SCHEME OF EXAMINATION

for

Bachelor of Computer Applications (BCA)
Scheme and Syllabus (w.e.f. AS 2021-22)

Offered by

University School of Information, Communication & Technology GGSIPU at Affiliated Institutions of the University

GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY

Guru Gobind Singh Indraprastha University Sector 16C, Dwarka, Delhi – 110 078 [INDIA]
www.ipu.ac.in

Applicable from Batch Admitted in Academic Session 2021-22 Onwards

FIRST SEMESTER EXAMINATION

Code No.	Paper	Course Category	L	T/P	Credits	Marks Internal	Marks External	Max Marks
Core Course Theory								
BCA 101	Discrete Mathematics	Core Course Theory	3	1	4	25	75	100
BCA 103	Programming Using 'C' Language	Core Course Theory	3	1	4	25	75	100
BCA 105#	Fundamentals of Computers & IT	Core Course Theory	3	1	4	25	75	100
BCA 107#	Web Technologies	Core Course Theory	3	1	4	25	75	100
Ability Enhancement Compulsory Course (AECC)								
BCA 109	Technical Communication	AECC	3	1	4	25	75	100
Core Course Practicals								
BCA 171	Practical – I 'C' Prog. Lab	Core Course Practical	0	4	2	40	60	100
BCA 173#	Practical – II IT Lab	Core Course Practical	0	4	2	40	60	100
BCA 175#	Practical-III Web Tech Lab	Core Course Practical	0	4	2	40	60	100
Bridge Course (Mandatory for Students from Non Mathematics background)								
BCA 181+	Bridge Course in Mathematics	Mandatory for Students from Non Mathematics background	2	0	0	Pass Grade	------	------
	Total Credits				**26**			**800**

+ **Non Credit subject mandatory for the students who do not have mathematics in 12th Std. The student has to obtain at least 40 marks. The examination of this paper shall be conducted by the concerned teacher teaching the course / paper as Teacher's Continuous Evaluation for total 100 marks. Only the pass or fail status is to be specified on the marksheet of examination and the result of the student. Passing in this paper is mandatory for the student.**

 # Generic Elective (GE) for other undergraduate programmes

TOTAL MARKS: 800

SECOND SEMESTER EXAMINATION

Code No.	Paper	Course Category	L	T/P	Credits	Marks Internal	Marks External	Max Marks
Core Course Theory								
BCA 102	Applied Mathematics	Core Course Theory	3	1	4	25	75	100
BCA 104	Web based Programming	Core Course Theory	3	1	4	25	75	100
BCA 106	Data Structure And Algorithm Using 'C'	Core Course Theory	3	1	4	25	75	100
BCA 108#	Database Management System	Core Course Theory	3	1	4	25	75	100
Ability Enhancement Compulsory Course (AECC)								
BCA 110	Environment Studies	AECC	2	0	2	25	75	100
*Skill Enhancement Course (AEEC) (Choose any One)								
BCA 132	**MOOC course from SWAYAM / NPTEL	SEC-1	0	0	2	100	0	100
BCA 134	Front End Design Tool VB.Net Lab	SEC-1	0	4	2	100	0	100
BCA 136	Statistical Analysis using Excel	SEC-1	0	4	2	100	0	100
BCA 138	Designing Lab Photoshop	SEC-1	0	4	2	100	0	100
Core Course Practical								
BCA 172	Practical-IV WBP Lab	Core Course Practical	0	4	2	40	60	100
BCA 174	Practical – V DS Lab	Core Course Practical	0	4	2	40	60	100
BCA 176#	Practical – VI DBMS Lab	Core Course Practical	0	4	2	40	60	100
	Total				**26**			**900**

NUES (Non – University Examination Subject) – Only Internal Assessment by the Institute)

 # Generic Elective (GE) for other undergraduate programmes

TOTAL MARKS: 900

**Instructions for MOOC course
1.　　MOOC Course should be done from SWAYAM/NPTEL as per the guidelines of UGC.
2.　　For securing the credits, the student is required to complete the assessment of the course and to provide the certificate of the course done from SWAYAM/NPTEL.
3.　　The fees (if any) for the registration and/or assessment of the MOOC course must be borne by the student only.
4.　　If the student secures more than 2 credits for the MOOC Course even then 2 credits shall be considered for this subject and the grade/marks provided by assessing authority shall be transferred to the university by the institution where the student is studying. The result of the MOOC courses shall be taken on record by the University's Examination Division and a result declared for these papers. The student must submit the result of such papers to their respective institutions. All results for the MOOC's course may be submitted before the completion of other requirements including credit requirements.

