SCHOOL OF ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Ref. No. PU/SOE/CSE/BOS-09/2018-19/CIR01   Date: 7th April, 2019

9th BOS Meeting Notice

The 9th Board of Studies (BOS) meeting of Department of Computer Science and Engineering is scheduled on Saturday, 4th May 2019 at 11.00 AM in the Presidency University campus. You are hereby requested to attend the meeting.

Agenda:

CSE 9.1 Approval of the Minutes of 8th BOS meeting.
CSE 9.2 Action Taken Report.
CSE 9.3 Approval of regulations and curriculum of the following M.Tech programs
- M.Tech in Data Science
- M.Tech in Artificial Intelligence.

CSE 9.4 Approval of introduction of the following two new elective courses
- Robotic Process Automation (RPA)
- Agile Technology.

CSE 9.5 Approval of program regulations and curriculum of the four year B.Tech program 2019-23.

CSE 9.6 Approval of the syllabi of 2018-22 for the following four year B.Tech programs
- B.Tech in Computer Engineering (COM)
- B.Tech in Computer and Communication Engineering (CCE)
- B.Tech in Information Science and Engineering (ISE)
- B.Tech in Information Science and Technology (IST).

CSE 9.7 Approval of modification in the program structure of the four year B.Tech program 2016-20, 2017-21, 2018-22.
CSE 9.8 Modification of credit structures of selective courses from 0-0-6 to 1-0-4.
CSE 9.9 Approval of list of examiners.
CSE 9.10 Approval of NPTEL courses to be offered as Discipline/Open electives.
CSE 9.11 Any other matter with the permission of the chair.

Chairperson
BOS-CSE Committee

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Copy to:

- Pro-Chancellor, PU
- Registrar, PU
- Dean-SoE, PU
- Members of the BOS-PET Committee:

- Vice-Chancellor, PU
- Pro-Vice-chancellor, PU
- Dean-Academics, PU

1.	Dr. C. Kalaiarasan	9.	Dr. Shreyas Suresh Rao
2.	Dr. D.C. Kiran	10.	Ms. Venu Sangwan
3.	Dr. N. Mehala	11	Mr. Swastik Sahoo
4.	Dr. J. Alamelu Mangai	12	Dr. N.K. Srinath, Dean Academics, RVCE
5	Dr. R. Mahalakshmi	13	Dr. H.S. Guruprasad, Prof., BMSCE
6	Dr. G.Shanmugarathinam	14	Mr. Sadashiv Bolanthur, M/s. Inforeach Tech.
7	Dr Ramesh V	15	Dr. Rajanikanth, Former Principal, MSRIT
8	Mr. Tapas Guha		

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

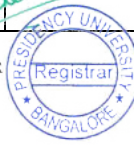Ref. No.: PU/SOE/CSE/BOS-09/2018-19/MOM-01   Date: 4th May, 2019

Minutes of the 9th Meeting of Board of Studies (Computer Science and Engineering – BOS – CSE)

The 9th meeting of Board of Studies (BOS) of the Computer Science and Engineering is held today on 4th May, 2019 at 11.00 AM in Room No. MG 04.

The following members were present:

S. No.	Name	Designation with Affiliation	Status
1	Dr. K.G. Mohan	Professor & Head, CSE, Presidency University	Chairman
2	Dr. K. Rajanikanth	Former Principal, M.S.R.I.T, Bangalore	Special Invitee
3	Dr. C. Kalaiarasan	Associate Dean & Professor, CSE, Presidency University	Member
4	Dr. D.C. Kiran	Associate Professor, CSE, Presidency University	Member
5	Dr. N. Mehala	Associate Professor, CSE, Presidency University	Member
6	Dr. J. Alamelu Mangai	Associate Professor, CSE, Presidency University	Member
7	Dr. R. Mahalakshmi	Associate Professor, CSE, Presidency University	Member
8	Dr. G.Shanmugarathinam	Associate Professor, CSE, Presidency University	Member
9	Dr Ramesh V	Associate Professor, CSE, Presidency University	Member
10	Dr. Shreyas Suresh Rao	Assistant Professor, CSE, Presidency University	Member
11	Ms. Venu Sangwan	Assistant Professor, CSE, Presidency University	Member
12	Mr. Swastik Sahoo	Assistant Professor, ECE, Presidency University	Member
13	Mr. Tapas Guha	Assistant Professor, CSE, Presidency University	Member Secretary

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The following members are given leave of absence:

Sr. No.	Name	Designation	Status
1	Mr. Sadashiv Bolanthur	Director & Principal Consultant, MS Info Reach Technologies, Bengaluru.	External Member
2	Dr. N.K. Srinath	Dean Academics, RVCE	External Member
3	Dr. H.S. Guruprasad	Prof. and Dean- Student Affairs, ISE, BMSCE Bengaluru.	External Member

The Chairman welcomed the Members and called the meeting to order.

Agenda CSE 9.1: Approval of 8th BoS meeting Minutes.

The minutes of the 8th meeting of the Board of Studies of Computer Science and Engineering held on 12th January 2019 was placed before the members and the same was unanimously approved.

Agenda CSE 9.2: Action Taken Report.

The Action taken report on the previous minutes was presented by the Chairperson. The same was noted and taken on record (**Annexure CSE 9.1**).

Agenda CSE 9.3: Approval of program regulations and curriculum of the following M.Tech programs
- **M.Tech in Data Science**
- **M.Tech in Artificial Intelligence**

The details of the program regulations and curriculum were presented before the members. The members discussed the same at length

Resolution: Resolved that the program regulations and curriculum of the two M.Tech programs, namely M.Tech (Data Science) and M.Tech (Artificial Intelligence) are approved with the following suggestions.

-M.Tech in Data Science:
-

1. In the course 'Advanced Mathematics', more advanced topics and concepts should be included. It should cover optimization techniques up to certain depth. The book 'Optimization by Vector Space Methods, David G. Luenberger (1969) John Wiley & Sons (NY)' should be a Text book rather than a reference book.

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2. The course 'Advanced Programming in Python' (MDS 252) should be renamed to "Programming for Data Science". In the course content, 'Introduction to Python' should be changed to 'Review of Python' More packages related Data Science and analysis should be included.

3. The elective course 'Information Retrieval' (MAI 304) should have the credit structure 3-0-2 (4 credits) and not 3-0-0 structure.

4. In the course 'Advanced Analytics and Visualization' (MDS 255), the book 'Tom Mitchell, "Machine Learning", Latest Edition, McGraw Hill' has been prescribed as Textbook 1. This book does not cover Visualization. This has to be relooked and appropriate Text Book should be prescribed and followed.

-M.Tech in Artificial Intelligence:

1. Instead of the course 'Parallel Programs and their Performance' (MAI 204), a course on 'Natural Language Processing' should be introduced.

2. Move "Parallel Programming for AI" course into electives.

3. The title for the course 'AI and Neural Networks' should be changed to 'Deep Neural Networks'.

4. The course 'Image Processing and Machine Vision' (MAI 206) should be renamed as 'Machine Vision'.

5. The course 'Information Theory' should be removed from elective list.

The suggestions given by the members are considered and the updates are shown in the **(Annexure CSE 9.2 and Annexure CSE 9.3)**.
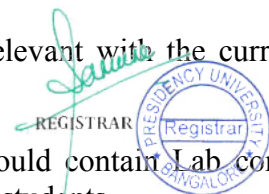
Agenda CSE 9.4: Approval of introduction of the following two new elective courses

- **Robotic Process Automation (RPA)**
- **Agile Technology**

The members were presented with the course descriptions and outline of the two proposed elective courses, Robotic Process Automation (RPA) **(Annexure CSE 9.4)** and Agile Technology **(Annexure CSE 9.5)**.

Resolution: Resolved that the two proposed elective courses are relevant with the current industry trend and the same is approved with the following suggestions.

- The elective course Robotic Process Automation (RPA) should contain Lab components in order to provide some practical exposure of automation to the students.

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- In the elective course "Agile Technology", in some module towards the end 'Agile Testing' should be included.

Agenda CSE 9.5: Approval of changes in program regulation and curriculum of the four year B.Tech program 2019-23.

The members were presented with the details of the modifications in program regulation and curriculum.

Resolution: Resolved that the same is approved (**Annexure CSE 9.6**).

Agenda CSE 9.6: Approval of the revised curriculum of 2018-22 for the following four year B.Tech programs

- **B.Tech in Computer Engineering (COM)**
- **B.Tech in Computer and Communication Engineering (CCE)**
- **B.Tech in Information Science and Engineering (ISE)**
- **B.Tech in Information Science and Technology (IST).**

The members were presented with the revised curriculum of the four B.Tech programs.
Resolution: The revised curriculum for the four B.Tech programs were unanimously approved by the members with the following suggestions.

- B.Tech in Computer Engineering (COM):
-
    For the fourth semester course 'Database Management Systems' (CSE 207), MongoDB and NoSQL should be included in the course content. This may be applied to the other programs of Computer Science and Engineering department.

- B.Tech in Computer and Communication Engineering (CCE):
-
    1. For the course 'Principles of Data Communication and Computer Networks' (CCE 201), top down approach in networking may be considered instead of bottom up approach.

    2. The course 'Client Server Computing' (CCE 203) can be made a 3 credit course.

- B.Tech in Information Science and Engineering (ISE)

    The course 'Machine Learning with Python' (ISE 252) should be renamed to 'Machine Learning'.

- B.Tech in Information Science and Technology (IST)

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The content of the course 'Web Science' (IST 205) should be relooked and modified.

The suggestions made are accepted and shown in the **Annexure CSE 9.7, Annexure CSE 9.8, Annexure CSE 9.9 and Annexure CSE 9.10**.

-

CSE 9.7 Approval of modification in the program structure of the four year B.Tech program 2016-20, 2017-21, 2018-22.

The members were presented with the details of the modifications in program structure of the four year B.Tech programs.

Resolution: Resolved that the same is approved with the following suggestion (**Annexure CSE 9.11)**.

- For the upcoming batches, in the course 'Theory of Computation' (CSE 208), use of JFLAP simulator can be introduced to facilitate the students to visualize the theoretical concepts.

CSE 9.8 Modification of credit structures of selected courses from 0-0-6 to 1-0-4.

The modifications in the credit structures of the following courses were presented before the members.

Course Code	Course Name	Existing Credit structure	Proposed Credit structure
CSE 220	Internet of Things	2-0-2	1-0-4
CSE 219	Big Data Analytics	2-0-2	1-0-4
CSE 317	Programming in Python	0-0-6	1-0-4
CSE 301	Programming in Advanced Java	0-0-6	1-0-4
CSE 302	Programming in C# and .NET framework	0-0-6	1-0-4
CSE 303	LAMP	0-0-6	1-0-4
CSE 310	Mobile Application Development	0-0-6	1-0-4
CSE 311	Web Services	0-0-6	1-0-4
CSE 204	Object Oriented Programming	0-0-6	1-0-4
CSE 256	Internet Technologies	0-0-6	1-0-4

Resolution: For CSE 202 and CSE 219, retaining the same total credit, it is accepted to increase the lab hours and the structure should be 1-0-4. For the remaining courses listed above, to include the classroom teaching to provide the required theoretical foundation, it is accepted to include one theory hour and the structure should be 1-0-4.

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CSE 9.9 Approval of list of examiners.

List of examiners were presented before the committee.

Resolution: The same was unanimously approved (**Annexure CSE 9.12**).

CSE 9.10 Approval of NPTEL courses to be offered as Discipline/Open electives.

The following twelve week courses of NPTEL are identified from the list of courses offered during July 2019 to December 2019. These courses are approved for consideration as Disciplined/ Open electives.
The courses are as follows:

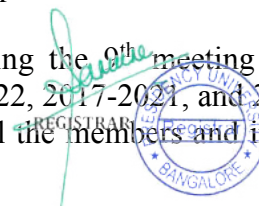| Course Code	Course Name	Duration
NOC19-CS53	Introduction to Machine Learning	12 weeks
NOC19-CS58	Computer Vision	12 weeks
NOC19-CS66	Social Networks	12 weeks
NOC19-CS68	Ethical Hacking	12 weeks
NOC19-CS82	Machine Learning for Engineering and Science Applications	12 weeks

CSE 9.11 Any other matter with the permission of the chair.

It was suggested by the External member to include courses related to Project Management and Finance common to all the Engineering Program.

As BOS meetings for all the departments are taking place simultaneously in different venues today, the Chairman has requested approval from the committee to incorporate modifications / alterations, if any, approved by the BOS committee of other departments for the existing courses offered in Computer Science and Engineering by other departments. The BOS Committee for Computer Science and Engineering has approved the proposal unanimously.

The BOS Committee authorizes the Chairperson of the BOS to formulate a sub-committee for making any modifications required in the program curriculum and seek the approval in the next meeting.

The BOS Chairperson has conveyed that the decisions taken during the 9th meeting of BOS for Computer Science and Engineering will be implemented for 2018-2022, 2017-2021, and 2016-2020 as early as possible wherever applicable. He has conveyed thanks to all the members and informed that the date of next BOS meeting will be notified soon.

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The meeting ended with Vote of Thanks to the Chair.

BOS Committee:

S. No.	Name	Position	Signature with date
1	Dr. K.G. Mohan	Chairman	
2	Dr. K. Rajanikanth	Special Invitee	
3	Dr. C. Kalaiarasan	Internal Member	
4	Dr. D.C. Kiran	Internal Member	
5	Dr. N. Mehala	Internal Member	
6	Dr. J. Alamelu Mangai	Internal Member	
7	Dr. R. Mahalakshmi	Internal Member	
8	Dr. G.Shanmugarathinam	Internal Member	
9	Dr Ramesh V	Internal Member	
10	Dr. Shreyas Suresh Rao	Internal Member	
11	Ms. Venu Sangwan	Internal Member	
12	Mr. Swastik Sahoo	Internal Member	
13	Mr. Tapas Guha	Member Secretary	

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<u>**Annexure CSE 9.1**</u>

8TH BOS MEETING

ACTION TAKEN REPORT

The Board of Studies (BOS) 8th meeting of Department of Computer Science Engineering was conducted on 12th January '2019 (Saturday) at 10.00 AM in the university campus. Following actions were taken with respect to the agenda mentioned in the circular REF. No. PU/SOE/CSE/BOS-08/2018-19/CIR01

<u>**Agenda**</u>**:**

CSE 8.1 Approval of the Minutes of 7th BOS meeting.

   This was approved by the members.

CSE 8.2 Approval of minor edits made in the program structure and curriculum of 2018-22, 2017-21, 2016-20 and 2015-19.

   The committee approved the suggested minor changes.

CSE 8.3 Change of course title: Data Mining and Warehouse (CSE 307) to Data Mining.

   Change in course title was approved and implemented.

CSE 8.4 Change of textbook in Data Mining and Warehouse (CSE 307).

   The committee approved the suggested minor changes. Same was implemented.

CSE 8.5 Change of evaluation component for the course Principles of Programming Language (CSE 214).

   This was approved and will be implemented in the upcoming semester.

CSE 8.6 Move the course Graph Theory and Combinatorics (CSE 209) from V semester to VI Semester.

   The committee approved the suggested minor changes. Same to be implemented from academic Year 2019-2020.

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CSE 8.7 Change of textbook in Big Data Analytics (CSE 219).

This was approved and implemented.

CSE 8.8 Inclusion of additional elective courses.

Approved and implemented.

CSE 8.9 Approval of Program Structure of 4 B.Tech programs (COM, CCE, ISE and IST).

This was approved by the members.

CSE 8.10 Approval of Program Structure of 2 new Postgraduate programs.

This was approved by the members and will be implemented from 2019-2020.

CSE 8.11 Approval of Program: Integrated B.Tech program (Data Science and Business Intelligence).

The course was approved by the members. Preparation of the corresponding program regulations and program structure is under progress by the SOM and SOE.

CSE 8.12 Any other matter with the permission of the Chair.

As per the recommendation of the committee, the course titled "Software Engineering" is renamed as "Software Engineering and Project Management". The same change is incorporated in the program structure of 2017-2021, 2018-2022, 2019-2023 and all the four specialized programme of CSE.

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Annexure CSE 9.2

PROGRAM STRUCTURE FOR M.TECH IN DATA SCIENCE
SEMESTER I

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1.		Advanced Mathematics	3	0	0	3
2.		Research Methodology	3	0	0	3
3.		Data Mining	3	0	2	4
4.		Artificial Intelligence	4	0	0	4
5.		Programming for Data Science	2	0	4	4
6.		Systems for Data Analytics	4	0	0	4
7.		Seminar – I	0	0	0	1
		Total	**19**	**0**	**6**	**23**

SEMESTER II

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1.		Probabilistic Graph Models	3	0	0	3
2.		Information Retrieval	3	0	2	4
3.		Data Science with Cloud Computing	3	0	2	4
4.		Machine Learning and Advanced Algorithms	2	0	4	4
5.		Discipline Elective-I	3	0	0	3
6.		Open Elective-I	3	0	0	3
7.		Seminar – II	0	0	0	1
		Total	**17**	**0**	**8**	**22**

SEMESTER III

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1.		Advanced Analytics and Visualization	2	0	4	4
2.		Discipline Elective-2	3	0	0	3
3.		Discipline Elective-3	3	0	0	3
4.		Open Elective-2	3	0	0	3

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SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
5.		Project Phase-I	0	0	0	5
		Total	**11**	**0**	**4**	**18**

SEMESTER IV

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1.		Project Phase-II	0	0	0	15
		Total	**0**	**0**	**0**	**15**

Total Credits = 78

Semester-II (Elective Courses)

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1.		Blockchain Technology (DE-1)	3	0	0	3
2.		Data Warehousing (DE-1)	3	0	0	3
3.		Ethics for Data Science (DE-1)	3	0	0	3
4.		Bio statistics (DE-1)	3	0	0	3
5.		Evolutionary computing(DE 1)	3	0	0	3
6.		Information Theory (OE-1)	3	0	0	3
7.		Soft computing (OE1)	3	0	0	3

Semester-III (Elective Courses)

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1.		Real-time Analytics (DE-2)	3	0	0	3
2.		AI and Neural Networks (DE-2)	3	0	0	3
3.		Machine Vision (DE-2)	3	0	0	3
4.		Big Data Computing (DE-3)	3	0	0	3
5.		Business Intelligence (DE-3)	3	0	0	3
6.		Deep Learning (OE-2)	3	0	0	3
7.		Human Computer Interaction (OE-2)	3	0	0	3
8.		Time Series Analysis and Forecasting (OE-2)	3	0	0	3
9.		IOT Analytics (OE-2)	3	0	0	3
10.		Cognitive Computing (OE-2)	3	0	0	3
11.		Social Semantic Web (OE-2)	3	0	0	3

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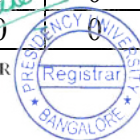
Annexure CSE 9.3

PROGRAM STRUCTURE FOR M.TECH CSE WITH SPECIALIZATION ARTIFICIAL INTELLIGENCE

SEMESTER I

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1		Advanced Mathematics	3	0	0	3
2		Research Methodology	3	0	0	3
3		Introduction to Knowledge Engineering	4	0	0	4
4		Advanced Programming in Python	2	0	4	4
5		Automated Reasoning and Verification	4	0	0	4
6		Natural Language Processing	4	0	0	4
7		Seminar – I	0	0	0	1
		Total	**20**	**0**	**4**	**23**

SEMESTER II

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1.		Probabilistic Graph Models	3	0	0	3
2.		Agent based Intelligent Systems	4	0	0	4
3.		Machine Learning	2	0	4	4
4.		Deep Neural Networks	3	0	2	4
5.		Discipline Elective-I	3	0	0	3
6.		Open Elective-I	3	0	0	3
7.		Seminar – II	0	0	0	1
		Total	**18**	**0**	**5**	**22**

SEMESTER III

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1.		Machine Vision	3	0	2	4
2.		Discipline Elective-2	3	0	0	3

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SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
3.		Discipline Elective-3	3	0	0	3
4.		Open Elective-2	3	0	0	3
5.		Project Phase-I	0	0	0	5
		Total	**12**	**0**	**2**	**18**

SEMESTER IV

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1.		Project Phase-II	0	0	0	15
		Total	**0**	**0**	**0**	**15**

Total Credits = 78

Semester-II (Elective Courses)

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1.		Introduction to Robotics (DE-1)	3	0	0	3
2.		Evolutionary Computing (DE-1)	3	0	0	3
3.		Introduction to Health Informatics (DE-1)	3	0	0	3
4.		Information Retrieval (DE-1)	3	0	0	3
5.		Soft Computing (OE-1)	3	0	0	3
6.		Pattern Recognition (OE-1)	3	0	0	3

Semester-III (Elective Courses)

SL. No.	COURSE CODE	COURSE TITLE	L	T	P	C
1.		AI and Cloud Computing (DE-2)	3	0	0	3
2.		AI & Internet of Things (DE-2)	3	0	0	3
3.		Cognitive Computing (DE-2)	3	0	0	3
4.		Ontology Engineering for the Semantic Web (DE-3)	3	0	0	3
5.		Biometric Processing (DE-3)	3	0	0	3
6.		Parallel Processing for AI (DE-3)				
7.		Intrusion Detection Systems (DE-3)	3	0	0	3
8.		Expert Systems (DE-3)	3	0	0	3
9.		Human Computer Interaction (OE-2)	3	0	0	3
10.		Nano Robotics (OE-2)	3	0	0	3
11.		Robotic Process Automation (OE-2)	3	0	0	3
12.		Game Theory (OE-2)	3	0	0	3

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13.		Time Series Analysis and Forecasting (OE-2)	3	0	0	3

Annexure CSE 9.4

Course Name:	Robotic Process Automation					
Course Code:		Credit	L	T	P	C
		Structure	3	0	0	0

Course Description:

Robotic Process Automation (RPA) enables automating business processes using software robots. Software robots interpret, trigger responses, and communicate with other systems just like humans do. Robotic processes and intelligent automation tools can help businesses improve the effectiveness of services faster and at a lower cost than current methods. *Robotic Process Automation* (*RPA*) is an advanced technology that automates huge quantities of redundant tasks by applying artificial intelligence (AI). *RPA* can be used for *processing* transactions, manipulating data, triggering responses and communicating with other digital systems.

Topics include: Introduction Robotic Process Automation, UiPath programming techniques to deploy robot configurations, data extraction techniques, Debug a programmed robot including logging and exception handling, Maintain code version and source control, Record and Play, Data Manipulation, Taking Control of the Controls, Handling User Events and Assistant Bots, Exception Handling, Debugging, and Logging, Managing and Maintaining the Code, Deploying and Maintaining the Bot.

Text Book(s):

1. Alok Mani Tripathi, "Learning Robotic Process Automation", Packt Publishing.(2018)
2. Richard Murdoch, "Robotic Process Automation: Guide To Building Software Robots, Automate Repetitive Tasks & Become An RPA Consultant".

Reference(s):

1. Frank Casale, Rebecca Dilla, Heidi Jaynes, Lauren Livingston, "Introduction to Robotic Process Automation: a Primer", Kindle Edition.
2. Srikanth Merianda, "Robotic Process Automation Tools, Process Automation and their benefits: Understanding RPA and Intelligent Automation, Kindle Edition.

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Annexure CSE 9.5

Course Name:	Agile Technology				
Course Code:	**CSE XXX**	**L**	**T**	**P**	**C**
		3	**0**	**0**	**3**

Course Description

The course will address what agile methods are, how they are implemented, and their impact on software engineering. A variety of agile methods will be described, but the focus will be on XP (Extreme Programming) and Scrum models. Issues associated with planning and controlling agile projects, along with the implications of empowered teams on the customer-supplier dynamic, will give a fuller picture of how the agile practices are realized. The course will conclude with a discussion of agile testing and some of the issues facing organizations adopting agile methods.

Topics include: Introduction to Agile technology, Big Picture of Agile Requirements, User Stories, Agile Estimating and Velocity, Understanding XP, XP Lifecycle, Adopting XP, Pair Programming, Collaborating with XP, Version Control, SCRUM Model, SPRINT, Role of Scrum Master, SCRUM Metrics, Staffing and Metrics, Test-driven development, testing tools.

Text book(s):

1. James Shore and Shane Warden, "*The Art of Agile Development*", O'Reilly Publisher, 2008.
2. Kenneth S. Rubin, "Essential SCRUM – A Practical Guide to the most popular Agile Process", Addison Wesley, 2013.

Reference Book(s):

1. Dean Leffingwell, "*Agile Software Requirements: Lean Requirements Practices for Teams, Programs, and the Enterprise*", Addison-Wesley Professional; 1st edition, 2011.
2. Craig Larman, "*Agile and Iterative Development: A Manager's Guide*", Addison Wesley, 2004.
3. Kent Beck and Cynthia Andres, "*Extreme Programming Explained: Embrace Change*", 2nd Edition, Pearson Education, 2004.

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Annexure CSE 9.6

The components of continuous assessments, weightage for each component and the method of evaluation shall be assigned considering the nature of the Courses in terms of the pedagogy and outcomes.

1.1.1 Normally, for the Courses that have only the Lecture and Tutorial (or) Lecture Credit Structure (L-T-0) or (L-0-0), with no Practical component, the components of Continuous Assessment and the distribution of weightage among the components of continuous assessment and duration of the examination/assessment shall be as detailed in Table 2.12.1 below:

1.1.2

Table 2.12.1 Method of Assessment for Courses with Credit Structure (L-T-0)		Weightage (% of Total Marks)	Duration of Assessment
	Components of Continuous Assessments		
1.	Continuous Assessment 1: Test 1	15%	1 hour
2.	Continuous Assessment 2: Test 2	15%	1 hour
3.	Continuous Assessment 3: This component of continuous assessment shall consist of at least TWO (02) of the followings: (1) Assignment(s) (2) Quiz (3) Technical Seminar / Report (4) Attendance / Class participation (5) Assessment on self-learning topic(s), or (6) Any other type of assessment as prescribed in the concerned Course Handout.	20%	NA
4.	End Term Final Examinations	50%	3 hours
	Total	**100%**	

Note:
   (i) An additional Test 3 may be conducted as an optional test to allow for improvement. If a Test 3 is provided, then the higher marks obtained in any two tests shall be considered for evaluation.
   (ii) Normally, the End Term Final Examination shall cover the entire course coverage as prescribed in the Course Handouts.

1.1.3 Normally, for Laboratory/Practice Based Courses with a Credit Structure of (0-0-P), or

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(L-0-P), the components of Continuous Assessment and the distribution of weightage among the components of Continuous Assessment and duration of the examination/assessment shall be as detailed in Table 2.12.2 below:

Table 2.12.2 Method of Assessment for Laboratory/Practice Based Courses with Credit Structure (0-0-P) / (L-0-P)		Weightage (% of Total Marks)	Duration of Assessment
Components of Continuous Assessments			
1.	Continuous Assessment 1: Laboratory Work / Practical exercises, conducted in every Laboratory / Practice session / activity, including Laboratory records, practice / project reports, attendance / class participation as applicable, and as prescribed by the Course Handout.	30%	NA
2.	Continuous Assessment 2: Practical Test / Viva-Voce / Quiz / Practice Assignments / Presentations and other assessments as prescribed in the Course Handout.	20%	NA
3.	End Term Practical Examinations: Practical Experiment / Practice Test(s) with Viva-Voce, Jury or any other type of assessment as prescribed in the Course Handout.	50%	3 hours
	Total	**100%**	

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Annexure CSE 9.7

B.Tech in Computer Engineering: 2018-2022

S.No.	COURSE CODE	COURSE NAME	L	T	P	CREDITS	CONTACT HOURS
		III SEMESTER					
1	MAT 103	Engineering Mathematics – III	3	1	0	4	4
2	COM 201	Data Structures and Algorithms	4	0	0	4	4
3	COM 252	Fundamentals of Data Analysis	1	0	4	3	5
4	CSE 203	Discrete Mathematics	3	1	0	4	4
5	ISE251	Problem Solving using Python	1	0	4	3	5
6	IST 201	Computer Organization	3	0	0	3	3
7	COM 251	Data Structures and Algorithms Lab	0	0	2	1	2
8	PPS 107	Design Thinking And Team Building	0	0	2	1	2
		TOTAL	**15**	**2**	**12**	**23**	**29**

*Student has to register for University Learning Course in any one semester 3/4/6 to earn the mandatory credits

S.No	COURSE CODE	COURSE NAME	L	T	P	CREDITS	CONTACT HOURS
		IV SEMESTER					
1	MAT 104	Engineering Mathematics – IV	3	1	0	4	4

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2	COM 203	Introduction to Data Science	3	0	0	3	3
3	CSE 210	Operating Systems	3	0	0	3	3
4	COM204	Graph Theory	3	0	0	3	3
5	CSE 207	Database Management Systems	3	0	0	3	3
6	CSE 208	Theory of Computation	3	1	0	4	4
7	CSE 253	Database Management Systems Lab	0	0	4	2	4
8	COM 253	Data Science Lab	0	0	2	1	2
8	PPS 108	Being Corporate Ready	0	0	2	1	2
		TOTAL	18	2	8	24	28

** Note The students will undergo Professional Practice I during the summer break between the fourth and fifth semester and the credits earned will be accounted in the fifth semester.

V SEMESTER							
S. No.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	COM 205	Knowledge Discovery and Management	3	0	0	3	3
2	IST 202	Software Engineering and Project Management	3	0	0	3	3
3	ISE202	Introduction to Artificial Intelligence	3	0	0	3	3
4	COM 206	Predictive Analytics	1	0	4	3	5
5	ISE 203	Pattern Recognition	3	0	0	3	3
6	MGT113	Digital Entrepreneurship	3	0	0	3	3
7	COM 3XX	Discipline Elective-I	1	0	4	3	5
8	COM3X	Discipline Elective-II	3	0	0	3	3

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	X						
9	PP-I	Professional Practice - I **				5	
		TOTAL	**20**	**0**	**8**	**29**	**28**

*Internal Evaluation only

VI SEMESTER							
S. No.	**COURSE CODE**	**COURSE NAME**	**CREDIT STRUCTURE**				**CONTACT HOURS**
			L	**T**	**P**	**CREDITS**	
1	ISE204 208	Big Analytics	1	0	4	3	5
2	ISE 205	Soft Computing	3	0	0	3	3
3	IST203	Cloud Computing	3	0	0	3	3
4	COM 207	Information Retrieval	3	0	0	3	3
5	ISE252	Advanced Machine Learning	1	0	4	3	5
6	COM 3XX	Discipline Elective – III	3	0	0	3	3
7	COM 4XX	Open Elective-I	3	0	0	3	3
8	MGT XXX	Business Intelligence	3	0	0	3	3
9	ULC	University Learning Course *				1	
		TOTAL	**20**	**0**	**8**	**25**	**28**

VII SEMESTER							
S.No.	**COURSE CODE**	**COURSE NAME**	**CREDIT STRUCTURE**				**CONTACT HOURS**
			L	**T**	**P**	**CREDITS**	
1	COM 208	Social Media Analytics	1	0	4	3	5

2	ISE206	Introduction to Deep Learning	3	0	0	3	4
3	CSE 220	Internet of Things	1	0	4	3	5
4	COM 3XX	Discipline Elective – IV	3	0	0	3	3
5	OPE 4XX	Open Elective – II	3	0	0	3	3
		TOTAL	**11**	**0**	**8**	**15**	**20**

VIII SEMESTER							
S.No.	**COURSE CODE**	**COURSE NAME**	**CREDIT STRUCTURE**				**CONTACT HOURS**
			L	**T**	**P**	**CREDITS**	
1.	PP-II	Professional Practice- II				15	
		TOTAL	**0**	**0**	**0**	**15**	**0**

TABLE -2							
DISCIPLINE ELECTIVES							
S.NO	**COURSE CODE**	**COURSE NAME**	**L**	**T**	**P**	**CREDITS**	**CONTACT HOURS**
1	COM 301	Programming In Java	1	0	4	3	5
2	CSE 302	Programming in C# and .NET framework	1	0	4	3	5
3	CSE 303	LAMP	1	0	4	3	5
4	CSE 304	Mobile Communications	3	0	0	3	3
5	CSE 305	Parallel Computing	3	0	0	3	3
6	ISE 301	Information Theory and Coding	3	0	0	3	3
7	CSE 309	Virtualization	3	0	0	3	3
8	CSE 310	Mobile Applications Development	1	0	4	3	5

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9	CSE 311	Web Services	3	0	0	3	3
10	CSE 312	Game Theory	3	0	0	3	3
11	CSE 313	Storage Area Networks	3	0	0	3	3
12	ISC 302	Bio Informatics	3	0	0	3	3
13	CSE 315	Software Architecture	3	0	0	3	3
14	COM302	Evolutionary Computing	3	0	0	3	3
15	CSE320	Graphics Programming	1	0	4	3	5
16	ISE 304	Digital Image Processing	3	0	0	3	3

TABLE 3.2.2
OPEN ELECTIVE

S. No.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
Open Elective Courses offered by Department of Civil Engineering, SOE							
1	CIV 401	Geographical Information Systems	3	0	0	3	3
2	CIV 402	Environmental Impact Assessment	3	0	0	3	3
3	CIV 403	Sustainable Materials and Green Buildings	3	0	0	3	3
4	CIV 404	Construction Project Management	3	0	0	3	3
Open Elective Courses offered by Department of Computer and Engineering, SOE							
1	CSE 401	Image Processing	3	0	0	3	3
2	CSE 402	Data Structures Using C	3	0	0	3	3
3	CSE 403	Software Testing and Quality Assurance	3	0	0	3	3
4	CSE 404	Social Network Analytics	3	0	0	3	3
5	CSE 405	Digital and Mobile Forensics	3	0	0	3	3
6	CSE 406	Database Management Systems	3	0	0	3	3
7	CSE 407	Multimedia and Animation	3	0	3	3	4
8	COM401	Data Analytics Using R	3	0	0	3	3

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Open Elective Courses offered by Department of Electrical and Electronics Engineering, SOE

1	EEE 401	Artificial Neural Networks	3	0	0	3	3
2	EEE 405	Energy Audit	3	0	0	3	3
3	EEE 406	Research Methodology	3	0	0	3	3
4	EEE 407	Smart Grid Technology	3	0	0	3	3
5	EEE 408	Professional Ethics in Engineering	3	0	0	3	3

Open Elective Courses offered by Department of Electronics and Communication Engineering, SOE

1	ECE 401	Artificial Neural Networks	3	0	0	3	3
2	ECE 402	Biomedical Instrumentation	3	0	0	3	3
3	ECE 407	Internet of Things	3	0	0	3	3
4	ECE 408	Industrial Automation and Control	3	0	0	3	3

Open Elective Courses offered by Department of Mechanical Engineering, SOE

1	MEC 401	Automotive Vehicles	3	0	0	3	3
2	MEC 402	Nanotechnology	3	0	0	3	3
3	MEC 405	Engineering Optimisation	3	0	0	3	3
4	MEC 406	Operations Research for Engineers	3	0	0	3	3
5	MEC 407	Operations Management	3	0	0	3	3
6	MEC 408	Work Study	3	0	0	3	3
7	MEC 409	Project Management	3	0	0	3	3
8	MEC 410	Organizational Behaviour	3	0	0	3	3
9	MEC 411	Renewable Energy Systems	3	0	0	3	3

Open Elective Courses offered by Department of Petroleum Engineering, SOE

1	PET 402	Computational Methods in Chemical Engineering	3	0	0	3	3
2	PET 403	Computational Fluid Dynamics	3	0	0	3	3
3	PET 405	Petroleum Corrosion Technology	3	0	0	3	3

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4	PET 406	Polymer Technology	3	0	0	3	3
5	PET 407	Total Quality Management	3	0	0	3	3
6	PET 408	Oil and Gas Marketing and Resource Management	3	0	0	3	3
Open Elective Courses offered by Department of Basic Sciences and Humanities, SOE							
1	PSY401	Social Psychology	3	0	0	3	3
2	ENG401	Literature Appreciation	3	0	0	3	3
3	CHE 401	Composite Materials	3	0	0	3	3
4	CHE 402	Catalysis Technology	3	0	0	3	3

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Annexure CSE 9.8

B.Tech in Computer and Communication Engineering:2018-2022

III SEMESTER							
S. No	**COURSE CODE**	**COURSE NAME**	**CREDIT STRUCTURE**				**CONTACT HOURS**
			L	**T**	**P**	**Credits**	
1	MAT 103	Engineering Mathematics – III	3	1	0	4	4
2	COM 201	Data Structures and Algorithms	4	0	0	4	4
3	CSE 202	Digital Design	3	0	0	3	3
4	CSE 203	Discrete Mathematics	3	1	0	4	4

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5	CSE 204	Object Oriented Programming	1	0	4	3	5
6	IST 201	Computer Organization	3	0	0	3	3
7	COM 251	Data Structures and Algorithm Lab	0	0	2	1	2
8	CSE 252	Digital Design Lab	0	0	2	1	2
9	PPS 107	Design Thinking And Team Building	0	0	2	1	2
		TOTAL	**17**	**2**	**10**	**24**	**29**

*Student has to Register for University Learning Course in any one Semester 3/4/6 to earn the mandatory credits

IV SEMESTER							
S. No.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	Credits	
1	MAT 104	Engineering Mathematics IV	3	1	0	4	4
2	CCE 201	Principles of data communications and computer networks	3	0	0	3	3
3	CSE 210	Operating Systems	3	0	0	3	3
4	CSE 206	Microprocessor and microcontroller	3	0	0	3	3
5	CSE 207	Database Management Systems	3	0	0	3	3
6	CSE 208	Theory of Computation	3	1	0	4	4
7	CSE 253	Database Management Systems Lab	0	0	4	2	4
8	CSE 254	Microprocessor & Microcontrollers Lab	0	0	2	1	2
9	PPS 108	Being Corporate Ready	0	0	2	1	2
		TOTAL	**18**	**2**	**8**	**24**	**28**

** Note: The students will undergo Professional Practice I during the summer break between the fourth and fifth semester and the credits earned will be accounted in the fifth semester.

V SEMESTER							
S.NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	Credits	
1	CCE 203	Advanced computer networks	3	0	0	3	3

2	IST 202	Software Engineering and Project Management	3	0	0	3	3
3	ISE 202	Introduction to Artificial Intelligence	3	0	0	3	3
4	CCE 203	Client server computing	2	0	0	1	3
5	CCE 251	Network Programming Lab	0	0	2	1	3
6	CCE 252	Client server computing Lab	0	0	2	1	2
6	MGT113	Digital Entrepreneurship	3	0	0	3	3
7	CCE 3XX	Discipline Elective-I	3	0	0	3	3
8	COM3XX	Discipline Elective-II	3	0	0	3	3
9	PP-I	Professional Practice - I **				5	
		TOTAL	**20**	**0**	**4**	**26**	**26**

VI SEMESTER							
S.NO.	**COURSE CODE**	**COURSE NAME**	**CREDIT STRUCTURE**				**CONTACT HOURS**
			L	**T**	**P**	**Credits**	
1	ISE 205	Big Data Analytics	1	0	4	3	5
2	CCE 204	Cryptography and Network security	3	0	0	3	3
3	CCE 205	Wireless Communication & Mobile Computing	3	0	0	3	3
4	IST 203	Cloud Computing	3	0	0	3	3
5	IST 252	Web Technologies	1	0	4	3	5
6	CCE 3XX	Discipline Elective – III	3	0	0	3	3
7	MGT XXX	Business Intelligence	3	0	0	3	3
8	CCE 4XX	Open Elective – I	3	0	0	3	3
9	ULC	University Learning Course *				1	
		TOTAL	**20**	**0**	**8**	**25**	**28**

VII SEMESTER				
S.No.	**COURSE**	**COURSE NAME**	**CREDIT STRUCTURE**	**CONTACT**
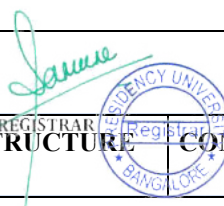
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	CODE		L	T	P	Credits	HOURS
1	CCE 206	Information Security	3	0	0	3	3
2	CCE 207	Wireless Sensor and Adhoc Networks	3	0	0	3	3
3	CSE 220	Internet of Things	1	0	4	3	5
4	CCE 3XX	Discipline Elective – IV	3	0	0	3	3
5	OPE 4XX	Open Elective – II	3	0	0	3	3
		TOTAL	13	0	4	15	17

VIII SEMESTER							
S.No.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1.	PP-II	Professional Practice- II				15	
		TOTAL	**0**	**0**	**0**	**15**	0

TABLE -2							
DISCIPLINE ELECTIVES							
S.NO	COURSE CODE	COURSE NAME	L	T	P	CREDITS	CONTACT HOURS
1	CCE 301	Programming in Advanced JAVA	0	0	6	3	6
2	CCE 302	Programming in C# and .NET framework	0	0	6	3	6
3	CCE 303	Multimedia communication	0	0	6	3	6
4	CCE 304	Distributed system	3	0	0	3	3
5	CCE 305	Parallel Computing	3	0	0	3	3
6	CCE 306	High performance computing	3	0	0	3	3
7	CCE 307	Data Mining and Warehouse	3	0	0	3	3
8	CCE 308	Firewall and Internet security	3	0	0	3	3
9	CCE 309	Virtualization	3	0	0	REGISTRAR	3
10	CCE 310	Mobile Applications Development	0	0	6	3	6

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11	CCE 311	Web Services	3	0	0	3	3
12	CCE 312	Game Theory	3	0	0	3	3
13	CCE 313	Storage Area Networks	3	0	0	3	3
14	CCE 314	Embedded Systems	3	0	0	3	3
15	CCE 315	Software Architecture	3	0	0	3	3
16	CCE 316	Advanced Computer Architecture	3	0	0	3	3
17	CCE 317	Programming in Python	3	0	0	3	3
18	CCE318	Information Retrieval	3	0	0	3	3
19	CCE319	Machine Learning	3	0	0	3	3
20	CCE320	Graphics Programming	2	0	2	3	4
21	CCE321	Cyber security	3	0	0	3	3
22	CCE 322	Scaling Networks	3	0	0	3	3
23	CCE 323	Routing and Switching Essentials	3	0	0	3	3
24	CCE 324	Grid computing	3	0	0	3	3
25	CCE 325	Green computing	3	0	0	3	3
26	CCE 326	Network Analysis & Management	3	0	0	3	3
27	CCE 327	TCP/IP Design & Implementation	3	0	0	3	3

TABLE 3.2.2
OPEN ELECTIVE

S. No.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
Open Elective Courses offered by Department of Civil Engineering, SOE							
1	CIV 401	Geographical Information Systems	3	0	0	3	3
2	CIV 402	Environmental Impact Assessment	3	0	0	3	3
3	CIV 403	Sustainable Materials and Green Buildings	3	0	0	3	3
4	CIV 404	Construction Project Management	3	0	0	3	3
Open Elective Courses offered by Department of Computer Science and Engineering, SOE							
1	CSE 401	Image Processing	3	0	0	3	3
2	CSE 402	Data Structures Using C	3	0	0	3	3
3	CSE 403	Software Testing and Quality Assurance	3	0	0	3	3

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4	CSE 404	Social Network Analytics	3	0	0	3	3
5	CSE 405	Digital and Mobile Forensics	3	0	0	3	3
6	CSE 406	Database Management Systems	3	0	0	3	3
7	CSE 407	Multimedia and Animation	3	0	3	3	4
Open Elective Courses offered by Department of Electrical and Electronics Engineering, SOE							
1	EEE 401	Artificial Neural Networks	3	0	0	3	3
2	EEE 405	Energy Audit	3	0	0	3	3
3	EEE 406	Research Methodology	3	0	0	3	3
4	EEE 407	Smart Grid Technology	3	0	0	3	3
5	EEE 408	Professional Ethics in Engineering	3	0	0	3	3
Open Elective Courses offered by Department of Electronics and Communication Engineering, SOE							
1	ECE 401	Artificial Neural Networks	3	0	0	3	3
2	ECE 402	Biomedical Instrumentation	3	0	0	3	3
3	ECE 407	Internet of Things	3	0	0	3	3
4	ECE 408	Industrial Automation and Control	3	0	0	3	3

Open Elective Courses offered by Department of Mechanical Engineering, SOE							
1	MEC 401	Automotive Vehicles	3	0	0	3	3
2	MEC 402	Nanotechnology	3	0	0	3	3
3	MEC 405	Engineering Optimisation	3	0	0	3	3
4	MEC 406	Operations Research for Engineers	3	0	0	3	3
5	MEC 407	Operations Management	3	0	0	3	3
6	MEC 408	Work Study	3	0	0	3	3
7	MEC 409	Project Management	3	0	0	3	3
8	MEC 410	Organizational Behaviour	3	0	0	3	3
9	MEC 411	Renewable Energy Systems	3	0	0	3	3
Open Elective Courses offered by Department of Petroleum Engineering, SOE							

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1	PET 402	Computational Methods in Chemical Engineering	3	0	0	3	3
2	PET 403	Computational Fluid Dynamics	3	0	0	3	3
3	PET 405	Petroleum Corrosion Technology	3	0	0	3	3
4	PET 406	Polymer Technology	3	0	0	3	3
5	PET 407	Total Quality Management	3	0	0	3	3
6	PET 408	Oil and Gas Marketing and Resource Management	3	0	0	3	3
Open Elective Courses offered by Department of Basic Sciences and Humanities, SOE							
1	PSY401	Social Psychology	3	0	0	3	3
2	ENG401	Literature Appreciation	3	0	0	3	3
3	CHE 401	Composite Materials	3	0	0	3	3
4	CHE 402	Catalysis Technology	3	0	0	3	3

Annexure CSE 9.9

B.Tech in Information Science and Engineering (2018-2022):

III SEMESTER							
S. No.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MAT 103	Engineering Mathematics – III	3	1	0	4	4
2	COM 201	Data Structures and Algorithms	4	0	0	4	4
3	CSE 202	Digital Design	3	0	0	3	3
4	CSE 203	Discrete Mathematics	3	1	0	4	4
5	ISE 251	Problem Solving Using Python	1	0	4	3	5
6	IST 201	Computer Organization	3	0	0	3	3
7	COM 251	Data Structures and Algorithms Lab	0	0	2	1	2
8	CSE 252	Digital Design Lab	0	0	2	1	2
9	PPS 107	Design Thinking And Team Building	0	0	2	1	2

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		TOTAL	17	2	10	24	29

*Student has to register for University Learning Course in any one semester 3/4/6 to earn the mandatory credits

IV SEMESTER							
S. No	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	MAT 104	Engineering Mathematics – IV	3	1	0	4	4
2	ISE 201	Introduction to Machine Learning	3	0	0	3	3
3	CSE 210	Operating Systems	3	0	0	3	3
4	CSE 206	Microprocessors and Micro Controllers	3	0	0	3	3
5	CSE 207	Database Management Systems	3	0	0	3	3
6	CSE 208	Theory of Computation	3	1	0	4	4
7	CSE 253	Database Management Systems Lab	0	0	4	2	4
8	CSE 254	Microprocessors and Micro Controllers Lab	0	0	2	1	2
9	PPS 108	Being Corporate Ready	0	0	2	1	2
		TOTAL	18	2	8	24	28

** Note: The students will undergo Professional Practice I during the summer break between the fourth and fifth semester and the credits earned will be accounted in the fifth semester.

