details	% of Changes	Content Deleted	Content Updated	Reason for Change Subject Expert / Course Teacher / Alumni Opinion
	21UBC101	Core - I: Programming In C	Text book added				Suggested by Subject Expert
	21UBC102	Core - II: Digital Computer Fundamentals	One topic alone added in Unit- II.	5%	Nil	Yes	Asked by Academic auditor to include Map Simplification
	21UBC204	Core - III: Object Oriented Programming With C++	Text book added				Suggested by Subject Expert
	21UBC206	CoreLab- II: Programming In C++	List of Programs updated	20%			Suggested by Subject Expert
	21UBC307	Core - V: Relational Database Management System And	Changed the title.			'	Suggested by University Nominee

		Oracle					
	21UBC309	Core - VII :Organizational Behaviour	Updated the latest version of Text book				Suggested by Academic Auditor
	21UBC310	Core Lab - III : Relational Database Management System And Oracle	Changed title.				Suggested by University Nominee
	21UBC413	Core - VIII :Web Technology	Included separate text book for ASP.Net				Suggested by Subject Expert
	21UBC415	Core - X :Software Engineering	Reduced the number of text books and included new book for reference.				Suggested by Academic Auditor
	21UBC418	Core Lab - VIII: Web Designing	Updated Program List	20%			Suggested by Academic Auditor& Subject Expert
	21UBC520	Core - XII: Skill Enhanced Course Software Testing	Changed Unit-V	20%			Suggested by Alumini
	21UBC522	Core Lab - X : Software Testing	Replaced Winrunner by Selenium	100%			Suggested by Alumni

21UBC5S13	Desktop Publishing Lab	Updated List of Programs	20%				Suggested by Academic Auditor& Subject Expert& Alumni
21UBC6E22	Current Trends And Technologies	Changed Unit - 4	20%	Topics in Unit-4	Machine Learning included in Unit-4		Suggested by University Nominee& Subject Expert
21UBC6E23	Information Security	Updated the latest version of Text book.					Suggested by Subject Expert
21UBC6E32	Cloud Computing	Included topics in Unit-V	20%				Suggested by Academic Auditor

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