THIRD SEMESTER EXAMINATION

Code No.	Paper	Course Type	L	T/P	Credits	Marks Internal (T/P)	Marks External		Max Marks (T/P)
							Th	Pr	
Core Course Theory									
BCA 201	Computer Network	Core Course Theory	3	1	4	25	75	0	100
BCA 203	Computer Organization and Architecture	Core Course Theory	3	1	4	25	75	0	100
BCA 205#	Object Oriented Programming with C++	Core Course Theory	3	1	4	25	75	0	100
Ability Enhancement Compulsory Course (AECC) - Theory									
BCA-207	Human Values and Ethics	AECC	2	0	2	25	75	0	100/100
***Discipline Specific Elective (Choose any One) (Theory/Practical)**									
BCAT 211T#	Basics of Python Programming	DSE-1	4	0	4	25	75	0	100
BCAP 211#	Basics of Python Programming Lab	DSE-1	0	2	1	40	0	60	100
BCAT 213	Cyber Security	DSE-1	4	0	4	25	75	0	100
BCAP 213	Cyber Security Lab.	DSE-1	0	2	1	40	0	60	100
****Generic Elective (Choose any One) (Theory/Practical)**									
BCA 221	Principles of Management & Organizational Behaviour	GE-1	3	1	4	25	75	0	100
BCA 223	Open Elective offered by other Department/School /programme	GE-1	3	1	4	25	75	0	100
*****Skill Enhancement Course (AEEC) (Choose any One)**									
BCA 231	****MOOC course from SWAYAM / NPTEL	SEC-2	0	0	2	100	0	0	100
BCA 233	Designing Lab CorelDraw	SEC-2	0	4	2	100	0	0	100
BCA 235	ASP.Net	SEC-2	0	4	2	100	0	0	100
BCA 237	AR/VR	SEC-2	0	4	2	100	0	0	100
BCA 239	Cyber Ethics	SEC-2	2	0	2	100	0	0	100
Core Course Practical									
BCA 271#	Practical – VII C++ Lab #	Core Course Practical	0	4	2	40	0	60	100
	Total				**27**				**800**

Generic Elective (GE) for other undergraduate programmes
* First Subject from Discipline specific chosen group
** Choose one subject from list of GE-1
*** NUES (Non – University Examination Subject) – Only Internal Assessment by the Institute), that is the assessment shall be   conducted by the institution for all 100 marks as Teacher's Continuous Assessment.

*Instructions for MOOC course
1. MOOC Course should be done from SWAYAM/NPTEL as per the guidelines of UGC.
2. For securing the credits, the student is required to complete the assessment of the course and to provide the certificate of the course done from SWAYAM/NPTEL.
3. The fees (if any) for the registration and/or assessment of the MOOC course must be borne by the student only.
4. If the student secures more than 2 credits for the MOOC Course even then 2 credits shall be considered for this subject and the grade/marks provided by assessing authority shall be transferred to the university by the institution where the student is studying. The result of the MOOC courses shall be taken on record by the University's Examination Division and a result declared for these papers. The student must submit the result of such papers to their respective institutions. All results for the MOOC's course may be submitted before the completion of other requirements including credit requirements.
5.   If the student secures more than 2 credits for the MOOC Course even then 2 credits shall be considered for this subject and the grade/marks provided by assessing authority shall be transferred to the university.

 TOTAL MARKS: 800

FOURTH SEMESTER EXAMINATION

Code No.	Paper	Course Type	L	T/P	Credits	Marks Internal	Marks External		Max Marks
							Th	Pr	
Core Course Theory									
BCA 202	Java Programming	Core Course Theory	3	1	4	25	75	0	100
BCA 204	Software Engineering	Core Course Theory	3	1	4	25	75	0	100
Ability Enhancement Compulsory Course (AECC)									
BCA 206	Introduction to Management & Entrepreneurship Development	AECC	3	1	4	25	75	0	100
***Discipline Specific Elective (Choose any One)**									
BCAT 212	Introduction to Data Science	DSE-2	4	0	4	25	75	0	100
BCAP 212	Introduction to Data ScienceLab.	DSE-2	0	2	1	40	0	60	100
BCAT 214	Introduction to Artificial Intelligence	DSE-2	4	0	4	25	75	0	100
BCAP 214	Introduction to Artificial Intelligence Lab.	DSE-2	0	2	1	40	0	60	100
BCAT 216	Network Security	DSE-2	4	0	4	25	75	0	100
BCAP 216	Network Security Lab.	DSE-2	0	2	1	40	0	60	100
BCAT 218	Web Development with Python and Django	DSE-2	4	0	4	25	75	0	100
BCAP 218	Web Development with Python and Django Lab.	DSE-2	0	2	1	40	0	60	100
****Generic Elective (Choose any One)**									
BCA 222	Digital Marketing	GE-2	3	1	4	25	75	0	100
BCA 224	Principles of Accounting	GE-2	3	1	4	25	75	0	100
BCA 226	Open Elective offered by other Department/ School /programme	GE-2	3	1	4	25	75	0	100
*****Skill Enhancement Course (AEEC)**									
BCA 232	Personality Development Skills	SEC-3	2	0	2	100	0	0	100
Core Course Practical									
BCA 272	Practical –XII Java Lab	Core Course Practical	0	4	2	40	0	60	100
BCA 274	Practical – IX SE Lab	Core Course Practical	0	4	2	40	0	60	100
	Total				**27**				**800**

*Second Subject from Discipline specific chosen group

**Choose one subject from list of GE-2

*** NUES (Non – University Examination Subject) – Only Internal Assessment by the Institute), that is the assessment shall be conducted by the institution for all 100 marks as Teacher's Continuous Assessment.