V SEMESTER							
S. No.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	COM 205	Knowledge Discovery and Management	3	0	0	3	3
2	IST 202	Software Engineering and Project Management	3	0	0	3	3
3	ISE 202	Introduction to Artificial Intelligence	3	0	0	3	3
4	COM 206	Predictive Analytics	1	0	4	3	5
5	ISE 205	Pattern Recognition	3	0	0	3	3
6	ISE 3XX	Discipline Elective – I	3	0	0	3	3
7	MGT113	Digital Entrepreneurship	3	0	0	3	3

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8	ISE 3XX	Discipline Elective-II	1	0	4	3	5
9	PP-I	Professional Practice - I **				5	
		TOTAL	**20**	**0**	**8**	**29**	**28**

		VI SEMESTER					
S. No.	COURSE CODE	COURSE NAME	L	T	P	CREDITS	CONTACT HOURS
1	ISE 204	Big Data Analytics	1	0	4	3	5
2	ISE 205	Soft Computing	3	0	0	3	3
3	COM 207	Information Retrieval	3	0	0	3	3
4	IST 203	Cloud Computing	3	0	0	3	3
5	ISE 252	Advanced Machine Learning	1	0	4	3	5
6	ISE 3XX	Discipline Elective – III	3	0	0	3	3
7	OPE 4XX	Open Elective – I	3	0	0	3	3
8	MGT XXX	Business Intelligence	3	0	0	3	3
9	ULC	University Learning Course *				1	
		TOTAL	**20**	**0**	**8**	**25**	**28**

		VII SEMESTER					
S.No.	COURSE CODE	COURSE NAME	L	T	P	CREDITS	CONTACT HOURS
1	ISE 207	Natural Language Processing	0	0	4	2	4
2	ISE 208	Introduction to Deep Learning	3	0	0	3	3
3	CSE 220	Internet of Things	1	0	4	3	5
4	ISE 3XX	Discipline Elective – IV	3	0	0	3	3
5	OPE 4XX	Open Elective – II	3	0	0	3	3
		TOTAL	**10**	**0**	**8**	**14**	**18**

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S.No.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			VIII SEMESTER				
			L	T	P	CREDITS	
1	PP-II	Professional Practice- II				15	
		TOTAL	**0**	**0**	**0**	**15**	

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TABLE -2							
DISCIPLINE ELECTIVES							
S.NO	COURSE CODE	COURSE NAME	L	T	P	CREDITS	CONTACT HOURS
1	COM 301	Programming in JAVA	1	0	4	3	5
2	CSE 302	Programming in C# and .NET framework	1	0	4	3	5
3	CSE 303	LAMP	1	0	4	3	5
4	CSE 304	Mobile Communications	3	0	0	3	3
5	CSE 305	Parallel Computing	3	0	0	3	3
6	ISE 301	Information Theory and Coding	3	0	0	3	3
7	CSE 309	Virtualization	3	0	0	3	3
8	CSE 310	Mobile Applications Development	1	0	4	3	5
9	CSE 311	Web Services	3	0	0	3	3
10	CSE 312	Game Theory	3	0	0	3	3
11	CSE 313	Storage Area Networks	3	0	0	3	3
12	ISE 302	Bio Informatics	3	0	0	3	3
13	CSE 315	Software Architecture	3	0	0	3	3
14	COM 302	Evolutionary Computing	3	0	0	3	3
15	CSE 320	Graphics Programming	3	0	0	3	3
16	ISE 303	Web Data Mining	3	0	0	3	3
17	ISE 304	Digital Image Processing	3	0	0	3	3

TABLE 3.2.2						
OPEN ELECTIVE						
S. No.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE			CONTACT HOURS
			L	T	P	CREDITS
Open Elective Courses offered by Department of Civil Engineering, SOE						

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1	CIV 401	Geographical Information Systems	3	0	0	3	3
2	CIV 402	Environmental Impact Assessment	3	0	0	3	3
3	CIV 403	Sustainable Materials and Green Buildings	3	0	0	3	3
4	CIV 404	Construction Project Management	3	0	0	3	3
		Open Elective Courses offered by Department of Computer Science and Engineering, SOE					
1	CSE 401	Image Processing	3	0	0	3	3
2	CSE 402	Data Structures Using C	3	0	0	3	3
3	CSE 403	Software Testing and Quality Assurance	3	0	0	3	3
4	CSE 404	Social Network Analytics	3	0	0	3	3
5	CSE 405	Digital and Mobile Forensics	3	0	0	3	3
6	CSE 406	Database Management Systems	3	0	0	3	3
7	CSE 407	Multimedia and Animation	1	0	4	3	5
8	COM 401	Data Analytics Using R	3	0	0	3	3
9	ISE 401	Data Visualization	3	0	0	3	3
		Open Elective Courses offered by Department of Electrical and Electronics Engineering, SOE					
1	EEE 401	Artificial Neural Networks	3	0	0	3	3
2	EEE 405	Energy Audit	3	0	0	3	3
3	EEE 406	Research Methodology	3	0	0	3	3
4	EEE 407	Smart Grid Technology	3	0	0	3	3
5	EEE 408	Professional Ethics in Engineering	3	0	0	3	3
		Open Elective Courses offered by Department of Electronics and Communication Engineering, SOE					
1	ECE 401	Artificial Neural Networks	3	0	0	3	3
2	ECE 402	Biomedical Instrumentation	3	0	0	3	3
3	ECE 407	Internet of Things	3	0	0	3	3
4	ECE 408	Industrial Automation and Control	3	0	0	3	3
		Open Elective Courses offered by Department of Mechanical Engineering, SOE					
1	MEC 401	Automotive Vehicles	3	0	0	3	3

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2	MEC 402	Nanotechnology	3	0	0	3	3
3	MEC 405	Engineering Optimisation	3	0	0	3	3
4	MEC 406	Operations Research for Engineers	3	0	0	3	3
5	MEC 407	Operations Management	3	0	0	3	3
6	MEC 408	Work Study	3	0	0	3	3
7	MEC 409	Project Management	3	0	0	3	3
8	MEC 410	Organizational Behaviour	3	0	0	3	3
9	MEC 411	Renewable Energy Systems	3	0	0	3	3
Open Elective Courses offered by Department of Petroleum Engineering, SOE							
1	PET 402	Computational Methods in Chemical Engineering	3	0	0	3	3
2	PET 403	Computational Fluid Dynamics	3	0	0	3	3
3	PET 405	Petroleum Corrosion Technology	3	0	0	3	3
4	PET 406	Polymer Technology	3	0	0	3	3
5	PET 407	Total Quality Management	3	0	0	3	3
6	PET 408	Oil and Gas Marketing and Resource Management	3	0	0	3	3
Open Elective Courses offered by Department of Basic Sciences and Humanities, SOE							
1	PSY401	Social Psychology	3	0	0	3	3
2	ENG401	Literature Appreciation	3	0	0	3	3
3	CHE 401	Composite Materials	3	0	0	3	3
4	CHE 402	Catalysis Technology	3	0	0	3	3

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Annexure CSE 9.10

B.Tech in Information Science and technology (2018-2022):

: At the end of the 1st year (Common to all B.Tech. Program) the total credits offered is 49.
The 1st year B.Tech. Program structure is executed in two cycles.

S. No	COURSE CODE	COURSE NAME	L	T	P	Credits	CONTACT HOURS
		III SEMESTER					
1	MAT 103	Engineering Mathematics – III	3	1	0	4	4
2	COM 201	Data Structures and Algorithms	4	0	0	4	4
3	CSE 202	Digital Design	3	0	0	3	3
4	CSE 203	Discrete Mathematics	3	1	0	4	4
5	CSE 204	Object Oriented Programming	1	0	4	3	5
6	IST 201	Computer Organization	3	0	0	3	3
7	COM 251	Data Structures and Algorithms Lab	0	0	2	1	2
8	CSE 252	Digital Design Lab	0	0	2	1	2
9	PPS 107	Design Thinking And Team Building	0	0	2	1	2
		TOTAL	17	2	10	24	29

S. No.	COURSE CODE	COURSE NAME	L	T	P	Credits	CONTACT HOURS
		IV SEMESTER					
1	MAT 104	Engineering Mathematics – IV	3	1	0	4	4
2	CCE 201	Principles of Data Communication and Computer Networks	3	0	0	3	3
3	CSE 210	Operating Systems	3	0	0	3	3
4	CSE 206	Microprocessors and Micro Controllers	3	0	0	3	3
5	CSE 207	Database Management Systems	3	0	0	3	3
6	CSE 208	Theory of Computation	3	1	0	4	4

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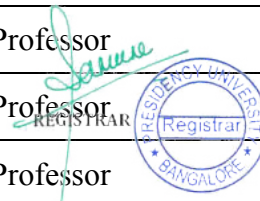www.presidencyuniversity.in

7	CSE 253	Database Management Systems Lab	0	0	4	2	4
8	CSE 254	Microprocessors and Micro Controllers Lab	0	0	2	1	2
9	PPS 108	Being Corporate Ready	0	0	2	1	2
		TOTAL	**18**	**1**	**10**	**24**	**28**

** Note: The students will undergo Professional Practice I during the summer break between the fourth and fifth semester and the credits earned will be accounted in the fifth semester.

V SEMESTER							
S. No.	**COURSE CODE**	**COURSE NAME**	**CREDIT STRUCTURE**				**CONTACT HOURS**
			L	**T**	**P**	**CREDITS**	
1	CCE 202	Advanced Computer Networks	3	0	0	3	3
2	IST 202	Software Engineering and Project Management	3	0	0	3	3
3	ISE 202	Introduction to Artificial Intelligence	3	0	0	3	3
4	IST 252	Web Technologies	1	0	4	3	5
5	CSE 257	Network Programming Lab	0	0	4	2	4
6	IST 3XX	Discipline Elective-I	0	0	3	3	3
7	IST 3XX	Discipline Elective-II	3	0	0	3	3
7	MGT 113	Digital Entrepreneurship	3	0	0	3	3
8	PIP 101	Professional Practice - I **				5	
		TOTAL	**16**	**0**	**11**	**28**	**27**

VI SEMESTER							
S. No.	**COURSE CODE**	**COURSE NAME**	**CREDIT STRUCTURE**				**CONTACT HOURS**
			L	**T**	**P**	**CREDITS**	
1	ISE 204	Big Data Analytics	1	0	4	3	5
2	IST 251	Service Oriented Architecture	1	0	4	3	5
3	IST 203	Cloud Computing	3	0	0	3	3
4	IST 204	Web 2.0	3	0	0	3	3
5	COM 207	Information Retrieval	3	0	0	3	3

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6	IST 3XX	Discipline Elective – III	3	0	0	3	3
7	OPE 4XX	Open Elective – I	3	0	0	3	3
8	MGT XXX	Business Intelligence	3	0	0	3	3
9	ULC	University Learning Course *				1	
		TOTAL	**20**	**0**	**8**	**25**	**28**

VII SEMESTER							
S.No.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	ISE 208	Introduction to Deep Learning	3	0	0	3	3
2	IST 253	Semantic Web	1	0	4	3	5
3	CSE 220	Internet of Things	1	0	4	3	5
4	IST 3XX	Discipline Elective – IV	3	0	0	3	3
5	OPE 4XX	Open Elective – II	3	0	0	3	3
		TOTAL	**11**	**0**	**8**	**15**	**19**

VIII SEMESTER							
S.No.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS
			L	T	P	CREDITS	
1	PP-II	Professional Practice- II				15	
		TOTAL	**0**	**0**	**0**	**15**	

TABLE -2							
DISCIPLINE ELECTIVES							
S.NO	COURSE CODE	COURSE NAME	L	T	P	CREDITS	CONTACT HOURS
1	CSE 301	Programming in Advanced JAVA	1	0	4	3	5

S. No.	COURSE CODE	COURSE NAME	L	T	P	CREDITS	CONTACT HOURS
2	CSE 302	Programming in C# and .NET framework	1	0	4	3	5
3	CSE 303	LAMP	1	0	4	3	5
4	CSE 304	Mobile Communications	3	0	0	3	3
5	CSE 305	Parallel Computing	3	0	0	3	3
6	CSE 307	Data Mining and Warehouse	3	0	0	3	3
7	CSE 309	Virtualization	3	0	0	3	3
8	CSE 310	Mobile Applications Development	1	0	4	3	5
9	CSE 311	Web Services	1	0	4	3	5
10	CSE 312	Game Theory	3	0	0	3	3
11	CSE 313	Storage Area Networks	3	0	0	3	3
12	CSE 314	Embedded Systems	3	0	0	3	3
13	CSE 315	Software Architecture	3	0	0	3	3
14	CSE 317	Programming in Python	3	0	0	3	3
15	CSE319	Machine Learning	3	0	0	3	3
16	CSE320	Graphics Programming	3	0	0	3	3

TABLE 3.2.2
OPEN ELECTIVE

S. No.	COURSE CODE	COURSE NAME	L	T	P	CREDITS	CONTACT HOURS
Open Elective Courses offered by Department of Civil Engineering, SOE							
1	CIV 401	Geographical Information Systems	3	0	0	3	3
2	CIV 402	Environmental Impact Assessment	3	0	0	3	3
3	CIV 403	Sustainable Materials and Green Buildings	3	0	0	3	3
4	CIV 404	Construction Project Management	3	0	0	3	3
Open Elective Courses offered by Department of Computer Science and Engineering, SOE							
1	CSE 401	Image Processing	3	0		3	3
2	CSE 402	Data Structures Using C	3	0		3	3
3	CSE 403	Software Testing and Quality Assurance	3	0	0	3	3

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4	CSE 404	Social Network Analytics	3	0	0	3	3
5	CSE 405	Digital and Mobile Forensics	3	0	0	3	3
6	CSE 406	Database Management Systems	3	0	0	3	3
7	CSE 407	Multimedia and Animation	3	0	3	3	4

Open Elective Courses offered by Department of Electrical and Electronics Engineering, SOE

1	EEE 401	Artificial Neural Networks	3	0	0	3	3
2	EEE 405	Energy Audit	3	0	0	3	3
3	EEE 406	Research Methodology	3	0	0	3	3
4	EEE 407	Smart Grid Technology	3	0	0	3	3
5	EEE 408	Professional Ethics in Engineering	3	0	0	3	3

Open Elective Courses offered by Department of Electronics and Communication Engineering, SOE

1	ECE 401	Artificial Neural Networks	3	0	0	3	3
2	ECE 402	Biomedical Instrumentation	3	0	0	3	3
3	ECE 407	Internet of Things	3	0	0	3	3
4	ECE 408	Industrial Automation and Control	3	0	0	3	3

Open Elective Courses offered by Department of Mechanical Engineering, SOE

1	MEC 401	Automotive Vehicles	3	0	0	3	3
2	MEC 402	Nanotechnology	3	0	0	3	3
3	MEC 405	Engineering Optimisation	3	0	0	3	3
4	MEC 406	Operations Research for Engineers	3	0	0	3	3
5	MEC 407	Operations Management	3	0	0	3	3
6	MEC 408	Work Study	3	0	0	3	3
7	MEC 409	Project Management	3	0	0	3	3
8	MEC 410	Organizational Behaviour	3	0	0	3	3
9	MEC 411	Renewable Energy Systems	3	0	0	3	3

Open Elective Courses offered by Department of Petroleum Engineering, SOE

1	PET 402	Computational Methods in Chemical	3	0	0	3	3

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		Engineering					
2	PET 403	Computational Fluid Dynamics	3	0	0	3	3
3	PET 405	Petroleum Corrosion Technology	3	0	0	3	3
4	PET 406	Polymer Technology	3	0	0	3	3
5	PET 407	Total Quality Management	3	0	0	3	3
6	PET 408	Oil and Gas Marketing and Resource Management	3	0	0	3	3
Open Elective Courses offered by Department of Basic Sciences and Humanities, SOE							
1	PSY401	Social Psychology	3	0	0	3	3
2	ENG401	Literature Appreciation	3	0	0	3	3
3	CHE 401	Composite Materials	3	0	0	3	3
4	CHE 402	Catalysis Technology	3	0	0	3	3

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Annexure CSE 9.11

17-21

First Year			Second Year			Third Year			Fourth Year	
Sem. 1	Sem. 2	Summer Term	Sem. 3	Sem. 4	Summer Term/ PP –I-1	Sem. 5	Sem. 6	Summer Term	Sem. 7	Sem. 8
BS-3	BS-4		BS-1	BS-1		CC-6	CC-5		CC-4	PP-II-1
ES-4	ES-3		CC-6	CC-6		HS-1	HS-1		DE-1	
HS-1	HS-1		PPS-1	PPS-1		DE-2	DE-1		OE-1	
PPS-1	PPS-1		ULC-1				OE-1			

Mandatory Minimum Credits required for the award of the B.Tech
(Computer Science and Engineering) Degree: 180

18-22 and 19-23

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First Year			Second Year			Third Year			Fourth Year	
Sem. 1	Sem. 2	Summer Term	Sem. 3	Sem. 4	Summer Term / PP –I-1	Sem. 5	Sem. 6	Summer Term	Sem. 7	Sem. 8
BS-3	BS-4		BS-1			CC-6	CC-4		CC-3	
ES-4	ES-3		CC-6	BS-1		HS-1	HS-1		DE-1	PP-II-1
HS-1	HS-1		PPS-1	CC-7		DE-2	DE-1		OE-1	
PPS-1	PPS-1		ULC-1	PPS-1			OE-1			

Mandatory Minimum Credits required for the award of the B.Tech (Computer Science and Engineering) Degree: 180

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Annexure CSE 9.12

List of Internal Examiners:

Sl.no	Faculty Name	Designation
1	Dr. K G Mohan	Professor & Head
2	Dr. R Mahalakshmi	Associate Professor
3	Dr. D C Kiran	Associate Professor
4	Dr. N Mehala	Associate Professor
5	Mr. Zafar Ali Khan	Assistant Professor
6	Mr. James Mathew P	Assistant Professor
7	Mr. Bhavesh Neekhra	Assistant Professor
8	Ms. H M Manjula	Assistant Professor
9	Dr. Narasimha Murthy M S	Assistant Professor
10	Mr. Murthy D H R	Assistant Professor
11	Mr. Mohammed Mujeer Ulla	Assistant Professor
12	Mr. Mrutyunjaya M S	Assistant Professor
13	Mr.Sunil Kumar Sahoo	Assistant Professor
14	Mr. Sunil Kumar R M	Assistant Professor
15	Mr. Tapas Guha	Assistant Professor
16	Ms. Vinitha Dominic	Assistant Professor
17	Ms. Divya	Assistant Professor
18	Ms. Sushmita Kumari	Assistant Professor

19	Ms. Thasni T	Assistant Professor
20	Mr. Rama Krishna K	Assistant Professor
21	Mr. Sanjeev P Kaulgud	Assistant Professor
22	Ms. Sudha Kamaraju	Assistant Professor
23	Mr. Sreekant Jere	Assistant Professor
24	Ms. Madhura K	Assistant Professor
25	Mr. Deepak raj	Assistant Professor
26	Dr. C. Kalaiarasan	Associate Dean and Professor
27	Mr. Srivinay	Assistant Professor
28	Mr. Abhisek midya	Assistant Professor
29	Ms. Shimil Shijo	Assistant Professor
30	Mr. Santosh Reddy P	Assistant Professor
31	Ms. Kokila S	Assistant Professor
32	Ms. Archana Sasi	Assistant Professor
33	Ms. Gangavva Choudakkanavar	Assistant Professor
34	Ms. Manujakshi B C	Assistant Professor
35	Ms. Amreen Ayesha	Assistant Professor
36	Ms. N Rakesh	Assistant Professor
37	Ms. Megha D Bengalur	Assistant Professor
38	Ms. Rashda Khanam	Assistant Professor
39	Ms. Bhavana A	Assistant Professor
40	Ms. Sukruth Gowda M A	Assistant Professor
41	Dr. Arulmurugan R	Assistant Professor
42	Ms. Sowmya P	Assistant Professor

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43	Mr. Shashidhar	Assistant Professor
44	Ms. Kaipa Sandhya	Assistant Professor
45	Ms. Anitha P	Assistant Professor
46	Ms. Ratna Patil	Assistant Professor
47	Mr. T Ramesh	Assistant Professor
48	Mr. Sathish Kumar R	Assistant Professor
49	Dr. J Alamelu Mangai	Associate Professor
50	Mr. Md Ziaur Rahman	Assistant Professor
51	Ms. Sneha. S. Bagalkot.	Assistant Professor
52	Mr. Gowtham Mamidisetti	Assistant Professor
53	Ms. Shweta Singh	Assistant Professor
54	Ms. Pragya	Assistant Professor
55	Mr. Sunilkumar Teggihalli	Assistant Professor
56	Ms. Yashaswini K A	Assistant Professor
57	Mr. Asif Mohammed H.B.	Assistant Professor
58	Ms. Napa Lakshmi	Assistant Professor
59	Mr.Prasad P S	Assistant Professor
60	Ms.Akshatha Y	Assistant Professor
61	Dr. Mano Paul P	Assistant Professor
62	Ms.Poornima	Assistant Professor
63	Ms. Sudha Y	Assistant Professor
64	Mr.Afroz Pasha	Assistant Professor
65	Mr. Vijay Narasimhamurthy	Adjunct Faculty
66	Mr. Madhusudhan M.V.	Assistant Professor

67	Mr. Amit Kumar	Assistant Professor
68	Dr. G. Shanmugarathinam	Associate Professor
69	Dr Ramesh V	Associate Professor
70	Mr. Shridhar	Assistant Professor
71	Dr. Deepak S Sakkari	Assistant Professor
72	Dr. Shreyas Suresh Rao	Assistant Professor
73	Ms. Shaleen Bhatnagar	Assistant Professor

List of External Examiners:

S.no	Faculty Name	Designation	Affiliation
1	Dr.Mallikarjun.M. Kodabagi	Professor	Reva University(Autonomous)
2	Dr. Mallikarjun Shastry P. M.	Professor	Reva University(Autonomous)
3	Dr. Vishwanath R. Hulipalled	Professor and Dy.Director (R& IC)	Reva University(Autonomous)
4	Dr.Gopal Krishna Shyam	Associate Professor	Reva University(Autonomous)
5	Ms.Nirmala S.Gupta	Associate Professor	Reva University(Autonomous)
6	Dr.Surekha K.B	Professor & Head	Acharya Institute of Technology(AIT)
7	Dr.Basavaraju T.G	Professor & Head	Government Sri Krishnarajendra Silver Jubilee Technological Institute(SKSJTI)
8	Dr.S.N.Chandrasekhara	Professor & HOD	Ex-BoE Chairman, (CBIT)
9	Ms.Naidilla Sadhasiva	Assistant Professor	M.S.Ramaiah Institute of Technology(MSRI10T)(Autonomous)
10	Mr. Srinivas D B	Associate Professor	NITTE Meenakshi Institute of Technology(NMIT)(Autonomous)
11	Dr.Thippeswamy M.N	Professor & HOD	NITTE Meenakshi Institute of Technology(NMIT)(Autonomous)

12	Mr.Shivaprasad K.H	Assistant Professor	GITAM University(Autonomous)
13	Dr.H.N.Champa	Associate Professor& Chairperson	University Visvesvaraya College of Engineering(UVCE)
14	Dr.Pushpa C.N	Assistant Professor	University Visvesvaraya College of Engineering(UVCE)
15	Dr.Gowrishankar	Professor	BMSCE(Autonomous)
16	Dr.H.S.Jayanna	Professor	Siddaganga Institute of Technology(SIT)
17	Dr.Shanthakumar.B.Patil	Professor	Nagarjuna College of Engineering and Technology(NCET)(Autonomous)
18	Dr.Mamatha G	Professor & HOD	Nagarjuna College of Engineering and Technology(NCET)(Autonomous)
19	Dr.Jagadish S.Kallimani	Associate Professor	M.S.Ramaiah Institute of Technology(MSRIT)(Autonomous)
20	Dr.Balachandran	HOD	Christ University(Autonomous)
21	Dr.Sameeksha	Associate Professor	Christ University(Autonomous)
22	Mr.Sathish	Assistant Professor	Christ University(Autonomous)

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PRESIDENCY UNIVERSITY

Private University Estd. in Karnataka State by Act No. 41 of 2013

SCHOOL OFENGINEERING
DEPARTMENT OF COMPUTERSCIENCEAND ENGINEERING

Ref: PU-SOE-CSE/2020-2021/BOS-11/CIR-01   Date:24-8-2020

11thBOSMEETINGNOTICE

The 11th Board of Studies (BOS) meeting of Department of Computer Science and Engineering, SOE isconvened on Friday, 4th September, 2020, at 02.30 p.m. online hosted from Presidency UniversityCampusItgalpur, Rajankunte, Yelahanka, Bengaluru.

Youareherebyrequestedto attendthemeeting.

Agenda:

SOE-CSE11.1: To approvetheminutes of10thBoardofStudies Meetingheld on 17th January2020.

SOE-CSE 11.2: To consider and approve the Program Regulations and Curriculum for B.Tech SOE-
         CSE2020Batches
   1. ComputerScienceandEngineering(CyberSecurity)
   2. ComputerScienceandEngineering(Artificial IntelligenceandMachineLearning)
   3. ComputerScienceandEngineering(IOT)
   4. ComputerScienceandEngineering(BlockChain)
   5. ComputerScienceandEngineering(DataScience)
   6. ComputerScienceandTechnology
   7. ComputerScienceand Technology(DevOps)
   8. ComputerScienceandTechnology(Big Data)
   9. ComputerScienceand Technology(specializationin AI&ML)

SOE-CSE11.3:Toconsiderandapprovethe changesto B.TechSOE-
         CSE2019BatchProgramRegulationsand Curriculum.
   1. ComputerScienceandEngineering
   2. InformationScienceandEngineering
   3. InformationScienceand Technology
   4. ComputerEngineering
   5. ElectronicsandComputerEngineering
   6. ComputerandCommunicationEngineering

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<u>SOE-CSE 11.4.1</u>: To consider and approve the changes to SOE-CSE 2018 Batch Program structure andCurriculum.

1. ComputerScienceandEngineering
2. InformationScienceandEngineering
3. InformationScienceand Technology
4. ComputerEngineering
5. ComputerandCommunicationEngineering

<u>SOE-CSE 11.4.2</u>: To consider and approve the changes to SOE-CSE M.Tech 2019 batch programstructureand curriculum

1. M.TechinArtificial Intelligence
2. M.TechinDataScience

<u>SOE-CSE 11.5</u>: To consider and approve the Program Regulations and Curriculum for SOI-BCA[Gamingand Graphics,AR/VR, General]-2020Batch

<u>SOE-CSE11.6</u>:Approvaloflistofexaminers.

<u>SOE-CSE11.7</u>:ApprovalofNPTELcoursestobe offeredasDiscipline/Openelectives

<u>SOE-CSE 11.8</u>:Stakeholders Feedback analysis and discussion obtained from the Students, Alumni, Faculty Members, and Industry Experts on the Curriculum

<u>SOE-CSE11.9</u>: Anyothermatterwith thepermission ofthe chair.

ChairpersonBO
S-CSECommittee

Copyto:

- Pro-Chancellor,PU
- Registrar,PU
- Dean-SoE,PU

- Vice-Chancellor,PU
- Pro-Vice-chancellor,PU
- Dean-Academics,PU

- MembersoftheBOS-CSECommittee:

1	Dr.C.Kalaiarasan	10	Dr.J.Andrews
2	Dr.T.K.Thivakaran	11	Dr.BlessedPrince
3	Dr.SatishChandraKulhari	12	Dr.A.Jayachandran
4	Dr.SmithaRao	13	Dr.NidhiMishra
5	Dr.RMahalakshmi	14	Mr.TapasGuha
6	Dr.JAlameluMangai	15	Dr.H.S.Guruprasad,Prof.,BMSCE

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7	Dr.G.Shanmugarathinam	16	Dr.Rajanikanth,FormerPrincipal,MSRIT
8	Dr.RameshV	17	Dr.SrinivasVivek,Asst. Prof.,CSE, IIITB
9	Dr.S.P.Anandaraj	18	Mr.Dipyaman Banerjee,PrincipalData

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		Scientist,Airtel India

SCHOOLOFENGINEERING
DEPARTMENTOFCOMPUTERSCIENCEANDENGINEERING

Ref:PU-SOE-CSE/2020-2021/BOS-11/MOM-01   Date:04-9-2020

Minutesofthe11ᵗʰMeetingofBoardofStudies (ComputerScienceandEngineering–BOS–CSE)

The11ᵗʰmeetingofBoardofStudies(BOS)oftheComputerScienceandEngineeringisheldtodayon4ᵗʰSeptember,2020at02.30 PM,online.

Thefollowingmemberswerepresent:

S. No.	Name	DesignationwithAffiliation	Status
1	Dr.K.G.Mohan	Professor &Head, CSE,Presidency University	Chairman
2	Dr.C.Kalaiarasan	Associate Dean & Professor, CSE,PresidencyUniversity	Member
3	Dr.SmithaRao	Professor, CSE, PresidencyUniversity	Member
4	Dr.T.K.Thivakaran	Professor, CSE, PresidencyUniversity	Member
5	Dr.SatishCKulhari	Professor, CSE, PresidencyUniversity	Member
6	Dr.RMahalakshmi	AssociateProfessor,CSE, PU	Member
7	Dr.JAlameluMangai	Associate Professor, CSE, PresidencyUniversity	Member
8	Dr.G.Shanmugarathinam	Associate Professor, CSE, PresidencyUniversity	Member
9	Dr.RameshV	Associate Professor, CSE, PresidencyUniversity	Member
10	Dr.S.P.Anandaraj	Associate Professor, CSE, PresidencyUniversity	Member

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11	Dr.A.Jayachandran	Associate Professor, CSE, PresidencyUniversity	Member
12	Dr.NidhiMishra	Associate Professor, CSE, PresidencyUniversity	Member
13	Dr.BlessedPrince	Associate Prof., CSE, PresidencyUniversity	Member
14	Dr.J.Andrews	Associate Prof., CSE, PresidencyUniversity	Member
15	Dr.H.S.Guruprasad	Professor&Head,BMSCE,Bangalore.	ExternalMember(Academics)
16	Dr.K.Rajanikanth	FormerPrincipal,M.S.R.I.T,Bangalore	SpecialInvitee/Co-optedMember
17	Dr.SrinivasVivek	AssistantProfessor,CSE,IIITBangalore	ExternalMember(Academics)
18	Mr. DipyamanBanerjee	Principal DataScientist,Airtel India,Former Advisory Research Engineer atIBMResearchLab,IEEESeniorMember	ExternalMember(IndustryExpert)
19	Mr.TapasGuha	AssistantProfessor,CSE,PresidencyUniversity	MemberSecretary

Thefollowingmembers aregivenleaveofabsence:

Sr. No.	Name	Designation	Status
		NIL	

REGISTRAR

TheChairmanwelcomedtheMembersandallthememberswereformallyintroducedtoeachother.

Agenda SOE-CSE 11.1: To approve the minutes of 10thBoard of Studies Meeting held on 17thJanuary 2020.

The minutes of the 10th meeting of the Board of Studies of Computer Science and Engineering held on17th January 2020 was placed before the members and the same was unanimously approved (**AnnexureCSE11.1**).

Agenda SOE-CSE 11.2: To consider and approve the Program Regulations and Curriculum forSOE-CSE2020 Batch

1. ComputerScienceandEngineering(CyberSecurity)
2. ComputerScienceandEngineering(Artificial IntelligenceandMachineLearning)
3. ComputerScienceandEngineering(IOT)
4. ComputerScienceandEngineering(BlockChain)
5. ComputerScienceandEngineering(DataScience)
6. ComputerScienceandTechnology
7. ComputerScienceand Technology(DevOps)
8. ComputerScienceandTechnology(Big Data)
9. ComputerScienceand Technology[specialization inAI&ML]

The details of the program regulations and curriculum for the new 2020-2024 programs were presentedbeforethemembers (**Annexure CSE11.2**). The members discussed thesame at length.

Resolution: Resolved that the program regulations and curriculum of the new programs 2020-2024 areapprovedwith thefollowingsuggestions.

- ComputerScienceandEngineering(CyberSecurity)

    i.   PracticalcomponentsshouldbeincreasedinthecourseAdvancedCryptography.
    ii.   Theopen electivecoursesshould bemorepractical oriented.

- ComputerScienceandEngineering(IOT)

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i. A course 'IOT for Smart Cities' may be designed and included in the curriculum.

ii. The Elective courses may be grouped into different baskets with relevant practical components.

- Computer Science and Engineering (Artificial Intelligence and Machine Learning)

i. For the courses from 3rd semester onwards, more practical components and credits should be included.

ii. In the course 'Database for AI', Graph databases should be covered.

Agenda SOE-CSE 11.3: To consider and approve the changes to SOE-CSE 2019 Batch Program Regulations and Curriculum.

1. Computer Science and Engineering
2. Information Science and Engineering
3. Information Science and Technology
4. Computer Engineering
5. Electronics and Computer Engineering
6. Computer and Communication Engineering

The members were represented with the following revised curriculum of the four B.Tech

programs. Change in Course

Programs	Existing		Revised	
	Course name	**Course code**	**Course name**	**Course code**
CSE,ISE,IST,COM,CCE	DataStructure Theory and Lab	CSE201, CSE 251	Data Structure and Algorithm Theory and Lab	CSE 221, CSE259
ISE,IST,COM,CCE	Computer Organization	CSE223	Computer Architecture and Organization	CSE223

Resolution: The proposed changes are accepted and approved.

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AgendaSOE-CSE11.4:

11.4.1 :Toconsiderandapprovethe changestoSOE-CSE2018 BatchProgramstructureandCurriculum.

1. ComputerScienceandEngineering
2. InformationScienceandEngineering
3. InformationScienceand Technology
4. ComputerEngineering
5. ComputerandCommunicationEngineeringI

ntroductionofcourse:

AnewcourseOptimizationTechniqueshasbeenproposedforISEandCOMbranches.Thememberswerepresent edwith thecoursedescriptions and outline.

CourseName:	OptimizationTechnique					
CourseCode:	**CSE226**	**CreditStructure:**	**L**	**T**	**P**	**C**
			3	**0**	**0**	**3**

CourseDescription:
Optimization is one of the most important branch of modern applied mathematics. Optimization modelsattempt to express, in mathematical terms, the goal of solving a problem in the best way. Variousproblems arising in areas of engineering design, economic theory, physical, biological and technologicalsciences call for minimizing or maximizing functions. The objective of the course is to provide studentswith the value of optimization and mathematical modeling in real life. Basic techniques to   formulatesingleandmulti-objectiverealproblemintoamathematicalmodel.Varioustechniquestosolvelinearandnonlinearprogramming problem.Varioustechniquestosolvetransportationandassignmentproblems.

ReferenceMaterials:

TextBook(s):
1. H.A.Taha, OperationsResearch:AnIntroduction, PearsonEducation,9thEd.,2012.
2. Boydand Vandenberghe:ConvexOptimization,CambridgeUniversityPress 2004.

ReferenceBooks:
1. T.Hastie,R.TibshiraniandM.J.Wainwright,StatisticalLearningwithSparsity:theLassoandGeneraliza tions,Chapman and Hall/CRC Press, 2015.
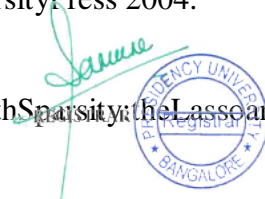
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2. E.Hazan. Introductionto OnlineConvex Optimization.
3. S.BoydandL.Vandenberghe,ConvexOptimization,TheCambridgeUniversityPress,2003.
4. D.Bertsekas,Nonlinearprogramming,AthenaScientific,1999.
5. Y.Nesterov,Introductorylecturesonconvex optimization,Kluwer-Academic,2003.
6. E.K.P.ChongandS.H.Zak,AnIntroductiontoOptimization,2ndEdn.,WileyIndiaPvt.Ltd.,2010.
7. S.Bubeck,ConvexOptimization:AlgorithmsandComplexity,FoundationsandTrendsinMachine Learning, 8(3-4): 231-357, 2015.
8. S.Sra,S. Nowozin,andS. Wright,OptimizationforMachineLearning,TheMIT Press,2011.

Resolution: Theproposedinclusion is approved with thefollowingsuggestion.

-

Keepingthecreditstructureasitis,somepracticalcomponentsmaybeincludedinthesyllab us,whichcan bedemonstrated inthe theorylecturehour.

ChangeinCoursetitle:

Programs	ExistingCoursetitle	RevisedTitle
Corecours eforall	IntroductiontoArtificialIntelligence CSE228	PrinciplesofArtificialIntelligence CSE228

Resolution: Theproposedchangeisacceptedand

approved.IntroductionofElectivecourses:

ThememberswerepresentedwiththecoursedescriptionsandoutlineofthefollowingnewlyproposedDiscipline Electivecourses.

CourseName:	DataVisualization		L	T	P	C
CourseCode:	**CSE367**	**CreditStructure:**	**1**	**0**	**4**	**3**

CourseDescription:
This course provides an introduction to turning data into presentable graphics.Data Visualization isimportant today as the usage of data is growing in many different fields. Data visualization techniqueshelp people to better understand this data. The goal of this course is to introduce students to datavisualization including principles, techniquesandalgorithms for creating effective visualizations basedonprinciplesfromgraphicdesign,visualart,perceptualpsychology,andcognitivescience.Studentswill

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learn the value of visualization, specific techniques in data visualization, grammar of graphics and how toleveragevisualization tools.

ReferenceMaterials:

(i) Textbook(s)
1. Ward,MatthewO.,GeorgesGrinstein,andDanielKeim.Interactivedatavisualization:foundations,techniques, andapplications. CRCPress, 2010.
2. Madhavan,Samir.MasteringPythonforDataScience.PacktPublishingLtd,2015.

(ii) ReferenceBook(s)
1. Wilkinson,Leland,TheGrammarofGraphics,Springer-VerlagNewYork,2015
2. Wilke,ClausO.Fundamentalsofdatavisualization:aprimeronmakinginformativeandcompellingfigures. O'ReillyMedia, 2019.
3. TamaraMunzner,VisualizationAnalysisandDesign(VAD),CRCpress,2014
4. ShowMetheNumbers:DesigningTablesandGraphstoEnlighten,Few,Stephen.2ndEdition.Analytics Press.
5. InteractiveDataVisualizationfor theWebbyScott Murray2nd Edition (2017)
6. AndyKirk,DataVisualizationAHandbookforDataDrivenDesign,SagePublications,2016
7. PhilippK.Janert,GnuplotinAction,UnderstandingDatawithGraphs,ManningPublications,2010.
8. Semiologyof Graphics byJacquesBertin (2010)
9. Sosulski,K.(2018).DataVisualizationMadeSimple:InsightsintoBecomingVisual.NewYork: Routledge.
10. ChristopherM.Bishop.2006.PatternRecognitionandMachineLearning(InformationScienceand Statistics). Springer-Verlag,Berlin, Heidelberg.

CourseName:	DistributedSystems		L	T	P	C
CourseCode:	CSE368	CreditStructure:	3	0	0	3

CourseDescription:
This course is designedto provide the knowledge of the concepts related to distributed system. Thecourse is aimed at understanding the foundations of distributed systems. It also deals with Peer to peerservices and to understand about the system level and support required for distributed system. Further, itfocuses on Synchronization, Process and Resource Management. Students will also learn the overview ofDistributed   system.

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Topicsinclude:IntroductiontoDistributedSystems,CommunicationinDistributedSystem,Peertopeerservicesandfilesystem,Synchronization, ProcessandresourceManagement.

ReferenceMaterials:

TextBook(s):

1. T1:GeorgeCoulouris,JeanDollimoreandTimKindberg,"DistributedSystemsConceptsandDesign",Fifth Edition, Pearson Education, 2012.

ReferenceBook(s):

1. R1.PradeepKSinha,"DistributedOperatingSystems:ConceptsandDesign",Ninthedition,PrenticeHall ofIndia, 2007.
2. R2.TanenbaumA.S.,VanSteenM.,"DistributedSystems:PrinciplesandParadigms",SecondEdition,Pearson Education, 2007.
3. R3.LiuM.L.,"DistributedComputing,PrinciplesandApplications",FirstEdition,PearsonEducation,2004.
4. R4.NancyALynch,"DistributedAlgorithms",SecondEdition,MorganKaufmanPublishers,USA, 2003.

CourseName:	IntroductiontoBioinformatics		L	T	P	C
CourseCode:	CSE325	CreditStructure:	3	0	0	3

CourseDescription:

This course is designed to provide the knowledge of the concepts related to bioinformatics. The course isaimed at understanding the DNA and Protein sequences and databases. Italso dealswith Pairwisecomparison and calculating the scoring matrix. Further, it focuses on Sequence Alignment techniques,discovering the Motifs in the sequence. Students will also learn the overview of Structural BioinformaticsandGenome sequencing.

ReferenceMaterials:

TextBook(s):
1. Bioinformatics:SequenceandGenomeAnalysis,DavidW.Mount,ColdSpringHarborLaboratoryPress, 2004.
2. IntroductiontoBioinformatics,Arthur Lesk,FifthEdition,OxfordUniversityPress,2019
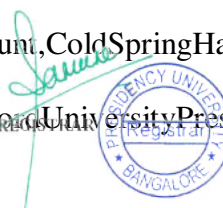
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ReferenceBook(s):
1. BioinformaticsMethodsandApplications,S.C.Rastogi,N.Mendiratta,P.Rastogi,FourthEdition,PrenticeHallIndia.
2. BioinformaticsAlgorithms-AnActiveLearningApproach,PhillipCompeau&PavelPevzner,2ndEdition, Vol.I& II,Active Learning Publishers, 2015

Resolution: Resolvedthattheproposedelectivecoursesarerelevantwiththecurrentindustrytrendandshouldbe offered to thestudents. Thesame is approved.

<u>Changein offeringsemester</u>

Programs	Coursetitle	ExistingSemester	ProposedSemester
COM,ISE	MachineLearningusingPython CSE261	6	5

Resolution: Theproposedchangeinofferingsemesterisapproved.<u>Rem</u>

<u>ovalofCourse</u>

TheexistingcoursePrinciplesofProgramming Languagesisremoved from5th semester CSE.

CourseName:	PrinciplesofProgrammingLanguages					
CourseCode:	CSE214	CreditStructure:	**L** 3	**T** 0	**P** 0	**C** 3

CourseDescription:

The Course covers features of programming languages and introduces different programming paradigms,andtheirsemantics.
Topics include: Data types and Data Abstraction, Scope and Parameter passing and Concurrency relatedfeatures. Various aspects of runtime environments like global and local data, code, function call stacks,dynamically
allocateddata,exceptionsandthreads,formalelementsoflambdacalculus,functionalparadigm.Logicprogram mingparadigm,Scriptingasaparadigm.Domainspecificlanguages.

ReferenceMaterials:

TextBook(s):

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Robert W.Sebesta, "Conceptsof
ProgrammingLanguages",TheBenjaminCummingsPublishingCompany,Inc.

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ReferenceBook(s):
1. RaviSethi,"ProgrammingLanguages:Concepts andConstructs"Addison Wesley.
2. Aho,Lam,SethiandUllman,"CompilersPrinciples,Techniques,andTools".PearsonEducation.

Resolution: Theproposedremovalisacceptedandapproved.

11.4.2 :Toconsiderandapprovethe changesto SOE-CSE M.Tech2019batch programstructureandcurriculum
1. M.TechInArtificial Intelligence
2. M.Tech InDataScience

InclusionoftwocoursestothelistofDisciplineElectivesofM.Tech-ArtificialIntelligenceprogram.

CSE465–
ReinforcementLearningCSE466–
NaturalLanguageProcessing

Themembers werepresentedwith thefollowingcoursedetails.

CourseName:	ReinforcementLearning		L	T	P	C
CourseCode:	CSE 465	CreditStructure:	3	0	0	3

CourseDescription:

This course provides an introduction to Reinforcement Learning and Deep Reinforcement Learning - corechallenges,approaches,generalizationandexploration.ReinforcementLearningisabranchof machine learning that deals with how software agents take actions in an environment in order tomaximizerewards.

Topics to include: Key features ofReinforcement Learning, exploration-exploitation trade-off , valuebased and policy based methods, bandit problems, Markov's Decision Process, Bellman Equations,dynamicprogramming,Deepreinforcementlearningalgorithms:DeepQ-Networks(DQN),DeepDeterministicPolicy Gradients(DDPG),MonteCarlomethods,FunctionApproximationmethods,Policy Gradients, criteria for analyzing and evaluating RL algorithms, implementation of common RLalgorithms.

TextBooks:
1. Reinforcement Learning: AnIntroduction,SuttonandBarto,2ndEdition

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2. Russell,S.andNorvig,N.ArtificialIntelligence:AModernApproach.PrenticeHallSeriesinArtificialInt elligence. 2003.

ReferenceBooks:
1. Reinforcement Learning: State-of-the-Art,MarcoWieringandMartijnvanOtterlo,Eds
2. IanGoodfellow,YoshuaBengio,AaronCourville,"Deep Learning",MITPress.

CourseName:	NaturalLanguageProcessing					
CourseCode:	CSE466	CreditStructure:	**L**	**T**	**P**	**C**
			3	0	0	3

CourseDescription:

This course covers a wide range of tasks, basic to advance, in Natural Language Processing. NLP dealswith the study of computing systems that can process, understand, and communicate in human language.It addresses fundamental questions at the intersection of human languages and computer science. Thiscourse also provides an introduction to current techniques, strategies and toolkits for natural languageprocessing.

Topics to include: Key features of NLP and text classification, basic text processing, syntax, semantics,pragmatics, parsing, language modelling, N-grams, tokenization, lemmatization, POS tagging,HMMs,Context free grammars, word and sequence embeddings, sequence tagging, sequence to sequence

models,sentimentanalysis,informationextraction,dialoguesystems,machinetranslation,implementNLPTool kits

Textbook:
1.Daniel Jurafsky and James H. Martin. 2009. Speech and Language Processing: An Introduction toNatural Language Processing, Speech Recognition, and Computational Linguistics. 2nd edition.Prentice-Hall.
2.

ReferenceBooks:
1. ChristopherD.ManningandHinrichSchütze.1999.FoundationsofStatisticalNaturalLanguageProcess ing.MIT Press
2. NaturalLanguageProcessingbyJacobEisenstein
3. FoundationsofStatisticalNaturalLanguageProcessingbyChrisManning andHinrichSchuetze
4. LinguisticsFundamentalsforNLPbyEmilyBender

Resolution: TheproposedinclusionoftwonewDisciplineElectivecoursesisacceptedandapproved.

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AgendaSOE-CSE11.5:ToconsiderandapprovetheProgramRegulationsandCurriculumforSOI-BCA[Gaming and Graphics, AR/VR,General] -2020 Batch

Thedetailsoftheprogramregulationsandcurriculumwerepresentedbeforethemembers(**AnnexureCSE11.3**). Themembers discussed thesame at length

Resolution: ResolvedthattheprogramregulationsandcurriculumofthenewThreeyearB.C.Aprogramsareapproved unanimously.

AgendaSOE-CSE11.6:Approvaloflistofexaminers

Listofexaminerswerepresentedbeforethecommittee.

Resolution:Thesame wasunanimouslyapproved(**AnnexureCSE11.4**).

AgendaSOE-CSE11.7:Approvalof NPTELcoursestobeofferedasDiscipline/Openelectives

TheproposedlistofMOOCcourseswaspresentedbeforethemembersandwasapproved.Coursesfromthesame are goingto betaken up bythe students forcredittransfer(**AnnexureCSE 11.5**).

==**AgendaSOE-CSE 11.8: Stakeholders Feedback analysis and discussion obtained from the Students, Alumni, Faculty Members, and Industry Experts on the Curriculum**==

==As per the Feedback received from Students, Alumni, Faculty and Employers, the Course Revisions as per **Annexure 11.6** and New Course introduction as per **Annexure 11.7** is hereby approved.==

AgendaSOE-CSE 11.9:Anyother matterwiththepermission oftheChair

11.8.1:Toconsiderandapprovethe inclusionof ValueAddedCourses(VAC)

For all B.Tech 20-24 new programs, Value Added Course isroduced. A proposed list for the same ispresented.Themembersapprovethe list ofVACs(**AnnexureCSE 11.6**).

11.6.2 :ToconsiderandapprovethechangesinProgramstructureandCurriculumforSOE-CSE2018Batch UTA students of CSE, ISE, IST andCOM.

The members were presented with the modifications in curriculum for 2018-2022 SOE-CSE and alliedbranchstudents who haveregistered fortheUTAprogram.

Note: Students of SOE-CSE 2018 Batch registered for University of Texas, Arlington (UTA) programwill complete 3 year of study at Presidency University earning a minimum of 159 credits and will studyfinal year at University of Texas, Arlington, USA and earn a minimum of 21 credits which will betransferredto PresidencyUniversityfortheirB.Tech degreefrom PresidencyUniversity

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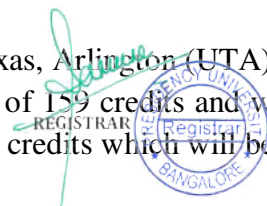
DetailsofSummerTermcourses

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FollowingcourseswereofferedinSummerTerm2020forUTAregisteredstudents:

- **CSE:**PHY204(GeneralPhysics),CSE394(CircuitsandSignals)andCSE320(GraphicsProgramming)
- **COM:**PHY204(GeneralPhysics),CSE394(CircuitsandSignals)andCSE290(DigitalCircuits)
- **ISE&IST:**PHY204(GeneralPhysics),CSE394(CircuitsandSignals)andCSE209(GraphTheoryand Combinatorics)

Introductionofthecourse

InternetofThings(CSE220)offeredtoall theUTAregistered2018
batchofstudentsasSpecialSummerTermCourseduringDec20-Jan21.

Modificationofcourse

- MicroprocessorsandMicrocontrollers(CSE-206)&MicroprocessorsandMicrocontrollers-Lab(CSE-254)willbecombinedandofferedasa3creditOpenElective(FundamentalsofMicroprocessors)to UTA registered COMstudentsof2018 batchduring6thsemester.
- The syllabi of the courses Microprocessors and Microcontrollers and Operating Systems have to bemodifiedas perUTA requirements.

  Resolution: Themodifications incurriculumwereaccepted andapproved.

As BOS meetings for all the departments are taking place simultaneously in different venues today, theChairman has requested approval from the committee to incorporate modifications / alterations, if any,approved by the BOS committee of other departments for the existing courses offered in ComputerScienceandEngineeringbyotherdepartments.TheBOSCommitteeforComputerScienceandEngineering has approved the proposal unanimously. The BOS Committee authorizes the Chairperson ofthe BOS to formulate a sub-committee for making any minor modifications required in the programcurriculumand seek theapproval in the nextmeeting.

TheBOSChairpersonhasconveyedthatthedecisionstakenduringthe11thmeetingofBOSforComputerScienceandEngineeringwillbeimplementedfor2020-2024,2019-2023,and2018-2022as

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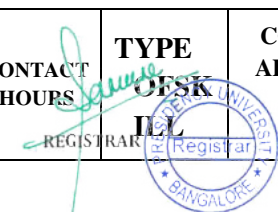www.presidencyuniversity.in

earlyaspossiblewhereverapplicable.Hehasconveyedthankstoallthemembersandinformedthatthedateofnext BOS meetingwill benotified soon.

ThemeetingendedwithVoteofThanksto theChair.

BOSCommittee:

S. No.	Name	Status	Signature
1	Dr.K.G.Mohan	Chairman	
2	Dr.C.Kalaiarasan	InternalMember	
3	Dr.SmithaRao	InternalMember	
4	Dr.T.K.Thivakaran	InternalMember	
5	Dr.SatishCKulhari	InternalMember	NotPresent
6	Dr.RMahalakshmi	InternalMember	
7	Dr.JAlameluMangai	InternalMember	
8	Dr.G.Shanmugarathinam	InternalMember	
9	Dr.RameshV	InternalMember	
10	Dr.S.P.Anandaraj	InternalMember	REGISTRAR

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11	Dr.A.Jayachandran	InternalMember	
12	Dr.NidhiMishra	InternalMember	
13	Dr.BlessedPrince	InternalMember	
14	Dr.J.Andrews	InternalMember	
15	Dr.H.S.Guruprasad	ExternalMember(Academics)	
16	Dr.K.Rajanikanth	SpecialInvitee/Co-optedMember	
17	Dr.SrinivasVivek	ExternalMember(Academics)	
18	Mr. DipyamanBanerjee	ExternalMember(IndustryExpert)	
19	Mr.TapasGuha	MemberSecretary	

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AnnexureCSE 11.1

10THBOS MEETING

MinutesofMeeting

The **10thBoard of Studies (BOS) meeting of Department of Computer Science and Engineering wasconductedonFriday,17thJanuary2020at11.00AMinthePresidencyUniversitycampus.**Followingis theminutesofthe meeting.

Agenda:

CSE10.1ApprovaloftheMinutesof 9thBOSmeeting.

Theminutes ofthe 9thmeetingof theBoard ofStudiesof ComputerScienceand Engineeringheld on 04th May 2019 was placed before the members and the same was unanimouslyapproved.

CSE10.2Review andApprovalofmodificationsintheB.Tech/M.Techprogramstructureandcurriculumo fthe existing batches.

Theproposedmodificationswereacceptedand approved.

CSE10.3Approvalofintroduction of thenewcourseCyberSecurity.

Resolvedthattheproposedcourseisrelevantwiththecurrent industrytrend andshall actas asolid foundation for the course Cryptography in the subsequent semester. The same isapproved.

CSE10.4 Approvalofprogramregulationsandcurriculumof the ThreeyearB.C.Aprogram2019- 23

The program regulations and curriculum of the Three year B.C.A program 2019-22 wereapprovedwith fewsuggestions. Thesesuggestionshavebeenimplemented.

CSE10.5Approvaloflistofexaminers

ApprovedandsubmittedtoControllerofExamination.

CSE10.6ApprovalofNPTELcoursestobeofferedasDiscipline/Openelectives

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The proposed list of MOOC courses was approved by the members. Courses from the samehasalreadybeen taken up bythe students forcredit transfer.

CSE10.7Discussionon feedback on curriculum from stakeholders

Feedback on curriculum collected from al the stakeholders were analyzed and subsequent improvement measures have been adapted.

CSE10.8Anyothermatterwiththepermissionof thechair

While representing the credit structure (L-T-P), at present contact hours are used. Instead ofthis, it was suggested to follow standard representation of credit. Example: 1-0-4-3 is to beshownas 1-0-2-3. This is beingconsidered.

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AnnexureCSE 11.2

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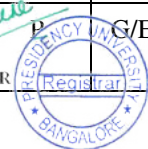www.presidencyuniversity.in

SOE-CSE(IOT) 20-24

SUGGESTEDPROGRAM STRUCTURE

ISEM-PHYSICSCYCLE (Aug-Dec)#

S. NO.	COURSE CODE	COURSENAME	CREDITSTRUCTURE				CONTACT HOURS	TYPE OFSKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MAT105	CalculusandLinear Algebra	3	1	0	4	4	F[1]	-
2	PHY101	EngineeringPhysics	4	0	0	4	4	F	-
3	EEE101	ElementsofElectrical Engineering	3	0	0	3	3	P[2]	-
4	CIV101	ElementsofCivilEngineering	3	0	0	3	3	P	Env[4]
5	MEC152	EngineeringGraphics	2	0	4	4	6	P	-
6	ENG103	Technical WrittenCommunication	2	1	0	3	3	F/E[3]	-
7	KAN101	KannadaKali	1	0	0	1	1	F	-
8	PHY151	EngineeringPhysicsLab	0	0	2	1	2	F	-
9	MEC151	WorkshopPractice	0	0	2	1	2	P	-
10	PPS 105	BuildingSelfConfidence	-	-	-	-	2	E	-
		TOTAL	**18**	**2**	**8**	**24**	**30**		

[1] FoundationCourse

[3] EmployabilitySkills

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[2]ProfessionalSkills	[4]EnvironmentalIssues

ISEM-CHEMISTRYCYCLE(Aug-Dec)#								
S. NO.	COURSE CODE	COURSE NAME	CREDITSTRUCTURE				CONTACT HOURS	TYPE OFSKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MAT105	CalculusandLinear Algebra	3	1	0	4	4	F	-
2	CHE 101	EngineeringChemistry	4	0	0	4	4	F	-
3	ECE 101	ElementsofElectronics Engineering	3	0	0	3	3	P	-
4	MEC101	ElementsofMechanical Engineering	3	0	0	3	3	P	-
5	CIV102	EnvironmentalScienceand Disaster Management	3	0	0	3	3	F	Env
6	ENG104	Technical SpokenCommunication	1	0	2	2	3	E	-
7	CSE151	ComputerProgramming	2	0	4	4	6	E	-
8	CHE 151	EngineeringChemistryLab	0	0	2	1	2	F	-
9	PPS 105	BuildingSelfConfidence	-	-	-	-	2	F	PE[5]/S[6]
		TOTAL	19	1	8	24	30		

[5]ProfessionalEthics

[6]SustainabilityIssues

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IISEM-CHEMISTRYCYCLE(Jan-May) *

S. NO.	COURSE CODE	COURSE NAME	CREDITSTRUCTURE				CONTACT HOURS	TYPE OFSKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MAT106	Calculus, Differential Equationsand Complex Variables	3	1	0	4	4	F	-
2	CHE 101	EngineeringChemistry	4	0	0	4	4	F	-
3	ECE 101	ElementsofElectronics Engineering	3	0	0	3	3	P	-
4	MEC101	ElementsofMechanical Engineering	3	0	0	3	3	P	-
5	CIV102	EnvironmentalScienceand Disaster Management	3	0	0	3	3	F	Env
6	ENG104	Technical SpokenCommunication	1	0	2	2	3	E	-
7	CSE151	ComputerProgramming	2	0	4	4	6	E	-
8	CHE 151	EngineeringChemistryLab	0	0	2	1	2	F	-
9	PPS 106	EffectiveCommunication	-	-	-	-	2	E	-
		TOTAL	19	1	8	24	30		

IISEM-PHYSICSCYCLE (Jan-May)

S. NO.	COURSE CODE	COURSENAME	CREDITSTRUCTURE				CONTACT HOURS	TYPE OFSKILL	COURSE ADDRESSESTO
			L	T	P	CREDITS			

REGISTRAR

| 1 | MAT106 | Calculus, Differential Equationsand Complex Variables | 3 | 1 | 0 | 4 | 4 | F^1 | - |

2	PHY101	EngineeringPhysics	4	0	0	4	4	F	-
3	EEE101	ElementsofElectrical Engineering	3	0	0	3	3	P^2	-
4	CIV101	ElementsofCivilEngineering	3	0	0	3	3	P	Env
5	MEC152	EngineeringGraphics	2	0	4	4	6	P	-
6	ENG103	Technical WrittenCommuni cation	2	1	0	3	3	F/E^3	-
7	KAN101	KannadaKali	1	0	0	1	1	F	-
8	PHY151	EngineeringPhysicsLab	0	0	2	1	2	F	-
9	MEC151	WorkshopPractice	0	0	2	1	2	P	-
10	PPS 106	EffectiveCommunication	-	-	-	-	2	E	-
		TOTAL	18	2	8	24	30		

Note:At theendofthe1styear(Commonto allB.Tech.Programs)thetotalcreditsofferedis48.

The1styear B.TechProgramstructure isexecuted intwo cycles.
 * Thestudentsundergoingthe"Physics"cycleshalltakethe Coursesasindicated.

\# Thestudentsundergoing"Chemistry"cycle shalltakethe Coursesasindicated

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S.No.	COURSECODE	COURSE NAME	CREDITSTRUCTURE				CONTACTHOURS	TYPEOFSKILL	COURSEADDRESSESTO
			L	T	P	C			
1	MAT107	Transform Techniques,PartialDifferentialEquationsandProbability	3	1	0	4	4	F	-
2	CSE201	DataStructures	3	0	0	3	3	P	-
3	CSE202	DigitalDesign	3	0	0	3	3	F	-
4	CSE203	DiscreteMathematics	3	1	0	4	4	F	-
5	CSE208	TheoryofComputations	3	1	0	4	4	P	-
6	CSE251	DataStructuresLab	0	0	4	2	4	P	-
7	CSE252	DigitalDesignLab	0	0	2	1	2	F	-
8	PPS 107	Design Thinking And TeamBuilding	-	-	-	-	2	E	PE
9	SIC501	Social ImmersionCourse*	-	-	-	1	-	P	G[7]/Env/S
		TOTAL	**15**	**3**	**8**	**22**	**26**		

IIISEMESTER

7GenderIssues

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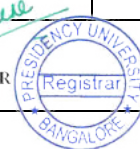www.presidencyuniversity.in

*StudenthastoregisterforSocial ImmersionCourseinanyonesemester3/ 4/ 6toearnthemandatorycredits

S.No	COURSE CODE	COURSE NAME	CREDITSTRUCTURE				CONTACTHOURS	TYPE OFSKILL	COURSEADDRESSESTO
			L	T	P	C			
1	MAT108	Numerical Methods,Probability and SamplingDistributions	3	1	0	4	4	F	-
2	CSE205	Computer Organization andArchitecture	3	1	0	4	4	P	-
3	CSE206	Microprocessors andMicrocontrollers	3	0	0	3	3	P	-
4	CSE207	DatabaseManagementSystems	3	0	0	3	3	P	-
5	CSE204	ObjectOrientedProgramming	1	0	4	3	5	P	-
6	CSE XXX	IntroductiontoIoT	1	0	4	3	5	P	-
7	CSE253	DatabaseManagementSystems Lab	0	0	2	1	2	P	-
8	CSE254	Microprocessors andMicrocontrollers- Lab	0	0	2	1	2	P	-
9	PPS 108	BeingCorporateReady	-	-	-	-	2	E	PE
10	SIC501*	Social ImmersionCourse*	-	-	-	1		P	G/Env/S

(IVSEMESTER)

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		TOTAL	14	2	14	24	30		
GenderIssues									

SOE-CST(BIGDATA)20-24

SUGGESTEDPROGRAM STRUCTURE

| | | | ISEM-PHYSICSCYCLE (Aug-Dec)# | | | | |

S. NO.	COURSE CODE	COURSENAME	\multicolumn{4}{c}{CREDITSTRUCTURE}	CONTACT HOURS	TYPE OFSKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MAT105	CalculusandLinear Algebra	3	1	0	4	4	F^1	-
2	PHY101	EngineeringPhysics	4	0	0	4	4	F	-
3	EEE101	ElementsofElectricalEngineering	3	0	0	3	3	P^2	-
4	CIV101	ElementsofCivilEngineering	3	0	0	3	3	P	Env^4
5	MEC152	EngineeringGraphics	2	0	4	4	6	P	-
6	ENG103	TechnicalWrittenCommunication	2	1	0	3	3	F/E^3	-
7	KAN101	KannadaKali	1	0	0	1	1	F	-
8	PHY151	EngineeringPhysicsLab	0	0	2	1	2	F	-
9	MEC151	WorkshopPractice	0	0	2	1	2	P	-
10	PPS 105	BuildingSelfConfidence	-	-	-	-	2	F	-

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		TOTAL	18	2	8	24	30		

[1]FoundationCourse	[3]EmployabilitySkills
[2]ProfessionalSkills	[4]EnvironmentalIssues

ISEM-CHEMISTRYCYCLE(Aug-Dec)#								
S. NO.	COURSE CODE	COURSE NAME	CREDITSTRUCTURE				CONTACT HOURS	TYPE OFSKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MAT105	CalculusandLinear Algebra	3	1	0	4	4	F	-
2	CHE 101	EngineeringChemistry	4	0	0	4	4	F	-
3	ECE 101	ElementsofElectronics Engineering	3	0	0	3	3	P	-
4	MEC101	ElementsofMechanical Engineering	3	0	0	3	3	P	-
5	CIV102	EnvironmentalScienceand Disaster Management	3	0	0	3	3	F	Env
6	ENG104	Technical SpokenCommuni cation	1	0	2	2	3	E	-
7	CSE151	ComputerProgramming	2	0	4	4	6	E	-
8	CHE 151	EngineeringChemistryLab	0	0	2	1	2	F	-
9	PPS 105	BuildingSelfConfidence	-	-	-	-	2	F	PE[5]/S[6]
		TOTAL	19	1	8	24	30		

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[5]ProfessionalEthics

[6]SustainabilityIssues

IISEM-CHEMISTRYCYCLE(Jan-May)*

S. NO.	COURSE CODE	COURSE NAME	CREDITSTRUCTURE				CONTACT HOURS	TYPE OFSKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MAT106	Calculus, Differential Equationsand Complex Variables	3	1	0	4	4	F	-
2	CHE 101	EngineeringChemistry	4	0	0	4	4	F	-
3	ECE 101	ElementsofElectronics Engineering	3	0	0	3	3	P	-
4	MEC101	ElementsofMechanical Engineering	3	0	0	3	3	P	-
5	CIV102	EnvironmentalScienceand Disaster Management	3	0	0	3	3	F	Env
6	ENG104	Technical SpokenCommunication	1	0	2	2	3	E	-
7	CSE151	ComputerProgramming	2	0	4	4	6	E	-
8	CHE 151	EngineeringChemistryLab	0	0	2	1	2	F	-
9	PPS 106	EffectiveCommunication	-	-	-	-	2	E	-
		TOTAL	**19**	**1**	**8**	**24**	**30**		

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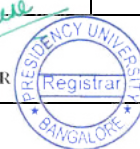www.presidencyuniversity.in

S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS	TYPE OF SKILL	COURSE ADDRESS ESTO
			L	T	P	CREDITS			
1	MAT106	Calculus,DifferentialEquationsand Complex Variables	3	1	0	4	4	F[1]	-
2	PHY101	EngineeringPhysics	4	0	0	4	4	F	-
3	EEE101	ElementsofElectricalEngineering	3	0	0	3	3	P[2]	-
4	CIV101	ElementsofCivilEngineering	3	0	0	3	3	P	Env
5	MEC152	EngineeringGraphics	2	0	4	4	6	P	-
6	ENG103	TechnicalWrittenCommunication	2	1	0	3	3	F/E[3]	-
7	KAN101	KannadaKali	1	0	0	1	1	F	-
8	PHY151	EngineeringPhysicsLab	0	0	2	1	2	F	-
9	MEC151	WorkshopPractice	0	0	2	1	2	P	-
10	PPS 106	EffectiveCommunication	-	-	-	-	2	E	-
		TOTAL	18	2	8	24	30		

Note:At theendofthe1st year(Commonto allB.Tech.Programs)thetotalcreditsofferedis48.

The1st year B.TechProgramstructure isexecuted intwo cycles.

* Thestudentsundergoingthe"Physics"cycleshalltakethe Coursesasindicated.

\# Thestudentsundergoing"Chemistry"cycle shalltakethe Coursesasindicated

IIISEMESTER

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S.No.	COURSECODE	COURSENAME	CREDITSTRUCTURE				CONTACTHOURS	TYPEOFSKILL	COURSEADDRESSESTO
			L	T	P	C			
1	MAT107	Transform Techniques, PartialDifferential Equations andProbability	3	1	0	4	4	F	-
2	CSE201	DataStructures	3	0	0	3	3	P	-
3	CSE202	DigitalDesign	3	0	0	3	3	F	-
4	CSE203	DiscreteMathematics	3	1	0	4	4	F	-
5	CSE210	OperatingSystems	3	0	0	3	3	P	-
6	CSE204	ObjectOrientedProgramming	1	0	4	3	5	P	-
7	CSE251	DataStructuresLab	0	0	4	2	4	P	-
8	CSE252	DigitalDesignLab	0	0	2	1	2	F	-
9	PPS 107	Design Thinking And TeamBuilding	-	-	-	-	2	E	PE
10	SIC501*	Social ImmersionCourse*	-	-	-	1	-	P	G[7]/Env/S
		TOTAL	**15**	**3**	**8**	**24**	**30**		

[7]Gender Issues

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*StudenthastoregisterforSocial ImmersionCourseinanyonesemester3/ 4/ 6toearnthemandatorycredits

S.No	COURSE CODE	COURSE NAME	CREDITSTRUCTURE				CONTACTHOURS	TYPE OFSKILL	COURSEADDRESSES TO
			IVSEMESTER						
			L	T	P	C			
1	MAT108	Numerical Methods,Probability and SamplingDistributions	3	1	0	4	4	F	-
2	CSE208	TheoryofComputations	3	1	0	4	4	P	-
3	CSE206	Microprocessors andMicrocontrollers	3	0	0	3	3	P	-
4	CSE207	DatabaseManagementSystems	3	0	0	3	3	P	-
5	CSE XXX	Foundations of Big DataAnalytics	2	0	2	3	4	P	-
6	CSE209	Graph Theory andCombinatorics	3	1	0	4	4	P	-
7	CSE253	DatabaseManagementSystems Lab	0	0	2	1	2	P	-
8	CSE254	Microprocessors andMicrocontrollers- Lab	0	0	2	1	2	P	-
9	PPS 108	BeingCorporateReady	-	-	-	-	2	E	PE
10	SIC501*	Social ImmersionCourse*	-	-	-	1	-	P	G/Env/S

REGISTRAR

		TOTAL	16	3	10	24	28		

[7]GenderIssues

SOE-CSE(BLOCKCHAIN)20-24

SUGGESTEDPROGRAMSTRUCTURE

			IIISEMESTER						
S.No.	COURSECODE	COURSE NAME	CREDITSTRUCTURE				CONTACTHOURS	TYPEOFSKILL	COURSEADDRESSESTO
			L	T	P	C			
1	MAT107	Transform Techniques,Partial Differential EquationsandProbability	3	1	0	4	4	F	-
2	CSE201	DataStructures	3	0	0	3	3	P	-
3	CSE205	Computer Organization andArchitecture	3	0	0	3	3	F	-
4	CSE210	OperatingSystems	3	0	0	3	3	F	-
5	CSE211	ComputerNetworks	3	0	0	3	3	F	-
6	CSE251	DataStructuresLab	0	0	4	2	4	P	-
7	CSE203	DiscreteMathematics	3	1	0	4	4	F	-
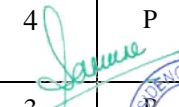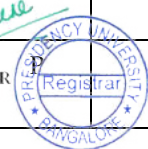
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8	CSE2XX	ComputerNetworksLab	0	0	2	1	2	F	-
9	PPS 107	Design Thinking And TeamBuilding	-	-	-	-	2	E	PE
10	SIC 501	SocialImmersionCourse*	-	-	-	1	-	P	G^7/Env/S
		TOTAL	**18**	**2**	**8**	**23**	**28**		
[7]GenderIssues									

*StudenthastoregisterforSocial ImmersionCourseinanyonesemester3/ 4/ 6toearnthemandatorycredits

IVSEMESTER									
S.No	COURSE CODE	COURSE NAME	CREDITSTRUCTURE				CONTACTHOURS	TYPE OFS KILL	COURSEADDRESSESTO
			L	T	P	C			
1	MAT108	Numerical Methods,Probability and SamplingDistributions	3	1	0	4	4	F	-
2	CSE215	Cryptography and NetworkSecurity	3	0	0	3	3	P	-
3	CSE208	Theoryof Computation	3	1	0	4	4	P	-
4	CSE207	DatabaseManagementSystems	3	0	0	3	3	P	-

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5	CSE204	ObjectOrientedProgramming	1	0	4	3	5	P	-
6	CSE XXX	BlockchainFundamentals	3	0	0	3	3	P	-
7	CSE253	DatabaseManagementSystems Lab	0	0	2	1	2	P	-
8	CSE XXX	Cryptography and NetworkSecurityLab	0	0	2	1	2	P	-
9	PPS 108	BeingCorporateReady	-	-	-	-	2	E	PE
10	SIC501	SocialImmersionCourse	-	-	-	1	-	P	G/Env/S
		TOTAL	**16**	**2**	**10**	**23**	**29**		
GenderIssues									

SOE-CSE(CYBERSECURITY)20-24

SUGGESTEDPROGRAMSTRUCTURE

IIISEMESTER

REGISTRAR

S.No.	COURSECODE	COURSE NAME	CREDITSTRUCTURE				CONTACTHOURS	TYPEOFSKILL	COURSEADDRESSESTO
			L	T	P	C			
1	MAT107	Transform Techniques,PartialDifferentialEquationsandProbability	3	1	0	4	4	F	-
2	CSE201	DataStructures	3	0	0	3	3	P	-
3	CSE202	DigitalDesign	3	0	0	3	3	F	-
4	CSE203	DiscreteMathematics	3	1	0	4	4	F	-
5	CSE204	Object OrientedProgramming	3	0	0	3	3	P	-
6	CSE223	ComputerOrganization	3	0	0	3	3	P	-
6	CSE251	DataStructuresLab	0	0	4	2	4	P	-
7	CSE252	DigitalDesignLab	-	-	-	-	2	F	-
8	PPS 107	Design Thinking And TeamBuilding	-	-	-	-	2	E	PE
9	SIC501*	Social ImmersionCourse*	-	-	-	1	-	P	G[7]/Env/S
		TOTAL	**18**	**2**	**8**	**24**	**30**		

[7]GenderIssues

REGISTRAR

*Student hastoregisterforSocialImmersionCourseinanyonesemester 3/ 4/ 6toearnthe mandatorycredits

S.No	COURSE CODE	COURSE NAME	CREDITSTRUCTURE				CONTACTHOURS	TYPE OFSKILL	COURSE ADDRESSES TO
			IVSEMESTER						
			L	T	P	C			
1	MAT104	EngineeringMathematics-IV	3	1	0	4	4	F	-
2	CSE236	Principle of DataCommunication and ComputerNetworks	3	0	0	3	3	P	-
3	CSE206	Microprocessors andMicrocontrollers	3	0	0	3	3	P	-
4	CSE207	DatabaseManagementSystems	3	0	0	3	3	P	-
6	CSE208	Theoryof Computation	3	1	0	4	4	P	
7	CSE XXX	IntroductionToCryptography	3	0	0	3	3	P	
8	CSE253	DatabaseManagementSystems Lab	0	0	2	1	4	P	-
9	CSE254	Microprocessors andMicrocontrollers- Lab	0	0	2	1	2	P	-
10	PPS 108	BeingCorporateReady	0	0	2	1	2	E	PE
11	SIC 501	SocialImmersionCourse*	-	-	-	1	-	P	G/Env/S
		TOTAL	18	2	06	24	28		

REGISTRAR

GenderIssues

SOE-CSE(AI-ML)20-24

SUGGESTEDPROGRAMSTRUCTURE

IIISEMESTER								
S.No.	COURSE CODE	COURSENAME	CREDITSTRUCTURE				CONTACT HOURS	TYPE OFSK ILL	COURSEAD DRESSESTO
			L	T	P	C			
1	MAT107	TransformTechniques, PartialDifferential Equations andProbability	3	1	0	4	4		-
2	CSEXXX	Data Structures forDataScience	3	0	1	4	5		-
3	CSEXXX	Practical ComputerHardwar eSystems	2	0	1	3	4		-
4	CSEXXX	Analysis ofAlgorithmsforA I	3	0	0	3	3		
5	CSE223	ComputerArchit ecture andOrganization	3	0	0	3	3		-
6	CSEXXX	DiscreteMath ematicalStruc tures	3	0	0	3	3		-
7	CSE208	Theory ofComputati on	3	0	0	3	3		-

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8	PPS 107	Design ThinkingAndTeam Building	-	-	-	-	2	E	PE
9	SIC 501	Social ImmersionCourse*	-	-	-	1	-	P	G[7]/Env/S
		TOTAL	**20**	**0**	**2**	**23/24**	**27**		

[7]Gender Issues

*StudenthastoregisterforSocial ImmersionCourseinanyonesemester3/ 4/ 6toearnthemandatorycredits

IVSEMESTER									
S.No	**COURSE CODE**	**COURSENAME**	**CREDITSTRUCTURE**				**CONTACT HOURS**	**TYPE OFSKILL**	**COURSEAD DRESSESTO**
			L	**T**	**P**	**C**			
1	MAT108	Numerical Methods,Probability andSamplingDistributions	3	1	0	4	4	F	
2	CSE207	DatabaseManagementSystems	3	0	1	4	5		-
3	CSE204	Object OrientedProgramming	2	0	1	3	5		-
4	CSE210	OperatingSystems	3	0	0	3	3		-
5	CSE225	Introduction toCombinatorics GraphTheory	3	0	0	3	4		-
6	CSE228	Principles ofArtificialIntelligence	3	0	0	3	3		
7	CSE236	PrinciplesofData Communicationand	3	0	0	3	3		

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		ComputerNetworks							
8	PPS 108	Being CorporateReady	-	-	-	-	2	E	PE
9	SIC501*	Social ImmersionCourse *	-	-	-	1		P	G/Env/S
		TOTAL	**21**	**0**	**2**	**23/24**	**28**		

**NoteStudentswill undergoprofessional practiceIduringthesummer breakbetweenthefourthandfifthsemesterandthe credits earnedwillbe accountedinthefifth semester.

SOE-CSE 20-24

SUGGESTEDPROGRAM STRUCTURE

			ISEM-PHYSICSCYCLE (Aug-Dec)#						
S. NO.	COURSE CODE	COURSENAME	CREDITSTRUCTURE				CONTACT HOURS	TYPE OFSKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MAT105	CalculusandLinear Algebra	3	1	0	4	4	F[1]	-
2	PHY101	EngineeringPhysics	4	0	0	4	4	F	-
3	EEE101	ElementsofElectrical Engineering	3	0	0	3	3	P[2]	-
4	CIV101	ElementsofCivilEngineering	3	0	0	3	3	P	Env[4]
5	MEC152	EngineeringGraphics	2	0	4	4	6	P	-
6	ENG103	Technical WrittenCommunication	2	1	0	3	3	F/E[3]	-

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7	KAN101	KannadaKali	1	0	0	1	1	F	-
8	PHY151	EngineeringPhysicsLab	0	0	2	1	2	F	-
9	MEC151	WorkshopPractice	0	0	2	1	2	P	-
10	PPS 105	BuildingSelfConfidence	-	-	-	-	2	E	-
		TOTAL	18	2	8	24	30		

[1]FoundationCourse	[3]EmployabilitySkills
[2]ProfessionalSkills	[4]EnvironmentalIssues

ISEM-CHEMISTRYCYCLE(Aug-Dec)#								
S. NO.	**COURSE CODE**	**COURSE NAME**	**CREDITSTRUCTURE**				**CONTACT HOURS**	**TYPE OFSKILL**	**COURSE ADDRESSES TO**
			L	T	P	CREDITS			
1	MAT105	CalculusandLinear Algebra	3	1	0	4	4	F	-
2	CHE 101	EngineeringChemistry	4	0	0	4	4	F	-
3	ECE 101	ElementsofElectronics Engineering	3	0	0	3	3	P	-
4	MEC101	ElementsofMechanical Engineering	3	0	0	3	3	P	-
5	CIV102	EnvironmentalScienceand Disaster Management	3	0	0	3	3	F	Env
6	ENG104	Technical SpokenCommunication	1	0	2	2	3	E	-
7	CSE151	ComputerProgramming	2	0	4	4	6	E	-

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8	CHE 151	EngineeringChemistryLab	0	0	2	1	2	F	-
9	PPS 105	BuildingSelfConfidence	-	-	-	-	2	F	PE[5]/S[6]
		TOTAL	19	1	8	24	30		

[5]ProfessionalEthics

[6]SustainabilityIssues

IISEM-CHEMISTRYCYCLE(Jan-May)*

S. NO.	COURSE CODE	COURSE NAME	CREDITSTRUCTURE				CONTACT HOURS	TYPE OFSKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MAT106	Calculus, Differential Equationsand Complex Variables	3	1	0	4	4	F	-
2	CHE 101	EngineeringChemistry	4	0	0	4	4	F	-
3	ECE 101	ElementsofElectronics Engineering	3	0	0	3	3	P	-
4	MEC101	ElementsofMechanical Engineering	3	0	0	3	3	P	-
5	CIV102	EnvironmentalScienceand Disaster Management	3	0	0	3	3	F	Env
6	ENG104	Technical SpokenCommunication	1	0	2	2	3	E	-
7	CSE151	ComputerProgramming	2	0	4	4	6	E	-
8	CHE 151	EngineeringChemistryLab	0	0	2	1	2	F	-
9	PPS 106	EffectiveCommunication	-	-	-	-	2	E	-

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		TOTAL	1 9	1	8	24	30		

		IISEM-PHYSICSCYCLE (Jan-May)#							
S. NO.	**COURSE CODE**	**COURSENAME**	**CREDITSTRUCTURE**				**CONTACT HOURS**	**TYPE OFSKILL**	**COURSE ADDRESS ESTO**
			L	**T**	**P**	**CREDITS**			
1	MAT106	Calculus, Differential Equationsand Complex Variables	3	1	0	4	4	F[1]	-
2	PHY101	EngineeringPhysics	4	0	0	4	4	F	-
3	EEE101	ElementsofElectrical Engineering	3	0	0	3	3	P[2]	-
4	CIV101	ElementsofCivilEngineering	3	0	0	3	3	P	Env
5	MEC152	EngineeringGraphics	2	0	4	4	6	P	-
6	ENG103	Technical WrittenCommunication	2	1	0	3	3	F/E[3]	-
7	KAN101	KannadaKali	1	0	0	1	1	F	-
8	PHY151	EngineeringPhysicsLab	0	0	2	1	2	F	-
9	MEC151	WorkshopPractice	0	0	2	1	2	P	-
10	PPS 106	EffectiveCommunication	-	-	-	-	2	E	-
		TOTAL	1 8	2	8	24	30		

Note:At theendofthe1st year(Commonto allB.Tech.Programs)thetotalcreditsofferedis48.

The1st year B.TechProgramstructure isexecuted intwo cycles.

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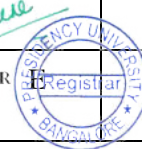
* Thestudentsundergoingthe"Physics"cycleshalltakethe Coursesasindicated.

\# Thestudentsundergoing"Chemistry"cycle shalltakethe Coursesasindicated

SOE-CST(DevOps)20-24

SUGGESTEDPROGRAMSTRUCTURE

S. NO.	COURSE CODE	COURSENAME	L	T	P	CREDITS	CONTACT HOURS	TYPE OFSKILL	COURSE ADDRESSES TO
			ISEM-PHYSICSCYCLE (Aug-Dec)#						
			CREDITSTRUCTURE						
1	MAT105	CalculusandLinear Algebra	3	1	0	4	4	F^1	-
2	PHY101	EngineeringPhysics	4	0	0	4	4	F	-
3	EEE101	ElementsofElectrical Engineering	3	0	0	3	3	P^2	-
4	CIV101	ElementsofCivilEngineering	3	0	0	3	3	P	Env^4
5	MEC152	EngineeringGraphics	2	0	4	4	6	P	-
6	ENG103	Technical WrittenCommuni cation	2	1	0	3	3	F/E^3	-
7	KAN101	KannadaKali	1	0	0	1	1	F	-
8	PHY151	EngineeringPhysicsLab	0	0	2	1	2	F	-
9	MEC151	WorkshopPractice	0	0	2	1	2	P	-
10	PPS 105	BuildingSelfConfidence	-	-	-	-	2	F	-

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		TOTAL	18	2	8	24	30		

[1]FoundationCourse	[3]EmployabilitySkills
[2]ProfessionalSkills	[4]EnvironmentalIssues

	ISEM-CHEMISTRYCYCLE(Aug-Dec)#							
S. NO.	**COURSE CODE**	**COURSE NAME**	**CREDITSTRUCTURE**				**CONTACT HOURS**	**TYPE OFSKILL**	**COURSE ADDRESSES TO**
			L	**T**	**P**	**CREDITS**			
1	MAT105	CalculusandLinear Algebra	3	1	0	4	4	F	-
2	CHE 101	EngineeringChemistry	4	0	0	4	4	F	-
3	ECE 101	ElementsofElectronics Engineering	3	0	0	3	3	P	-
4	MEC101	ElementsofMechanical Engineering	3	0	0	3	3	P	-
5	CIV102	EnvironmentalScienceand Disaster Management	3	0	0	3	3	F	Env
6	ENG104	Technical SpokenCommunication	1	0	2	2	3	E	-
7	CSE151	ComputerProgramming	2	0	4	4	6	E	-
8	CHE 151	EngineeringChemistryLab	0	0	2	1	2	F	-
9	PPS 105	BuildingSelfConfidence	-	-	-	-	2	F	PE[5]/S[6]
		TOTAL	**19**	**1**	**8**	**24**	**30**		

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[5]ProfessionalEthics

[6]SustainabilityIssues

IISEM-CHEMISTRYCYCLE(Jan-May) *

S. NO.	COURSE CODE	COURSE NAME	CREDITSTRUCTURE				CONTACT HOURS	TYPE OFSKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MAT106	Calculus, Differential Equationsand Complex Variables	3	1	0	4	4	F	-
2	CHE 101	EngineeringChemistry	4	0	0	4	4	F	-
3	ECE 101	ElementsofElectronics Engineering	3	0	0	3	3	P	-
4	MEC101	ElementsofMechanical Engineering	3	0	0	3	3	P	-
5	CIV102	EnvironmentalScienceand Disaster Management	3	0	0	3	3	F	Env
6	ENG104	Technical SpokenCommunication	1	0	2	2	3	E	-
7	CSE151	ComputerProgramming	2	0	4	4	6	E	-
8	CHE 151	EngineeringChemistryLab	0	0	2	1	2	F	-
9	PPS 106	EffectiveCommunication	-	-	-	-	2	E	-
		TOTAL	19	1	8	24	30		

IISEM-PHYSICSCYCLE (Jan-May)

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PRESIDENCY UNIVERSITY

Private University Estd. in Karnataka State by Act No. 41 of 2013

S. NO.	COURSE CODE	COURSENAME	CREDITSTRUCTURE				CONTACT HOURS	TYPE OFSKILL	COURSE ADDRESSESTO
			L	T	P	CREDITS			
1	MAT106	Calculus, Differential Equationsand Complex Variables	3	1	0	4	4	F[1]	-
2	PHY101	EngineeringPhysics	4	0	0	4	4	F	-
3	EEE101	ElementsofElectrical Engineering	3	0	0	3	3	P[2]	-
4	CIV101	ElementsofCivilEngineering	3	0	0	3	3	P	Env
5	MEC152	EngineeringGraphics	2	0	4	4	6	P	-
6	ENG103	Technical WrittenCommunication	2	1	0	3	3	F/E[3]	-
7	KAN101	KannadaKali	1	0	0	1	1	F	-
8	PHY151	EngineeringPhysicsLab	0	0	2	1	2	F	-
9	MEC151	WorkshopPractice	0	0	2	1	2	P	-
10	PPS 106	EffectiveCommunication	-	-	-	-	2	E	-
		TOTAL	18	2	8	24	30		

Note:At theendofthe1ˢᵗyear(Commonto allB.Tech.Programs)thetotalcreditsofferedis48.

The1ˢᵗyear B.TechProgramstructureisexecuted intwocycles.

* Thestudentsundergoingthe"Physics"cycleshalltakethe Coursesasindicated.

Thestudentsundergoing"Chemistry"cycle shalltakethe Coursesasindicated

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SOE-CST(AI/ML)20-24

SUGGESTEDPROGRAMSTRUCTURE

S.No.	COURSE CODE	COURSENAME	CREDITSTRUCTURE				CONTACT HOURS	TYPE OFSKILL	COURSEAD DRESSESTO
			L	T	P	C			
1	MAT107	TransformTechniques, PartialDifferential Equations andProbability	3	1	0	4	4		-
2	CSE XXX	Data Structures forDataScience	3	0	1	4	5		-
3	CSE XXX	Practical ComputerHardwareSystems	2	0	1	3	4		-
4	CSEXXX	Analysis ofAlgorithmsforAI	3	0	0	3	3		
5	CSE223	ComputerArchitectureandOrganization	3	0	0	3	3		-
6	CSE XXX	DiscreteMathematicalStructures	3	0	0	3	3		-
7	CSE208	Theory ofComputation	3	0	0	3	3		-
8	PPS 107	Design ThinkingAndTeamBuilding	-	-	-	-	2	E	PE

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9	SIC 501	Social ImmersionCourse*	-	-	-	1	-	P	G[7]/Env/S
		TOTAL	**20**	**1**	**2**	**23/24**	**26**		

[7]Gender Issues

*StudenthastoregisterforSocial ImmersionCourseinanyonesemester3/ 4/6toearnthemandatorycredits

			IVSEMESTER						
S.No	**COURSE CODE**	**COURSENAME**	**CREDITSTRUCTURE**				**CONTACT HOURS**	**TYPE OFSKILL**	**COURSEAD DRESSESTO**
			L	**T**	**P**	**C**			
1	MAT108	Numerical Methods,Probability andSamplingDistributions	3	1	0	3	4		-
2	CSE207	DatabaseMa nagementSy stems	3	0	1	4	5		-
3	CSE204	Object OrientedProgra mming	2	0	1	3	5		-
4	CSE210	OperatingSystems	3	0	0	3	3		-
5	CSE225	Introduction toCombinatorics GraphTheory	3	0	0	3	4		-
6	CSE228	Principles ofArtificialIntelligence	3	0	0	3	3		

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| 7 | CSE236 | Principles of DataCommunication andComputerNetworks | 3 | 0 | 0 | 3 | 3 | | |

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8	PPS 108	Being CorporateReady	-	-	-	-	2	E	PE
9	SIC501*	Social ImmersionCourse *	-	-	-	1		P	G/Env/S
		TOTAL	**21**	**0**	**2**	**23**	**27**		

**NoteStudentswill undergoprofessional practiceIduringthesummer breakbetweenthefourthandfifthsemesterandthe credits earnedwillbe accountedinthefifth semester.

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AnnexureCSE11.3

BCA20-24AR/VR

SUGGESTEDSEMESTER-WISECOURSES

ISemester

SL.No	COURSE CODE	COURSENAME	TYPE	CREDITSTRUCTURE				CONTACT HOURS
				L	T	P	C	
1	MAT 110	AppliedMathematics	Core	3	1	0	4	4
2	BCA101	ProblemSolvingusingC	Core	2	0	4	4	6
3	BCA102	Digitalelectronics	Core	3	0	0	3	3
4	BCA251	DigitalelectronicsLab	Core	0	0	2	1	2
5	ENG105	EssentialsofEnglish	AECC	2	0	0	2	2
6	LNG106	CommunicativeEnglish-1	AECC	2	0	0	2	2
7	KAN101	KannadaKali	F	1	0	0	1	1
8	PPD111	PersonalandProfessional Development-1	VAC	0	0	2	-	2
9	EVS107	EnvironmentalStudies	AECC	2	0	0	2	2
Total				**15**	**1**	**8**	**19**	**24**

LTPCreferstoLecture,Tutorial,Practical,andCredits

II Semester

SL.No	COURSECODE	COURSENAME	TYPE	CREDITSTRUCTURE				CONTACTHOURS
				L	T	P	C	
1	BCA255	PreproductionTechniques forGames	Core	0	0	4	2	4
2	MAT111	StatisticalMethodsand Techniques	Core	3	0	0	3	3
3	BCA105	DataStructures	Core	3	0	0	3	3
4	BCA252	DataStructures Lab	Core	0	0	4	2	4
5	BCA106	ComputerOrganization	Core	3	0	0	3	3
6	BCA107	ProgramminginPython	Core	1	0	4	3	5

7	ENG207	TechnicalWritten Communication	AECC	2	0	0	2	2
8	LNG206	CommunicativeEnglish-2	AECC	2	0	0	2	2
9	PPD112	PersonalandProfessional Development-2	VAC	0	0	2	-	2
		Total		**14**	**0**	**14**	**20**	**29**

III   **Semester**

SL.No	COURSECODE	COURSENAME	TYPE	CREDITSTRUCTURE				CONTACTHOURS
				L	**T**	**P**	**C**	
1	**BCA219**	Introductionto3D Animation	Core	3	0	0	3	3
2	BCA203	DatabaseManagement Systems	Core	3	0	0	3	3
3	BCA204	OperatingSystem	Core	3	0	0	3	3
4	**BCA220**	Introductionto Immersive Technologies	Core	3	0	0	3	3
5	BCA205	DatabaseManagement SystemsLab	Core	0	0	4	2	4
6	BCA256	3DModellingLab	Core	0	0	4	2	4
		MultimediaLab						
8	SIC501	Social ImmersionCourse		-	-	-	1	-
9	PPD131	PersonalandProfessional Development-3	SEC	0	0	2	-	2
		Total		**15**	**0**	**12**	**20**	**26**

IV   **Semester**

SL.No	COURSECODE	COURSENAME	TYPE	CREDITSTRUCTURE				CONTACTHOURS

				L	T	P	C	
1	BCA258	AugmentedReality Development	Core	1	0	4	3	5
2	BCA223	3D &VR Workflows and Theories	Core	3	0	0	3	3
3	BCA259	CharacterandEnvironment DesigninGameEngine	Core	1	0	4	3	5
4	BCA313	ImageProcessing	Core	2	0	2	3	4
5	BCA208	ComputerNetworks	Core	3	0	0	3	3
6	BCA217	ArtificialIntelligencefor Games						
7	BCA259	VideoandAudiofor Games	Core	2	0	2	3	4
8	PPD132	PersonalandProfessional Development-2	SEC	0	0	2	-	2
Total				**15**	**0**	**14**	**21**	**29**

Note:SummerInternshipduringSummerVacation

V   **Semester**

SL.No	COURSECODE	COURSENAME	TYPE	CREDITSTRUCTURE				CONTACTHOURS
				L	T	P	C	
1	BCA260	3DGameEngine	Core	1	0	4	3	5
2	BCA224	UserExperienceDesign	Core	2	0	0	2	2
3	BCA261	VirtualReality development	Core	2	0	4	4	6
4	DE1	DisciplineElective1*	DE	3	0	0	3	3
5	DE2	DisciplineElective2	DE	3	0	0	3	3
6	OE1	OpenElective1*	OE	3	0	0	3	3
		Internship		2	0	0	2	2
Total				**16**	**0**	**8**	**20**	**24**

*Studentsmayoptany2DisciplineElectives fromthebelowgiven specializationlist.

DisciplineElective1	ProgramminginJava
	AdvancedgameProgramming
	StudioDesignandProje...
	MobileandWebApplicationsdevelopment
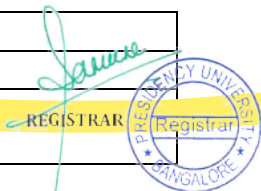
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DisciplineElective2	Characterdesignand2DAnimation
	ComicstripandStoryboard
	CloudStorageApplications
	UnixProgramming

VI   **Semester**

SL.No	COURSECODE	COURSENAME	TYPE	CREDITSTRUCTURE				CONTACTHOURS
				L	T	P	C	
1	BCA262	DigitalCompositing	Core	2	0	4	4	6
2	BCA263	MotionCapture	Core	2	0	2	3	4
3	DE3	DisciplineElective3/	DE	3	0	0	3	3
4	DE4	DisciplineElective4	DE	3	0	0	3	3
5	OE2	OpenElective2*	OE	3	0	0	3	3
6	BCA315	Dissertation		3	0	0	3	3
Total				**16**	**0**	**6**	**19**	**22**

* Studentsmayoptany2DisciplineElectives fromthe givenspecialization list.