Summer Training will be held for 4 weeks after the end of fourth semester.
Viva-Voce will be conducted in fifth semester.
TOTAL MARKS: 800

Applicable from Batch Admitted in Academic Session 2021-22 Onwards

FIFTH SEMESTER EXAMINATION

Code No.	Paper	Course Type	L	T/P	Credits	Marks Internal	Marks External Th	Marks External Pr	Max Marks
Core Course Theory									
BCA 301	Operating System & Linux Programming	Core Course Theory	3	1	4	25	75	0	100
BCA 303	Computer Graphics	Core Course Theory	3	1	4	25	75	0	100
BCA 305	Cloud Computing	Core Course Theory	3	1	4	25	75	0	100
Ability Enhancement Compulsory Course (AECC)									
BCA 307	Minor Project	AECC	0	8	4	40	0	60	100
*Discipline Specific Elective (Choose any One)									
BCAT 311	Data Visualization & Analytics	DSE-3	4	0	4	25	75	0	100
BCAP 311	Data Visualization & Analytics Lab.	DSE-3	0	2	1	40	0	60	100
BCAT 313	Machine Learning with Python	DSE-3	4	0	4	25	75	0	100
BCAP 313	Machine Learning with Python Lab.	DSE-3	0	2	1	40	0	60	100
BCAT 315	Web Security	DSE-3	4	0	4	25	75	0	100
BCAP 315	Web Security Lab.	DSE-3	0	2	1	40	0	60	100
BCAT 317	Web Development with Java & JSP	DSE-3	4	0	4	25	75	0	100
BCAP 317	Web Development with Java & JSP Lab.	DSE-3	0	2	1	40	0	60	100
Skill Enhancement Course (AEEC)									
BCA 331	**Summer Training Project	SEC-4	0	0	2	100	0	0	100
Core Course Practical									
BCA 371	Practical – X Linux - OS Lab	Core Course Practical	0	4	2	40	0	60	100
BCA 373	Practical – XI CG Lab	Core Course Practical	0	4	2	40	0	60	100
	Total				**27**				**800**

* Third Subject from Discipline specific chosen group

** NUES (Non – University Examination Subject) – Only Internal Assessment by the Institute), that is the assessment shall be conducted by the institution for all 100 marks as Teacher's Continuous Assessment.

TOTAL MARKS: 800

Code No.	Paper	Course Type	L	T/P	Credits	Marks Internal	Marks External		Max Marks
							Th	Pr	
Core Course Theory									
BCA 302	Data Ware Housing & Data Mining	Core Course Theory	3	1	4	25	75	0	100
BCA 304#	E- Commerce	Core Course Theory	3	1	4	25	75	0	100
BCA 306	Internet of Things	Core Course Theory	3	1	4	25	75	0	100
Ability Enhancement Compulsory Course (AECC)									
BCA 308	***Major Project	AECC	----	12	6	40	0	60	100
*Discipline Specific Elective (Choose any One)									
BCAT 312	Machine Learning with Python	DSE-4	4	0	4	25	75	0	100
BCAP 312	Machine Learning with Python Lab.	DSE-4	0	2	1	40	0	60	100
BCAT 314	Deep Learning with Python	DSE-4	4	0	4	25	75	0	100
BCAP 314	Deep Learning with Python Lab.	DSE-4	0	2	1	40	0	60	100
BCA 316	IT Act and Cyber Laws	DSE-4	4	1	5	25	75	-	100
BCAT 318	Mobile Application Development	DSE-4	4	0	4	25	75	0	100
BCAP 318	Mobile Application Development Lab.	DSE-4	0	2	1	40	0	60	100
**Skill Enhancement Course (AEEC)									
BCA 332	Seminar/ Conference Presentation	SEC – 5	0	0	2	100	0	0	100
Core Course Practical									
BCA 372	Practical – XII IOT Lab	Core Course Practical	0	4	2	40	0	60	100
BCA374	NSS / NCC / Cultural clubs / Technical Society / Technical club$	Mandatory	-	-	2	100	0	0	100
	Total				**29**				**800**

Fourth Subject from Discipline specific chosen group

** NUES (Non – University Examination Subject) – Only Internal Assessment by the Institute), that is the assessment shall be conducted by the institution for all 100 marks as Teacher's Continuous Assessment.

Evaluation will be based on the presentation on any latest technology/research article in in-house/external seminar/conference and will be conducted by the college committee only.

*** The student shall do the Major project in the Discipline Specific Area/Curriculum based subject /any emerging technology.

 # Generic Elective (GE) for other undergraduate programmes

NUES : Comprehensive evaluation of the students by the concerned coordinator of NCC / NSS / Cultural Clubs / Technical Society / Technical Clubs, out of 100 as per the evaluation schemes worked out by these activity societies, organizations at the institution / University level; the co-ordinators shall be responsible for the evaluation of the same. These activities shall start from the 1st semester and the evaluation shall be conducted at the end of the 6th semester for students admitted in the first semester.

Note: Any Elective Subject will be offered if minimum 1/3 rd of the total strength of students in the class will opt for it.