DisciplineElective1	ProgramminginJava
	HumanComputerInteraction
	GameTestingand Analysis
	VideostreamingandARtechnologies
	MachineVision
DisciplineElective2	SocialmediaMarketing/
	UI/UXDesign
	Intellectualproperty,EthicsandLegal Issues

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BCA20-24GamingandGraphics

SUGGESTEDSEMESTER-WISECOURSES

ISemester

SL.No	COURSE CODE	COURSENAME	TYPE	L	T	P	C	CONTACT HOURS
1	MAT 110	AppliedMathematics	Core	3	1	0	4	4
2	BCA101	ProblemSolvingusingC	Core	2	0	4	4	6
3	BCA102	Digitalelectronics	Core	3	0	0	3	3
4	BCA251	DigitalelectronicsLab	Core	0	0	2	1	2
5	ENG105	EssentialsofEnglish	AECC	2	0	0	2	2
6	LNG106	CommunicativeEnglish-1	AECC	2	0	0	2	2
7	KAN101	KannadaKali	F	1	0	0	1	1
8	PPD111	PersonalandProfessional Development-1	VAC	0	0	2	-	2
9	EVS107	EnvironmentalStudies	AECC	2	0	0	2	2
		Total		**15**	**1**	**8**	**19**	**24**

LTPCreferstoLecture,Tutorial,Practical,andCredits

II Semester

SL.No	COURSECODE	COURSENAME	TYPE	L	T	P	C	CONTACTHOURS
1	BCA255	PreproductionTechniques forGames	Core	0	0	4	2	4
2	MAT111	StatisticalMethodsand Techniques	Core	3	0	0	3	3
3	BCA105	DataStructures	Core	3	0	0	3	3
4	BCA252	DataStructures Lab	Core	0	0		2	

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5	BCA106	ComputerOrganization	Core	3	0	0	3	4
6	BCA107	ProgramminginPython	Core	1	0	4	3	5
7	ENG207	TechnicalWritten Communication	AECC	2	0	0	2	2
8	LNG206	CommunicativeEnglish-2	AECC	2	0	0	2	2
9	PPD112	PersonalandProfessional Development-2	VAC	0	0	2	-	2
Total				14	0	14	20	29

III

SL.No	COURSECODE	COURSENAME	TYPE	CREDITSTRUCTURE				CONTACTHOURS
				L	T	P	C	
		Animation						
2	BCA203	DatabaseManagement Systems	Core	3	0	0	3	3
3	BCA204	OperatingSystem	Core	3	0	0	3	3
4	BCA220	IntroductiontoImmersive Technologies	Core	3	0	0	3	3
5	BCA205	DatabaseManagement SystemsLab	Core	0	0	4	2	4
6	BCA254	3DModellingLab	Core	0	0	4	2	4
7	BCA257	ComputerGraphicsand MultimediaLab	Core	2	0	2	3	4
8	SIC501	Social Immersioncourse		-	-	-	1	0
9	PPD131	PersonalandProfessional Development-3	SEC	0	0	2	-	2
Total				15	0	12	20	26

IV **Semester**

SL.No	COURSECODE	COURSENAME	TYPE	CREDITSTRUCTURE				CONTACTHOURS
				L	T	P	C	

1	BCA264	IntroductiontoGame Design	Core	3	0	0	3	3
2	BCA265	2DGameDesignand Development	Core	2	0	4	4	6
3	BCA266	GameMechanicsand Dynamics	Core	3	0	0	3	3
4	BCA313	ImageProcessing	Core	2	0	2	3	4
5	BCA208	ComputerNetworks	Core	3	0	0	3	3
6	BCA217	ArtificialIntelligencefor Gaming	Core	3	0	0	3	3
7	BCA259	VideoandAudiofor Games	Core	2	0	2	3	4
8	PPD132	PersonalandProfessional Development-4	SEC	0	0	2	-	2
		Total		**18**	**0**	**10**	**22**	**28**

Note:SummerInternshipduringSummerVacation

V   Semester

SL.No	COURSECODE	COURSENAME	TYPE	CREDITSTRUCTURE				CONTACTHOURS
				L	T	P	C	
		CharacterModelingand						
4	DE1	DisciplineElective1*	DE	3	0	0	3	3
5	DE2	DisciplineElective2	DE	3	0	0	3	3
6	OE1	OpenElective1*	OE	3	0	0	3	3
7		Internship		2	0	0	2	2
		Total		**15**	**0**	**10**	**20**	**25**

*Studentsmayoptany2DisciplineElectives from the belowgiven specializationlist.

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DisciplineElective 1	GameArchitectur e
	MotionCapture
	AR/VRbasedGameDevelopment
	GameInterfaceandLevelDesign
DisciplineElective2	Cryptographyand Network security
	EmbeddedSystems
	CloudStorageApplications

VI   **Semester**

SL.No	COURSECODE	COURSENAME	TYPE	CREDITSTRUCTURE				CONTACTHOURS
				L	T	P	C	
1	BCA262	DigitalCompositing	Core	2	0	4	4	6
2	BCA214	MobileandWeb ApplicationsDevelopment	Core	1	0	4	3	5
3	DE3	DisciplineElective3	DE	3	0	0	3	3
4	DE4	DisciplineElective4	DE	3	0	0	3	3
5	OE2	OpenElective2*	OE	3	0	0	3	3
6	BCA315	Dissertation		-	-	8	4	8
		Total		**12**	**0**	**16**	**19**	**28**

* Studentsmayoptany2DisciplineElectives fromthe givenspecialization list.

DisciplineElective1	ProgramminginJava
	HumanComputer Interaction
	GameTestingand Analysis
	VideostreamingandARtechnologies
	MachineVision
DisciplineElective2	SocialmediaMarketing/
	UI/UXDesign
	Intellectualproperty,EthicsandLegal Issues

Note:ThecoursestructureofBCAistentative &subjecttorevision&approvalof theAcademicCouncil.

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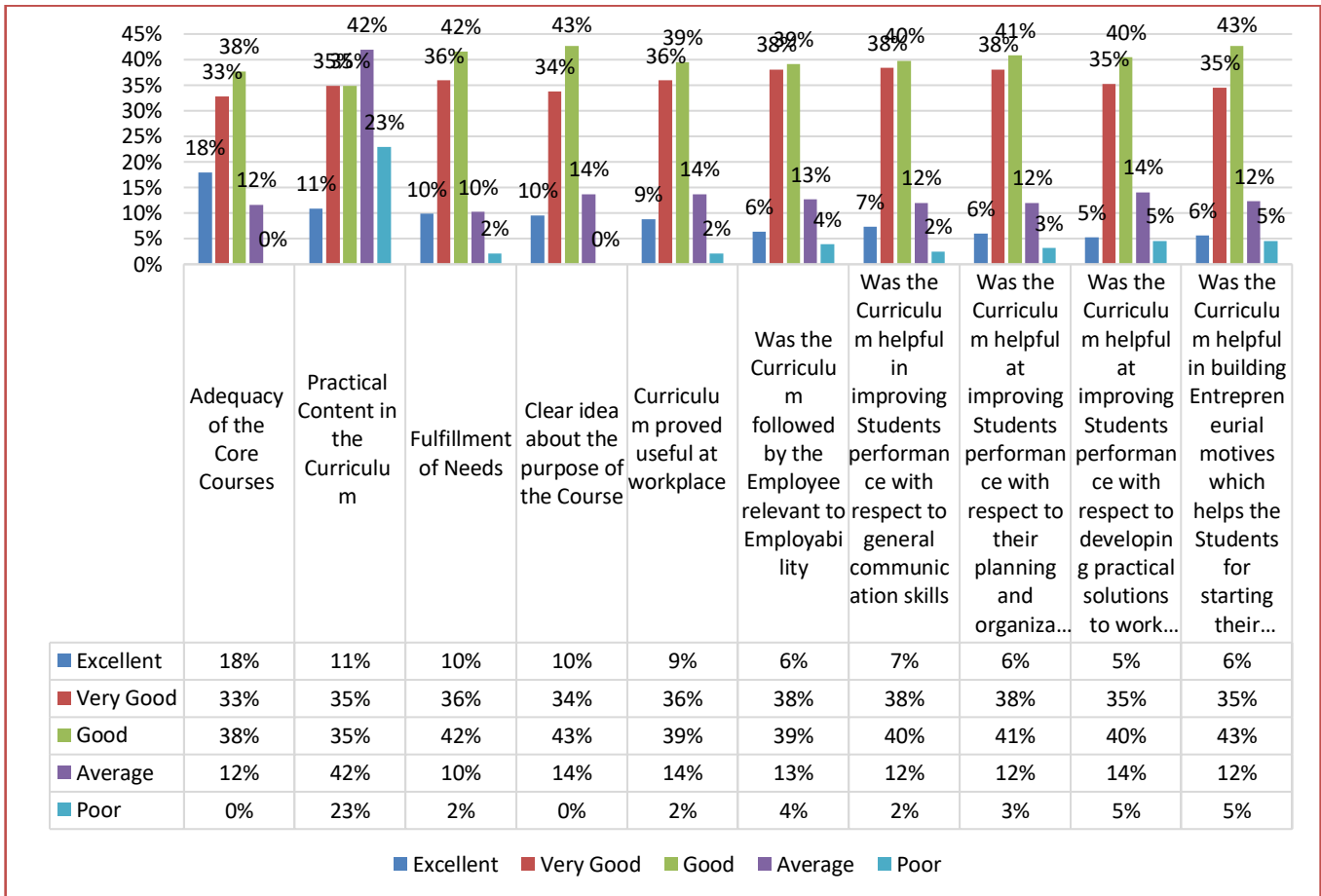www.presidencyuniversity.in

AnnexureCSE 11.4

ListofExternalExaminers:

S.no	FacultyName	Designation	Affiliation
1	Dr.Mallikarjun.M.Kodabagi	Professor	RevaUniversity(Autonomous)
2	Dr.MallikarjunShastryP. M.	Professor	RevaUniversity(Autonomous)
3	Dr.VishwanathR.Hulipalled	Professorand Dy.Director(R&IC)	RevaUniversity(Autonomous)
4	Dr.GopalKrishnaShyam	Associate Professor	RevaUniversity(Autonomous)
5	Ms.NirmalaS.Gupta	Associate Professor	RevaUniversity(Autonomous)
6	Dr.SurekhaK.B	Professor&Head	Acharya Instituteof Technology(AIT)
7	Dr.BasavarajuT.G	Professor&Head	GovernmentSriKrishnarajendra SilverJubileeTechnological Institute(SKSJTI)
8	Dr.S.N.Chandrasekhara	Professor&HOD	Ex-BoEChairman,(CBIT)
9	Ms.NaidillaSadhasiva	Assistant Professor	M.S.RamaiahInstituteofTechnology(MSRI10T)(Autonomous)
10	Mr.Srinivas D B	Associate Professor	NITTE Meenakshi Institute ofTechnology(NMIT)(Autonomous)
11	Dr.ThippeswamyM.N	Professor&HOD	NITTE Meenakshi Institute ofTechnology(NMIT)(Autonomous)
12	Mr.ShivaprasadK.H	Assistant Professor	GITAMUniversity(Autonomous)
13	Dr.H.N.Champa	Associate Professor& Chairperson	UniversityVisvesvarayaCollegeofEngineering(UVCE)
14	Dr.PushpaC.N	Assistant Professor	UniversityVisvesvarayaCollegeofEngineering(UVCE)
15	Dr.Gowrishankar	Professor	BMSCE(Autonomous)
16	Dr.H.S.Jayanna	Professor	SiddagangaInstituteof Technology(SIT)

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17	Dr.Shanthakumar.B.Patil	Professor	Nagarjuna College of Engineeringand Technology(NCET)(Autonomous)
18	Dr.MamathaG	Professor&HOD	Nagarjuna College of Engineeringand Technology(NCET)(Autonomous)
19	Dr.JagadishS.Kallimani	Associate Professor	M.S.RamaiahInstituteofTechnology(MSRIT)(Autonomous)
20	Dr.Balachandran	HOD	ChristUniversity(Autonomous)
21	Dr.Sameeksha	Associate Professor	ChristUniversity(Autonomous)
22	Mr.Sathish	Assistant Professor	ChristUniversity(Autonomous)
23	Mrs.Asha	Assistant Professor	NITTEMeenakshiInstituteof Technology(NMIT)(Autonomous)
24	Mr.ShankarR	Assistant Professor	AcharyaInstituteofTechnology
25	Mr.DheerajD	Assistant Professor	
26	Dr.Gopal KrishnaShyam		RevaUniversity
27	Ms.ArchanaNaik	Assistant Professor	NitteMeenakshiInstituteof Technology(NMIT)

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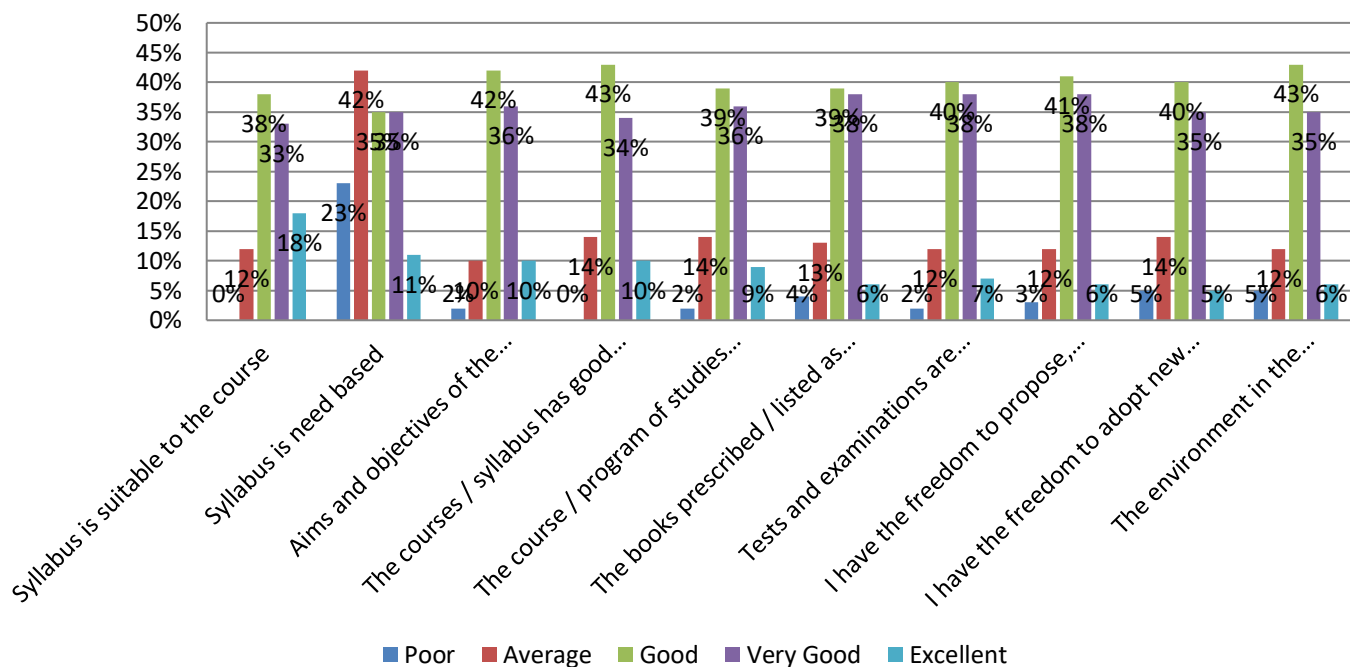Phone: +91 80 4925 5533 / 5599   Email ID: info@presidencyuniversity.in
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AnnexureCSE 11.5

CourseNamein NPTEL	NPTELlink	Duration
Businessanalyticsanddatamining ModelingusingR	https://swayam.gov.in/nd1_noc20_mg24/preview	12weeks
AnIntroductiontoArtificial Intelligence	https://swayam.gov.in/nd1_noc20_cs42/preview	12Weeks
EmbeddedSystemsDesign	https://swayam.gov.in/nd1_noc20_cs14/preview	12Weeks
IntroductiontoMachineLearning	https://swayam.gov.in/nd1_noc20_cs29/preview	12Weeks
SocialNetworks	https://swayam.gov.in/nd1_noc20_cs32/preview	12Weeks
IntroductiontoDatabase Systems	https://swayam.gov.in/nd1_noc20_cs03/preview	12Weeks
ReinforcementLearning	https://swayam.gov.in/nd1_noc20_cs51/preview	12Weeks
BusinessAnalyticsandDataMining usingR	https://swayam.gov.in/nd1_noc20_mg24/preview	12Weeks
RandomizedAlgorithms	https://swayam.gov.in/nd1_noc20_cs39/preview	12Weeks
EntrepreneurshipEssentials	https://swayam.gov.in/nd1_noc20_ge08/preview	12Weeks
Fuzzysets, logic and systems and applications	https://swayam.gov.in/nd1_noc20_ee03/preview	12Weeks

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AnnexureCSE 11.6

EMPLOYER FEEDBACK ON CURRICULUM, 2019-20

Program: BCA - General

Sl. No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	1. Poor (%)	Total Respondents
1.	Adequacy of the Core Courses	18	33	38	12	0	
2.	Practical Content in the Curriculum	11	35	35	42	23	
3.	Fulfillment of Needs	10	36	42	10	2	
4.	Clear idea about the purpose of the Course	10	34	43	14	0	
5.	Curriculum proved useful at workplace	9	36	39	14	2	
6.	Was the Curriculum followed by the Employee relevant to Employability	6	38	39	13	4	
7.	Was the Curriculum helpful in improving Students performance with respect to general communication skills	7	38	40	12	2	30
8.	Was the Curriculum helpful at improving Students performance with respect to their planning and organization skills	6	38	41	12	3	
9.	Was the Curriculum helpful at improving Students performance with respect to developing practical solutions to work place problems	5	35	40	14	5	
10.	Was the Curriculum helpful in building Entrepreneurial motives which helps the Students for starting their	6	35	43	12	5	

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ventures					
Average	**9**	**36**	**40**	**15**	**5**

Employer Feedback BCA-GEN 2019-20

	Adequacy of the Core Courses	Practical Content in the Curriculum	Fulfillment of Needs	Clear idea about the purpose of the Course	Curriculum proved useful at workplace	Was the Curriculum followed by the Employee relevant to Employability	Was the Curriculum helpful in improving Students performance with respect to general communication skills	Was the Curriculum helpful at improving Students performance with respect to their planning and organiza...	Was the Curriculum helpful at improving Students performance with respect to developing practical solutions to work...	Was the Curriculum helpful in building Entrepreneurial motives which helps the Students for starting their...
■ Excellent	18%	11%	10%	10%	9%	6%	7%	6%	5%	6%
■ Very Good	33%	35%	36%	34%	36%	38%	38%	38%	35%	35%
■ Good	38%	35%	42%	43%	39%	39%	40%	41%	40%	43%
■ Average	12%	42%	10%	14%	14%	13%	12%	12%	14%	12%
■ Poor	0%	23%	2%	0%	2%	4%	2%	3%	5%	5%

■ Excellent ■ Very Good ■ Good ■ Average ■ Poor

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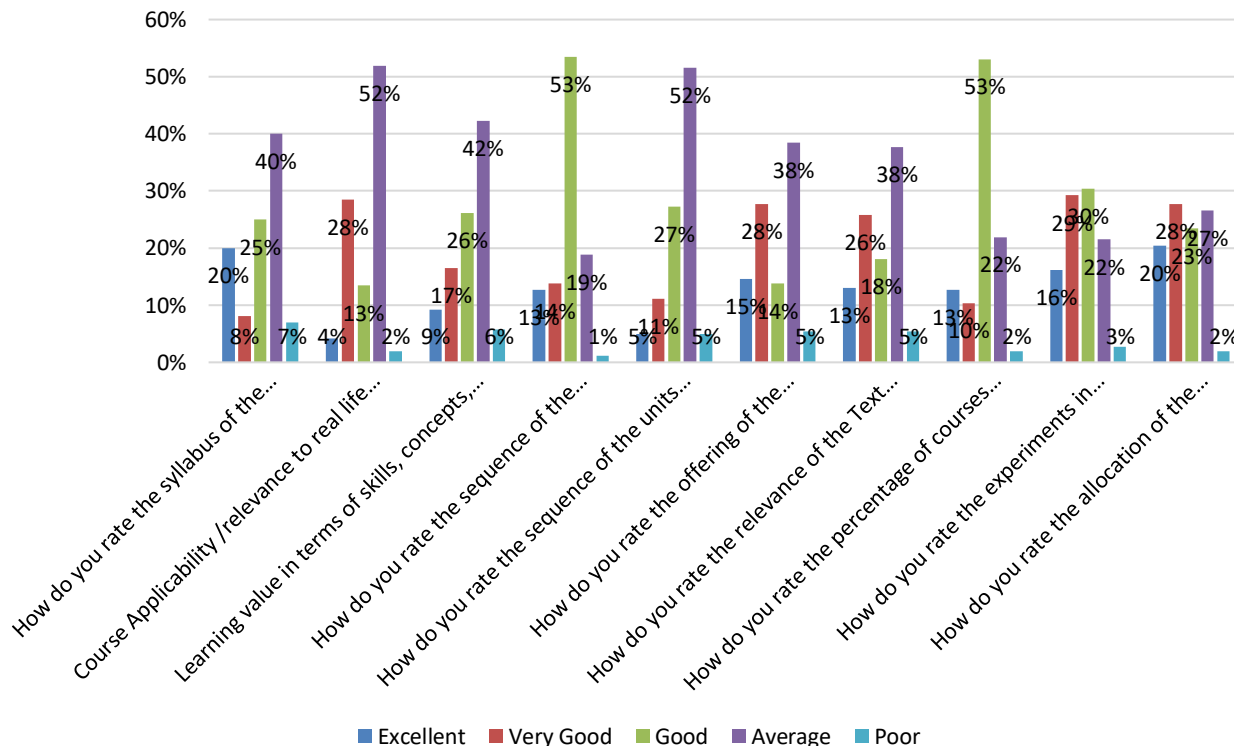Phone: +91 80 4925 5533 / 5599 Email ID: info@presidencyuniversity.in
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Feedback/suggestions from Employer and action taken report

Sl. No.	Feedback	ActionTaken
1	Multi-disciplinary courses need to be implemented.	Students have the option of selecting discipline and open electives of their choice.
2	Courses related to industrial needs to be added in the curriculum.	The Department shall offer courses in the suggested fields.

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.
Few new courses (Annexure 2) were also included based on the feedback received from stake holders

Annexure – 16.6
List of Courses in which Content Revision is undertaken for the Academic Year 2019-20 (BCA - Gen Program)

Sl. No.	COURSE	Course Code	Credits
1	Dissertation Credit structure changed	BCA315	4

Annexure – 16.7
List of New Courses included for the Academic Year 2019-20 (BCA-Gen Program)

Sl. No.	COURSE	Course Code	Credits
1.	Basic Electronics And Computer Hardware	BCA1007	3
2.	Digital Integrated Circuits	BCA2005	3
3.	Fundamentals Of Data Science	BSD1006	3
4.	Data structures And Algorithms	BCA2002	4
5.	Web Design And Development	BCA2011	3

FACULTY FEEDBACK ON CURRICULUM, 2019-20

Program: BCA-General

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Sl. No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	2. Poor (%)	Total Respondents
1.	Syllabus is suitable to the course	18	33	38	12	0	
2.	Syllabus is need based	11	35	35	42	23	
3.	Aims and objectives of the syllabi are well defined and clear to teachers and students	10	36	42	10	2	
4.	The courses/syllabus has good balance between theory and application	10	34	43	14	0	
5.	The course / program of studies carries sufficient number of optional papers	9	36	39	14	2	
6.	The books prescribed / listed as reference materials are relevant, updated and appropriate	6	38	39	13	4	10
7.	Tests and examinations are conducted well in time with proper coverage of all units in the syllabus	7	38	40	12	2	
8.	I have the freedom to propose, modify, suggest and incorporate new topics in the syllabus	6	38	41	12	3	
9.	I have the freedom to adopt new techniques/strategies of teaching suchasseminarpresentations,groupdiscussionsandlearner'sparticipations	5	35	40	14	5	
10.	The environment in the department is conducive to teaching and research	6	35	43	12	5	
	Average	**9**	**36**	**40**	**15**	**5**	

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FACULTY Feedback - BCA GENERAL 2019-20

Action taken Report on Curriculum Feedback- 10thBOS

Feedback/suggestions from Faculty and action taken report

Sl. No.	Feedback	Action Taken
1	Multi-disciplinary courses need to be implemented.	Students have the option of selecting discipline and open electives of their choice.
2	Courses related to industrial needs to be added in the curriculum.	The Department shall offer courses in the suggested fields.

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.
Few new courses (Annexure 2) were also included based on the feedback received from stake holders

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STUDENTS FEEDBACK ON CURRICULUM, 2019-20

Program: BCA – General

Sl.No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	3. Poor (%)	Total Respondents
1.	How do you rate the syllabus of the courses that you have studied?	20	8	25	40	7	
2.	Course Applicability /relevance to real life situations (Employability)	4	28	13	52	2	
3.	Learning value in terms of skills, concepts, knowledge and analytical abilities	9	17	26	42	6	
4.	How do you rate the sequence of the Courses that you have studied in the previous semester?	13	14	53	19	1	
5.	How do you rate the sequence of the units in the Course?	5	11	27	52	5	
6.	How do you rate the offering of the electives in terms of their relevance to the specialization streams?	15	28	14	38	5	30
7.	How do you rate the relevance of the Text Books and reference books to the Courses?	13	26	18	38	5	
8.	How do you rate the percentage of courses having LAB components?	13	10	53	22	2	
9.	How do you rate the experiments in relation to the real life applications?	16	29	30	22	3	
10.	How do you rate the allocation of the credits to the courses?	20	28	23	27	2	
	Average	**13**	**20**	**28**	**35**	**4**	

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Student Feedback BCA-GEN 2019-20

Legend: Excellent, Very Good, Good, Average, Poor

Categories: How do you rate the syllabus of the…; Course Applicability / relevance to real life…; Learning value in terms of skills, concepts,…; How do you rate the sequence of the…; How do you rate the sequence of the units…; How do you rate the offering of the…; How do you rate the relevance of the Text…; How do you rate the percentage of courses…; How do you rate the experiments in…; How do you rate the allocation of the…

Action Taken Report on Curriculum Feedback- 11th BOS

Feedback from Students and action taken report

Sl. No.	Feedback	ActionTaken
1	As BCA is having a lot of practical relevance, the curriculum may be equipped with latest laboratory technologies.	It is proposed to include mini projects in relevant BCA courses to improve practical experience.
2	More value-added courses may be conducted to improve the soft skills / technical skills.	Value added programs are scheduled for the AY 2019-20.
3	Instead of giving assignments in each subject, mini projects can be included in the continuous assessment evaluation	It is already in practice and it is decided to include for all core engineering subjects.
4	Certification training programs from the industry is to be conducted	Few students are undertaking certification training program and students are encouraged to participate more training programs.

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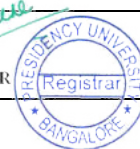Phone: +91 80 4925 5533 / 5599   Email ID: info@presidencyuniversity.in
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5	Special technical & aptitude training classes are required which are specific to the placement companies.	The Presidency University L&D team is giving the required training Programme.

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.
Few new courses (Annexure 2) were also included based on the feedback received from stake holders.

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AnnexureCSE 11.8

\	VALUEADDEDCOURSESOFFEREDBYTHEDEPARTMENTOFCOMPUTERSCIENCEANDENGINEERING	
S.NO.	**COURSECODE**	**COURSENAME**
1	CSEV001	DesignAnalysisAndAlgorithm
2	CSEV002	CloudComputing
3	CSEV003	ComputerGraphics
4	CSEV004	ComputerVision
5	CSEV005	ProblemSolvingTechnique UsingJava
6	CSEV006	ApplicationsOfDeepLearning
7	CSEV007	BasicsOfPythonProgramming
8	CSEV008	BlockChainTechnology
9	CSEV009	ComputerVision
10	CSEV010	TrainingProgrammeOnMATLABForImageProcessing
11	CSEV011	ObjectOrientedProgrammingInC++
12	CSEV012	Vanets
13	CSEV013	MachineLearning
14	CSEV014	CloudInfrastructureAndServices

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15	CSEV015	IotAndDataBaseManagement

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VALUEADDEDCOURSESOFFEREDBYTHEDEPARTMENTOFCOMPUTERSCIENCEANDENGINEERING		
S.NO.	**COURSECODE**	**COURSENAME**
16	CSEV016	DistributedSystems
17	CSEV017	ManagingServices-NPTELByIITKanpur
18	CSEV018	BigDataTools
19	CSEV019	FundamentalsOfStatisticsForMachineLearningAndDeepLearning
20	CSEV020	CiscoNetwork
21	CSEV021	Fundamentals OfMachineLearning
22	CSEV022	ArmController
23	CSEV023	RoboticProcessAutomation-Basics
24	CSEV024	CloudSecurity
25	CSEV025	RoboticProcessAutomation
26	CSEV026	Internet OfThings
27	CSEV027	ProblemSolvingTechniques
28	CSEV028	Applications Of Machine Learning And Deep Learning In Real WorldUsingPython.
29	CSEV029	BusinessIntelligenceAndItsApplications
30	CSEV030	FileStructure.

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VALUEADDEDCOURSESOFFEREDBYTHEDEPARTMENTOFCOMPUTERSCIENCEANDENGINEERING		
S.NO.	**COURSECODE**	**COURSENAME**
31	CSEV031	Biometrics
32	CSEV032	IntroductionTo3DAnimation
33	CSEV033	Data Exploration & Visualization Using Python(Only For The StudentsWhoStudied/StudyingCoursePythonInCurrent/ PreviousSemester)
34	CSEV034	SoftwareTesting
35	CSEV035	UnixSystemProgramming
36	CSEV036	BlockchainFundamental
37	CSEV037	BlockchainTheoryAnd Concepts
38	CSEV038	PracticalImplementationOfBlockchain
39	CSEV039	Introduction,OpportunitiesAndApplicationsOf5gWirelessNetworks
40	CSEV040	WebProgramming
41	CSEV041	SeleniumTesting
42	CSEV042	ComputerGraphicsAndVisualization
43	CSEV043	ProblemSolvingUsingJAVA
44	CSEV044	ProblemSolvingUsingJAVA
45	CSEV045	RoboticProcessAutomation–Basics

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S.NO.	COURSECODE	COURSENAME
	VALUEADDEDCOURSESOFFEREDBYTHEDEPARTMENTOFCOMPUTERSCIENCEANDENGINEERING	
46	CSEV046	PrinciplesOfTcp/Ip
47	CSEV047	InformationSecurity
48	CSEV048	UnixProgrammingAndPractice
49	CSEV049	ManagementAndEntrepreneurship
50	CSEV050	Ruby
51	CSEV051	HtmlAndCSS
52	CSEV052	UsabilityEngineering
53	CSEV053	ComputerVision
54	CSEV054	DataStructureForGATE
55	CSEV055	MobileApplicationDevelopment
56	CSEV056	SecurityInWirelessNetworks
57	CSEV057	CodingExpectations FromIndustry
58	CSEV058	PrinciplesOfProgramming,DataStructures,AndDBMS
59	CSEV059	ANNAndDeep Learning
60	CSEV060	UnixShellProgramming
61	CSEV061	WirelessCommunicationSystems

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\multicolumn{3}{c}{VALUEADDEDCOURSESOFFEREDBYTHEDEPARTMENTOFCOMPUTERSCIENCEANDENGINEERING}		
S.NO.	COURSECODE	COURSENAME
62	CSEV062	WirelessCommunicationSystems
63	CSEV063	SupervisedMachineLearningTechniquesUsingPython
64	CSEV064	BasicsOfPythonProgramming
65	CSEV065	HardwareAndNetworkEssentials
66	CSEV066	CloudComputing
67	CSEV067	DistributedComputing
68	CSEV068	WirelessAndMobileNetwork
69	CSEV069	IntroductionToBlockchainTechnology
70	CSEV070	BasicsOf Python
71	CSEV071	CloudComputing
72	CSEV072	HardwareAndNetworkEssentials
73	CSEV073	DataAnalytics
74	CSEV074	DataAnalytics
75	CSEV075	DataAnalyticsIn Iot
76	CSEV076	StatisticalDataMining

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VALUEADDEDCOURSESOFFEREDBYTHEDEPARTMENTOFCOMPUTERSCIENCEANDENGINEERING		
S.NO.	COURSECODE	COURSENAME
77	CSEV077	EmotionExtractionThroughWrittenText
78	CSEV078	CProgrammingAptitudeForPlacements
79	CSEV079	UnixShellScripting
80	CSEV080	InternetTechnologies-Html5,Css3,Javascript,Php,Xml
81	CSEV081	UnixShellProgramming
82	CSEV082	DeepLearningFundamental
83	CSEV083	WebTechnologies
84	CSEV084	.NetFrameworkWithC#Programming
85	CSEV085	ProgrammingInPython
86	CSEV086	WebProgrammingWithPythonAndDjango...
87	CSEV087	UnixShellProgramming
88	CSEV088	UnixShellProgramming
89	CSEV089	DataMiningTools
90	CSEV090	HardwareAndNetworkEssential
91	CSEV092	ProblemSolvingIn Python
92	CSEV093	ProgrammingInPython

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S.NO.	**COURSECODE**	**COURSENAME**
93	CSEV094	HeterogeneousComputingUsingOpencl
94	CSEV095	RProgramming
95	CSEV096	RProgramming
96	CSEV097	ProblemSolvingUsingC++Language
97	CSEV098	RoboticProcessAutomation-Basics
98	CSEV099	SoftwareTestingAnd QualityAssurance
99	CSEV100	OperationsResearch
100	CSEV101	DataAnalysisUsingPython
101	CSEV102	MachineLearningUsingSklearn
102	CSEV104	.NetFrameworkWithC#Programming
103	CSEV105	QuantitativeAptitude
104	CSEV106	Front-EndWebDevelopment WithReact
105	CSEV107	OperationsResearch
106	CSEV108	IntroductionToWeka ToolFor Data Mining
107	CSEV109	SystemSoftware Concepts

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SCHOOL OFENGINEERING
DEPARTMENT OF COMPUTERSCIENCEAND ENGINEERING

Ref:PU-SOE-CSE/2020-2021/BOS-12/CIR-01   Date:26-7-2021

12thBOSMEETINGNOTICE

The 12th Board of Studies (BOS) meeting of Department of Computer Science and Engineering, SOE isconvened on Wednesday, 04th August, 2021, at 10.00 a.m. online hosted from Presidency University CampusItgalpur,Rajankunte, Yelahanka,Bengaluru.

Youareherebyrequestedto attendthemeeting.

Agenda:

SOE-CSE12.1: To approvetheminutes of11thBoardofStudies Meetingheld on 4th September2020.

SOE-CSE12.2.1:ToconsiderandapprovethechangesinProgramRegulationsandCurriculumforSOE-CSE2020 BatchB.Tech Programs
1. ComputerScienceandEngineering(CyberSecurity)
2. ComputerScienceandEngineering(Artificial IntelligenceandMachineLearning)
3. ComputerScienceandEngineering(IOT)
4. ComputerScienceandEngineering(BlockChain)
5. ComputerScienceandEngineering(DataScience)
6. ComputerScienceandTechnology
7. ComputerScienceand Technology(DevOps)
8. ComputerScienceandTechnology(Big Data)
9. ComputerScienceand Technology(specializationin AI&ML)

SOE-CSE12.2.2:ToconsiderandapprovethechangesinProgramRegulationsandCurriculumforSOIS-CSE2020 Batch B.C.APrograms
1. B.C.A[General]
2. B.C.A[AugmentedReality&VirtualReality]
3. B.C.A[Gaming&Graphics]

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<u>SOE-CSE12.2.3</u>:ToconsiderandapprovethechangesinProgramRegulationsandCurriculumforSOE-CSE2020 Batch M.TechPrograms

1. M.Tech(DataScience)
2. M.Tech(ArtificialIntelligence)

<u>SOE-CSE 12.3.1</u>: To consider and approve the changes in Program Regulations and Curriculum forSOE-CSE2019 Batch B.TechPrograms

1. ComputerScienceandEngineering
2. InformationScienceandEngineering
3. InformationScienceand Technology
4. ComputerEngineering
5. ElectronicsandComputerEngineering
6. ComputerandCommunicationEngineering

<u>SOE-CSE 12.3.2</u>: To consider and approve the changes in Program Regulations and Curriculum forSOIS-CSE2019 Batch B.C.APrograms

1.B.C.A[General]

<u>SOE-CSE12.4</u>:Toconsiderandapprovethe changesinProgramRegulationsandCurriculumforSOE-CSE2018 BatchB.Tech Programs

1. ComputerScienceandEngineering
2. InformationScienceandEngineering
3. InformationScienceand Technology
4. ComputerEngineering
5. ComputerandCommunicationEngineering

<u>SOE-CSE12.5</u>:To review the obtained on structure and curriculum of existing programs from Industry, students, alumni & faculty members

<u>SOE-CSE12.6.1</u>:ToconsiderandapprovetheProposed CBCSCoursegridandtheCoursecataloguesforthe SOE-CSE 2021 batch B.Tech Programs.

<u>SOE-CSE12.6.2</u>:Toconsiderand approvetheProposedCBCSCoursegridandtheCoursecataloguesfortheSOIS-CSE 2021 batchB.C.A Programs.

1. B.C.A[General]
2. B.C.A[AugmentedReality&VirtualReality]
3. B.C.A[Gaming&Graphics]

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SOE-CSE12.6.3:Toconsiderand
approvetheProposedCBCSCoursegridandtheCoursecataloguesfortheSOIS-CSE 2021
batchB.ScPrograms.
   1.B.Sc[Data Science]

SOE-CSE12.6.4:Toconsiderand approvetheProposedCBCSCoursegridandtheCoursecataloguesforthe
SOE-CSE 2021 batch M.Tech Programs.
   1. M.Tech[ArtificialIntelligence]
   2. M.Tech[DataScience]

<mark>SOE-CSE12.7:To review the Feedback obtained on Industry, students, faculty members and alumni on the proposed CBCS Course grid.</mark>

SOE-CSE12.8: Anyothermatterwiththepermission of thechair.

**ChairpersonBO
S-CSECommittee**

Copyto:
- Pro-Chancellor,PU
- Registrar,PU
- Dean-SoE,PU

- Vice-Chancellor,PU
- Pro-Vice-chancellor,PU
- Dean-Academics,PU

- MembersoftheBOS-CSECommittee:

1	Dr.AbdulSharief	9	Dr.Chandrasekhar Gorikanthu,PracticeHead, Wipro
2	Dr.JacobAugustine	10	Dr.KeshavaMunegowda,VicePresident,Goldman Sachs
3	Dr.KalaiarasanC	11	Mr.GaneshMahadevan,HeadofEnterpriseIT and DigitalTransformation,BOSCH
4	Dr.C.ShankarRamamoorthy	12	Prof.R.B.V. Subramaanyam, Professor,Dept. ofCSE,NationalInstituteofTechnology,Warangal
5	Dr. T. K.Thivakaran	13	Dr.K.Rajanikanth,FormerPrincipal,MSRIT
6	Dr.DeepakSakkari	14	Dr.Hari Seetha, ProfessorandDirector,COEinAI andRobotocs,VIT-AP University
7	Prof. IsaacJoelRaj.S	15	Dr. Mohan K G, Professor, Dept. of CSE, GeetamUniversity
8	Prof.Tapas Guha		

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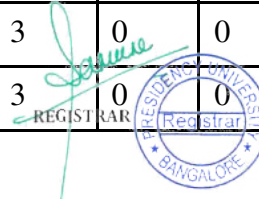Private University Estd. in Karnataka State by Act No. 41 of 2013

SCHOOL OF ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Ref:PU-SOE-CSE/2020-2021/BOS-12/MOM-01   Date:06-8-2021

Minutes of the 12th Meeting of Board of Studies (Computer Science and Engineering-BOS -CSE)

The 12th meeting of Board of Studies (BOS) of the Computer Science and Engineering has been held on 4th August, 2021 at 10:00 AM, online.

The following members were present:

S. No.	Name	Designation with Affiliation	Status
1	Dr.Abdul Sharief	Dean, School of Engineering, Presidency University	Chairman
2	Dr.Kalaiarasan C	Associate Dean & Professor, Dept. of CSE, Presidency University	Member
3	Dr.C.Shankar Ramamoorthy	Professor, Dept. of CSE, Presidency University	Special Invitee
4	Dr. T. K.Thivakaran	Program Chair & Professor, Dept. of CSE, Presidency University	Special Invitee
5	Dr.Deepak Sakkari	Program Chair & Assistant Professor, Dept. of CSE, Presidency University	Special Invitee
6	Prof. Isaac Joel Raj.S	Program Chair & Assistant Professor, Dept. of CSE, Presidency University	Special Invitee
7	Prof.Tapas Guha	Assistant Professor, CSE, Dept. of CSE, Presidency University	Special Invitee
8	Dr.Chandrasekhar Gorikanthu	Practice Head, Wipro	Senior Professional
9	Dr.Keshava Munegowda	Vice President, Goldman Sachs	Senior Professional
10	Dr.Ganesh Mahadevan	Chief Information Officer, BOSCH	Senior Professional
11	Prof.R. B.V. Subramaanyam	Professor, Dept. of CSE, National Institute of Technology, Warangal	External Expert
12	Dr.K.Rajanikanth	Former Principal, MSRIT, Bangalore	External Expert
13	Dr.Hari Seetha	Professor and Director, COE in AI and Robotocs, VIT-AP University	External Expert
14	Dr. Mohan KG	Professor, Dept. of CSE, Gitam University	External Expert
15	Dr.Jacob Augustine	Associate Dean & Professor, Dept. of CSE, Presidency University	Member Secretary

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Thefollowingmembers aregivenleaveofabsence:

Sr. No.	Name	Designation	Status
		NIL	

TheChairmanwelcomedtheMembersandallthememberswereformallyintroducedtoeachother.

Agenda SOE-CSE 12.1: To approve the minutes of 11ᵗʰBoard of Studies Meeting held on 4thSeptember2020.

The minutes of the 11ᵗʰ meeting of theBoard ofStudiesof ComputerScience and Engineering heldon4thSeptember2020wasplacedbeforethemembersandthesamewasunanimouslyapproved(**AnnexureCSE 12.1**).

AgendaSOE-CSE12.2.1:ToconsiderandapprovethechangesinProgramRegulationsandCurriculumforSOE-CSE 2020 BatchB.Techprograms

1. ComputerScienceandEngineering(CyberSecurity)
2. ComputerScienceandEngineering(Artificial IntelligenceandMachineLearning)
3. ComputerScienceandEngineering(IOT)
4. ComputerScienceandEngineering(BlockChain)
5. ComputerScienceandEngineering(Data Science)
6. ComputerScienceandTechnology
7. ComputerScienceand Technology(DevOps)
8. ComputerScienceandTechnology(Big Data)
9. ComputerScienceand Technology[specialization inAI&ML]

The details of the changes in program regulations and curriculum for the 2020-2024 batch B.Techprogramswerepresentedbeforethemembers(**AnnexureCSE12.2**).Themembersdiscussedthesameatlength.

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Resolution: Resolved that the program regulations and curriculum of the new programs 2020-2024 are approved with the following suggestions.

1. Thorough faculty mentorship should be introduced to guide students in efficiently selecting Elective courses (DE and OE) from third semester onwards

2. Since Electives are introduced as early as in third semester, proper exercise must be done to ensure the electives are not too difficult for an average third semester student to get hold of the associated concepts and applications.

3. In the course structures of 2020 Batch CSE and all allied programs, the courses Transform Techniques Partial Differential Equation and Probability (MAT 107) and Numerical Methods, Probability Distributions and Sampling Techniques (MAT 108) have been proposed in the third and fourth semesters respectively. The members suggested to interchange the semesters for the two courses. Numerical Methods, Probability Distributions and Sampling Techniques (MAT108) should be in third semester and Numerical Methods, Probability Distributions and Sampling Techniques (MAT108) should be in the subsequent, i.e. fourth semester.

Agenda SOE-CSE12.2.2: To consider and approve the changes to Program Regulations and Curriculum for SOIS-CSE 2020 Batch B.C.A Programs

1. B.C.A [General]
2. B.C.A [Augmented Reality & Virtual Reality]
3. B.C.A [Gaming & Graphics]

B.C.A [General]

The members were presented with the following change in third semester B.C.A [General] program.

• Change in credit structure for the course Optimization Techniques

Sl. No	Course Code	CourseTitle	Existing CreditStructure				Revised CreditStructure			
			L	T	P	C	L	T	P	C
1	BCA201	OptimizationTechniques	3	1	0	4	3	0	0	3

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B.C.A [Augmented Reality & Virtual Reality] and B.C.A [Gaming & Graphics]

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ThememberswerepresentedwiththefollowingrevisedcoursestructureforBCAthirdsemesterAugmentedReality &Virtual Realityand Gaming &Graphics.

- RevisedCourseStructureforSemesterIII(AR/VR)

Sl. No	Course Code	CourseTitle	ExistingCreditStructure			
			L	T	P	C
1	BCA219	Introductionto3DAnimation	3	0	0	3
2	BCA203	DatabaseManagementSystems	3	0	0	3
3	BCA204	OperatingSystem	3	0	0	3
4	BCA220	IntroductiontoImmersiveTechnologies	3	0	0	3
5	BCA205	DatabaseManagementSystems Lab	0	0	4	2
6	BCA256	3DAnimationLab	0	0	4	2
7	BCA257	ComputerGraphicsandMultimediaLab	2	0	2	3
8	SIC501	Social ImmersionCourse	-	-	-	1
9	PPD131	PersonalandProfessionalDevelopment-3	0	0	2	-

- RevisedCourseStructureforSemesterIII(G&G)

Sl. No	CourseCode	CourseTitle	ExistingCreditStructure			
			L	T	P	C
1	BCA219	Introductionto3DAnimation	3	0	0	3
2	BCA203	DatabaseManagementSystems	3	0	0	3
3	BCA204	OperatingSystem	3	0	0	3
4	BCA264	IntroductiontoGameDesign	3	0	0	3

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5	BCA205	DatabaseManagementSystemsLab	0	0	4	2
6	BCA256	3DAnimationLab	0	0	4	2
7	BCA257	ComputerGraphicsandMultimediaLab	2	0	2	3
8	SIC501	Social ImmersionCourse	-	-	-	1
9	PPD131	PersonalandProfessionalDevelopment-3	0	0	2	-

Thememberswere alsopresented withthefollowingsummaryof thechanges.

- AdditionofCourseDescription **(AnnexureCSE12.2).**

Sl. No	CourseCode	CourseTitle	ExistingCreditStructure			
			L	**T**	**P**	**C**
1	BCA219	Introductionto3DAnimation	3	0	0	3
2	BCA220	IntroductiontoImmersiveTechnologies	3	0	0	3
3	BCA256	3DModellingLab	0	0	4	2
4	BCA257	ComputerGraphicsandMultimediaLab	2	0	2	3
5	BCA264	IntroductiontoGameDesign	3	0	0	3

- ChangeinCourseTitle

Sl. No	Course Code	ExistingCourseTitle	ProposedCourseTitle	Existing CreditStructure			
				L	**T**	**P**	**C**
1	BCA256	3DModellingLab	3DAnimationLab	0	0	4	2

Resolution: Theproposedchangesareacceptedandapproved.

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AgendaSOE-CSE12.2.3:ToconsiderandapprovethechangesinProgramRegulationsandCurriculumforSOE-CSE 2020 Batch M.Tech Programs

1. M.Tech(DataScience)
2. M.Tech(ArtificialIntelligence)

Thefollowingchangewas presentedbefore themembers

Existing CourseCode	ProposedCourseCode	CourseTitle
CSE368	CSE372	AdvancedAnalyticsandVisualization

Resolution: Theproposedchangeisapproved.

AgendaSOE-CSE12.3.1:ToconsiderandapprovethechangesinProgramRegulationsandCurriculumforSOE-CSE 2019 Batch B.TechPrograms

1. ComputerScienceandEngineering
2. InformationScienceandEngineering
3. InformationScienceand Technology
4. ComputerEngineering
5. ElectronicsandComputerEngineering
6. ComputerandCommunicationEngineering

Thefollowing changeswerepresented beforethemembers.

- Forthe2019batch
  B.Techstudents,thecourseEngineeringEconomicshavebeenmademandatoryacross all
  programs.

Sl.No	Course Code	CourseTitle	Credits				(Semester to beoffered)
			L	T	P	C	
1	MGT113	Engineering Economics(MGT113)	3	0	0	0	5SEMth AllPrograms

- Introductionofacourseinthesixth semesterComputerScienceandEngineeringprogram

Sl.No	Proposed	CourseTitle	Credits	(Semester

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	Course Code		L	T	P	C	to beoffered)
1	CSE248	Object Oriented AnalysisAndDesignWith Uml	3	0	2	4	6TH SEM CSE

Resolution: Theproposedchangesareacceptedandapproved.

AgendaSOE-CSE12.3.2:ToconsiderandapprovethechangesinProgramRegulationsandCurriculumforSOIS-CSE 2019 Batch B.C.APrograms

1.B.C.A[General]

Themembers werepresented with thefollowingrevisedcoursestructureofsemester V.

Sl.No	COURSE CODE	COURSENAME	L	P	C
1	BCA212	ArtificialIntelligence	3	0	3
2	BCA213	Cloud Computing	3	0	3
3	BCA214	MobileApplicationsDevelopment	1	4	3
4	DE1	DisciplineElective–I	1	4	3
5	DE2	DisciplineElective– II	1	4	3
6	OE1	OpenElective	1	4	3
7	BCA320	Internship	-	-	2

Thefollowing changeswerealso discussed.

- InclusionofcoursesasElectives **(AnnexureCSE12.3)**

Sl.No	Proposed CourseCode	CourseTitle	Credits			Remarks
			L	T	P	

1	BCA317	DE1:AdvancedWebDesign	1	0	4	3	5th Sem Disciplinary Elective

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2	BCA316	DE2:UI/UXDesign	1	0	4	3	5th Sem Disciplinary Elective
3	BCA268	OE:DigitalMarketing	1	0	4	3	5SemOpen Elective

- RemovalofCourses

Sl.No	Proposed CourseCode	CourseTitle	Credits			
			L	T	P	C
1	BCA303	AdvancedPython	3	0	0	3
2	BCA304	RProgramming	3	0	0	3
3	BCA268	OE:DigitalMarketing	3	0	0	3

Resolution: Thememnbersdiscussedtheproposedrevisions andapprovedthesame.

AgendaSOE-CSE12.4:ToconsiderandapprovethechangesinProgramRegulationsandCurriculumforSOE-CSE 2018 Batch B.TechPrograms

1. ComputerScienceandEngineering
2. InformationScienceandEngineering
3. InformationScienceand Technology
4. ComputerEngineering
5. ComputerandCommunicationEngineering

Themembers werepresented with the followingchangein the7thsemester.

- IntroductionofCourses

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The following new courses and their course descriptions were presented (**Annexure CSE 12.4**).

Sl.No	Program	CourseCode	CourseTitle	L	P	C
1	CCE	CSE240	InformationSecurity	3	0	3
2	CCE	CSE241	WirelessSensorandAdhocNetworks	3	0	3
3	ISE	CSE243	NaturalLanguageProcessing	1	2	2
4	IST	CSE266	SemanticWeb	1	4	3
5	COM	CSE234	SocialMediaAnalytics	1	4	3
6	COM	CSE384	DataWarehousingandMining	2	2	3

Resolution: The inclusion of the courses were unanimously accepted and approved by the members.

<mark>**Agenda SOE-CSE 12.5**: To review the Feedback obtained on structure and curriculum of existing programs from Industry, students, alumni& faculty members</mark>

The University has been in the process of upgrading its curriculum annually from its inception in 2015, the Board of Governors had directed the Academic community to revamp the whole curriculum from 2021 as the current curriculum is of 5 years old and many new curriculum concepts are getting evolved elsewhere in the world. In view of this, a detailed feedback on the existing curriculum was obtained from all the stake holders (Industry experts, faculty members, students and Alumni). A summary of the feedback was presented before the members (**Annexure CSE 12.5**).

Agenda SOE-CSE 12.6.1: To consider and approve the Proposed CBCS Course grid and the Course catalogues for the SOE-CSE 2021 batch B.Tech Programs

The chairman explained intuition behind the proposed Choice Based Credit System. The following salient features of the proposed curriculum were put forward before the members.

- Designed as per the CBCS and incorporating OBE Principles.
- Provides Students with atmost flexibility in selection of the courses of their choice.

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- Students are free to prepare their own Course grid for every semester from the Basket of coursessubject to satisfying the pre-requisites for the courses selected and adhering to the Minimum andMaximumCredit requirement as per theProgramRegulations.
- The students have an option to decide the pace of his/ her learning (The number of semesters tocompletetheprogram).
- The slot time table system provides the opportunity to the students to decide the time slot of thecourseand to select thefacultymemberamongthosewho areofferingthecourse.
- Eachcourseshallhaveacoursecataloguewith the followingdetails:
    i) Prerequisitesof thecourse
    ii) CourseObjectives
    iii) CourseDescription
    iv) ReferenceResources.

The proposed course grids for all the 2021 B.Tech programs and few associated course catalogues werepresentedbeforethe members(**AnnexureCSE 12.6).**

Resolution: The members investigatedthe proposedgridsandbasketsatlength.The samewereacceptedandapprovedwith thefollowingsuggestions.

1. In the Cyber Security Discipline Elective basket, there is a 3-0-3 course Network Security (CSE3097).It is suggested to add anassociated lab courseforthe same
2. In the Discipline Elective General Basket, the course Programming in Python and its Applications(CSE 3092) has a credit structure of 1-4-3. The members suggested to relook the credit structureand make an attempt to increase the theory hours and if possible revise the credit structure to 2-2-3.
3. In the IT Infrastructure Discipline Elective basket, a course on Cloud Infrastructure Managementmaybeincluded.

AgendaSOE-CSE12.6.2:ToconsiderandapprovetheProposedCBCSCoursegridandtheCoursecatalogues fortheSOIS-CSE 2021batch B.C.APrograms
1. B.C.A[General]
2. B.C.A[AugmentedReality&VirtualReality]
3. B.C.A[Gaming&Graphics]

TheproposedCBCScoursegridsforallthe2021B.C.Aprogramsandfewassociatedcoursecatalogueswereprese nted beforethemembers(**AnnexureCSE 12.6)**.

Resolution: Theproposals wereacceptedandapproved withthefollowingsuggestions.

1. A courseon NoSQLmaybeintroduced.

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2. InB.C.AGamingandGraphicsprogram,thereisaDisciplineElectivecourseMobileGamedevelopment. This coursemaybeconsideredas aCorecourseinstead of Elective.

AgendaSOE-CSE12.6.3:ToconsiderandapprovetheProposedCBCSCoursegridandtheCoursecatalogues fortheSOIS-CSE 2021batch B.Sc. Programs
1.B.Sc.[DataScience]

TheproposedCBCScoursegridforthe2021B.Sc.[DataScience]programwaspresentedbeforethemembers(**AnnexureCSE 12.6**).

Resolution: Themembersapprovedtheproposed Coursegridwiththefollowingsuggestion.

1. Theproposedcredit structureforthe course DescriptiveStatistics (BSD1002)is3-0-3.Thesamemaybereelookedandreduced to 2credits.

AgendaSOE-CSE12.6.4:ToconsiderandapprovetheProposedProgramOutcomes,CBCSCoursegridandthe Coursecataloguesforthe SOE-CSE 2021batchM.TechPrograms
1. M.Tech[ArtificialIntelligence]
2. M.Tech[DataScience]

TheproposedPOs,CBCScoursegridsforthe2021M.Techprogramsandfewassociatedcoursecatalogueswerepresented beforethemembers**(AnnexureCSE 12.6**).

Resolution: Themembers approvedthe proposedCoursegridswith thefollowingsuggestions.

1. ThemembersfoundtheproposednumberofProgramOutcomeslittlehighforPostGraduateprogramsand suggested to restrict the same toaroundfive.

2. InSchoolCoreofthe grids,theproposedcreditsfor ProjectDissertationis24

Course Code	CourseTitle	Credits
PIP4002	Dissertation/ Internship-I	10
PIP4003	Dissertation/ Internship-II	14

Themembersopinedthatthisis toohighandrecommendedthat thesameshouldbereduced.

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3. Inmost of thecourses theoryhours areveryless.This maybereelookedto maintain proper balance.Since graduate students from any discipline may join these M.Tech courses, there should beadequatetimeto buildthebackgroundconcepts beforedivinginto thepractical implementations.

4. The Program Core has a course Deep Neural Network (CSE 4017). The members suggested todesign the course content in such a way to introduce the concept ofShallow ANNs in thebeginningand then moveto deep neural nets.

5. Acourseon SocialMedia/NetworkAnalysismaybeintroduced.

6. The Discipline Elective course Soft Computing Techniques (CSE 4022) should not emphasize onArtificialNeural Networks as few other coursesarecoveringthe same.

==**Agenda SOE-CSE 12.7: To review the Feedback obtained on industry, students, faculty members and alumni on the proposed CBCS Course grid**==

Presidency University has decided to introduce the concept of Flexible system in the Course offeringwithin the 'Choice Based Credit System' as prescribed by UGC. The university has also adopted theConceptof"OutcomeBasedEducation"asprescribedbytheInternational/NationalAccreditationagencies to match out the specific needs of the Industry. In the context, feedback on the proposed CBCSgrid has been obtained from all the stakeholders like Industry experts, current students, faculty membersandalumni. Theobtainedfeedback werepresentedbeforethemembers.

AgendaSOE-CSE12.8:Anyother matterwiththepermission oftheChair
(AnnexureCSE12.8).

12.8.1 :RatificationineligibilitycriteriaforM.Tech(AIandDS)programs

The following ratification in the eligibility criteria for the M.Tech programs was presented before themembers.

Programs	ExistingEligibilityCriteria	RevisedEligibilityCriteria
M.Tech AIM.Tech DS	Computer Science and Engineering/InformationScienceandEngineering/InformationScienceandTechnology/ InformationTechnology	BE/B.TECH degree in anybranch

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Resolution: Theproposedratificationisaccepted andapproved.

12.8.2 : Review and approval of the proposed inclusion of NASSCOM FutureSkills courses asDisciplineElective1 (3-0-0-3) with a credit transferof3

All the 2019 admitted students of CSE and CSE ALLIED need to compulsorily register and completethree courses as listed below from the certification program launched by NASSCOM FUTURESKILLSPRIME in lieu of the 3 credits Points of DE 1. LTP will be 1-0-4-3 **(Annexure CSE 12.8)**. The memberswerebriefedabout thesame.

S. No.	CourseName	Technology	Partner	Duration	Link-CourseDetails
1	Introduction toCyber securityCourse	CyberS ecurity	Cisco	15 hours	https://futureskillsprime.in/course/cisco-netacad%E2%80%93introduction-to-cyber-security
2	CloudPract itionerEsse ntials	CloudCom puting	AWS	8 hours	https://futureskillsprime.edcast.com/insights/aws-cloud-masterclass
3	MachineL earning - LinearReg ression	Big DataAnal ytics	Analyttica	23 hours	https://futureskillsprime.in/course/machine-learning-linear-regression

Resolution: Themembers approvedtheproposal.

12.8.3 : Review and approval of the proposed registration of the 2019-2023 batch students for AIU-CIISmartManagerProgram(15Hours course)as apartialreplacement ofexisting PP-I/UP-I

Themembers werepresentedwith thefollowingproposal

- TheCourseofferedbytheAIU– **CII SmartManagerProgramme** isselectedaspartialreplacement of PP-I/UP-I course for 2019 batch students. **CII Smart Manager Programme** isajobreadinessprogram,designedtohelpyounggraduatesdifferentiatethemselvesinthecor porateworld byacquiringkeyprofessional skills.
- StudentsshalltakeupAI-UC foronecreditandAptitude andcodingtrainingfor4credits

Programmecontents:

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- Design Thinkingand Creativity
- EmergingTechnologies
- AceYourInterview

Resolution: Theproposal isunanimouslyaccepted.

12.8.4 : Introduction of the course Innovation Project-Arduino Using Embedded C in the firstsemesterforB.Tech students of alldisciplinesfromthe academic year 2021-22

A course Innovative Projects - Arduino Using Embedded 'C' is introduced for the 1st semester of allbranches during the academic year 2021-22. The corresponding course catalogue is presented before themembersfor dueacceptanceandapproval(**AnnexureCSE 12.8**).

12.8.5 :Toratifytheproposalof offeringof softskillscourseof3creditsandCodingTrainingof 2creditsforthe2018 admittedstudentsinlieu of the5credits courseof ProfessionalPractice1

The 2018 batch B.Tech students were offered soft skills course of 3 credits and Coding Training of 2credits in lieu of the 5 credit course Professional Practice 1. This members were requested for ratificationof thesame.

Resolution: Theratificationisapproved.

12.8.6 : To ratify the course contents of 2019-2020 academic year courses of various programs andsemestersasapprovedbytheBOSchairpersonsbasedontheapprovaloftherespectiveDepartmentalA cademicCommittees

BasedontheapprovalofDAC,theBOShasapprovedthedetailedcoursecontentof2019-
2020academicyear courses runs across all programs.

Resolution: Theratificationisapproved.

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As BOS meetings for all the departments are taking place, the Chairman has requested approval from thecommittee to incorporate modifications / alterations, if any,approved by the BOS committee of otherdepartments for the existing courses offered in Computer Science and Engineering by other departments.The BOS Committee for Computer Science and Engineering hasapproved the proposal unanimously.TheBOSCommitteeauthorizestheChairpersonoftheBOStoformulateasub-committeeformakinganyminormodifications requiredintheprogramcurriculum andseektheapprovalin thenextmeeting.

TheBOSChairpersonhasconveyedthatthedecisionstakenduringthe12[th]meetingofBOSforComputer Science and Engineering will be implemented for 2021-2025, 2020-2024, 2019-2023, and2018-2022 as early as possible wherever applicable. He has conveyed thanks to all the members andinformedthat thedate ofnext BOS meetingwill benotifiedsoon.

ThemeetingendedwithVoteofThanksto theChair.

BOSCommittee:

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S. No.	Name	Status	Signature
1	Dr. Abdul Sharief	Chairman	
2	Dr. Kalaiarasan C	Member	
3	Dr. C. Shankar Ramamoorthy	Special Invitee	
4	Dr. T. K. Thivakaran	Special Invitee	
5	Dr. Deepak Sakkari	Special Invitee	
6	Prof. Isaac Joel Raj. S	Special Invitee	
7	Prof. Tapas Guha	Special Invitee	
8	Dr. Chandrasekhar Gorikanthu	Senior Professional	
9	Dr. Keshava Munegowda	Senior Professional	
10	Dr. Ganesh Mahadevan	Senior Professional	
11	Prof. R. B. V. Subramaanyam	External Expert	
12	Dr. K. Rajanikanth	External Expert	
13	Dr. Hari Seetha	External Expert	
14	Dr. Mohan K G	External Expert	
15	Dr. Jacob Augustine	Member Secretary	

AnnexureCSE 12.1

11THBOS MEETING

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MinutesofMeeting

The 11ᵗʰBoard of Studies (BOS) meeting of Department of Computer Science and Engineering wasconductedon Friday, 4ᵗʰSeptember2020 at2:30 AMonline.
Followingistheminutesof themeeting.

Agenda:

SOE-CSE11.1Approvalof theMinutes of 10ᵗʰBOS meeting.

The minutes of the 10ᵗʰ meeting of the Board of Studies of Computer Science and Engineeringheld on Friday, 17ᵗʰ January 2020 was placed before the members and the same was unanimouslyapproved.

SOE-CSE 11.2: To consider and approve the Program Regulations and Curriculum for SOE-CSE2020Batch

The details of the program regulations and curriculum for the new 2020-2024 programs werepresented before the members. The members discussed the same at length and resolved that theprogram regulations and curriculum of the new programs 2020-2024 are approved withfewsuggestions.Thesuggestions havebeen implemented.

SOE-CSE11.3:ToconsiderandapprovethechangestoSOE-CSE2019BatchProgramRegulationsand Curriculum.

The members were presented with the revised curriculum of the 2019 Batch B.Tech programs. Itwas resolved that the proposed revisions are relevant with the current industry trend and shouldbeapproved.Theapproved revisions havebeen made.

SOE-CSE 11.4.1: To consider and approve the changes to SOE-CSE 2018 Batch Program structureandCurriculum.

The members were presented with the proposed revisions in the curriculum of the existing 2018batch programs. Revisions include introduction and removal of courses, as well as change inexisting course title and credit structure. The members found the changes logical and appropriatetothecurrent industrytrends and approved thesame.

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SOE-CSE11.4.2:ToconsiderandapprovethechangestoSOE-CSEM.Tech2019batchprogramstructureand curriculum

TheintroductionoftwonewDisciplineElectivecoursesintheM.Tech-AIprogramwasproposed.Thememberswerepresentedwiththetwocoursedetails.Theproposalwasunanimouslyacceptedand approved.

SOE-CSE11.5:ToconsiderandapprovetheProgramRegulationsandCurriculumforSOI-BCA[Gamingand Graphics,AR/VR, General]-2020 Batch

The details of the program regulations and curriculum were presented before the members. Themembers discussed the same at length and resolved that curriculum of the new Three year B.C.Aprogramsareapproved unanimously.

SOE-CSE11.6:Approvaloflistofexaminers

ApprovedandsubmittedtoControllerofExamination.

SOE-CSE11.7:Approvalof NPTELcoursestobeofferedasDiscipline/Openelectives

Theproposedlist ofMOOC courseswasapproved bythe members.Coursesfrom thesamehasalreadybeen taken up bythe students for credit transfer.

SOE-CSE11.8:Anyothermatterwiththepermissionof theChair

11.8.1 :Toconsiderandapprovethe inclusionof ValueAddedCourses(VAC)

ForallB.Tech20-24newprograms,ValueAddedCourseisintroduced.Aproposedlistforthesameis presented. The membersapprovethe list ofVACs (**AnnexureCSE 11.6**).

11.8.2 :ToconsiderandapprovethechangesinProgramstructureandCurriculumforB.TechSOE-CSE2018 BatchUTA students ofCSE, ISE, IST and COM.

B.Tech students of SOE-CSE 2018 Batch registered for University of Texas, Arlington (UTA)program will complete 3 year of study at Presidency University earning a minimum of 159 creditsand will study finalyear at University of Texas, Arlington, USA and earn a minimum of 21creditswhichwillbetransferredtoPresidencyUniversityfortheirB.Tech.degreefromPresidencyUniversity

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The members were presented with the modifications in curriculum for 2018-2022 SOE-CSE andallied branch students who have registered for the UTA program. The modifications in curriculumwereacceptedandapproved.

Thesamehasbeen implemented.

AnnexureCSE 12.2

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Summaryof Changesin SOE-CSE2020BatchB.TechPrograms

- TheTutorialComponenthasbeenremovedinthe Curriculum Structure.
- TheoryandLabCoursesareintegrated.
- CoursesfromtheproposedCBCSsystemareadopted.

B.TechCSE,B.TechCSE(AI/ML),B.TechCST(AI/ML),B.TechCE(AI/ML)

SEMIII

S.No.	COURSE CODE	COURSENAME	CREDITSTRUCTURE			
			L	T	P	C
1	MAT107	TransformTechniquesPartialDifferentialequationand Probability	3	0	0	3
2	CSE2006	DataStructures	2	0	4	4
3	CSE2015	DigitalDesign	3	0	2	4
4	CSE2016	DiscreteMathematicalStructures	3	0	0	3
5	CSE2018	Theoryof Computation	3	0	0	3
6	CSEXXX	DisciplineElective–I	3	0	0	3
7	XXXXXX	OpenElective–I	3	0	0	3
8	PPS107	DesignThinkingandTeamBuilding	0	0	0	0
		TOTAL	**20**		**08**	**23**

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S.No.	COURSE CODE	COURSENAME	CREDITSTRUCTURE			
			L	T	P	C
1	MAT108	Numerical Methods, ProbabilityDistributionsAndSamplingTechniques	3	0	0	3
2	CSE2007	DesignandAnalysis ofAlgorithms	2	0	2	3
3	CSE2009	computerorganizationandArchitecture	3	0	0	3
4	CSE2010	OperatingSystems	3	0	0	3
5	CSE2008	ProgramminginJava	1	0	4	3
6	CSE2017	GraphTheoryand Combinatrics	3	0	0	3
7	CSEXXX	DiscipilineElective- I	1	0	4	3
8	CSEXXX	DisciplineElective-II	3	0	0	3
9	XXXXXX	OpenElective–II	3	0	0	3
10	PPS1007	DesignThinkingandTeamBuilding	-	0	-	0
		TOTAL	20		08	24

AllProgramsotherthanB.TechCSE, B.TechCSE/CST/CE (AI/ML)

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SEMIII

S.No.	COURSE CODE	COURSENAME	CREDITSTRUCTURE			
			L	T	P	C
1	MAT107	TransformTechniquesPartialDifferentiale quationand Probablity	3	0	0	3
2	CSE2006	DataStructures	3	0	2	4
3	CSE2009	ComputerOrganizationandArchitecture	3	0	0	3
4	CSE2017	GraphTheoryand Combinatorics	3	0	0	3
5	XXXXXX	OpenElective–I	3	0	0	3
6	PPS107	DesignThinkingandTeamBuilding	0	0	2	0
7	CSE2008	ProgramminginJava	1	0	4	3
8	CSEXXX	DisciplineElective–I	3	0	0	3
		TOTAL	19		8	22

SEMIV

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S.No.	COURSE CODE	COURSENAME	CREDITSTRUCTURE			
			L	T	P	C
1	MAT108	Numerical Methods, ProbabilityDistributionsandSamplingTechniques	3	0	0	3
2	CSE2007	DesignandAnalysis ofAlgorithms	2	0	2	3
3	ECE2002	DigitalElectronics	3	0	2	4
4	CSE2010	OperatingSystems	3	0	0	3
5	CSE2012	DatabaseManagementSystems	2	0	4	4
6	CSE2016	DiscreteMathematicalStructures	3	0	0	3
7	XXXXXX	OpenElective–II	3	0	0	3
8	PPS108	BeingCorporate Ready	0	0	2	0
		TOTAL	19		10	23

BCAAR/VRand G&GCoursedescriptions:

CourseName:	INTRODUCTIONTO3DANIMATION

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CourseCode:	BCA219	CreditStructure:	L	T	P	C
			3	0	0	3

Coursedescription: Thecourseaimsto presentconceptsrequiredtounderstandthestepsandproceduresthatleadtothecompletionofafully rendered 3Dimensional computeranimation.Theconcepts of modeling, texturing, lighting and animation leading advanced strategies of animating humancharacterare covered.

Topics Include: Principles of Animation - Storyboarding: Preliminary, Presentation and Production – character and model design - sound design –technical tests –Production scheduling – polygonalmodeling–splinesandpatches–coordinatesystems–viewingwindows–Geometricprimitives –transformations–commonmodelingtechniques–hierarchies–booleansandtrims-Thecamera–Lights –Surfacecharacteristics–shadingalgorithms–renderingalgorithms–backgroundimages–Surfacetexture mapping –solid texture mapping –final rendering - Key framing –interpolations –parameter curveediting– dopesheet editing–forwardkinematics–inverse kinematics–motion plans- Cameras andLights
- Retouching and Post Production Techniques -Virtual sculpting –hair and fur –texturing polygons – Renderingalgorithms–cloth dynamics –Facial animation-compositing–Editing.

TextBooks:

1. Michael O'Rourke, "Principles of Three – Dimensional Computer animation",3rdedition,W.W. Norton&company, 2003.

ReferenceBooks:

2. JohnVince,"EssentialComputerAnimation", SpringerUK,FirstEdition2000.
3. John Edgar Park, "Understanding 3D animation using Maya", Springer Science& businessMedia. Inc, 2005.

MarciaKuperberg,MartinW.Bowman,"GuideToComputerAnimation",Focalpress,2002.

CourseName:	INTRODUCTIONTOIMMERSIVETECHNOLOGIES					
CourseCode:	BCA220	CreditStructure:	L	T	P	C
			3	0	0	3

Coursedescription: Thecourseaimstodifferentiatebetweenthevarioustypesofmixedrealitysystems, Identify appropriate system components for building a mixed reality system, Understand thecalibrationrequiredtoincreaseimmersion,Understandthepipeline,challengesandhealthhazardsassociated with mixedrealityandpredict the approximatefuturedirectionofMixed Reality.

Topics Include: Fundamental concepts of AR/ VR, History of Augmented Reality and Virtual Reality,UseCases,Applications,TactileandForceFeedbackDevices,DisplayFundamentals,Augmented

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Displays (Monocular,Binocular),Types ofDisplays,Tracking, Sensors forTracking,Augmented RealitySetup,Immersion, Presence, Realitytrade-off,Perception Models and Processes

TextBooks:

1. D.SchmalstiegandT. Höllerer, "Augmentedreality",1sted.PearsonEducation,2016.
2. J. Jerald, The VR Book: Human-Centered Design for Virtual Reality, 1st ed. 2016.Reference Books:
3. S.Aukstakalnis,Practicalaugmentedreality,1st ed.PearsonEducation,2017.

CourseName:	3DANIMATION LAB					
CourseCode:	BCA256	CreditStructure:	L	T	P	C
			0	0	4	2

Course description: The course aims to differentiate 3D modeling techniques on professional inferencesin thebest effectivemethodologypossible.

Topics Include: Interface and Basic Interaction, Modelling using basic primitives, Polygon Modellingand Nurbs Modeling, High and Low poly Modeling Techniques, Architectural walkthrough,Lighting,Texturing,Cameraand Rendering,

TextBooks:

1. KellyL.Murdock,"AutodeskMaya2018,BasicsGuide",SDCPublications,2018.Reference Books:
2. LeeLanier,"MayaProfessionalTipsandTechniques",AutodeskMayaPress.Page Break

CourseName:	INTRODUCTIONTOGAMEDESIGN					
CourseCode:	BCA264	CreditStructure:	L	T	P	C
			3	0	0	3

Course description: The course aims at providing knowledge on understanding the aesthetics and pre-requisites required for game designing. The students will be able understand and utilize physics andmathematicalconcepts required for gameenvironments and game development.

Topics Include: Game play and game data, designers and development process, modeling factor, fudgefactor, logic and scripting languages, scale, graphical interfaces, terrain features, movement rates andalgorithms,regulatingmovements,gamestatisticsformovements,Items,charactersandcombat,storytelling ,designingplayfields,interfacedesign,dialogues,2d/3dmaps,POV,spritedesigning,backgrounddesigning,UI designing,designingandimplementingphysicsfor2dgameobjects,collisions,threading,scripting,3C'sin3Dga medesigning,Designingandimporting3Dgameobjectin

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3Dgameengine,designingskyboxes,icondesigning,3Dmovement,collisions,designingcutscenes,designingf or 3D game menu, 3dUIelement designing

TextBooks:

1. MichaelMoore,BasicsofGameDesign,CRCPress,2016

2. ScottRogers,"Level Up!TheGuidetoGreatVideoGameDesign",JohnWileyPublishers,2010Reference Books:

3. ErnestAdams,"FundamentalsofGameDesign",PearsonEducation,2012.

4. JesseSchell,"TheArt ofGameDesign:Abook oflenses",MorganKauffmanPub

AnnexureCSE 12.3

BCA2019BatchNew ElectiveCourseDescriptions

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CourseName:	Ui/UX design					
CourseCode:	BCA267	CreditStructure:	L	T	P	C
			1	0	4	3

Coursedescription:
The UI/UX Design Specialization brings a design-centric approach to user interface and user experiencedesign, and offers practical, skill-based instruction centered around a visual communications perspective,ratherthan on onefocused on marketingor programmingalone.I

Topics include: UserInterface Design Process:Understanding User or Client requirements, BusinessFunctions, Principlesof GoodInterfaceandScreenDesign, DevelopSystemMenusandNavigationSchemes, Select the Proper Kinds of Windows, Interaction Devices and Screen-BasedControls,Feedback and Guidance and Assistance, Internationalization andAccessibility, Create Graphics,Icons,Images and Colors, Organizeand Layout Windows andPages, UserExperienceProcess, PlanningandDiscoveryMethods, ResearchMethods, DesignMethods, Testing and Validation Methods, Evangelism Methods,Usability of InteractiveSystems, Guidelines, Principles, and Theories, design processes, Interaction styles and designissues,Testing

TextBooks:

1. WilbertO.Galitz,"TheEssentialGuidetoUserInterfaceDesign-AnIntroductiontoGUIDesign Principles and Techniques, WileyPublishing, 3rdEdition.
2. REXHARTSON,PARDHAS.PYLA,"TheUXBookProcessandGuidelinesforEnsuringaQualityUserExperience", Morgan Kaufmann.

ReferenceBooks:

3. Shneiderman, Plaisant, Cohen, Jacobs, Elmqvis, "Designing the User Interface - StrategiesforEffectiveHuman ComputerInteraction", Pearson,6thEdition.

CourseName:	AdvancedWebDesign					
CourseCode:	BCA268	CreditStructure:	L	T	P	C
			1	0	4	3

Coursedescription: Theadvancedwebdesigncourseaimsatbuildingfully-fledgedwebsitesandweb apps. Developing advanced websites with interactivity such as animated slideshows, lightboxes(imageenlargers), show/hide content, validate forms, and more.

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TopicsInclude: DevelopingResponsiveWebsitesusingHTML5,Implementing CSSFrameworksincluding Bootstrap 5, Semantic UI, Bulma,Javascript, Ajax and API's, Developing blog applicationfromscratch usingNode,Express, and MongoDB.

TextBooks:

1. Sergey Akopkokhyants& Stephen Radford, "Learning Web Development with BootstrapandAngular"

ReferenceBooks:

2. HTML5 Mobile Websites: Turbocharging HTML5 with jQuery Mobile, Sencha Touch,andOtherFrameworks

CourseName:	DigitalMarketing					
CourseCode:	BCA268	CreditStructure:	L	T	P	C
			1	0	4	3

Course Description: The aim of the Digital Marketing Course is to provide students with the knowledgeabout business advantages of the digital marketing and its importance for marketing success; to develop adigital marketing plan; to make SWOT analysis; to define a target group; to get introduced to variousdigitalchannels,their advantagesandwaysofintegration. The applicationof the gained knowledge,skills and competences will help future managers in forming digital marketing plan in order to manage adigitalmarketingperformanceefficiently.

Topics include: Market Research, WordPress, Email Marketing, Copywriting, SEO (Search EngineOptimisation), YouTube Marketing,Social Media Marketing (Instagram, Facebook, Twitter, Pinterest &Quora), LinkedinMarketing,AppMarketing,Google Adwords,FacebookAds, GoogleAnalytics.

Textbook(s):

1. Ryan, "Understanding Digital Marketing: Marketing Strategies for Engaging the DigitalGeneration",Kogan PageLimited.

ReferenceBook(s):

2. PuneetSingh Bhatiya,"FundamentalsofDigitalMarketing",Pearson.

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AnnexureCSE 12.4

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2018-22   B.Tech

ProgramsNewCourseDes

criptions

- **7ᵗʰSemesterCCE**

CourseName:	InformationSecurity					
CourseCode:	CSE240	CreditStructure:	L	T	P	C
			3	0	0	3

CourseDescription:
Explore information security through some introductory material and gain an appreciation of the scope and contextaround the subject. This includes a brief introduction to cryptography, security management and network andcomputer security that allows you to begin the journey into the study of information security and develop yourappreciationof some keyinformationsecurityconcepts.

The course concludes with a discussion around a simple model of the information security industry and exploresskills, knowledge and roles so that you can determine and analyse potential career opportunities in this developingprofessionand considerhowyoumayneedto developpersonallyto attainyourcareer goals.

TEXTBOOK:
1. Michael E Whitman and Herbert J Mattord, "Principles of Information Security",
VikasPublishingHouse, New Delhi,2003

REFERENCES:
1. MickiKrause,HaroldF.Tipton,"HandbookofInformationSecurityManagement",Vol1-3CRCPressLLC,2004.
2. StuartMcClure,JoelScrambray,GeorgeKurtz, "HackingExposed",TataMcGraw-Hill, 2003
3. MattBishop,"ComputerSecurityArtandScience",Pearson/PHI,2002.

CourseName:	Wireless SensorandAdhocNetworks					
CourseCode:	CSE241	CreditStructure:	L	T	P	C
			3	0	0	3

CourseDescription:
Thecourseexamineswirelesscellular,adhocandsensornetworks,coveringtopicssuchaswirelesscommunication fundamentals, medium access control, network and transport protocols, unicast and multicastrouting algorithms,mobility and its impact on routing protocols, application performance, quality of serviceguarantees, and security. Energy efficiency and the role of hardware and software architectures may also bepresentedfor sensor networks

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- **7ᵗʰSemesterCOM**

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CourseName:	SocialMediaAnalytics		L	T	P	C
CourseCode:	CSE234	CreditStructure:	1	0	4	3

The rapid growth of social media has given the mass consumers a powerful tool to create knowledge and propagateopinions. At the same time, social media has created an unprecedented opportunity for companies to engage real-timeinteractionswithconsumers.Inaddition,thesizeandrichnessofsocialmediadatahasprovidedcompaniesanunusually deepreservoirof consumerinsightstotransformthe business andmarketingoperations.

The social media analytics course will enable students to grasp the analytics tools to leverage social media data.The course will introduce tools such as engagement analytics, sentiment analysis, topic modeling, social networkanalysis,identificationofinfluencers and evaluationofsocialmediastrategy.

Textbook/ReferenceBook(s):

MatthewA.Russell&MkihailKlassen,

MiningtheSocialWeb:DataMiningFacebook,Twitter,LinkedIn,Instagram,GitHub,andMore, **3ʳᵈEdition**(O'Reilly, 2019).

CourseName:	DataWarehousingandMining		L	T	P	C
CourseCode:	CSE 370	CreditStructure:	2	0	2	3

This course provides students with an in-depth understanding of the design and implementation of datawarehousing and data mining based systems. It will address the opportunities and challenges of applyingdata mining techniques in academics, industry, businesses, sciences and the Web. Several aspects of thedata mining process are covered in this course such as: data gathering and storage, data selection andpreparation,modelbuildingand testing,resultsinterpretation andvalidationandmodels application.

Textbook/ReferenceBook(s):

1.AlexBersonandStephenJ.Smith,*"DataWarehousing,DataMiningandOLAP"*,TataMcGraw–Hill.
 2.GKGupta,"*IntroductiontoDataMiningwithCaseStudies*",PHI,ThirdEdition,2014.3.TanP. N.,
 SteinbachM&KumarV."*Introductionto DataMining"* ,PearsonEducation,2016.
 4.HanJ&Kamber M,"*DataMining:ConceptsandTechniques"*,Elsevier,SecondEdition,2006

- **7ᵗʰSemesterIST**

CourseName:	SemanticWeb.		L	T	P	C
CourseCode:	CSE266	CreditStructure :	1	0	4	3
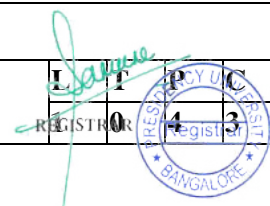
COURSEDESCRIPTION

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Theaimofthiscourseistoteachthestudentstheconcepts,technologiesandtechniquesunderlyingandmakingupth
eSemanticWeb.Attheendofthecoursethestudentshouldbeableto:understandand

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discuss fundamental concepts, advantages and limits of the semantic web; understand and use ontologiesin the context of Computer Science and the semantic web; use the RDF framework and associatedtechnologiessuch asRDF; understand the relationship between Semantic Web andWeb 2.0.

Textbook(s):
1. Pascal Hitzler, Markus Krötzsch, Markus Krötzsch "Foundations of Semantic Web Technologies"CRCpublication 2008
2. Johnhebeler,Mathewfisher "SemanticWebProgramming"1stEditionWiley;1stedition(March27, 2009)

- **7ᵗʰSemesterISE**

CourseName:	NaturalLanguageProcessing		L	T	P	C
CourseCode:	**CSE266**	**CreditStructure :**	0	0	4	2

COURSEDESCRIPTION

TheprimaryfocusofthecoursewillbeonunderstandingvariousNLPtasks,thealgorithmsforeffectively solving these problems, and methods for evaluating their performance. There will be a focusonstatisticalandneural-networklearningalgorithmsthattrainon(annotated)textcorporatoautomaticallyacquiretheknowledgeneeded to perform the task.

TextBook(s):
1. SpeechandLanguageProcessing:AnintroductiontoNaturalLanguageProcessing,ComputationalLinguisticsandSpeech RecognitionDanielJurafskyandJamesHMartin2ndEdition Prentice Hall 2008
2. NaturalLanguageUnderstandingJames Allen2ndEditionBenjamin/Cummingspublishing company1995

AnnexureCSE 12.5

ListofthefeedbackonCurriculumobtainedfromIndustryExperts,FacultyMembers,StudentsandAlumni
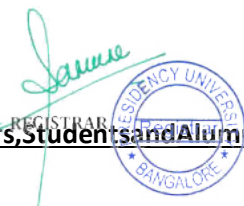
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Preamble:It is the Vision of the Presidency University to offer the best academic experience to the studentsthroughtheadvancedandrelevantCoursecontentandhencetheUniversityisinconstanttouchwithallthestake holderstoelicit theirfeedbackonthecurriculum followed.

Though the University was in the process of upgradation of its curriculum annually from its inception in2015, the BOG has directed the academic community to revamp the whole curriculum from 2021 as the currentcurriculumisof5yearsoldandmanynewcurriculumconceptsaregettingevolved elsewhereintheworld.

In view of this, a detailed feedback on the existing curriculum was obtained from all the stake holders[Industry experts, facultymembers,students &Alumni]andgist oftheirfeedback ispresentedbelow:

1] AdequacyoftheCoreCourses:Thecourseslooktobeadequate,yetthestudents'needstohavemore choiceinitsselection.

2] AdequacyoftheCoreCourses:Thoughallthetraditionallaboratorycoursesarepartofthecurriculum,some morecoursesneedtobeorientedtowards laboratoryexposure.

3] Fulfilmentofprofessionalneeds:Scopeformulti-disciplinarycourselearningisverylimitedandhence widevarietyofcourses ofmulti-disciplinarynaturetobeintroduced.

4] Adequacyofthecoursecredit:Totalcreditrequirementisveryheavyforafour-
yeardegreeprogram;ithastobebrought itdownconsiderably.

5] ExposureofComputingKnowledgeandskillstonon-
computingprogramsareverylimitedthesameneedstobeenhanced.

6] Thescopeforlearninggeneralcourses[Notdirectlyconnectedwiththeprogram]isverylimited,thesame shouldberelooked

7] CurriculumdesignmustfollowtheconceptsofOBEandthesamemustreflectinthecurriculumstructure.

8] Thecoursesmustbeidentifiedw.r.t.itsabilitytoimbibethefoundationskills,entrepreneurialskillsandempl oyabilityskills.

9] Thecoursesalsomustattemptininculcatinggendersensitization,environmentalsustainabilityandHumanv aluesandprofessionalethics amongthestudents.

10] The need for offering some of the courses as a tradition although they may not considerablyinfluence on the other courses of the program may be discarded and they may be offered as openelectivessothatonlysuchinterested orneedystudents maylearnthesame.

The academic community and the DAC have seriously worked on all the above suggestions and studiedthecurriculumofmanyleadinguniversities beforesuggestingthenew structure.

In accordance with the UGC regulations and as per the NAAC requirement, the current curriculum, isdesigned with CBCS and OBE in mind. It is the strong opinion of the PU academic community, that thecurrent curriculum addresses to most of the points raised in the feedback and also serve in offering thebesttothestudents.

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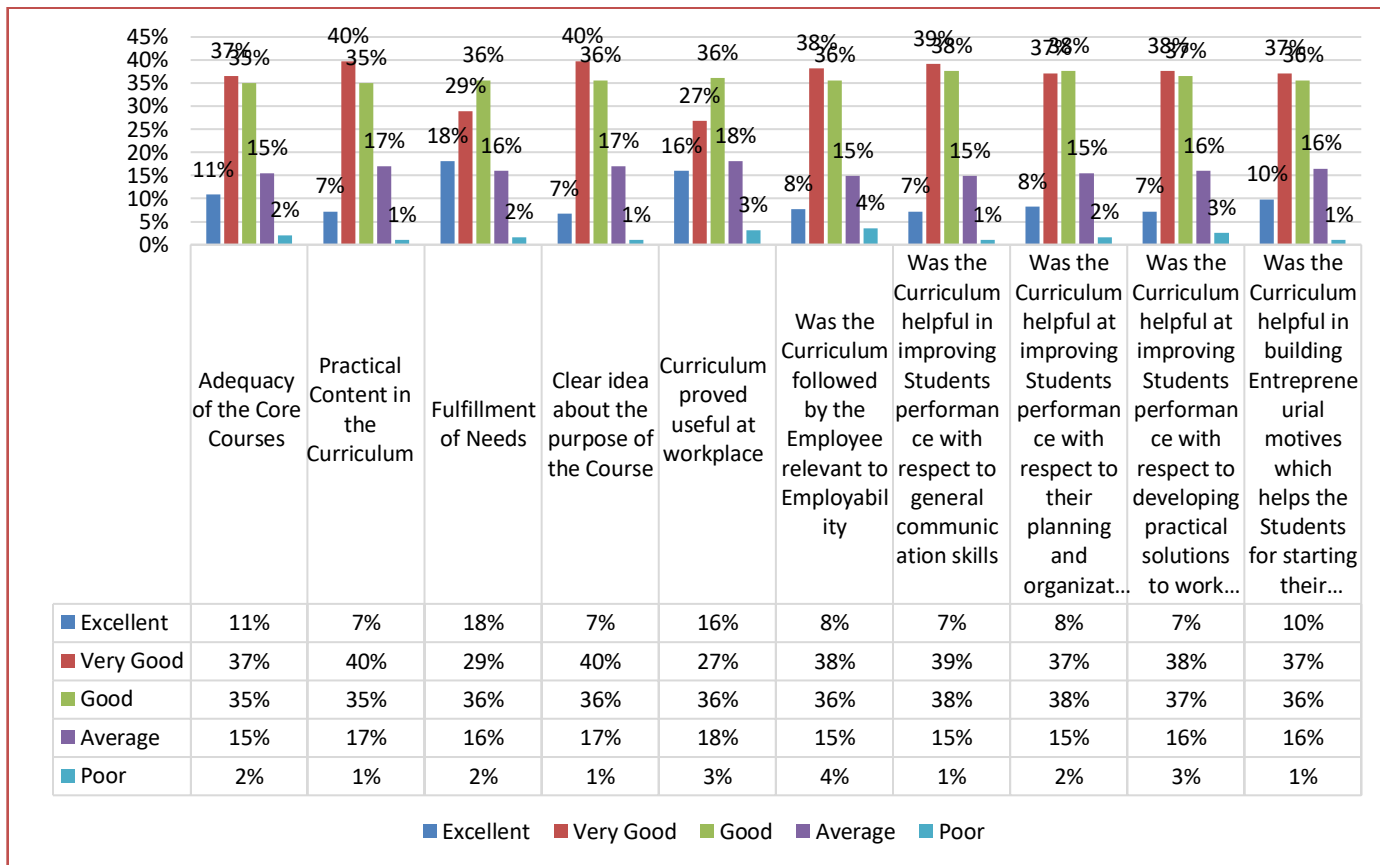Campus: Presidency University, Itgalpur, Rajanakunte, Yelahanka, Bengaluru 560 089
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EMPLOYER FEEDBACK ON CURRICULUM, 2020-21

Program: BCA - GEN

Sl. No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	1. Poor (%)	Total Respondent
1.	Adequacy of the Core Courses	11	37	35	15	2	
2.	Practical Content in the Curriculum	7	40	35	17	1	
3.	Fulfillment of Needs	18	29	36	16	2	
4.	Clear idea about the purpose of the Course	7	40	36	17	1	
5.	Curriculum proved useful at workplace	16	27	36	18	3	
6.	Was the Curriculum followed by the Employee relevant to Employability	8	38	36	15	4	
7.	Was the Curriculum helpful in improving Students performance with respect to general communication skills	7	39	38	15	1	7
8.	Was the Curriculum helpful at improving Students performance with respect to their planning and organization skills	8	37	38	15	2	
9.	Was the Curriculum helpful at improving Students performance with respect to developing practical solutions to work place problems	7	38	37	16	3	
10.	Was the Curriculum helpful in building Entrepreneurial motives which helps the Students for starting their ventures	10	37	36	16	1	
	Average	**10**	**36**	**36**	**16**	**2**	

Employer Feedback BCA - GEN 2020-21

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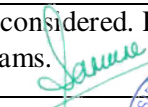www.presidencyuniversity.in

	Excellent	Very Good	Good	Average	Poor
Adequacy of the Core Courses	11%	37%	35%	15%	2%
Practical Content in the Curriculum	7%	40%	35%	17%	1%
Fulfillment of Needs	18%	29%	36%	16%	2%
Clear idea about the purpose of the Course	7%	40%	36%	17%	1%
Curriculum proved useful at workplace	16%	27%	36%	18%	3%
Was the Curriculum followed by the Employee relevant to Employability	8%	38%	36%	15%	4%
Was the Curriculum helpful in improving Students performance with respect to general communication skills	7%	39%	38%	15%	1%
Was the Curriculum helpful at improving Students performance with respect to their planning and organizat...	8%	37%	38%	15%	2%
Was the Curriculum helpful at improving Students performance with respect to developing practical solutions to work...	7%	38%	37%	16%	3%
Was the Curriculum helpful in building Entrepreneurial motives which helps the Students for starting their...	10%	37%	36%	16%	1%

Action taken Report on Curriculum Feedback- 11th BOS

Feedback/suggestions from Employer and action taken report

Sl. No.	Feedback	ActionTaken
1	More practical oriented subjected to be introduced.	The Department shall offer courses in the suggested fields. Lab oriented courses will be added for next AY.
2	Training on new software technologies to be provided to students.	Suggestion will be considered. Plan to organize such training programs.

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Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.

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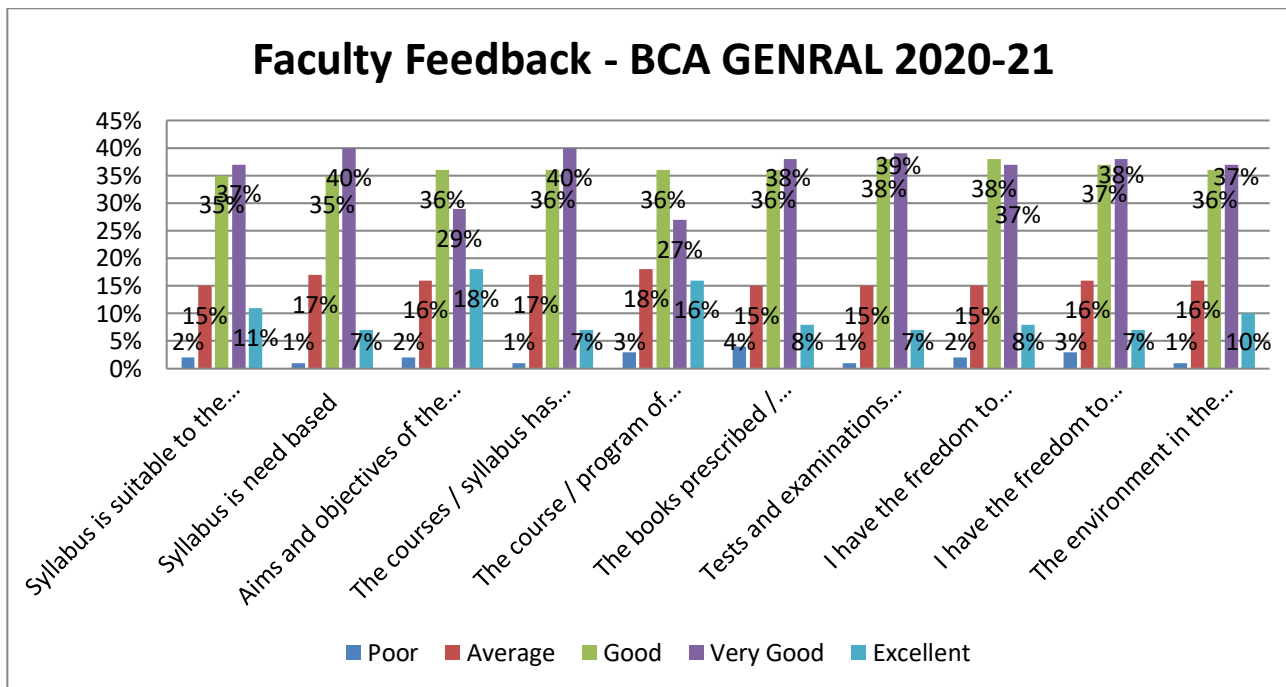Phone: +91 80 4925 5533 / 5599   Email ID: info@presidencyuniversity.in
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Few new courses (Annexure 2) were also included based on the feedback received from stake holders

FACULTY FEEDBACK ON CURRICULUM, 2020-21

Program: BCA - General

Sl.No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	2. Poor (%)	Total Respondents
1.	Syllabus is suitable to the course	11	37	35	15	2	
2.	Syllabus is need based	7	40	35	17	1	
3.	Aims and objectives of the syllabi are well defined and clear to teachers and students	18	29	36	16	2	
4.	The courses / syllabus has good balance between theory and application	7	40	36	17	1	
5.	The course / program of studies carries sufficient number of optional papers	16	27	36	18	3	
6.	The books prescribed / listed as reference materials are relevant, updated and appropriate	8	38	36	15	4	15
7.	Tests and examinations are conducted well in time with proper coverage of all units in the syllabus	7	39	38	15	1	
8.	I have the freedom to propose, modify, suggest and incorporate new topics in the syllabus	8	37	38	15	2	
9.	I have the freedom to adopt new techniques/strategies of teaching such as seminar presentations, group discussions and learner's participations	7	38	37	16	3	
10.	The environment in the department is conducive to teaching and research	10	37	36	16	1	

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Average	10	36	36	16	2

Faculty Feedback - BCA GENRAL 2020-21

Action taken Report on Curriculum Feedback- 11[th]BOS

Feedback/suggestions from Faculty and action taken report

Sl. No.	Feedback	ActionTaken
1	More practical oriented subjected to be introduced.	The Department shall offer courses in the suggested fields. Lab oriented courses will be added for next AY.
2	Training on new software technologies to be provided to students.	Suggestion will be considered. Plan to organize such training programs.

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.
Few new courses (Annexure 2) were also included based on the feedback received from stake holders

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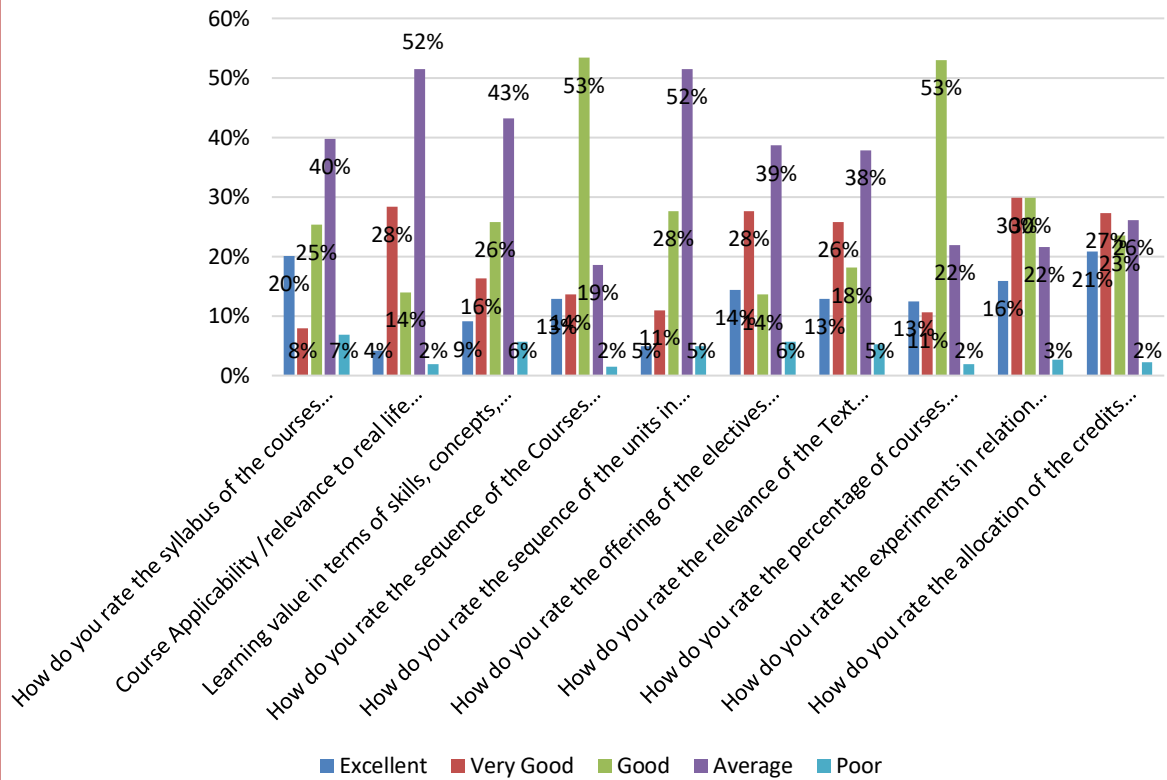www.presidencyuniversity.in

STUDENTS FEEDBACK ON CURRICULUM, 2020-2021

Program: BCA - GEN

Sl. No.	Questions	5. Excellent	4. Very Good	3. Good	2. Average	3. Poor	Total Respondents
1.	How do you rate the syllabus of the courses that you have studied?	20.08	7.95	25.38	39.77	6.82	
2.	Course Applicability /relevance to real life situations (Employability)	4.17	28.41	14.02	51.5	1.89	
3.	Learning value in terms of skills, concepts, knowledge and analytical abilities	9.09	16.29	25.76	43.18	5.68	
4.	How do you rate the sequence of the Courses that you have studied in the previous semester?	12.88	13.64	53.41	18.56	1.52	
5.	How do you rate the sequence of the units in the Course?	4.92	10.98	27.65	51.52	4.92	
6.	How do you rate the offering of the electives in terms of their relevance to the specialization streams?	14.39	27.65	13.64	38.64	5.68	52
7.	How do you rate the relevance of the Text Books and reference books to the Courses?	12.88	25.76	18.18	37.88	5.30	
8.	How do you rate the percentage of courses having LAB components?	12.50	10.61	53.03	21.97	1.89	
9.	How do you rate the experiments in relation to the real life applications?	15.91	29.92	29.92	21.59	2.65	
10.	How do you rate the allocation of the credits to the courses?	20.83	27.27	23.48	26.14	2.27	
	Average	13	20	28	35	4	

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Student Feedback BCA-GEN 2020-21

Legend: Excellent | Very Good | Good | Average | Poor

Categories:
- How do you rate the syllabus of the courses...
- Course Applicability /relevance to real life...
- Learning value in terms of skills, concepts,...
- How do you rate the sequence of the Courses...
- How do you rate the sequence of the units in...
- How do you rate the offering of the electives...
- How do you rate the relevance of the Text...
- How do you rate the percentage of courses...
- How do you rate the experiments in relation...
- How do you rate the allocation of the credits...

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Action taken Report on Curriculum Feedback- 11ᵗʰ BOS

Feedback from Students and action taken report

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.
Few new courses (Annexure 2) were also included based on the feedback received from stake holders.

Sl. No.	Feedback	ActionTaken
1	Special technical & aptitude training classes are required which are specific to the placement companies.	The Presidency University L&D team is conducting the required training Program.
2	Certification training programs from the industry is to be conducted	Students are encouraged to participate in training programs.
3	More value-added courses may be conducted to improve the soft skills / technical skills.	Already in place and shall include more value added courses for next academic year.

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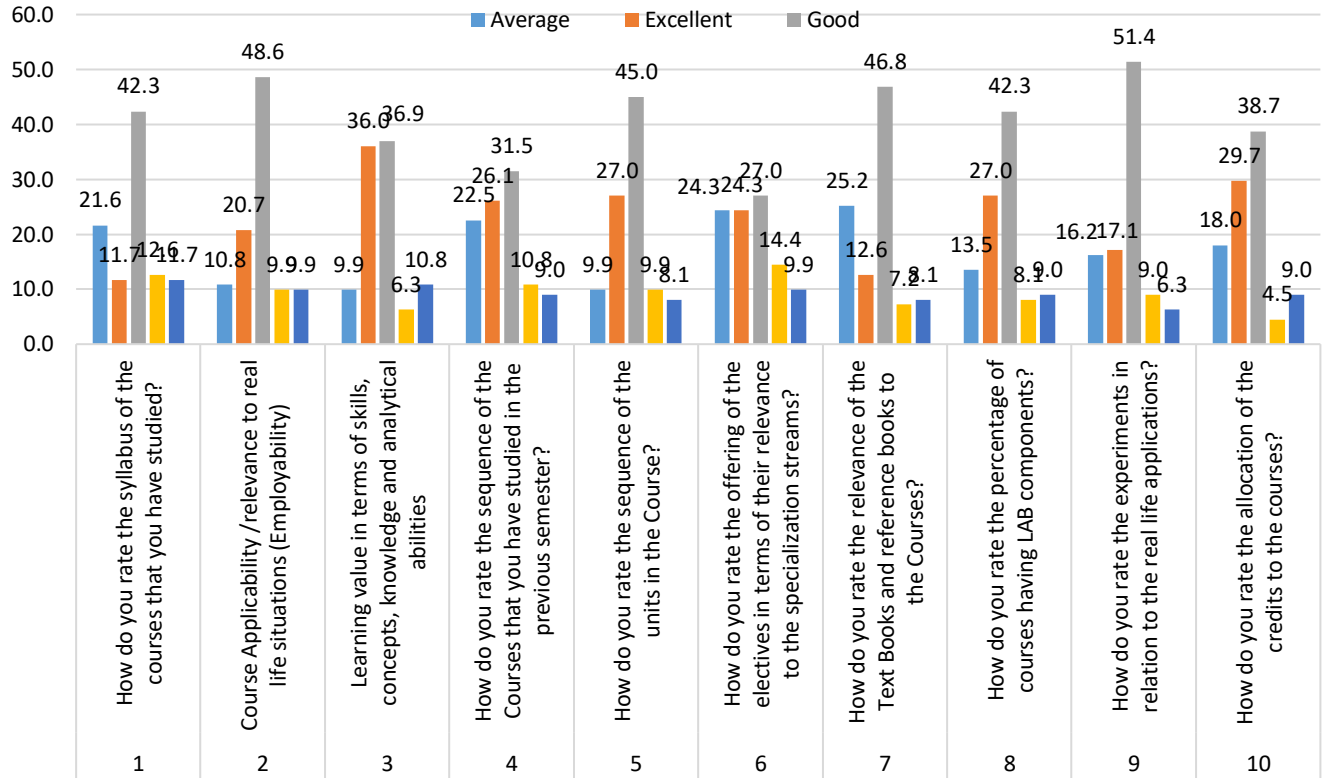Campus: Presidency University, Itgalpur, Rajanakunte, Yelahanka, Bengaluru 560 089
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BCA GAMING AND GRAPHICS
STUDENTS FEEDBACK ON CURRICULUM, 2020-21

Program: BCA-GG

Sl. No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	4. Poor (%)	Total Respondents
1.	How do you rate the syllabus of the courses that you have studied?	21.6	11.7	42.3	12.6	11.7	
2.	Course Applicability /relevance to real life situations (Employability)	10.8	20.7	48.6	9.9	9.9	
3.	Learning value in terms of skills, concepts, knowledge and analytical abilities	9.9	36.0	36.9	6.3	10.8	
4.	How do you rate the sequence of the Courses that you have studied in the previous semester?	22.5	26.1	31.5	10.8	9.0	
5.	How do you rate the sequence of the units in the Course?	9.9	27.0	45.0	9.9	8.1	
6.	How do you rate the offering of the electives in terms of their relevance to the specialization streams?	24.3	24.3	27.0	14.4	9.9	22
7.	How do you rate the relevance of the Text Books and reference books to the Courses?	25.2	12.6	46.8	7.2	8.1	
8.	How do you rate the percentage of courses having LAB components?	13.5	27.0	42.3	8.1	9.0	
9.	How do you rate the experiments in relation to the real life applications?	16.2	17.1	51.4	9.0	6.3	
10.	How do you rate the allocation of the credits to the courses?	18.0	29.7	38.7	4.5	9.0	
	Average	**17.21**	**23.24**	**41.08**	**9.28**	**9.19**	

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STUEDENTS FEEDBACK-BCA GG 2020-21

Legend: Average (blue), Excellent (orange), Good (grey)

#	Question	Average	Excellent	Good		
1	How do you rate the syllabus of the courses that you have studied?	21.6	11.7	42.3	12.6	11.7
2	Course Applicability/relevance to real life situations (Employability)	10.8	20.7	48.6	9.9	9.9
3	Learning value in terms of skills, concepts, knowledge and analytical abilities	9.9	36.0	36.9	6.3	10.8
4	How do you rate the sequence of the Courses that you have studied in the previous semester?	22.5	26.1	31.5	10.8	9.0
5	How do you rate the sequence of the units in the Course?	9.9	27.0	45.0	9.9	8.1
6	How do you rate the offering of the electives in terms of their relevance to the specialization streams?	24.3	24.3	27.0	14.4	9.9
7	How do you rate the relevance of the Text Books and reference books to the Courses?	25.2	12.6	46.8	7.2	8.1
8	How do you rate the percentage of courses having LAB components?	13.5	27.0	42.3	8.1	9.0
9	How do you rate the experiments in relation to the real life applications?	16.2	17.1	51.4	9.0	6.3
10	How do you rate the allocation of the credits to the courses?	18.0	29.7	38.7	4.5	9.0

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Action taken Report on Curriculum Feedback- 11thBOS

Feedback from Students and action taken report

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.
Few new courses (Annexure 2) were also included based on the feedback received from stake holders.

Sl. No.	Feedback	ActionTaken
1	Skill development and job oriented courses were requested	A collaboration was done with Coursera wherein courses of prominent universities were offered to students to compensate the absence of internship based knowledge, impart new genre of industry specific skills and enable productive utilization of time
2	Instead of giving assignments in each subject, mini projects can be included in the continuous assessment evaluation	It is already in practice and it is decided to include for all core engineering subjects
3	Certification training programs from the industry is to be conducted	Few students are undertaking certification training program from PRDC and students are encouraged to participate more training programs.
4	Special technical & aptitude training classes are required which are specific to the placement companies.	The Presidency University L&D team is giving the required training Program.

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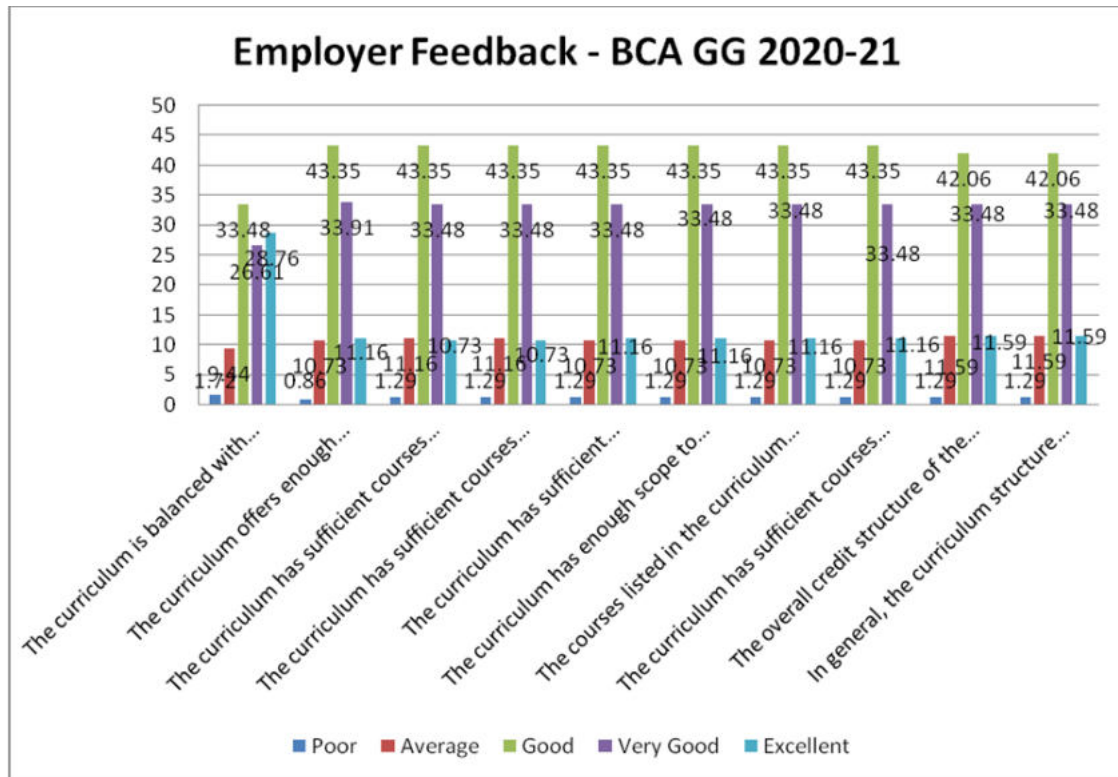Phone: +91 80 4925 5533 / 5599   Email ID: info@presidencyuniversity.in
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EMPLOYER FEEDBACK ON CURRICULUM, 2020-21

Program: BCA-GG

Sl.No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	1. Poor (%)	Total Respondents
1.	The curriculum is balanced with requisite number of Foundation, core and elective courses	28.76	26.61	33.48	9.44	1.72	
2.	The curriculum offers enough flexibility to the students to choose the course	11.16	33.91	43.35	10.73	0.86	
3.	The curriculum has sufficient courses to impart the	10.73	33.48	43.35	11.16	1.29	
4.	The curriculum has sufficient courses to impart the entrepreneurial skills to the students	10.73	33.48	43.35	11.16	1.29	
5.	The curriculum has sufficient component of Laboratory courses to develop the practical skills in the students	11.16	33.48	43.35	10.73	1.29	7
6.	The curriculum has enough scope to create the awareness	11.16	33.48	43.35	10.73	1.29	
7.	The courses listed in the curriculum helps in developing the stated	11.16	33.48	43.35	10.73	1.29	
8.	The curriculum has sufficient courses to impart the soft skills to the students	11.16	33.48	43.35	10.73	1.29	
9.	The overall credit structure of the program is good	11.59	33.48	42.06	11.59	1.29	
10.	In general, the curriculum structure looks to be appropriate to develop the necessary skill set and impart the knowledge required for a professional	11.59	33.48	42.06	11.59	1.29	
	Average	**12.92**	**32.83**	**42.10**	**10.86**	**1.29**	

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Employer Feedback - BCA GG 2020-21

ActiontakenReportonCurriculum Feedback- 11ᵗʰBos

Feedback/suggestionsfromEmployer andactiontakenreport

Sl. No.	Feedback	ActionTaken
1	The companies suggested the students to go through the Job Description and Research more about the role.	The Placement Officer along with other TICs held Sessions for the third-year students' sitting for placements to help them prepare for the process and make them understand the job profile better.
2	Multiple internships done by students were highly appreciated	The CDC will continue to put efforts to secure more internships offers and live projects for students

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.

FACULTY FEEDBACK ON CURRICULUM, 2020-21

Program: BCA-GG

Sl.No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	1. Poor (%)	Total Respondents
1.	Syllabusissuitableto the course	29.78	42.22	25.56	2.22	0.22	
2.	Syllabusisneedbased	28.67	44.89	23.11	3.11	0.22	
3.	Aims and objectives of the syllabi are well defined and clear to teachersand students	34.89	41.78	20.67	2.44	0.22	
4.	Thecourses/syllabus hasgoodbalancebetweentheoryandapplication	27.33	42.44	24.00	5.78	0.44	
5.	The course / program of studies carries sufficient number of optionalpapers	29.11	40.00	25.11	5.11	0.67	
6.	The books prescribed / listed as reference materials are relevant, updatedandappropriate	34.22	43.56	17.11	4.44	0.67	15
7.	Testsandexaminationsareconducted well intimewithpropercoverageofallunits in thesyllabus	36.44	39.11	19.11	4.89	0.44	
8.	I have the freedom to propose, modify, suggest and incorporate newtopicsin the syllabus	40.00	35.78	17.56	4.44	2.22	
9.	I have the freedom to adopt new techniques/strategies of teaching suchasseminarpresentations,groupdiscussionsandlearner'sparticipations	46.67	34.89	14.89	2.67	0.89	
10.	The environment in the department is conducive to teaching andresearch	29.33	36.22	19.56	10.00	4.89	
	Average	**33.64**	**40.09**	**20.67**	**4.51**	**1.09**	

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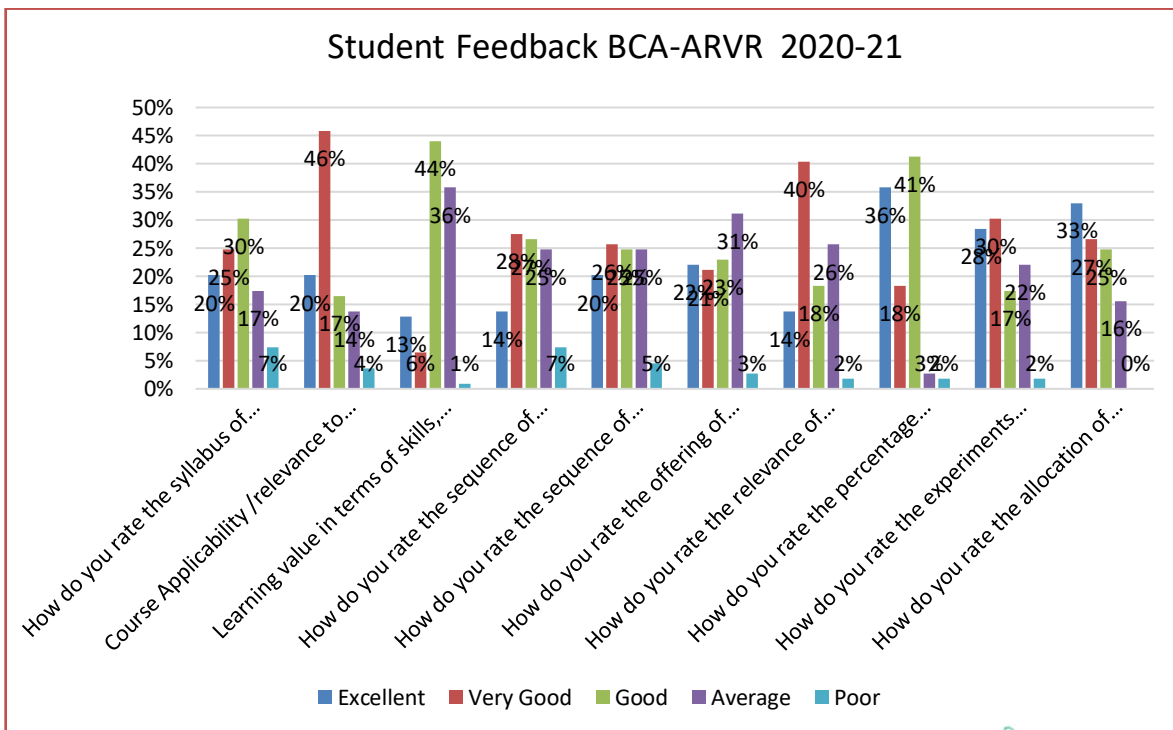www.presidencyuniversity.in

Action takenReport on Curriculum Feedback- 11th BOS

Feedback/suggestions from Faculty Members and action taken report

Sl. No.	Feedback	Action Taken
1	Awareness about latest developments among teachers was suggested	Administrative support was provided to teachers for pursuing online faculty development programs/short term courses. Number of teachers attended courses on MOOC and used their learning for effective teaching.
2	Research quality may be enhanced bycollaborative research with other institutionsin India and abroad.	MOUs/Agreements were signed with Universities and reputed institutions toenrich research experience and facilitatestaff and student exchange program.

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.
Few new courses (Annexure 2) were also included based on the feedback received from stake holders

STUDENTS FEEDBACK ON CURRICULUM, 2020-2021

Program: BCA – AR/VR

Sl. No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	5. Poor (%)	Total Respondents
1.	How do you rate the syllabus of the courses that you have studied?	20	25	30	17	7	
2.	Course Applicability /relevance to real life situations (Employability)	20	46	17	14	4	
3.	Learning value in terms of skills, concepts, knowledge and analytical abilities	13	6	44	36	1	14
4.	How do you rate the sequence of the Courses that you have studied in the previous semester?	14	28	27	25	7	

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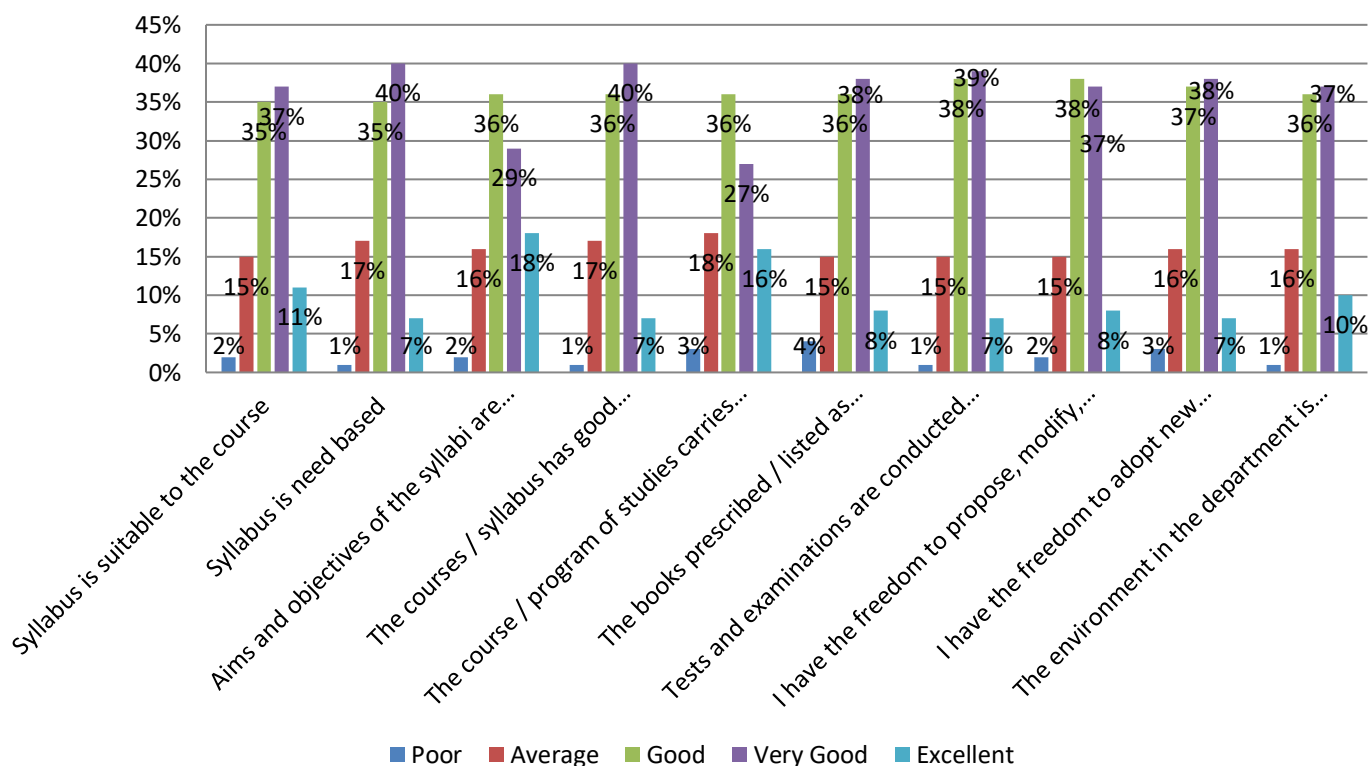www.presidencyuniversity.in

5.	How do you rate the sequence of the units in the Course?	20	26	25	25	5	
6.	How do you rate the offering of the electives in terms of their relevance to the specialization streams?	22	21	23	31	3	
7.	How do you rate the relevance of the Text Books and reference books to the Courses?	14	40	18	26	2	
8.	How do you rate the percentage of courses having LAB components?	36	18	41	3	2	
9.	How do you rate the experiments in relation to the real life applications?	28	30	17	22	2	
10.	How do you rate the allocation of the credits to the courses?	33	27	25	16	0	
	Average	**22**	**27**	**27**	**21**	**3**	

Student Feedback BCA-ARVR 2020-21

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Action taken Report on Curriculum Feedback- 11th BOS

Feedback from Students and action taken report

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.
Few new courses (Annexure 2) were also included based on the feedback received from stake holders.

Sl. No.	Feedback	ActionTaken
1	More value-added courses should be introduced which can help for placements.	Already in place and shall include more value-added courses for next academic year.
2	Certification programs in align with industrymay be conducted.	Students are encouraged to participate in special training programs.
3	More Lab oriented subjects to be introduced.	Shall be considered. New course addition or course revision will happen in concern with BOS.

FACULTY FEEDBACK ON CURRICULUM, 2020-21

Program: BCA-ARVR

Sl. No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	6. Poor (%)	Total Respondents
1.	Syllabus is suitable to the course	11	37	35	15	2	
2.	Syllabus is need based	7	40	35	17	1	
3.	Aims and objectives of the syllabi are well defined and clear to teachers and students	18	29	36	16	2	
4.	The courses / syllabus has good balance between theory and application	7	40	36	17	1	15
5.	The course / program of studies carries sufficient number of optional papers	16	27	36	18	3	
6.	The books prescribed / listed as reference materials are relevant, updated and appropriate	8	38	36	15	4	

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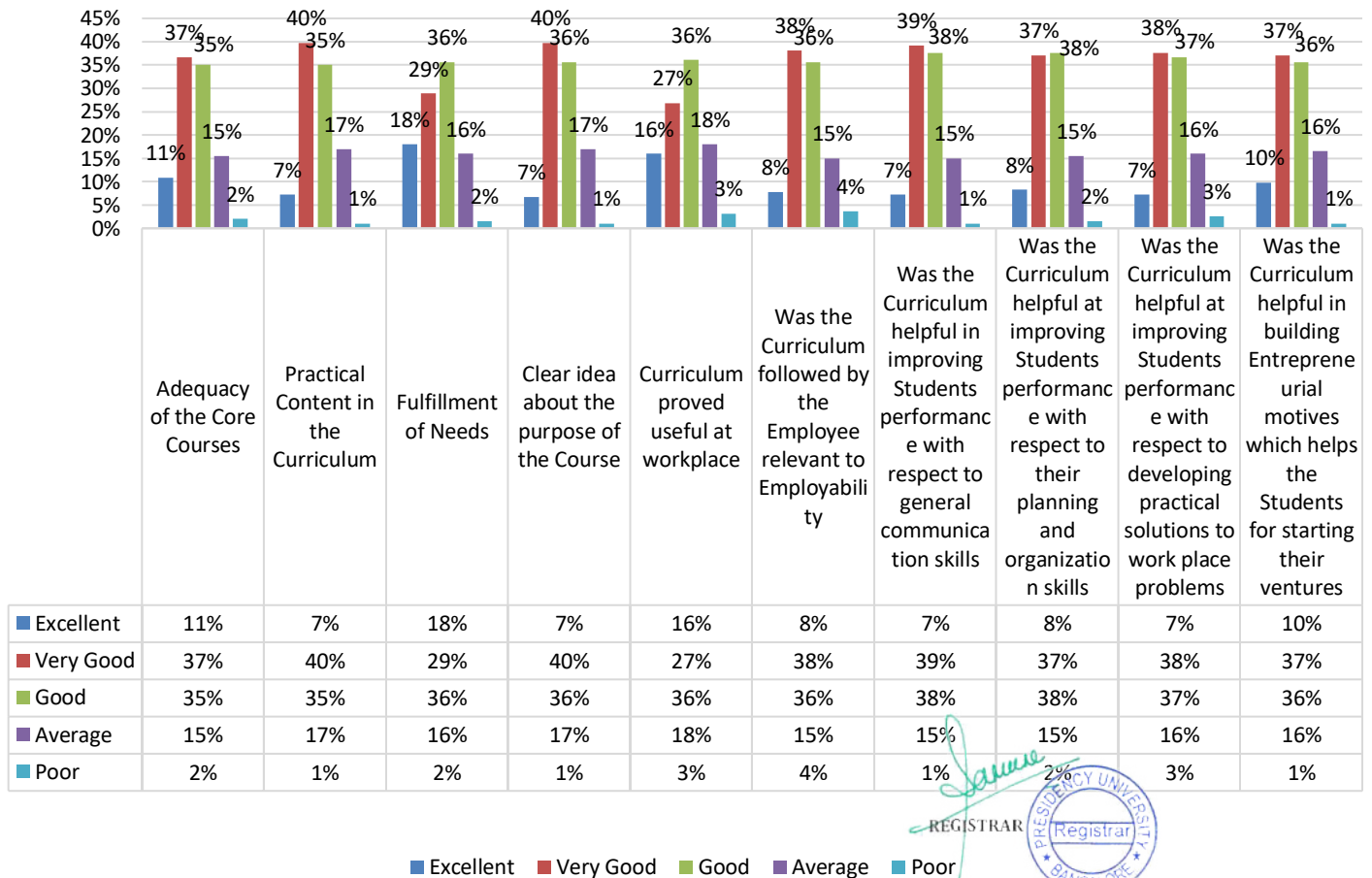www.presidencyuniversity.in

7.	Tests and examinations are conducted well in time with proper coverage of all units in the syllabus	7	39	38	15	1
8.	I have the freedom to propose, modify, suggest and incorporate new topics in the syllabus	8	37	38	15	2
9.	I have the freedom to adopt new techniques/strategies of teaching such as seminar presentations, group discussions and learner's participations	7	38	37	16	3
10.	The environment in the department is conducive to teaching and research	10	37	36	16	1
Average		**10**	**36**	**36**	**16**	**2**

Faculty Feedback BCA-ARVR 2020-21

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Action takenReportonCurriculum Feedback- 11ᵗʰBos

Feedback/suggestionsfromFacultyandactiontakenreport

Sl. No.	Feedback	Action Taken
1	More practical oriented subjected to be introduced.	The Department shall offer courses in the suggested fields. Lab oriented courses will be added for next AY.
2	Training on new software technologies to be provided to students.	Suggestion will be considered. Plan to organize such training programs.

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.

Few new courses (Annexure 2) were also included based on the feedback received from stake holders

EMPLOYER FEEDBACK ON CURRICULUM, 2020-21

Course: BCA- ARVR

Sl. No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	7. Poor (%)	Total Respondents
1.	Adequacy of the Core Courses	11	37	35	15	2	
2.	Practical Content in the Curriculum	7	40	35	17	1	
3.	Fulfillment of Needs	18	29	36	16	2	
4.	Clear idea about the purpose of the Course	7	40	36	17	1	5
5.	Curriculum proved useful at workplace	16	27	36	18	3	
6.	Was the Curriculum followed by the Employee relevant to Employability	8	38	36	15	4	
7.	Was the Curriculum helpful in improving Students performance with respect to general	7	39	38	15	1	

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	communication skills					
8.	Was the Curriculum helpful at improving Students performance with respect to their planning and organization skills	8	37	38	15	2
9.	Was the Curriculum helpful at improving Students performance with respect to developing practical solutions to work place problems	7	38	37	16	3
10.	Was the Curriculum helpful in building Entrepreneurial motives which helps the Students for starting their ventures	10	37	36	16	1
	Average	**10**	**36**	**36**	**16**	**2**

BCA(AR/VR) EMPLOYER FEEDBACK 2020-21

	Adequacy of the Core Courses	Practical Content in the Curriculum	Fulfillment of Needs	Clear idea about the purpose of the Course	Curriculum proved useful at workplace	Was the Curriculum followed by the Employee relevant to Employability	Was the Curriculum helpful in improving Students performance with respect to general communication skills	Was the Curriculum helpful at improving Students performance with respect to their planning and organization skills	Was the Curriculum helpful at improving Students performance with respect to developing practical solutions to work place problems	Was the Curriculum helpful in building Entrepreneurial motives which helps the Students for starting their ventures
Excellent	11%	7%	18%	7%	16%	8%	7%	8%	7%	10%
Very Good	37%	40%	29%	40%	27%	38%	39%	37%	38%	37%
Good	35%	35%	36%	36%	36%	36%	38%	38%	37%	36%
Average	15%	17%	16%	17%	18%	15%	15%	15%	16%	16%
Poor	2%	1%	2%	1%	3%	4%	1%	2%	3%	1%

Excellent Very Good Good Average Poor

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Action taken Report on Curriculum Feedback- 11thBos

Feedback/suggestions from Employer and action taken report

Sl. No.	Feedback	Action Taken
1	More practical oriented subjected to be introduced.	The Department shall offer courses in the suggested fields. Lab oriented courses will be added for next academic year.
2	Training on new software technologies to be provided to students.	Suggestion will be considered. Plan to organize such training programs.

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.

Few new courses (Annexure 2) were also included based on the feedback received from stake holders

Annexure – 1

List of Courses in which Content Revision is undertaken for the Academic Year 2020-21 (BCA-ARVR Program)

S. No.	COURSE	Course Code	Credits
1	Optimization Techniques	BCA201	3
2	Database Management Systems	BCA 203	3
3	Operating System	BCA 204	3
4	Introduction to Game Design	BCA 264	3

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Annexure – 2
List of New Courses included for the Academic Year 2020-21 (BCA-ARVR Program)

S. No.	COURSE	Course Code	Credits
1	Advanced Web Design	BCA317	3

AnnexureCSE 12.8

M.TECHELIGIBILITYCRITERIA

AdmissionCriteriatotheTwo-Year,MasterofTechnology(M.Tech.)DegreePrograms

The University admissions shall be open to allpersons irrespective of caste, class, creed, gender ornation. All admissions shall be made on the basis of merit in the qualifying examinations; provided thatforty percent of the admissions in all Programs of the University shall be reserved for the students ofKarnataka State and admissions shall be made through a Common Entrance Examination conducted bythe State Government or its agency and seats shall be allotted as per the merit and reservation policy oftheState Government from timeto time.

TheadmissioncriteriatotheM.TechProgramsarelistedinthefollowingSub-Clauses:

1.1.1. An applicant who has successfully completed a Bachelor's Degree Program, forexample,theB.E.or B.Tech.orequivalentdegreesinappropriate disciplinesorbranches,fromanIndianorforeignuniversity,recognisedbytheUGChavingami nimum of 50% marks in aggregate (45% in the case of reserved category candidates),mayapplyforand beadmitted into the course.

S. No.	Table2.2 M.TechDegreeProgramsandEligibleBachelor'sDegreeProgramBranches	
	M.Tech.Program	*EligibleBachelor'sDegree Programs*
1	M.Tech.(BuildingConstructionand Technology)	CivilEngineering
2	M.Tech.(Artificial Intelligence)	

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| 3	M.Tech.(DataScience)	BE/B.Techdegreeinanybranch
4	M.Tech.(EmbeddedSystemandVLSI)	Electronics and CommunicationEngineering/Instrumentation Engineering
9	M.Tech.(ProductDesignandDevelopment)	MechanicalEngineering/Industrial Engineering andManagement/Industrialand ProductionEngineering

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NASSCOM

STANDARDOPERATINGPROCEDUREforOfferingCoursesofNASSCOMFUTURESKILLS PRIMEProgramin Lieuof theDisciplineElective1

Preamble: The certification programme was launched by NASSCOM for students across Universitiesand Colleges in India to provide the necessary professional skills which corporates look for duringplacements or recruitment drives, and this programme is also a viable alternative to Discipline ElectivewherebyIndustrydrivenfocus and learningoutcomes canbeachieved.

The proposed injection of Industry courses providing a finishing touch to our students and will boostemployability thereby also containing the class room capacity issues and slot time tableissuesthus relievingstress on our current facultyloading.

The courses offered in the certification program are found to be very useful to the students from thecorporate readiness point of view.NASSCOM indicates that these courses are the best substitutes for theindustry aligned courses.Itis proposed to advise students to register for these courses and completethese courses in lieu of the Discipline Elective 1 in the forthcoming semester as per the following Guidelines:

1] Allthe2019admittedstudentsofCSE andCSEALLIEDneed to **compulsorily**register andcompletethree coursesaslistedbelow fromthecertificationprogramlaunchedbyNASSCOMFUTUREPRIME in lieu of the3 creditsPoints. LTP will be1-0-4-3(3xx2)

2] All the 2019 admitted students need to **compulsorily**register and complete three courses as specifiedanddecidedwhichincludes cloud computing,cybersecurityandMachineLearning.

S. N o.	Course Name	Technology	Alignedto	Partner	Duration	Link-CourseDetails	Assessment Charges
1	IntroductiontoCybersecurityCourse	CyberSecurity	ManagingInformation Security(N 0901)	Cisco	15h	https://futureskillsprime.in/course/cisco-netacad%E2%80%93introduction-to-cyber-security	INR 600+ GST
2	CloudPractitionerEssentials	CloudComputing	Provision,Maintain and upgradecloudresourcesasperthepoliciesoftheorganisations	AWS	8h	https://futureskillsprime.edcast.com/insights/aws-cloud-masterclass	INR 600+ GST

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			(N8327) Monitorusage,billing and performanceofcloudresourcesas per the policies of theorganisations (N8328)				
3	Machine Learning - Linear Regression	Big Data Analytics	Pre-processdata(N8102), ExploratoryData Analysis(N8103) PerformResearch & Design of Algorithmicmodels(N8104)	Analyttica TreasureHunt	23h	https://futureskillsprime.in/course/machine-learning-linear-regression	INR 600+ GST

 3] Inordertoavailthebenefitofthe Credittransfer(3Credits).Studentshavetocompletealltheabove three courses within 12 weeks starting from 21st June 2021.Thereare2 Options forEvaluation.

   I) **Option A:** The students have to complete the course, undergo evaluation, obtainthe NASSCOM certificationandsubmitthesametotheCOEthrough the respective SchoolDean.[This would cost Rs. 2124 forthreecourses includingGSTforstudents]

   II) **Option B:** The students have to complete the course, submit a comprehensive report on the learningfromeachofthecoursesandhave toundergoregularassessmentthrough online platformascommunicated later conducted by the CSE Faculty coordinators in charge of NASSCOM
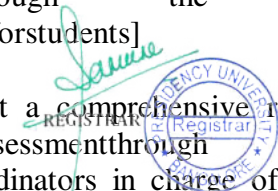
initiative. Thiswill beused foryourassessment andCredit Transfer.[Thiswould not cost anymoney]

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Benefitsof OptionA.

1. **IndustryWiderecognitionof NASSCOMCertification.**
2. **DirectEvaluationfromNASSCOMPortalwhichwillbelaterconvertedandintoyourCGPA.**
3. **UniqueCompetitiveadvantageagainstotherstudentsduringCampusrecruitmentorPlacementd rives anywhere else.**
4. **As NASSCOM courses are designed by Industry Experts their certificate willbooststudent's credentialsand imageforindustryabsorption.**

4] The whole process needs to be driven by NASSCOM SPOC and Team under the umbrella of DEANSOEand AssociateDeans of CSE departments.

5] Students have to complete total of 46 hours learning and evaluation to get 3 credit transfer. The detailsof the three identified courses can be accessed through the link from above table. All Three courses mustbecompleted andevaluated either throughOptionA orOption Btoget 3 CreditTransfer.

6] GuidelinesforstudentRegistrationareasfollows.

1. Studentsneedto registerthese coursesasdirectedByNASSCOMcoordinators.Nodirectregistration should be done through their website. Courses will commence from 21/06/2021.Yourrespectivesection coordinators belowwill elaborate on registeringon NASSCOM Portal.

2. To aid in the process of on boarding to NASSCOM portal and registration following internalfaculties have been identified for every section. These faculties will be monitoring course progressweekly, evaluation of internal students, compilation of internal student's results and submission ofmarksto COE.

S.No.	SectionName	FacultyCoordinators
1	5CSE1	Dr.Aditya KSaxena
2	5CSE2	Dr.Aditya KSaxena
3	5CSE3	Dr.PravinthaRaja
4	5CSE4	Dr.PravinthaRaja
5	5CSE5	Dr. Keshavamoorthy
6	5CSE6	Dr. Keshavamoorthy
7	5CSE7	Dr.Vignesh
8	5CSE8	Dr.Vignesh
9	5CSE9	Dr.JayaSudha
10	5CSE10	Dr.JayaSudha
11	5CSE11	Dr.JayaSudha
12	5CSE12	MrRupamBhagwati
13	5CSE13	MrRupamBhagwati
14	5COM1	MrRupamBhagwati
15	5COM2	MsAnithaPremkumar
16	5COM3	MsAnithaPremkumar
17	5COM4	MsAnithaPremkumar
18	5CCE1	Mr.Jobin Thomas

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19	5ECM1	Mr.Jobin Thomas
20	5ISE1	Mr.Jobin Thomas
21	5ISE2	AmrithaPreeya
22	5ISE3	AmrithaPreeya
23	5ISE4	AmrithaPreeya
24	5IST1	ManjunathKV
25	5IST2	ManjunathKV
26	5IST3	ManjunathKV

3. StudentsoptingforNASSCOMcertificateshouldindicatetheirchoiceonthesurvey beingfloated by your respective section NASSCOM In charge. Payment should be done by individualstudents.

4. Students opting for Internal Evaluation will continue to learn these courses from NASSCOMPortal and they will be evaluated and monitored weakly by your respective section NASSCOM Incharge as per belowgivenschedule.

5. Students after registration can start their course immediately in their platform. All lab relatedexerciseswill bedonethrough theirplatform only.(Informed byMrDinesh)

7] RegistrationprocessTimeLine

S.no.	Activity	Date
1	RegistrationprocessStarts	10/06/2021
2	RegistrationProcessEnds	16/06/2021
3	Categorization of students NASSCOM certification orInternalEvaluationcompleted.	20/06/2021
4	CommencementofCourse	21/06/2021

COURSESCHEDULE:

Sl.No.	ACTIVITY	STARTING DATE	CONCLUDING DATE	TOTALNUMBER OFPERIODS
1.	OverViewofthecoursesandinstructionprocessto completeby respective sectioncoordinator	21/06/2021	21/06/2021	21/06/2021
2.	Course1	21/06/2021	03/07/2021	8
3.	Continuous Assessment 1(OnlineEdhitch)			1
4.	Course2	04/07/2021	20/07/2021	15
5.	Mid-term(OnlineEdhitch)			2

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6.	Continuous Assessment			1

	2(OnlineEdhitch)			
7.	Course3 (part1)	20/07/2021	31/07/2021	12
8.	Assignment(Online Edhitch)			
9.	Course3 (part2)	01/08/2021	12/08/2021	11
10.	End Term(Online Edhitch)			3

ASSESSMENTSCHEDULE: (50internal -50external)(OnlyforStudentsChoosingOptionB)

Sl.no	Assessment type	Contents	Duration in Hours	Marks	Weightage (%)	Venue,DATE &TIME
1.	Continuous Assessment 1	Course1	1	20	10	3/07/2021
2.	Mid Term	Course1and Course2	2	40	20	21/07/2021
3.	Continuous Assessment 2	Course3 (part1)	1	20	10	31/07/2021
4.	Assignment	Case based Onanytopic outofthreecourses	1	20	10	31/07/2021 to 12/08/2021
5.	End TermExam	100 % Contents	3	100	50	15/08/2021 to 21/08/2021

COURSECLEARANCECRITERIA:

Students opting for NASSCOM certification will be evaluated based on the proctored examination gradestheyhavegot.Theyneedto submit theircertificatetorespectiveNASSCOMcoordinator ofthatsection.

For students opting for Internal Evaluation minimum performance of 40% in continuous assessment and30% in end term exam is required to clear the course. Failing which, the student will be awarded "NE"(noteligible)gradeand/or "F"(fail) graderespectively.

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CourseCatalogue:InnovationProject-ArduinoUsingEmbeddedC

CourseCode: CSE 1004	Course Title: Innovation Project-ArduinoUsingEmbedded C TypeofCourse:SchoolCore&PracticalOnly.	L-P-C	0	4 Thisinclude sfewlecture sessions	2
VersionNo.	1.0				
CoursePre-requisites	NIL				
Anti-requisites	NIL				
CourseDescription	In this course the students will learn fundamental concepts of 'C' and EmbeddedC, problem solving using C ina systematicway to readandwrite theC codeandtoimplementthemonArduinoprototypeboard.Thecoursewillalsodemonstrate how to assemble various sensory devices and program them usingArduino platform as a basis. Students will have the opportunity of gaining real-worldexperienceinhandlingIoTdevicesinvolvinghardwareandsoftwarecombinations.Thecoursealsooffersin-depthknowledgeofdesigning,developing,codingand implementingArduino projects.				
CourseOutcomes	**Onsuccessfulcompletionof thiscoursethestudentsshallbeableto:** 1) WriteaprogramusingArduinoprogramminglanguageusingEmbedded'C'. 2) Explainthemain featuresof theArduino prototypeboard 3) DemonstratethehardwareinterfacingoftheperipheralstoArduinosystem. 4) DemonstratethefunctioningoflivevariousprojectscarriedoutusingArduinosystem.				
CourseContent:					
Module1	BasicsofC, Branchingandlooping	Quiz	ProblemSolving		9 CLASSES

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Topics:

StructureofCprograms,Variables,Keywords,Datatypes,declarationand Initialization

DecisionMakingandBranching: if,if-else,else-ifladder,switchstatement.

Decisionmakingandlooping:for,while,anddo-whilestatements.

Module2	Arrays,functions,strings	Quiz	ProblemSolving	8 CLASSES

Topics:
Arrays: Introduction ,one dimensional array, two dimensional array,Functions:Userdefinedfunctions,Categories,searchingandsortingStrings:Introduction, stringhandlingfunctions.

Module3	Basicconcepts of Arduino	ProjectDevelopment	SystemDesignTaskandAnalysis	7 CLASSES

Topics:
Introduction to Arduino, Pin configuration and architecture, Device and platform features, Conceptof digital and analog ports, Familiarizing with Arduino Interfacing Board, API's , Introduction toEmbeddedCandArduinoplatform,ArduinoDatatypesandvariables,Arduinoi/oFunctions, ArduinoCommunications,ArduinoIDE,VariousCloudPlatforms.

Module4	Sensory Devices	ProjectDevelopment	ModelingandSimulationask	6 CLASSES

Topics:
ArduinoSensors:HumiditySensor,TemperatureSensor,WaterDetector/Sensor,PIRSensor,UltrasonicSensor , ConnectingSwitchesand actuators , sensorinterfacewith Arduino.
Introductionto3DPrinter:3DPrintertechnologyanditsworkingPrinciples,Applications.Introductionto online Simulators: WorkingwithTinkercad Simulator

Android/Casestudy.

TargetedApplication&Toolsthatcanbeused:
 Making it a reality (Arduino Projects)
 :Projectswillincludebutnotlimitedto:
 1) Intelligenthomelockingsystem.
 2) Intelligentwaterlevel managementsystem.
 3) HomeautomationusingRFID.
 4) Realtimeclock-basedhomeautomation.
 5) IntelligentAutomaticIrrigationSystem

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ProfessionallyUsedSoftware:ArduinoIDE.
Projectwork/Assignment/Quiz:
Quiz1- Fundamentals of C-Programs,Quiz2-BasicsofEmbeddedCandArduino Projectwork
TextBook(s): 1) EBalagurusamy*"ProgramminginANSIC"*,Mc Graw HillPublications,7thEdition. 2) Monk Simon *"Programming Arduino: Getting Started with Sketches",* Mc Graw HillPublicationsSecond Edition.
Reference(s): 1) https://www.tutorialspoint.com/arduino/index.html. 2) https://create.arduino.cc/projecthub/projects/tags/sensor. 3) https://3dprinting.com/what-is-3d-printing.
Topicsrelevanttodevelopmentof"FoundationSkills":BasicConceptsofC-Programming,Embedded'C'andArduino. Topicsrelatedtodevelopmentof"EmployabilitySkills":Problemsolving,CreativeThinking,Team work, PrototypeDevelopment. Topicsrelatedtodevelopmentof"Entrepreneurship":EffectiveCommunication,StrategicThinking,CreativeThinking.

Evaluation:	Review-1-10%, Review-2-20%, Review-3-20%, online quiz-30%, Project Expo-20%
Cataloguep reparedby	Dr.M.SDivyaRani Mr.Asif MohamedHB
Recommended bythe Board ofStudieson	BOSNO: 12th. BOS heldon 04.08.2021
Date ofApproval bytheAcade mic Council	AcademicCouncilMeetingNo. 14,Dated21/5/21

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SCHOOL OF INFORMATION SCIENCE

Ref: PU-SOIS/2022-2023/BOS-1/CIR-01   Date: 22-7-2022

1st BOS MEETING NOTICE

The 1st Board of Studies (BOS) meeting of School of Information Science is scheduled to be convened on Monday, 25 July, 2022, 12 noon onwards, hosted online from Presidency University Campus Itgalpur, Rajankunte, Yelahanka, Bengaluru.

Kindly make it convenient to attend the meeting.

Agenda:

SOIS 1.1: **To approve the minutes of 15th Board of Studies Meeting held on 26 March 2022.**

SOIS 1.2.1: **To consider and approve changes in Program core of SOIS 2021 Batch**

SOIS 1.2.2: **To consider and approve changes in Program Structure and Grid of SOIS 2021 Batch**
SOIS 1.2.3: **To consider and approve changes in Program structure and Grid of SOIS 2022 Batch**
SOIS 1.2.4: **To consider and approve the Course descriptions for the SOIS BCA- AUGMENTED REALITY AND VIRTUAL REALITY 2020 Batch**

SOIS 1.2.5: **To consider and approve the Course description for the SOIS BCA -GAMING AND GRAPHICS 2020 Batch**
SOIS 1.2.6: **To consider and approve the course catalogues for the SOIS B.Sc. -BACHELOR OF SCIENCE - DATA SCIENCE 2021 and 2022 batch**
SOIS 1.3: **Stakeholders Feedback analysis and discussion obtained from the Students, Alumni, Faculty Members, and Industry Experts on the Curriculum**
SOIS 1.4: **Any other matter with the permission of the chair**

Chairperson
BOS-CSE Committee

Copy to:
- Pro-Chancellor, PU
- Registrar, PU
- Dean-SoE, PU

- Vice-Chancellor, PU
- Pro-Vice-chancellor, PU
- Dean-Academics, PU

- Members of the BOS-CSE Committee:

1	Dr. Abdul Sharief	10	Dr. Murali P
2	Dr. Jacob Augustine	11	Dr. Chandrasekhar Gorikanthu, Practice Head, AI ML, Wipro
3	Dr. Kalaiarasan C	12	Dr. Keshava Munegowda, Vice President, Goldman Sachs
4	Dr. Mohamadi Begum	13	Mr. Ganesh Mahadevan, Head of Enterprise IT and Digital Transformation, BOSCH
5	Dr. Shankar Ramamoorthy	14	Prof. R. B. V. Subramaanyam, Professor, Dept. of CSE, National Institute of Technology, Warangal
6	Dr. T. K. Thivakaran	15	Dr. K. Rajanikanth, Former Principal, MSRIT
7	Dr. Deepak Sakkari	1	Dr. Hari Seetha, Professor and Director, COE in AI and Robotocs, VIT-AP University
8	Dr. Tapas Guha	17	Dr. Mohan K G, Professor, Dept. of CSE, Geetam University
9	Prof. Isaac Joel Raj. S	18	Dr. S Sumathi, Dean, SOIS, VIT-AP University

SCHOOL OF INFORMATION SCIENCE

Minutes of the 1st Meeting of Board of Studies (SoIS)

The 1st meeting of Board of Studies (BoS) of SOIS held on 25th July, 2022 at 12 noon, online.

The following members were present:

S.No	Name	Affiliation	Position
1	Dr. Abdul Sharief	Dean, School of Engineering, Presidency University	Chairman
2	Dr. Chandrasekhar Goruganthu	Practice Head, Wipro	Senior Professional
3	Dr. Keshava Munegowda	Vice President, Goldman Sachs	Senior Professional
4	Dr. Ganesh Mahadevan	Head of Enterprise IT & Digital Transformation, BOSCH	Senior Professional
5	Prof. R. B. V. Subramaanyam	Professor, Dept of Computer Science, NIT Warangal	External Expert
6	Dr. K. Rajanikanth	Former Professor, IISc	External Expert
7	Dr. Hari Seetha	Professor & Dean, VIT-AP University, Amaravati, AP	External Expert
8	Dr. K.G. Mohan	Professor, CSE, Gitam University, Bangalore	External Expert
9	Mr. Shrikant Khapare	Senior Manager, Capgemini	External Expert
10	Mr. RamMohan Tanakanti	Director of Technology, Capgemini	External Expert
11	Dr. Jacob Augustine	Associate Dean & Professor, CSE, Presidency University	Member Secretary
12	Dr. Kalaiarasan C	Associate Dean & Professor, CSE, Presidency University	Member

13	Dr. Mohamadi Begum	Associate Dean & Professor, CSE, Presidency University	Special Invitee
14	Dr. Shankar Ramamoorthy	Professor, CSE, Presidency University	Member
15	Dr. T. K. Thivakaran	Program Chair & Professor, CSE, Presidency University	Special Invitee
16	Dr. Deepak Sakkari	Program Chair & Professor, CSE, Presidency University	Special Invitee
17	Mr. Issac Joel	Assistant Professor, CSE, Presidency University	Special Invitee
18	Dr. Tapas Guha	Assistant Professor, CSE, Presidency University	Special Invitee
19	Mr. Deepak Raj S	Assistant Professor, CSE, Presidency University	Special Invitee
20	Dr. Pallavi R.	Assistant Professor, CSE, Presidency University	Special Invitee
21	Dr. Swati Sharma	Associate Professor, CSE, Presidency University	Special Invitee

The Chairman welcomed the Members and all the members were formally introduced to each other.

REGISTRAR

Registrar
PRESIDENCY UNIVERSITY BANGALORE

Agenda SOIS 1.1: To approve the minutes of 15th Board of Studies Meeting held on 26 March 2022.

The minutes of the 15th meeting of the Board of Studies of SoIS held on 26 March 2022 was placed before the members and the same was unanimously approved (**Annexure SoIS 1.1**).

Agenda SOIS 1.2.1: To consider and approve changes in Program core of SOIS 2021 Batch
The Program Cores of BCA, BCA-ARVR, BCA-G&G and BSc-DS have been updated.
The members were presented with the updated Program Cores of the respective programs. (**Annexure SoIS 1.2**).

Resolution: Resolved that the proposed changes are approved with the following suggestions.

- In Program Core of BCA (ARVR), subjects like Virtual Effects should be added and subjects like IoT are suggested to be reconsidered for inclusion in BCA (ARVR) and BCA (Gaming and Graphics) by the panel.

Agenda SOIS 1.2.2: To consider and approve changes in Program Structure and Grid of SOIS 2021 Batch

- The restructured baskets of all the programs were placed before the members. It was proposed to change the course code from BCAXXX to CSAXXX
  (**Annexure SoIS 1.3**).
.
Resolution: The panel dissected the baskets and gave approval to the proposed changes in course codes.

Agenda SOIS 1.2.3: To consider and approve changes in Program structure and grid of SOIS 2022 Batch

The members were presented with the program structure and grid for the said batch.
  (**Annexure SoIS 1.4**).

Resolution: Resolved that the proposed changes are approved

Agenda SOIS 1.2.4: To consider and approve the Course descriptions and catalogues for the SOIS BCA-Augment Reality and Virtual Reality 2020 Batch
The members were presented with the following course catalogues:
(**Annexure SoIS 1.5**).

Course Code	Course Name	Credits
BCA299	Introduction to 3D Game Engine	1-4-3
BCA261	VIRTUAL REALITY DEVELOPMENT	1-4-3

Resolution: The course descriptions presented before the committee were thoroughly discussed and are approved.

Agenda SOIS 1.2.5: To consider and approve the Course descriptions and catalogues for the SOIS BCA - GAMING AND GRAPHICS 2020 Batch
The members were presented with the following course descriptions:
(**Annexure SoIS 1.6**).

Course Code	Course Name	Credits
BCA222	CHARACTER MODELING AND RIGGING	0-4-2
BCA260	3D GAME ENGINE	1-4-3

Resolution: The course descriptions were discussed at length by the external members of the panel and are approved.

Agenda SOIS 1.2.6: To consider and approve the Course descriptions and catalogues for the SOIS BACHELOR OF SCIENCE - DATA SCIENCE 2021 Batch
The members were presented with the following course catalogues:
(**Annexure SoIS 1.7**).

Course Code	Course Name	Credits
CSA2003	RELATIONAL DATABASE MANAGEMENT SYSTEMS	2-2-3
CSA1006	OPERATING SYSTEMS AND UNIX PROGRAMMING	2-2-3
CSA1005	OBJECT ORIENTED PROGRAMMING USING JAVA	1-4-3
CSA2020	ARTIFICIAL INTELLIGENCE	3-0-3
CSA2019	R PROGRAMMING FOR DATASCIENCE	2-2-3
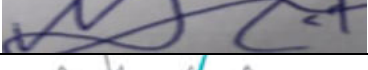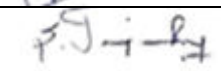
Resolution: The course descriptions were discussed at length by the external members of the panel and are approved.

SOIS 1.3: Stakeholders Feedback analysis and discussion obtained from the Students, Alumni, Faculty Members, and Industry Experts on the Curriculum

Resolution: The committee approved the "Feedback Survey from Stake Holders" process.

REGISTRAR
Registrar
PRESIDENCY UNIVERSITY
BANGALORE

BOS Committee:

S. No.	Name	Status	Signature
1	Dr. Abdul Sharief	Chairman	
2	Dr. Kalaiarasan C	Member	
3	Dr. Mohamadi Begum	Member	
4	Dr. Shankar Ramamoorthy	Special Invitee	
5	Dr. Murali P	Special Invitee	
6	Dr. T. K. Thivakaran	Special Invitee	
7	Dr. Deepak Sakkari	Special Invitee	
8	Prof. Isaac Joel Raj. S	Special Invitee	
9	Dr. Tapas Guha	Special Invitee	
10	Prof. R. B. V. Subramaanyam	External Expert	
11	Dr. K. Rajanikanth	External Expert	
12	Dr. Hari Seetha	External Expert	
13	Dr. Jacob Augustine	Member Secretary	

REGISTRAR

Registrar
PRESIDENCY UNIVERSITY BANGALORE

Annexure SoIS 1.1

SCHOOL OF INFORMATION SCIENCE

Ref: PU-SOE-CSE/2021-2022/BOS-15/CIR-01   **Date: 19-03-2022**

15th BOS MEETING NOTICE

The 15th Board of Studies (BOS) meeting of Department of Computer Science and Engineering, SOE is convened on Saturday, 26th March, 2022, 09:30 AM onwards, hosted online from Presidency University Campus Itgalpur, Rajankunte, Yelahanka, Bengaluru.

Kindly make it convenient to attend the meeting.

Agenda:

SOE-CSE 15.1:	To approve the minutes of 14th Board of Studies Meeting held on 23rd February, 2022.
SOE-CSE 15.2.1:	To consider and approve changes in Program Core of SOE-CSE 2021 batch B.Tech Programs of ISE, IST, CE and CST
SOE-CSE 15.2.2:	To consider and approve changes in the Curriculum of the SOE-CSE 2021 batch B.Tech Programs
SOE-CSE 15.2.3:	To consider and approve the Course catalogues for the SOE-CSE 2021 batch B.Tech Programs
SOE-CSE 15.3:	To consider and approve the Curriculum Structure for the Information Science and Engineering (AI and Robotics) 2021 batch B.Tech Program
SOE-CSE 15.4:	To consider and approve the changes in Program Regulations and Curriculum for SOE-CSE 2020 Batch B.Tech Programs.
SoIS -CSE 15.5.1:	To consider and approve Discipline Core for the SOIS-CSE 2021 batch B.C.A Programs. -B.C.A -B.C.A [Augmented Reality & Virtual Reality] -B.C.A [Gaming & Graphics]
SoIS-CSE 15.5.2:	To consider and approve Change In Program Core for the SOIS-CSE 2020 batch B.C.A Programs

SoIS -CSE 15.5.3:	To consider and approve Course Description for the SOIS-CSE 2019 batch B.C.A Programs.

SOE-CSE 15.6:	Any other matter with the permission of the chair

Chairperson

BOS-CSE Committee

Copy to:

- Pro-Chancellor, PU
- Registrar, PU
- Dean-SoE, PU

- Vice-Chancellor, PU
- Pro-Vice-chancellor, PU
- Dean-Academics, PU

Members of the BOS-CSE Committee:

1	Dr. Abdul Sharief	10	Dr. Murali P
2	Dr. Jacob Augustine	11	Dr. Chandrasekhar Gorikanthu, Practice Head, AI ML, Wipro
3	Dr. Kalaiarasan C	12	Dr. Keshava Munegowda, Vice President, Goldman Sachs
4	Dr. Mohamadi Begum	13	Mr. Ganesh Mahadevan, Head of Enterprise IT and Digital Transformation, BOSCH
5	Dr. Shankar Ramamoorthy	14	Prof. R. B. V. Subramaanyam, Professor, Dept. of CSE, National Institute of Technology, Warangal
6	Dr. T. K. Thivakaran	15	Dr. K. Rajanikanth, Former Principal, MSRIT
7	Dr. Deepak Sakkari	16	Dr. Hari Seetha, Professor and Director, COE in AI and Robotocs, VIT-AP University
8	Dr. Tapas Guha	17	Dr. Mohan K G, Professor, Dept. of CSE, Geetam University
9	Prof. Isaac Joel Raj. S	18	Dr. S Sumathi, Dean, SOIS, VIT-AP University

REGISTRAR

Ref: PU-SOE-CSE/2021-2022/BOS-15/MOM-01   **Date: 26-03-2022**

Minutes of the 15th Meeting of Board of Studies (Computer Science and Engineering – BOS – CSE)

The 15th meeting of Board of Studies (BoS) of the Computer Science and Engineering has been heldon 26th March, 2022 at 09:30 AM, online.

The following members were present:

S. No.	Name	Designation with Affiliation	Status
1	Dr. Abdul Sharief	Dean, School of Engineering, Presidency University	Chairman
2	Dr. Kalaiarasan C	Associate Dean & Professor, Dept. of CSE, Presidency University	Member
3	Dr. Mohamadi Begum	Associate Dean & Professor, Dept. of CSE, Presidency University	Member
4	Dr. Shankar Ramamoorthy	Professor, Dept. of CSE, Presidency University	Special Invitee
5	Dr. Murali P	Professor, Dept. of CSE, Presidency University	Special Invitee
6	Dr. T. K. Thivakaran	Program Chair & Professor, Dept. of CSE, Presidency University	Special Invitee
7	Dr. Deepak Sakkari	Program Chair & Assistant Professor, Dept. of CSE, Presidency University	Special Invitee
8	Prof. Isaac Joel Raj. S	Program Chair & Assistant Professor, Dept. of CSE, Presidency University	Special Invitee
9	Dr. Tapas Guha	Associate Professor, CSE, Dept. of CSE, Presidency University	Special Invitee
10	Prof. R. B. V. Subramaanyam	Professor, Dept. of CSE, National Institute of Technology, Warangal	External Expert
11	Dr. K. Rajanikanth	Former Principal, MSRIT, Bangalore	External Expert
12	Dr. Hari Seetha	Professor and Director, COE in AI and Robotocs, VIT-AP University	External Expert
13	Dr. Mohan K G	Professor, Dept. of CSE, Gitam University	External Expert
14	Dr. Jacob Augustine	Associate Dean & Professor, Dept. of CSE, Presidency University	Member Secretary

The following members are given leave of absence:

Sr. No.	Name	Designation
1	Dr. Chandrasekhar Gorikanthu	Practice Head, Wipro
2	Dr. Keshava Munegowda	Vice President, Goldman Sachs
3	Mr. Ganesh Mahadevan	Chief Information Officer, BOSCH

The Chairman welcomed the Members and all the members were formally introduced to each other.

Agenda SOE-CSE 15.1: To approve the minutes of 14th Board of Studies Meeting held on 23rd February 2022.

The minutes of the 14th meeting of the Board of Studies of Computer Science and Engineering held on 23rd February 2022 was placed before the members and the same was unanimously approved (**Annexure CSE 15.1**).

Agenda SOE-CSE 15.2.1: To consider and approve changes in Program Core of SOE-CSE 2021 batch B.Tech Programs of Information Science and Engineering (ISE), Information Science and Technology (IST), Computer Engineering (CE) and Computer Science and Technology (CST)

The members were presented with the updated Program Cores of the respective programsand a comparative analysis was done with the Program Core of the CSE program (**Annexure CSE 15.2**).

Resolution: Resolved that the proposed changes are approved with the following suggestions.

- In Program Core of ISE, a course on Foundational Mathematics required in Computer Science should be introduced

Agenda SOE-CSE 15.2.2: To consider and approve changes in the Curriculum of the SOE- CSE 2021 batch B.Tech Programs

The restructured baskets of all the specialized programs were placed before the members (**Annexure CSE 15.2**).

Resolution: The panel dissected the updated baskets and approved the same with the following suggestions.

- In the AI/ML basket, the titles of the courses CSE301 Image Processing for AI, CSE3018 AI for Healthcare and CSE3108 Knowledge Engineering and Expert Systems should be relooked

- In the Cyber Security basket, the course Digital and Mobile Forensic should be retained

along with the Newly introduced course Cyber Forensics

- In the Data Science basket, the titles of the courses CSE3038 Computer System for Data Science and CSE3137 Matrix Computations for Data Science should be relooked

- In the IST basket, the titles of the courses CSE2059 Wireless Mobile Networking and CSE3130 Mobile Communication should be relooked

Agenda SOE-CSE 15.2.3: To consider and approve the Course catalogues for the SOE-CSE2021 batch B.Tech Programs

The members were presented with the following course catalogues (**Annexure CSE 15.2**).

Approval of Catalogues

Course Code	Course Name	Credits
CSE2027	Fundamentals of Data Analytics	2-2-3
CSE2010	Cryptography and Network Security	3-0-3

Resolution: The catalogues are approved.

Agenda SOE-CSE 15.3: To consider and approve the Curriculum Structure for theInformation Science and Engineering-AI and Robotics 2021 batch B. Tech Program

The members were presented with the Curriculum structure of the Information Science andEngineering-AI and Robotics 2021 batch B.Tech Program. (**Annexure CSE 15.3**).

Resolution: The curriculum structure is approved with the following suggestions.

- In the Mechatronics basket, courses on Machine Vibration, Aerial Motion Planning and 3D printing may be added

- The credits for the Robotics and Automation lab should be increased

Agenda SOE-CSE 15.4: To consider and approve the changes in Program Regulations and Curriculum for SOE-CSE 2020 Batch B. Tech Programs

The members were presented with the following increase in credit structure

Course Name	Course Code	Existing Credit	Updated Credit
Internet of Things	CSE3003	1-4-3	2-2-4

Resolution: Resolved that the proposed change is approved

Agenda SOE-CSE 15.5.1: To consider and approve Discipline Core for the SOIS-CSE 2021batch B.C.A Programs

        -B.C.A

                -B.C.A [Augmented Reality & Virtual Reality]
      -B.C.A [Gaming & Graphics]

The members were presented with the updated Discipline Cores (**Annexure CSE 15.5**).

Resolution: Resolved that the proposed changes be approved.

Agenda SOE-CSE 15.5.2: To consider and approve Change In Program Core for the SOIS-CSE 2020 batch B.C.A Programs.
      -B.C.A [Augmented Reality & Virtual Reality]

            -B.C.A [Gaming & Graphics]

B.C.A [Gaming & Graphics]

Sl. No	Course Code	Old Course Title	New Course Code	New Course Title	Credit Structure			
					L	T	P	C
1	BCA 267	Game Programming	BCA273	C# Programming for Unity	1	0	4	3

B.C.A [Augmented Reality & Virtual Reality]

Sl. No	Course Code	Old Course Title	New Course Code	New Course Title	Credit Structure			
					L	T	P	C
1	BCA223	3D & VR Workflows and Theories	BCA280	Human Computer Interaction	3	0	0	3
2	BCA273	Programming for Augmented and Virtual Reality	BCA273	C# Programming for Unity	2	0	4	4

The members were presented with the proposed changes in the course grids (**Annexure CSE 15.5**).

Resolution: Resolved that the proposed changes be approved.

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Agenda SOE-CSE 15.5.3: To consider and approve Course Description for the SOIS-CSE 2019batch B.C.A Programs

B.C.A [2019 Batch]

Sl. No	Course Code	Old Course Title	Credit Structure			
			L	T	P	C
1	BCA321	Software Testing	2	0	2	3

B.C.A [Augmented Reality & Virtual Reality] [2020 Batch]

B.C.A [Gaming & Graphics] [2020 Batch]

Sl. No	Course Code	Old Course Title	Credit Structure			
			L	T	P	C
1	BCA259	Video & Audio for Games	2	0	2	3

The members were presented with the proposed changes in the course grids (**Annexure CSE 15.5**).

Resolution: Resolved that the proposed changes be approved.

Agenda SOE-CSE 15.6: Any other matter with the permission of the Chair

Change in M. Tech Eligibility Criteria

The members were presented with the following change in M.Tech Eligibility Criteria. Now, along with BE/B.Tech Degree in any Branch, MCA and MSC (CSE) graduates are also eligible for M.Tech program.

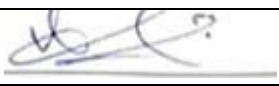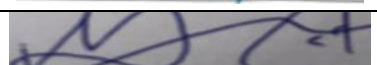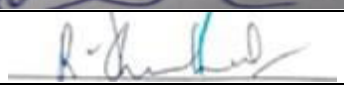|	Table 2.2		
	M. Tech Degree Programs and Eligible Bachelor's Degree Program Branches		
S. No.	*M. Tech. Program*	*Existing Eligibility Criteria*	*Updated Eligibility Criteria*
1	M. Tech. (Artificial Intelligence)	BE/B.Tech Degree in any Branch	BE/B.Tech Degree in any Branch
2	M. Tech. (Data Science)		MCA, MSC (CSE)

As BOS meetings for all the departments are taking place, the Chairman has requested approval from the committee to incorporate modifications / alterations, if any, approved by the BOS committee of other departments for the existing courses offered in Computer Science and Engineering by other departments. The BOS Committee for Computer Science and Engineering has approved the proposal unanimously. The BOS Committee authorizes the Chairperson of the BOS to formulate a sub-committee for making any minor modifications required in the program curriculum and seek the approval in the next meeting.

The BOS Chairperson has conveyed that the decisions taken during the 15th meeting of BOS for Computer Science and Engineering will be implemented for 2021-2025, 2020-2024 and 2019-2023 as early as possible wherever applicable. He has conveyed thanks to all the members and informed that the date of next BOS meeting will be notified soon.

The meeting ended with Vote of Thanks to the Chair.

BOS Committee:

S. No.	Name	Status	Signature
1	Dr. Abdul Sharief	Chairman	
2	Dr. Kalaiarasan C	Member	
3	Dr. Mohamadi Begum	Member	
4	Dr. Shankar Ramamoorthy	Special Invitee	
5	Dr. Murali P	Special Invitee	
6	Dr. T. K. Thivakaran	Special Invitee	
7	Dr. Deepak Sakkari	Special Invitee	
8	Prof. Isaac Joel Raj. S	Special Invitee	
9	Dr. Tapas Guha	Special Invitee	
10	Prof. R. B. V. Subramaanyam	External Expert	
11	Dr. K. Rajanikanth	External Expert	
12	Dr. Hari Seetha	External Expert	
13	Dr. Jacob Augustine	Member Secretary	

Annexure SoIS 1.2

BCA	BCA-ARVR	BCA-G&G	BSc-DS

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Annexure SoIS 1.3
Curriculum Design as per CBCS Scheme

Basket Wise - Credit Allotment

BCA-General	BCA-ARVR	BCA-G&G	BSc-DS

Program Structure

BCA-General	BCA-ARVR	BCA-G&G	BSC-DS

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Annexure SoIS 1.4

BCA	BCA-ARVR	BCA-G&G	BSc-DS

Course Name:	Introduction to 3D Game Engine				
Course Code:	BCA299	Credit Structure:	L	T	P	C
			1	0	4	3

Course Description:
This course is a foundational course to augmented reality specialization students. The introductory 3D Game Engine Course covers basics of Game engine and architecture. Creating simple games and connecting with audiences including unity asset store, Cloud Build, Ads, and Every play, Complete integrated development environment (IDE) with an integrated editor, asset workflow, scene builder, scripting, networking using Unity 3D is a game engine. The course is project-based, so student learning dry programming concepts, but applying them immediately to real indie games.
.
Text Book:
1.   Unity Game Development Cookbook- Paris Buttfield-Addis, Jonathan Manning, and Tim Nugent, Publisher - O'Reilly, 2019
2.   Learning C# from Developing Games with Unity 5.x,Greg Lukosek, 1St Edition, Packt Publishing Limited, 2021.
Reference Books:
1.   Learning C# by Developing Games with Unity 2020: An enjoyable and intuitive approach to getting started with C# programming and Unity, 5th Edition, 2020.

2.   Ernest Adams, "Fundamentals of Game Design", Pearson Education, 2012.

Course Name:	VIRTUAL REALITY DEVELOPMENT				
Course Code:	BCA261	Credit Structure:	L	T	P	C
			1	0	4	3

Course **Description:**This course is primarily aimed at those learners interested in any of the following roles: Virtual Reality Designer, Developer, UX Designer, Graphics Designer, AR Designer, AR Developers, Game Designers. This course is designed to introduce students to the field of virtual reality (VR) and provide students with hands-on experience developing applications for modern virtual and augmented reality systems. In the course, students learn about the historical development of virtual reality technology and virtual reality as a research field, gain mastery of fundamental principles, algorithms, and design patterns in computer graphics, discover the perceptual science behind mixed reality technologies, and explore libraries and tools for creating VR experiences such as WebGL and Unity.
Text Book
1. Toni Parisi , " Learning Virtual Reality", O'Reilly Media, Inc. ISBN: 9781491922835
Reference Books
   1.   The VR Book, Human-Centered Design for Virtual Reality., by Jason Jerald, Ph.D.
   2.   Learning Virtual Reality: Developing Immersive Experiences and Applications for Desktop, Web, and Mobile, by Tony Parisi

3. Unity Virtual Reality Projects, by Jonathan Linowes
4. Oculus Rift in Action, by Bradley Austin Davis *et al*

Course Name:	Character Modeling and Rigging				
Course Code:	BCA222	Credit Structure:	L	T	P	C
			0	0	4	2

Course Description:

This course is designed, to fundamentals of Character modeling and rigging through the interface of the blender tool, this comprehensive course is packed with useful techniques that ease you into the workflow of the program to meet the industry's need for creating character designing and rigging methods to create models that are essential for research and study. A character rigger generates the internal structural frameworks and controls of a 3D model, defining how the student will be able to manipulate it. Their goal is to build a skeleton that will operate a character and bring it to real life.

The general objective of the course is to provide knowledge on modeling and rigging in various domains.

Textbook:

1. Oliver Villar, "Learning Blender: A Hands-On Guide to Creating 3D Animated Characters", Pearson, 2015 second edition.

Reference Books:

1. 3D Totol Bublisher , "beginner's Guide to Creating Characters in Blender Paperback", 3DTotal Publishing 2021.

2. Xury Greer "Sculpting the Blender Way: Explore Blender's 3D sculpting workflows and latest features, including Face Sets, Mesh Filters, and the Cloth brush", Packt Publishing, 2022.

Annexure SoIS 1.6

Course Code: CSA2003	Course Title: Relational Database Management Systems	L-T-C	2	2	3

	Type of Course: Integrated				
Version No.	1.0				
Course Pre-requisites	**NIL**				
Anti-requisites	**NIL**				
Course Description	This course offers detailed concept on principles and techniques required in the design and implementation of database systems. It helps the students to learn and practice data modelling using the entity-relationship diagrams. It covers relation database management (RDBMS) concepts and also provides detail knowledge on how to design, maintain and retrieve the information effectively and efficiently. The corresponding laboratory is intended to implement database design using MYSQL. All the experiments will focus on the fundamentals of database creation, populating, interactive querying which includes use of various data definition, data manipulation commands, functions, joins, sub-queries, views, set operations, procedures and triggers.				
Course Objective	This Course is designed to improve the learner's EMPLOYABILITY SKILLS by using PROBLEM SOLVING methodologies.				
Course Out Comes	**On successful completion of this course the students shall be able to:** 1. Understand the basic concepts of database and apply the ER modelling concepts in designing the database. 2. Apply Relational Algebra and Database Querying concepts in designing the database. 3. Analyze various normalization techniques for designing a robust database. 4) Understand the Transaction control and concurrency control mechanisms.				
Course Content:					
Module 1	Introduction			**7 Hours**	

Topics:
Introduction to Database: Database Management System, Characteristics of Database Approach, Data Models, Schema, Instance, Three-Schema Architecture, Data Independence, Disadvantages in traditional file system, advantages of database over traditional file systems.
Conceptual Modelling: Data Modelling Using Entity Relationship (ER) Model, ER Model to Relational Model, Examples on ER model.

Module 2	Query Languages			**8 Hours**	

Topics:
Relational Algebra: selection, projection, rename, set operations, Cartesian product, joins (inner and outer joins), and division operator. Examples on Relational Algebra Operations.

Database Querying: DDL, DML, Constraints, Operators, Set Operators, Aggregate Functions, Joins, Views, Procedures, Functions, cursors and Triggers.				
Module 3	Designing and Refining Database Schema			**7 Hours**

Topics:
Schema Design: Problems in schema design, redundancy and anomalies.
Schema refinement: Functional Dependencies, Normal Forms – First Normal Form, Second Normal Form, Third Normal Form, Boyce-Codd Normal Form, Multi valued Dependency and Fourth Normal Form, Join Dependencies and Fifth Normal Form.

Module 4	Transaction Management and Concurrency Control			**7 Hours**

Topics:
Transaction: Introduction to Transaction Processing, Transaction and System concepts, Desirable properties (ACID) of Transactions, Simultaneous Transactions and their problems like dirty read, lost update and incorrect summary, Serializability, Conflict Serializability, View Serializability.
Concurrency Control: Locking and Time-stamping concurrency schemes.

List of Laboratory Experiments:
Create Student, Employee, Banking and Library Management databases and populate with necessary data. Perform the following various experiments on those databases.

Labsheet-1[8 Practical Sessions]
Experiment No 1: [4 Session]
To study and implement Data Definition Language (DDL) commands and Data Manipulation Language (DML) commands of MySQL.
Level 1: Perform basic operations using Data Definition Language (Create, Alter, Drop, Truncate & Rename) and Data Manipulation Language commands on Student Database.
Level 2: Identify the given requirements; valid attributes and data types and Perform DDL and DML operations on a given scenario. [Employee Database]
Experiment No. 2: [4 Sessions]
To study and implement different types of constraints, relational, logical, pattern matching, BETWEEN, IS NULL, IN and NOT IN Special Operators.
Level 1: Create tables on Employee database using PRIMARY KEY, NOT NULL, UNIQUE, FOREIGN KEY and demonstrate the working of relational, logical, pattern matching, BETWEEN, IS NULL, IN and NOT IN Special Operators on Student Database.
Level 2: Enforcing different types of data and referential integrity constraints. Implementing special operators based on the student database. [Employee Database].

Labsheet-2[8 Practical Sessions]
Experiment No. 3: [4 Sessions]
To study and implement for aggregation of data in to groups and sub-groups using GROUP BY,

HAVING clauses and sort data using ORDER BY clause.
Level 1: Implementing GROUP BY, HAVING, ORDER BY and aggregate functions on Employee Database**.**
Level 2: Implement MySQL queries on Banking database using appropriate clauses and aggregate functions**.** Sorting the data either in ascending and descending order using ORDER BY clause. [Banking databases].

Experiment No. 4: [4 Session]
To study and implement various Set and Join Operations.
Level 1: Demonstrate different types of Set Operations (UNION, UNION ALL, INTERSECT, MINUS) and Join Operations (INNER JOINs, OUTER JOINS, CROSS JOIN, NATURAL JOIN) on two or more tables of Employee Database.
Level 2: Implement Set and Join operations on Banking database to retrieve the data from two or more relations(tables) as per the given scenario. [Banking databases]

Labsheet-3 [4 Practical Sessions]
Experiment No. 5: [4 sessions]
To study and implement Views, Procedures and Functions in MySQL.
Level 1: Implement MySQL Views, Procedures and Functions in MySQL on Student database.
Level 2: Analyze the requirement and construct views, and Procedures, Functions. [Employee Database]

Labsheet-4 [4 Practical Sessions]
Experiment No. 6: [4 Sessions]
To study and implement Cursors and Triggers in MySQL.
Level 1: Implement MySQL Cursors and Triggers in MySQL on Employee database.
Level 2: Analyze the requirement and construct Functions and Triggers on Mini Project Domain. [Library Database]

Project work/Assignment: Mention the Type of Project /Assignment proposed for this course
1.   Constructing E-R diagrams. 2.   Implementation on a given scenario.

Text Book

1. Elmasri R and Navathe S B, "Fundamentals of Database System", 7th Edition, Pearson Publication, 2017.

References

1. Hector Garcia Molina, Jeffery D Ullman, Jenniffer Widom, "Database systems: The Complete Book", 2nd edition, Pearson Publication,2013.
2. Avi Silberschatz, Henry F. Korth, S. Sudarshan, "Database System Concepts", 7th Edition, McGraw-Hill, 2019.

Catalogue prepared by	Dr. Kuppala Saritha
Recommended by the Board of Studies on	

Date of Approval by the Academic Council	

Course Code: CSA 1006	Course Title: OPERATING SYSTEM AND UNIX PROGRAMMING Type of Course: Integrated	L- P- C	2	2	3
Version No.	1.0				
Course Pre-requisites	The prerequisites for this course are Data Structures and Computer Organization. You are expected to have a working knowledge of C / C++, including a familiarity with its basic data types and control structures, and an understanding of computer organization.				
Anti-requisites	Nil				
Course Description	The main objective of this course is to cover basic concepts of operating systems. Operating Systems functions, Basic Concepts, Notion of a process, Concurrent processes, Problem of mutual exclusion, Deadlock, Process Scheduling, Memory management, Multiprogramming, File systems; time sharing systems and their design consideration. This course will prepare students to develop software in and for Linux/UNIX environments. Also this course helps the students in UNIX operating system and their effective use for problem solving.				
Course Objectives	This course is designed to improve the learners' **SKILLS** by using EXPERIENTIAL LEARNING techniques				
Course Outcomes	1. **Describe** the various OS Types, Services, structures and layers, system calls related to OS management and interpreting different stages of various process states. 2. **Describe** the IPC and Deadlocks with methodologies and explore the communication between inter process and synchronization techniques and Implement memory placement strategies, replacement algorithms related to main memory and virtual memory techniques. 3. **Understand** the Memory Management and Allocation concepts 4. **Design** Virtual Memory and File Management with CPU scheduling algorithms to meet and validate the scheduling criteria and the file systems; file allocation, access techniques along with virtualization concepts and designing of OS with protection and security enabled capabilities				
Course Content:					

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Module 1	Introduction to OS and System Structure	Assignment		8 Sessions

Topics:
Introduction: Concept of Operating Systems (OS), Generations of OS, Types of OS, OS Services, Interrupt handling and System Calls, Basic architectural concepts of an OS, Concept of Virtual Machine,
Resource Manager view, process view and hierarchical view of an OS. **Processes:** Definition, Process Relationship, Different states of a Process, Process State transitions, Process Control Block (PCB), Context switching. Process Scheduling: Scheduling algorithms:, Multiprocessor scheduling: Real Time scheduling:

Module 2	IPC and Deadlocks	Assignment		7 Sessions

Topics:
Inter-process Communication: Concurrent processes, precedence graphs, Critical Section, Race Conditions, Mutual Exclusion, Deadlocks - prevention, avoidance, detection and recovery. Thread: Definition, Various states, Benefits of threads, Types of threads, Concept of multithreads. Banker's algorithm, Deadlock detection and Recovery

Module 3	Memory Management	Case Study		8 Sessions

Topics:
Memory Management: Logical and Physical address maps, Memory allocation: Contiguous Memory allocation – Fixed and variable partition– Internal and External fragmentation and
Compaction.

Module 4	Virtual Memory and File Management	Case Study and Project		7 Sessions

Topics:

Virtual Memory: Basics of Virtual Memory – Hardware and control structures – Locality of reference, Page allocation, Partitioning, Paging, Page fault, Working Set, Segmentation, Demand paging,
Page Replacement algorithms: Optimal, First in First Out (FIFO), Second Chance (SC), Not recently used
(NRU) and Least Recently used (LRU)

File Management: Concept of File, Access methods, File types, File operation, Directory structure, File System structure, Allocation methods , Free-space management , directory implementation , efficiency and performance

Targeted Application & Tools that can be used:

Linux / Vi Editor
Project work/Assignment:

Assignment:

Lab Experiments

Experiment 1

      Level 1 : To study of Basic UNIX Commands and various UNIX editors such as vi
      Level 2 : To study the File manipulation Commands

Experiment 2
      Level 1 : Programs using the following system calls of UNIX operating system fork, exec, getpid, exit,wait
      Level 2 : Programs using the following system calls of UNIX operating system close, stat, opendir, readdir

Experiment 3
      Level 1 : PROGRAM FOR SIMULATION OF LS UNIX COMMANDS
      Level 2 : PROGRAM FOR SIMULATION OF GREP UNIX COMMANDS

Experiment 4
      Level 1 : Write a Shell program to check the given number is even or odd
      Level 2 : Write a Shell program to check the given year is leap year or not

Experiment 5
      Level 1 : Write a Shell program to find the factorial of a number
      Level 2 : Write a Shell program to swap the two integers

Experiment 6
      Level 1 : Implementation of Priority scheduling algorithms. With total and average waiting time
      Level 2 : Implementation of Priority scheduling algorithms. With total and average turnaround time

Experiment 7
      Level 1 : Write a Shell program to display a given Message
      Level 2 : Write a Shell Program to find the roots of the quadratic equation.

Experiment 8
      Level 1 : Write a shell program to find the smallest digit of a value
      Level 2 : Write a shell script to perform integer arithmetic operations

Experiment 9
      Level 1 : Write a shell program to reverse a number.
      Level 2 : Write a shell program to find the sum of even and odd numbers in an array

Experiment 10
      Level 1 : Write a Simple Shell script to print the sum of n natural numbers
      Level 2 : Write a shell program to count the number of digits of a value

    1. Study of Linux commands – System Information, Files and Directories, Process,

Text
Processing and Scripting, Programming.
2. Creating Child process (using fork), Zombie, Orphan. Displaying system information using C.
3. Shell scripting (I/O, decision making, looping)
4. IPC (Threads, Pipes)
5. CPU Scheduling Algorithms (FCFS, SJF, RR, Priority)
6. Deadlock Avoidance Algorithm (Bankers algorithm)
7. Process synchronization (Producer Consumer / Reader Writer/Dining Philosopher using semaphores)
8. Page Replacement Algorithms. (FIFO, LRU, Optimal)
9. Dynamic Memory Allocation Algorithms (First fit, Best fit, Worst fit)
10. Disk Scheduling Algorithms

Text Books

1. Abraham Silberschatz, Peter B. Galvin, Greg Gagne-Operating System Concepts, Wiley, 10th Edition, 2019.
2. Tanenbaum, Andrew S., and Albert S. Woodhull. Operating systems: design and implementation.
Vol. 68. Englewood Cliffs: Prentice Hall, 1997

Reference Books

1. The Unix programming Environment by Brain W. Kernighan & Rob Pike, Pearson.
2. Introduction to Unix Shell Programming by M.G.Venkateshmurthy, Pearson
3. Unix and shell programming by B.M. Harwani, OXFORD university press.
4. Remzi H. Arpaci-Dusseau, Andrea C. Arpaci-Dusseau, Operating Systems, Three Easy
Pieces,Arpaci-Dusseau Books, Inc, 2015
5. Dhamdhere, Dhananjay M. Operating systems: a concept-based approach, 2E. Tata McGraw-Hill
Education, 2006.
6. Deitel, Harvey M., Paul J. Deitel, and David R. Choffnes. Operating systems. Delhi. Pearson
Education: Dorling Kindersley, 2004.
7. Milenkovič, Milan. Operating systems: concepts and design. McGraw-Hill, Inc., 1987.

Web References

1. **https://nptel.ac.in/courses/106108101**
2. **https://nptel.ac.in/courses/106106144**
3. **https://nptel.ac.in/courses/117106113**
4. **https://www.udemy.com/course/unix-getting-started/**
5. **https://www.coursera.org/learn/unix**

Catalogue prepared by	**Dr.R.Chinnaiyan**

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			3	0	3
Recommended by the Board of Studies on					
Date of Approval by the Academic Council					

Course Code: CSA2020	**Course Title: Artificial Intelligence** **Type of Course:** Program Core & Theory only	**L- P- C**	3	0	3
Version No.	1.0				
Course Pre-requisites	NIL				
Anti-requisites	NIL				
Course Description	The course explores the intelligent system structure, working and various levels of representation. The students learn how to identify, differentiate, and categorize a wide range of intelligent system, as well as to evaluate how AI contribute to the design and development of intelligent system design. Students also evaluate the role and contribution of Artificial intelligence in various field through interactive lectures, in-class and online assignments, and group projects students learn how to regulate which models are best suited for achieving an intended system result, and to judge whether or not Intelligent systems have been implemented successfully.				
Course Outcomes	On successful completion of this course the students shall be able to: 1] Recognize the mechanics behind intelligent system. 2] Understand resources of smart and intelligent way of knowledge representation. 3] Understanding of agent based intelligent system.				
Course Content:					

Module 1	Introduction to intelligent systems	Assignment	Research Assignment	**15 Sessions**

Topics:
Basic Concepts and definitions of AI. Knowledge representation and searching in AI. Game Playing and searching- min max search , Minimize search procedure to improve efficiency, alpha beta cut off. Domain and solution tree, searching in solution tree- case study: water jug problem.

Module 2	Knowledge representations	Case Study	Mechanics of a popular game	**15 Sessions**

Topics:

Knowledge representations: Predicate logic, Propositions, truth tables, predicate calculus, Predicate and arguments, resolution, Natural deduction. structure knowledge representation: semantic net-ontology representation, ISA hierarchy, Conceptual dependency, Script, frame notation.

Module 3	Robotics and Expert system	Project	Model the mechanics of a game	**15 Sessions**

Topics:

Robot Architecture, Perception and Action, Role of sensors and transducers in robotics. Vision, Texture and images, representing and recognizing scenes, waltz algorithm, Constraint determination, Trihedral and non-trihedral figures labeling. Utilization, functionality and architecture of expert system. Intelligent agents and Agent based systems.

Targeted Application & Tools that can be used:

Application Area: Planning effective knowledge share resulting in engaging knowledge search experience applied in game development or allied field..
Professionally Used Software: Python, Java

Project work/Assignment:

Assignment: 1] Research a popular game and identify its intelligent component contributing to its popularity. Understand the implementation of intelligent component in the game.

Project Assignment: 1] Model any intelligent application to improvise traditional system.

References
1. **E. Rich and K. Knight," Artificial Intelligence", Tata McGraw Hill, 2013**

2. Dan W. Patterson, "Introduction to Artificial Intelligence and Expert Systems", PHI, 2013.

References
1. **Nils J. Nilson, "Principles of Artificial Intelligence", Narosa Publishing Co. 2002.**

2. **M.Timjones "Artificial Intelligence a Systems Approach" University Science Press 2010.**

3. **E. Charnaik and D.McDermott," Introduction to artificial Intelligence", Pearson Education, 2012**.

Catalogue prepared by	Mr. Jinesh V N, Assistant professor , Department of Computer Science and Engineering, Presidency University
Recommended by the Board of Studies on	
Date of Approval by the Academic	

Course Code: CSA 2019	Course Title: R Programming For Data Science Type of Course: Integrated	L- P- C	2	2		3
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course is designed to provide the core concepts of data analytics in the R environment. Initially train them with basic R, then progressively increase the difficulty as they move along in the course, capping with advanced techniques through case studies. Mastering the core concepts and techniques of data analytics in R, will help the students to apply their knowledge to a wide range of Data Analytics. R is now considered one of the most popular analytics tools in the world.					
Course Objective	The objective of the course is SKILL DEVELOPMENT of student by using PARTICIPATIVE LEAVING techniques.					
Course Outcomes	On successful completion of this course the students shall be able to: 1. Apply basic R functions pertaining to fundamental data analysis. [**Application**] 2. Interpret data using appropriate statistical methods [**Application**] 3. Demonstrate the decision trees concept with the given dataset. [**Application**] 4. Demonstrate the Mining concepts for both Data and Text. [**Application**]					
Course Content:						

Module 1	Introduction	Quiz	Coding Assignment	6 Sessions
Topics: **Introduction to R, Overview of data analysis, Working with directory in R, Loading and handling data in R, Data Visualization with ggplot2, Data Transformation with dplyr.**				
Module 2	Exploratory Data Analysis	Coding Assignment	Case Study	11 Sessions
Topics: **Exploring a new dataset, Anomalies in numerical data, Visualizing relations between variables, Assumptions of Linear Regression, Validating Linear Assumptions, Missing Values, Covariation, Patterns and Models, gglot2 Calls.**				

Module 3	Regression Analysis	Coding Assignment	Project	12 Sessions

Topics:
Introduction, Types of Regression Analysis Models, Linear Regression, Simple Linear Regression, Non-Linear Regression, Regression Analysis with Multiple Variables, Cross Validation, Principal Component Analysis, Factor Analysis.

Module 4	Classification	Quiz	Project	8 Sessions

Topics:
Introduction, Different types of Classification, Logistic Regression, Support Vector Machines, K-Neatest Neighbors, Naïve Bayes Classifier, Decision Tree Classification, Random Forest Classification, Evaluation.

Targeted Application & Tools that can be used:
Tools: RStudio / Google Colab

Project work/Test:

During the course, students would need to do coding assignments to learn to train and use different models. Sample coding assignments include:
Analysis of Sales Report of a Clothes Manufacturing Outlet.
Comcast Telecom Consumer Complaints.
Web Data Anslysis

Text Book(s):
    1. **Hadley Wickham and Garrett Grolemund, "R for Data Science", O'reilly, 2017.**

Reference(s):
    1. **Dr. Bharati Motwani, "Data Analytics using R", Wiley, 2019.**

Web link(s):
    1. **https://www.geeksforgeeks.org/r-programming-for-data-science/**
    2. **https://r4ds.had.co.nz/**

Catalogue prepared by	Galiveeti Poornima
Recommended by the Board of Studies on	
Date of Approval by the Academic Council	

Annexure SoIS 1.7

Stakeholders Feedback analysis and discussion obtained from the Students, Alumni, Faculty Members, and Industry Experts on the Curriculum

FACULTY FEEDBACK ON CURRICULUM, 2021-22

Program: BCA-GEN

Sl.No.	Questions	5. Excellent	4. Very Good	3. Good	2. Average	1. Poor	Total Respondents
1.	Syllabus is suitable to the course	29.78	42.22	25.56	2.22	0.22	
2.	Syllabus is need based	28.67	44.89	23.11	3.11	0.22	
3.	Aims and objectives of the syllabi are well defined and clear to teachers and students	34.89	41.78	20.67	2.44	0.22	
4.	The courses/syllabus has good balance between theory and application	27.33	42.44	24.00	5.78	0.44	
5.	The course / program of studies carries sufficient number of optional papers	29.11	40.00	25.11	5.11	0.67	
6.	The books prescribed / listed as reference materials are relevant, updated and appropriate	34.22	43.56	17.11	4.44	0.67	15
7.	Tests and examinations are conducted well in time with proper coverage of all units in the syllabus	36.44	39.11	19.11	4.89	0.44	
8.	I have the freedom to propose, modify, suggest and incorporate new topics in the syllabus	40.00	35.78	17.56	4.44	2.22	
9.	I have the freedom to adopt new techniques/strategies of teaching such as seminar presentations, group discussions and learner's participations	46.67	34.89	14.89	2.67	0.89	
10.	The environment in the department is conducive to teaching and research	29.33	36.22	19.56	10.00	4.89	
	Average	**33.64**	**40.09**	**20.67**	**4.51**	**1.09**	

Faculty Feedback Analysis-BCA GEN 2021-22

	Average	Excellent	Good	Poor	Very Good
1. Syllabus is suitable to the course	29.78	42.22	25.56	2.22	0.22
2. Syllabus is need based	28.67	44.89	23.11	3.11	0.22
3. Aims and objectives of the syllabi are well defined and clear to teachers and students	34.89	41.78	20.67	2.44	0.22
4. The courses / syllabus has good balance between theory and application	27.33	42.44	24.00	5.78	0.44
5. The course / program of studies carries sufficient number of optional papers	29.11	40.00	25.11	5.11	0.67
6. The books prescribed / listed as reference materials are relevant, updated and appropriate	34.22	43.56	17.11	4.44	0.67
7. Tests and examinations are conducted well in time with proper coverage of all units in the syllabus	36.44	39.11	19.11	4.89	0.44
8. I have the freedom to propose, modify, suggest and incorporate new topics in the syllabus	40.00	35.78	17.56	4.44	2.22
9. I have the freedom to adopt new techniques/strategies of teaching such as seminar presentations, group discussions and learner's participation	46.67	34.89	14.89	2.67	0.89
10. The environment in the department is conducive to teaching and research	29.33	36.22	19.56	10.00	4.89

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Action taken Report on Curriculum Feedback- 13th BOS

Feedback/suggestions from Faculty Members and action taken report

Sl. No.	Feedback	Action Taken
1	Awareness about latest developments among teachers was suggested	Administrative support was provided to teachers for pursuing online faculty development programs/short term courses. Number of teachers attended courses on MOOC and used their learning for effective teaching.
2	Remote access can be provided to e-Journals.	Proxy mediated remote access to e-Campus, e-Journals/database/e-books were provided.

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.

Few new courses (Annexure 2) were also included based on the feedback received from stake holders

EMPLOYER FEEDBACK ON CURRICULUM, 2021-22

Program: BCA- GEN

Sl.No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	1. Poor (%)	Total Respondents
1.	The curriculum is balanced with requisite number of Foundation, core and elective courses	28.76	26.61	33.48	9.44	1.72	
2.	The curriculum offers enough flexibility to the students to choose the course	11.16	33.91	43.35	10.73	0.86	7
3.	The curriculum has sufficient courses to	10.73	33.48	43.35	11.16	1.29	
4.	The curriculum has sufficient courses to impart the entrepreneurial skills to the students	10.73	33.48	43.35	11.16	1.29	

5.	The curriculum has sufficient component of Laboratory courses to develop the practical skills in the students	11.16	33.48	43.35	10.73	1.29
6.	The curriculum has enough scope to	11.16	33.48	43.35	10.73	1.29
7.	The courses listed in the curriculum helps	11.16	33.48	43.35	10.73	1.29
8.	The curriculum has sufficient courses to impart the soft skills to the students	11.16	33.48	43.35	10.73	1.29
9.	The overall credit structure of the	11.59	33.48	42.06	11.59	1.29
10.	In general, the curriculum structure looks to be appropriate to develop the necessary skill set and impart the knowledge required for a professional	11.59	33.48	42.06	11.59	1.29
Average		**12.92**	**32.83**	**42.10**	**10.86**	**1.29**

Employer Feedback - BCA GENERAL 2020-21

Bar chart showing Employer Feedback for BCA General 2020-21 across categories: Poor, Average, Good, Very Good, Excellent.

Question	Poor	Average	Good	Very Good	Excellent
The curriculum is balanced with requisite...	1.71	9.44	33.48	26.61	28.76
The curriculum offers enough flexibility to the...	0.85	10.73	43.35	33.91	11.16
The curriculum has sufficient courses to impart...	1.28	11.16	43.35	33.48	10.73
The curriculum has sufficient courses to impart...	1.28	11.16	43.35	33.48	10.73
The curriculum has sufficient component of...	1.28	10.73	43.35	33.48	11.16
The curriculum has enough scope to create the...	1.21	10.11	43.2	15.23	30.25
The courses listed in the curriculum helps in...	1.28	10.73	43.35	33.48	11.16
The curriculum has sufficient courses to impart...	1.28	10.73	43.35	11.16	33.48
The overall credit structure of the program is good	1.28	11.59	42.06	33.48	11.59
In general, the curriculum structure looks to be...	1.28	11.59	42.06	33.48	11.59

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Action taken Report on Curriculum Feedback- 13th BOS

Feedback/suggestions from Employer and action taken report

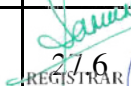| Sl. No.	Feedback	Action Taken
1	Good behaviour and Knowledgeable	Thanks for the potential review about the professional behavior of knowledge of the student in real world situation. We are grateful to hear further to improve the curriculum.
2	Multiple internships done by students were highly appreciated	The CDC will continue to put efforts to secure more internships offers and live projects for students

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.
Few new courses (Annexure 2) were also included based on the feedback received from stake holders

STUDENTS FEEDBACK ON CURRICULUM, 2021-22

Program: BCA- GEN

Sl. No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	1. Poor (%)	Total Respondents
1.	How do you rate the syllabus of the courses that you have studied?	22.4	15.2	42.4	9.3	10.7	
2.	Course Applicability /relevance to real life situations (Employability)	11.7	19.0	50.0	10.7	8.6	
3.	Learning value in terms of skills, concepts, knowledge and analytical abilities	10.7	35.9	37.6	5.9	10.0	
4.	How do you rate the sequence of the Courses that you have studied in the previous semester?	22.4	28.6	34.1	9.3	5.5	72
5.	How do you rate the sequence of the units in the Course?	10.3	30.0	42.1	8.6	9.0	
6.	How do you rate the offering of the electives in terms of their relevance to the specialization streams?	24.5	27.2	27.6	12.1	8.6	

7.	How do you rate the relevance of the Text Books and reference books to the Courses?	22.1	14.5	46.9	8.3	8.3	
8.	How do you rate the percentage of courses having LAB components?	14.8	31.0	36.9	8.3	9.0	
9.	How do you rate the experiments in relation to the real life applications?	16.2	20.0	47.2	9.3	7.2	
10.	How do you rate the allocation of the credits to the courses?	17.6	36.6	34.8	4.1	6.9	
Average		**17.28**	**25.79**	**39.97**	**8.59**	**8.38**	

STUEDENTS FEEDBACK ANALYSIS-BCA GENERAL

Action taken Report on Curriculum Feedback- 13th BOS

Feedback from Students and action taken report

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.

Few new courses (Annexure 2) were also included based on the feedback received from stake holders.

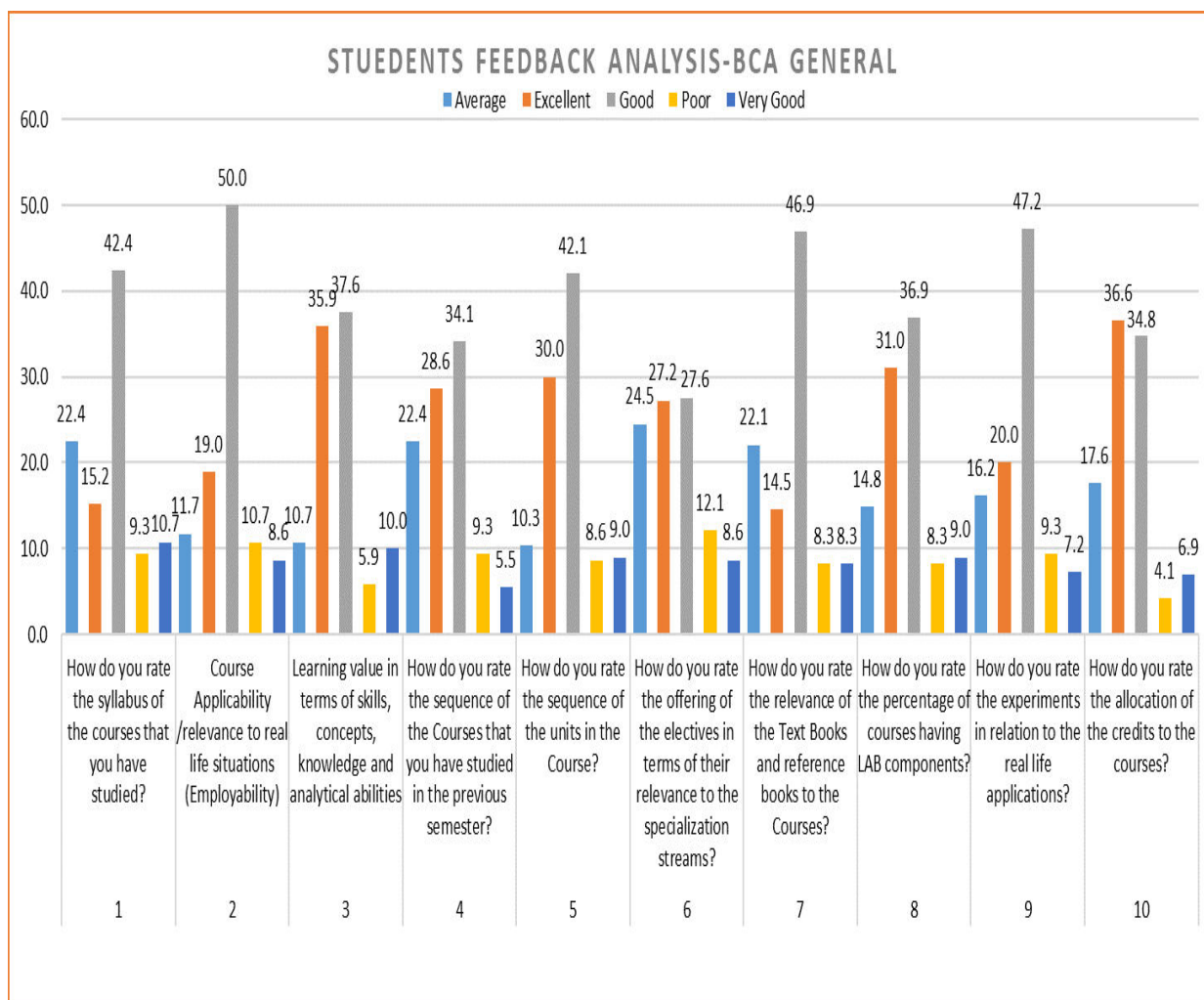| Sl. No.	Feedback	Action Taken
1	More value added courses may be conducted to improve the soft skills / technical skills.	Value added programs are scheduled for the AY 2021-22 even semester
2	Certification training programs from the industry is to be conducted	Few students are undertaking certification training program and students are encouraged to participate more training programs.
3	Well Equipped laboratories equipped with advanced instruments can be made available.	Research outcomes of the institution were enhanced by establishment of common Advanced Research Laboratories, State of the art Laboratories.

FACULTY FEEDBACK ON CURRICULUM, 2021-22

Program: BCA- GG

Sl.No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	2. Poor (%)	Total Respondents
1.	Syllabus is suitable to the course	32.38	38.57	26.67	1.43	0.95	
2.	Syllabus is need based	38.10	37.14	21.43	1.90	1.43	15
3.	Aims and objectives of the syllabus are well defined and clear to teachers and students	40.48	37.62	20.00	0.95	0.95	
4	The courses/syllabus has good balance	38.10	37.14	21.43	1.90	1.43	

.	between theory and application					
5.	The course / program of studies carries sufficient number of optional papers	37.14	40.48	19.05	1.90	1.43
6.	The books prescribed / listed as reference materials are relevant, updated and appropriate	39.05	37.14	21.43	1.43	0.95
7.	Tests and examinations are conducted well in time with proper coverage of all units in the syllabus	41.43	35.71	20.00	1.43	1.43
8.	I have the freedom to propose, modify, suggest and incorporate new topics in the syllabus	39.05	35.24	22.86	1.90	0.95
9.	I have the freedom to adopt new techniques/strategies of teaching suchasseminarpresentations,groupdiscussion sandlearner'sparticipations	42.86	38.10	16.67	0.95	1.43
10.	The environment in the department is conducive to teaching and research	38.10	40.00	18.10	2.86	0.95
	Average	38.67	37.71	20.76	1.67	1.19

Faculty Feedback BCA-GG 2021-22

Action taken Report on Curriculum Feedback- 14ᵗʰ BOS

Feedback/suggestions from Faculty Members and action taken report

Sl. No.	Feedback	Action Taken
1	It is suggested to implement the best practices of industry in our curriculum so that the students are employable.	BCA GG dept. has Experts from Industry in BoS committee, and we take suggestions and include their recommendations in our curriculum. Advisory committee is formulated to meet the above suggestions
2	More focus on interdisciplinary research.	The students and faculty members are involved in interdisciplinary research. The students are encouraged to interdisciplinary projects and Innovative projects.

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.

Few new courses (Annexure 2) were also included based on the feedback received from stake holders

EMPLOYER FEEDBACK ON CURRICULUM, 2021-22

Course: BCA - GG

Sl.No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	2. Poor (%)	Total Respondents
1.	The curriculum is balanced with requisite number of Foundation, core and elective courses	28.76	28.33	33.48	9.44	0.00	
2.	The curriculum offers enough flexibility to the students to choose the course	11.16	34.76	43.35	10.73	0.00	7
3.	The curriculum has sufficient courses to	16.31	30.90	41.20	11.59	0.00	
4.	The curriculum has sufficient courses to impart the entrepreneurial skills to	12.88	32.19	43.78	11.16	0.00	

	the students					
5.	The curriculum has sufficient component of Laboratory courses to develop the practical skills in the students	11.16	34.76	43.35	10.73	0.00
6.	The curriculum has enough scope to create	15.88	33.48	39.91	10.73	0.00
7.	The courses listed in the curriculum helps in	14.16	33.05	42.06	10.73	0.00
8.	The curriculum has sufficient courses to impart the soft skills to the students	14.59	31.33	41.20	12.88	0.00
9.	The overall credit structure of the program	12.88	35.19	40.34	11.59	0.00
10.	In general, the curriculum structure looks to be appropriate to develop the necessary skill set and impart the knowledge required for a professional	13.73	33.48	41.20	11.59	0.00
	Average	**15.15**	**32.75**	**40.99**	**11.12**	**0.00**

EMPLOYER FEEDBACK ANALYSIS- BCA GG

Legend: Poor, Average, Good, Very Good, Excellent

Action taken Report on Curriculum Feedback- 11th BOS

Feedback/suggestions from Employer and action taken report

Sl. No.	Feedback	ActionTaken
1	Multi-disciplinary courses need to be implemented	Students have the option of selecting discipline and open electives of their choice

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2	Courses related to industrial needs to be added in the curriculum	The Department offers courses in the suggested fields

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.

Few new courses (Annexure 2) were also included based on the feedback received from stake holders
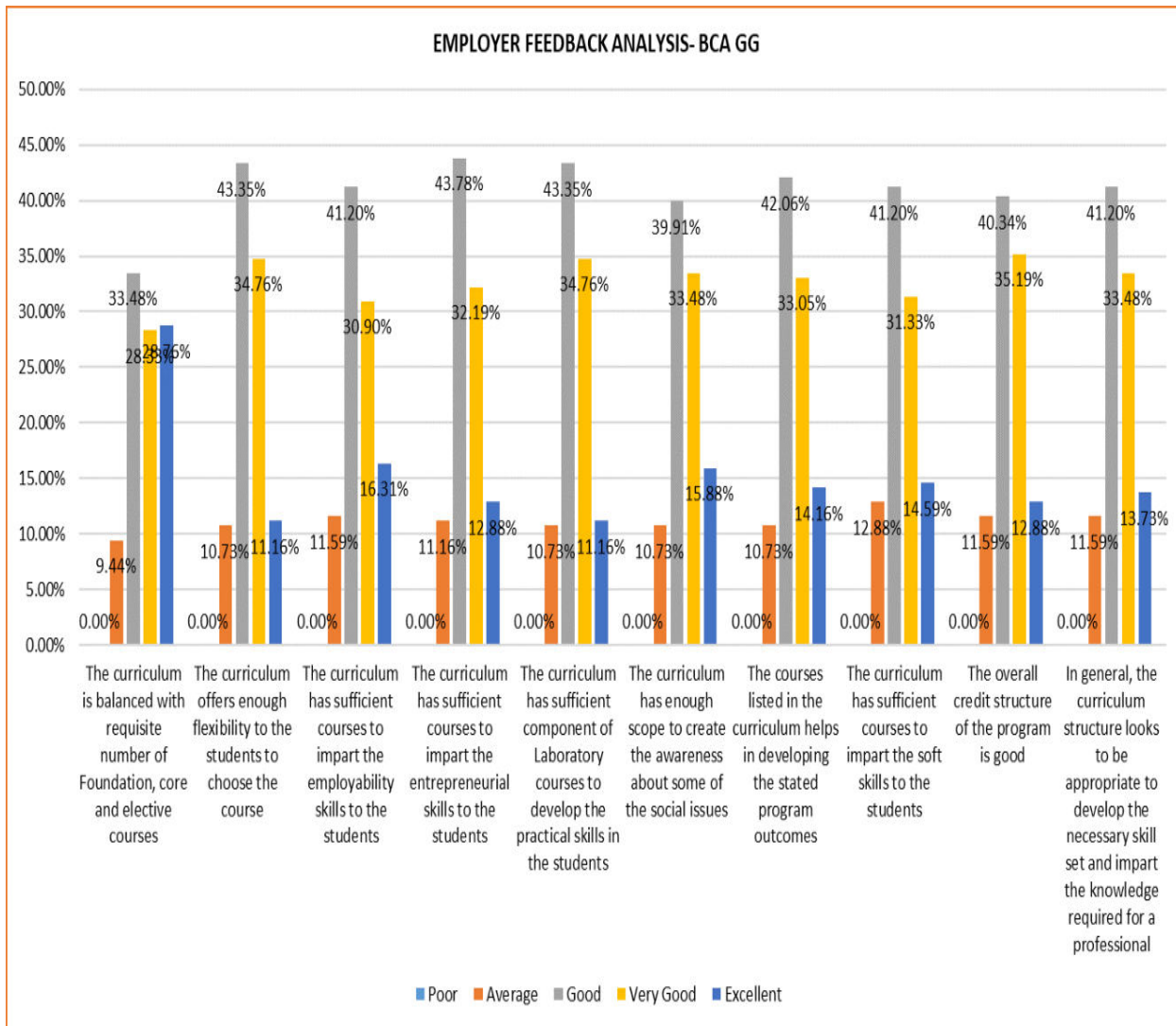
STUDENTS FEEDBACK ON CURRICULUM, 2021-22

Program: BCA

Sl.No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	2. Poor (%)	Total Respondents
1.	How do you rate the syllabus of the courses that you have studied?	33.04	29.46	32.14	2.68	2.68	
2.	Course Applicability /relevance to real life situations (Employability)	41.07	20.54	28.57	7.14	2.68	
3.	Learning value in terms of skills, concepts, knowledge and analytical abilities	37.50	25.00	31.25	3.57	2.68	
4.	How do you rate the sequence of the Courses that you have studied in the previous semester?	34.82	39.29	23.21	1.79	0.89	
5.	How do you rate the sequence of the units in the Course?	34.82	29.46	31.25	1.79	2.68	
6.	How do you rate the offering of the electives in terms of their relevance to the specialization streams?	37.50	33.93	23.21	3.57	1.79	35
7.	How do you rate the relevance of the Text Books and reference books to the Courses?	27.68	30.36	36.61	2.68	2.68	
8.	How do you rate the percentage of courses having LAB components?	25.00	29.46	37.50	5.36	2.68	
9.	How do you rate the experiments in relation to the real life applications?	23.21	28.57	40.18	7.14	0.89	
10.	How do you rate the allocation of the credits to the courses?	27.68	28.57	39.29	1.79	2.68	
	Average	32.23	29.46	32.32	3.75	2.23	

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Student Feedback BCA-GG 2021-22

Chart showing student feedback percentages by rating (Poor, Average, Good, Very Good, Excellent) across the following questions:

- How do you rate the syllabus of the courses that you have studied?
- Course Applicability /relevance to real life situations (Employability)
- Learning value in terms of skills, concepts, knowledge and analytical abilities
- How do you rate the sequence of the Courses that you have studied in the previous semester?
- How do you rate the sequence of the units in the Course?
- How do you rate the offering of the electives in terms of their relevance to the specialization streams?
- How do you rate the relevance of the Text Books and reference books to the Courses?
- How do you rate the percentage of courses having LAB components?
- How do you rate the experiments in relation to the real life applications?
- How do you rate the allocation of the credits to the courses?

Selected data labels: 32.14%, 29.46%, 33.04%, 41.07%, 28.57%, 20.54%, 7.14%, 2.68%, 31.25%, 25.00%, 37.50%, 39.29%, 34.82%, 23.21%, 0.89%, 31.25%, 29.46%, 34.82%, 37.50%, 33.93%, 1.79%, 36.61%, 30.36%, 27.68%, 37.50%, 29.46%, 25.00%, 5.36%, 40.18%, 28.57%, 23.21%, 7.14%, 39.29%, 28.57%, 27.68%

Legend: Poor, Average, Good, Very Good, Excellent

Action taken Report on Curriculum Feedback- 14ᵗʰ BOS

Feedback from Students and Action Taken Report

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.

Few new courses (Annexure 2) were also included based on the feedback received from stake holders.
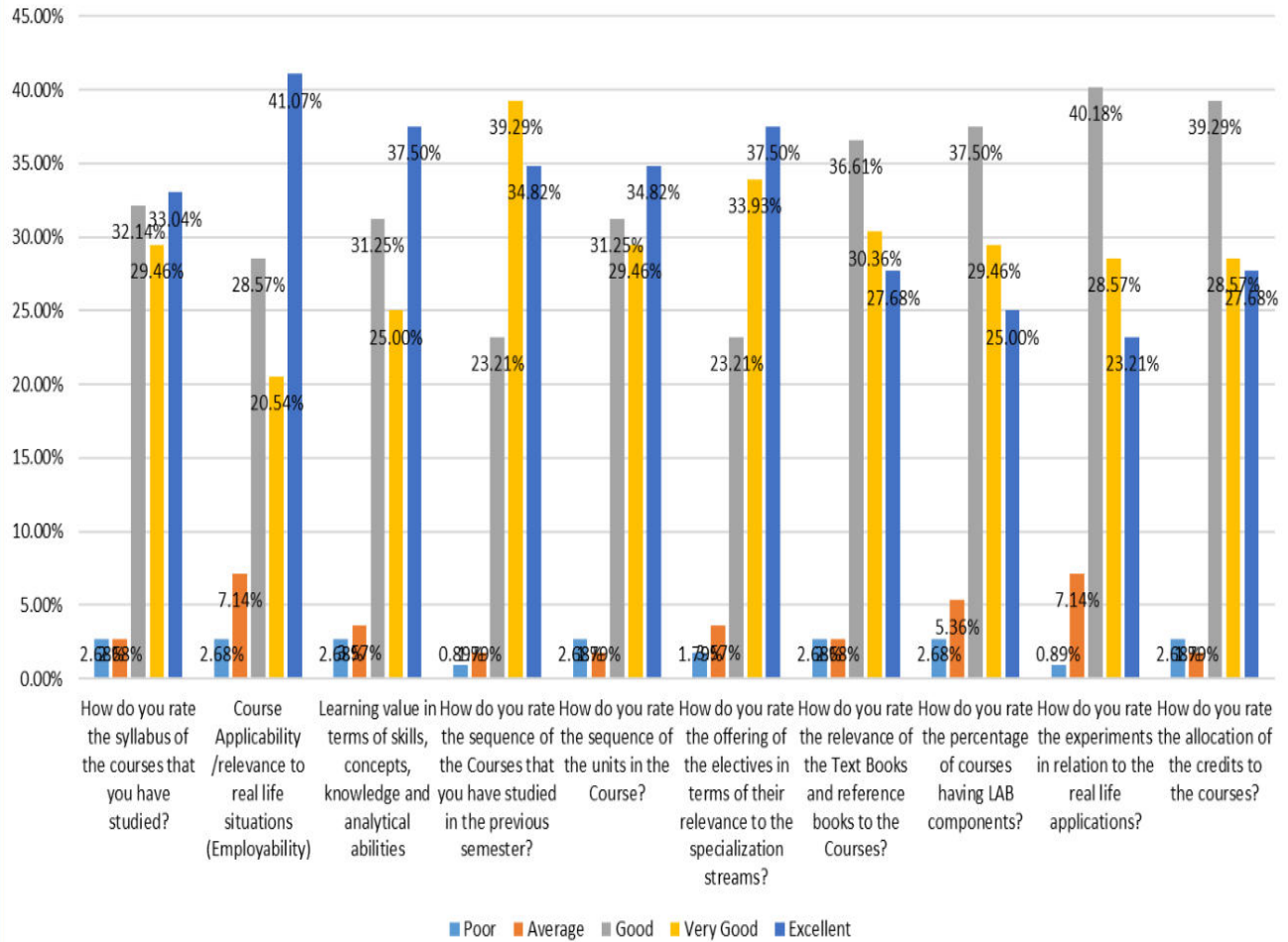
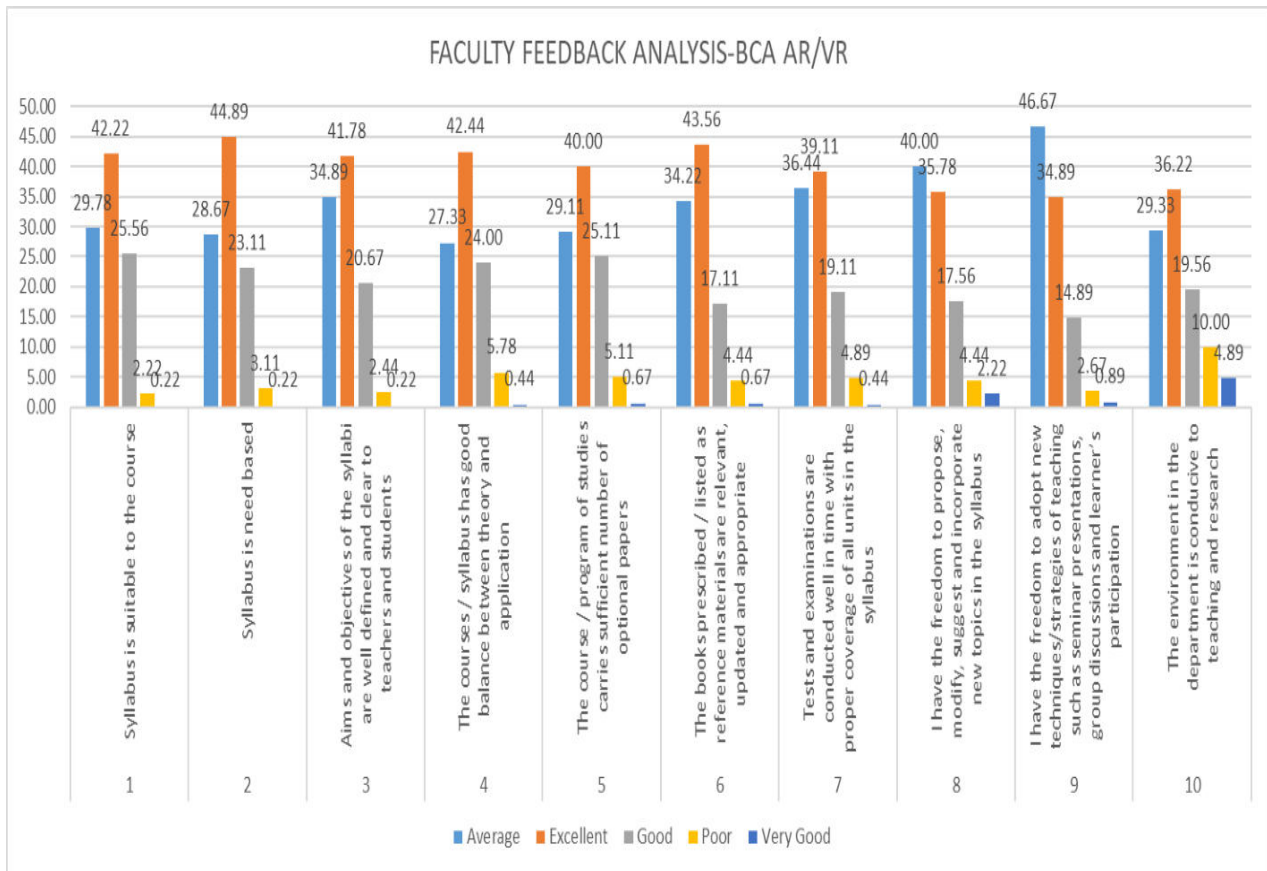| Sl. No.	Feedback	ActionTaken
1	Design the lab curriculum in such a way that the students can get more hands-on experience.	It is proposed to include industry relevant lab experiment to make the students industry ready for better placements
2	More value added courses may be conducted to improve the soft skills / technical skills.	Value added programs are scheduled for the AY 2021-22 even semester
3	Special technical & aptitude training classes are required which are specific to the placement companies.	The Presidency University L&D team is giving the required training Programme.

FACULTY FEEDBACK ON CURRICULUM, 2021-22

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Program: BCA - AR/VR

Sl. No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	3. Poor (%)	Total Respondents
1.	Syllabus is suitable to the course	29.78	42.22	25.56	2.22	0.22	
2.	Syllabus is need based	28.67	44.89	23.11	3.11	0.22	
3.	Aims and objectives of the syllabi are well defined and clear to teachers and students	34.89	41.78	20.67	2.44	0.22	
4.	The courses / syllabus has good balance between theory and application	27.33	42.44	24.00	5.78	0.44	
5.	The course / program of studies carries sufficient number of optional papers	29.11	40.00	25.11	5.11	0.67	
6.	The books prescribed / listed as reference materials are relevant, updated and appropriate	34.22	43.56	17.11	4.44	0.67	
7.	Tests and examinations are conducted well in time with proper coverage of all units in the syllabus	36.44	39.11	19.11	4.89	0.44	15
8.	I have the freedom to propose, modify, suggest and incorporate new topics in the syllabus	40.00	35.78	17.56	4.44	2.22	
9.	I have the freedom to adopt new techniques/strategies of teaching such as seminar presentations, group discussions and learner's participations	46.67	34.89	14.89	2.67	0.89	
10.	The environment in the department is conducive to teaching and research	29.33	36.22	19.56	10.00	4.89	
	Average	**33.64**	**40.09**	**20.67**	**4.51**	**1.09**	

FACULTY FEEDBACK ANALYSIS-BCA AR/VR

Action taken Report on Curriculum Feedback- 14th BOS

Feedback/suggestions from Faculty Members and action taken report

Sl. No.	Feedback	Action Taken
1	Technical skills exclusive to the industrial requirements need to be incorporated.	The department is planned to give training from Core engineering industries.
2	More focus on interdisciplinary research.	The students and faculty members are involved in interdisciplinary research. The students are encouraged to interdisciplinary projects and Innovative projects.

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.

Few new courses (Annexure 2) were also included based on the feedback received from stake holders

EMPLOYER FEEDBACK ON CURRICULUM, 2021-22

Program: BCA-AR/VR

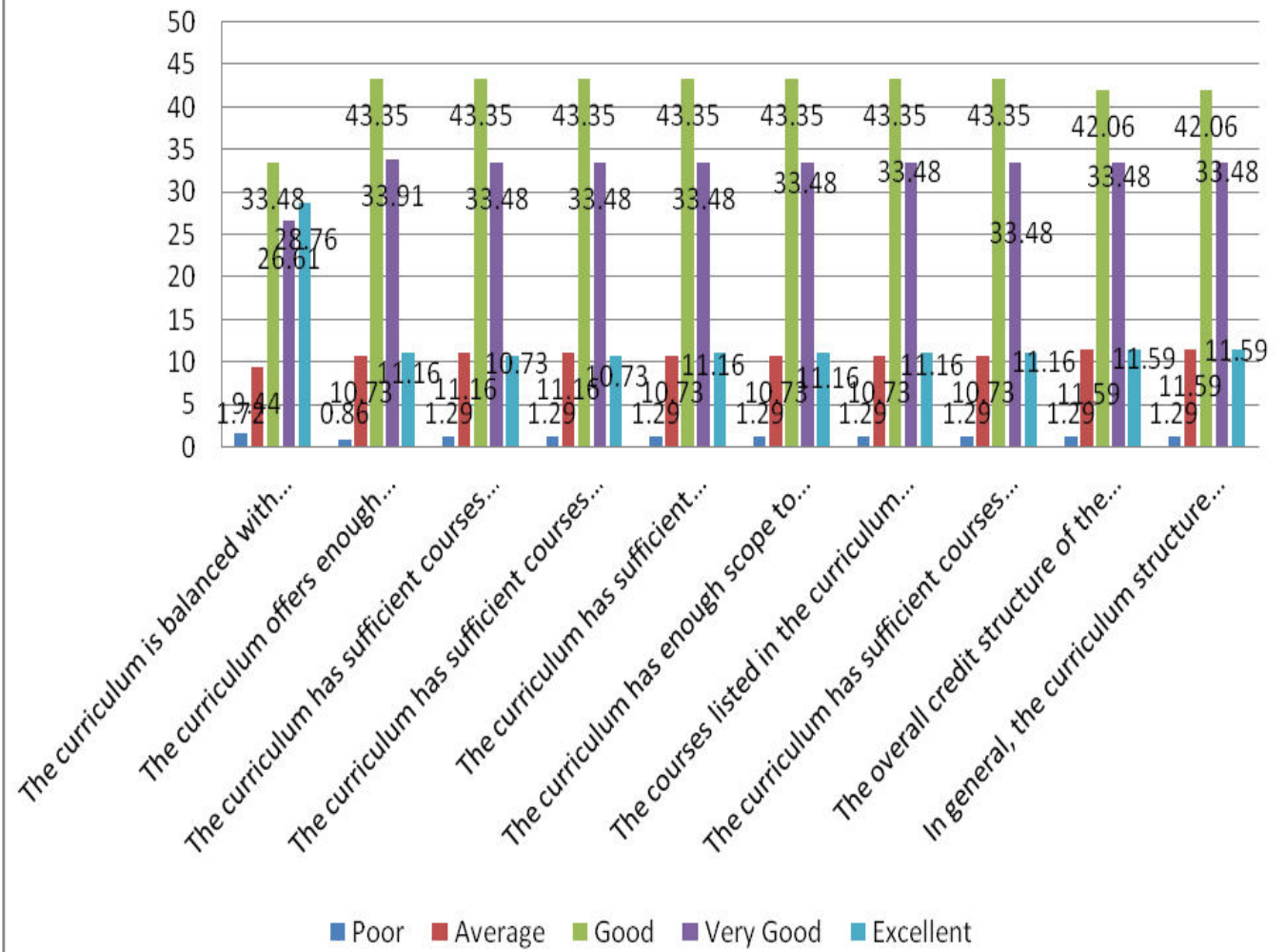| Sl. No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	3. Poor (%)	Total Respondents
1.	The curriculum is balanced with requisite number of Foundation, core and elective courses	28.76	26.61	33.48	9.44	1.72	
2.	The curriculum offers enough flexibility to the students to choose the course	11.16	33.91	43.35	10.73	0.86	
3.	The curriculum has sufficient courses to	10.73	33.48	43.35	11.16	1.29	
4.	The curriculum has sufficient courses to impart the entrepreneurial skills to the students	10.73	33.48	43.35	11.16	1.29	
5.	The curriculum has sufficient component of Laboratory courses to develop the practical skills in the students	11.16	33.48	43.35	10.73	1.29	
6.	The curriculum has enough scope to create	11.16	33.48	43.35	10.73	1.29	
7.	The courses listed in the curriculum helps in	11.16	33.48	43.35	10.73	1.29	
8.	The curriculum has sufficient courses to impart the soft skills to the students	11.16	33.48	43.35	10.73	1.29	
9.	The overall credit structure of the program	11.59	33.48	42.06	11.59	1.29	
10.	In general, the curriculum structure looks to be appropriate to develop the necessary skill set and impart the knowledge required for a	11.59	33.48	42.06	11.59	1.29	

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professional						
Average	**12.92**	**32.83**	**42.10**	**10.86**	**1.29**	

Employer Feedback - BCA AR/VR 2021-22

Program: BCA - AR/VR

Sl. No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	3. Poor (%)	Total Respondents
1.	How do you rate the syllabus of the courses that you have studied?	20.9	13.9	41.7	12.2	11.3	
2.	Course Applicability /relevance to real life situations (Employability)	11.3	20.0	49.6	9.6	9.6	
3.	Learning value in terms of skills, concepts, knowledge and analytical abilities	9.6	37.4	36.5	6.1	10.4	
4.	How do you rate the sequence of the Courses that you have studied in the previous semester?	22.6	26.1	32.2	10.4	8.7	
5.	How do you rate the sequence of the units in the Course?	9.6	28.7	44.3	9.6	7.8	
6.	How do you rate the offering of the electives in terms of their relevance to the specialization streams?	23.5	26.1	27.0	13.9	9.6	28
7.	How do you rate the relevance of the Text Books and reference books to the Courses?	24.3	13.0	47.8	7.0	7.8	
8.	How do you rate the percentage of courses having LAB components?	13.0	29.6	40.9	7.8	8.7	
9.	How do you rate the experiments in relation to the real life applications?	15.7	18.3	50.4	8.7	7.0	
10.	How do you rate the allocation of the credits to the courses?	17.4	32.2	37.4	4.3	8.7	
	Average	**16.78**	**24.52**	**40.78**	**8.96**	**8.96**	

STUEDENTS FEEDBACK ANALYSIS-BCA AR/VR

Legend: ■ Average ■ Excellent ■ Good ■ Poor ■ Very Good

Question	Average	Excellent	Good	Poor	Very Good
1. How do you rate the syllabus of the courses that you have studied?	20.9	13.9	41.7	12.2	11.3
2. Course Applicability /relevance to real life situations (Employability)	11.3	20.0	49.6	9.6	9.6
3. Learning value in terms of skills, concepts, knowledge and analytical abilities	9.6	37.4	36.5	6.1	10.4
4. How do you rate the sequence of the Courses that you have studied in the previous semester?	22.6	26.1	32.2	10.4	8.7
5. How do you rate the sequence of the units in the Course?	9.6	28.7	44.3	9.6	7.8
6. How do you rate the offering of the electives in terms of their relevance to the specialization streams?	23.5	26.1	27.0	13.9	9.6
7. How do you rate the relevance of the Text Books and reference books to the Courses?	24.3	13.0	47.8	7.0	7.8
8. How do you rate the percentage of courses having LAB components?	13.0	29.6	40.9	7.8	8.7
9. How do you rate the experiments in relation to the real life applications?	15.7	18.3	50.4	8.7	7.0
10. How do you rate the allocation of the credits to the courses?	17.4	32.2	37.4	4.3	8.7

Action taken Report on Curriculum Feedback- 14th BOS

Feedback from Students and action taken report

Sl. No.	Feedback	Action Taken
1	More alumni and corporate interaction was requested	An array of webinars on startup ecosystem, risk management, venture capital, AI and machine learning, quantitative finance, networking in global world etc. were held .
2	More value added courses may be conducted to improve the soft skills / technical skills.	Value added programs are scheduled for the AY 2021-22 even semester
3	Instead of giving assignments in each subject, mini projects can be included in the continuous assessment evaluation	It is already in practice and it is decided to include for all core engineering subjects

Based on the feedback received from stakeholders, related courses (Annexure 1) were revised.

Few new courses (Annexure 2) were also included based on the feedback received from stake holders.

FACULTY FEEDBACK ON CURRICULUM, 2021-22
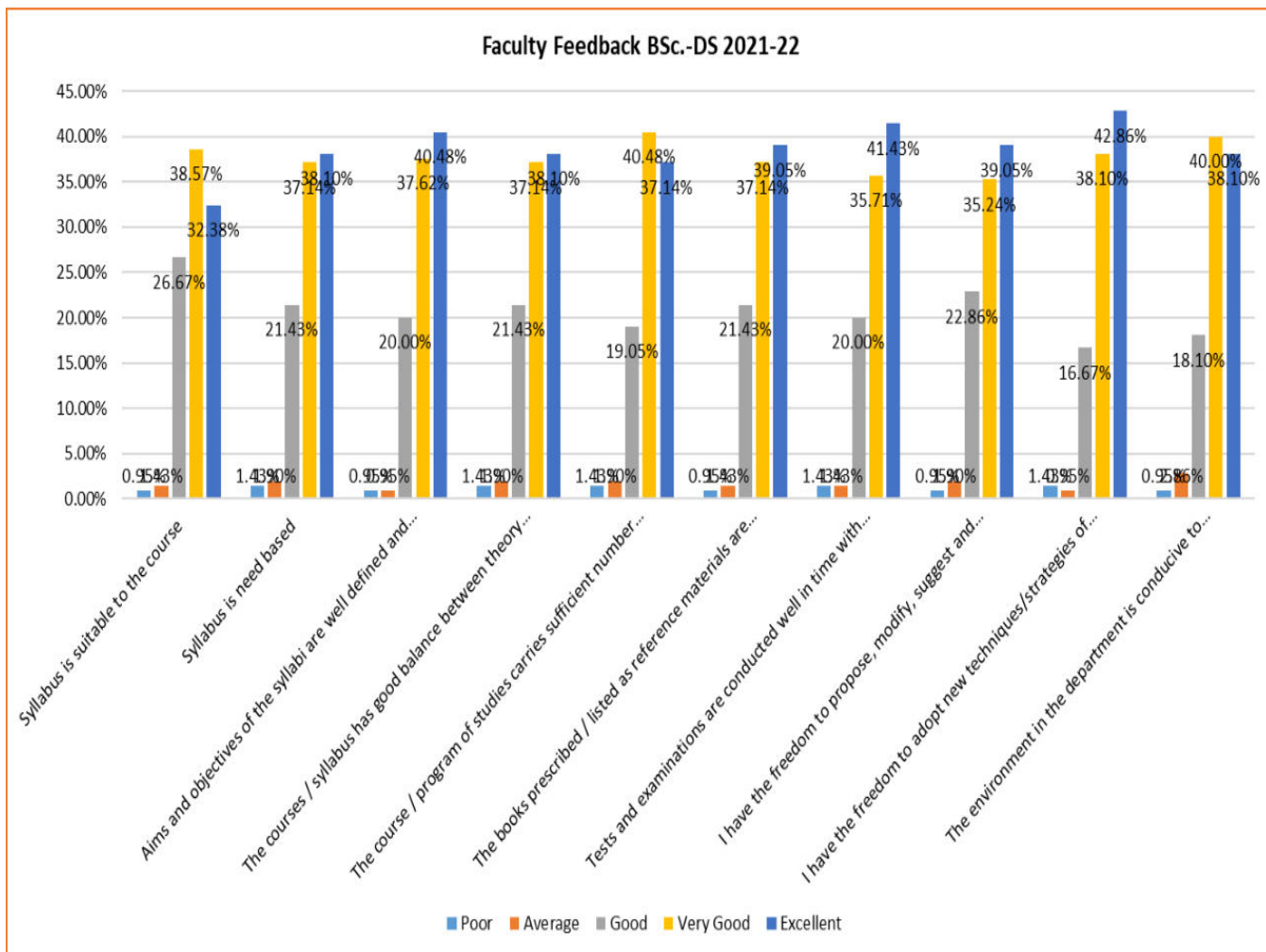
Program: BSc. - DS

Sl.No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	4. Poor (%)	Total Respondents
1.	Syllabus is suitable to the course	32.38	38.57	26.67	1.43	0.95	
2.	Syllabus is need based	38.10	37.14	21.43	1.90	1.43	
3.	Aims and objectives of the syllabi are well defined and clear to teachers and students	40.48	37.62	20.00	0.95	0.95	15
4.	The courses/syllabus has good balance between theory and application	38.10	37.14	21.43	1.90	1.43	
5.	The course / program of studies carries sufficient number of optional papers	37.14	40.48	19.05	1.90	1.43	

6.	The books prescribed / listed as reference materials are relevant, updated and appropriate	39.05	37.14	21.43	1.43	0.95	
7.	Tests and examinations are conducted well in time with proper coverage of all units in the syllabus	41.43	35.71	20.00	1.43	1.43	
8.	I have the freedom to propose, modify, suggest and incorporate new topics in the syllabus	39.05	35.24	22.86	1.90	0.95	
9.	I have the freedom to adopt new techniques/strategies of teaching suchasseminarpresentations,groupdiscussionsandlearner'sparticipations	42.86	38.10	16.67	0.95	1.43	
10.	The environment in the department is conducive to teaching and research	38.10	40.00	18.10	2.86	0.95	
	Average	38.67	37.71	20.76	1.67	1.19	

Faculty Feedback BSc.-DS 2021-22

EMPLOYER FEEDBACK ON CURRICULUM, 2021-22

Course: BSc. - DS

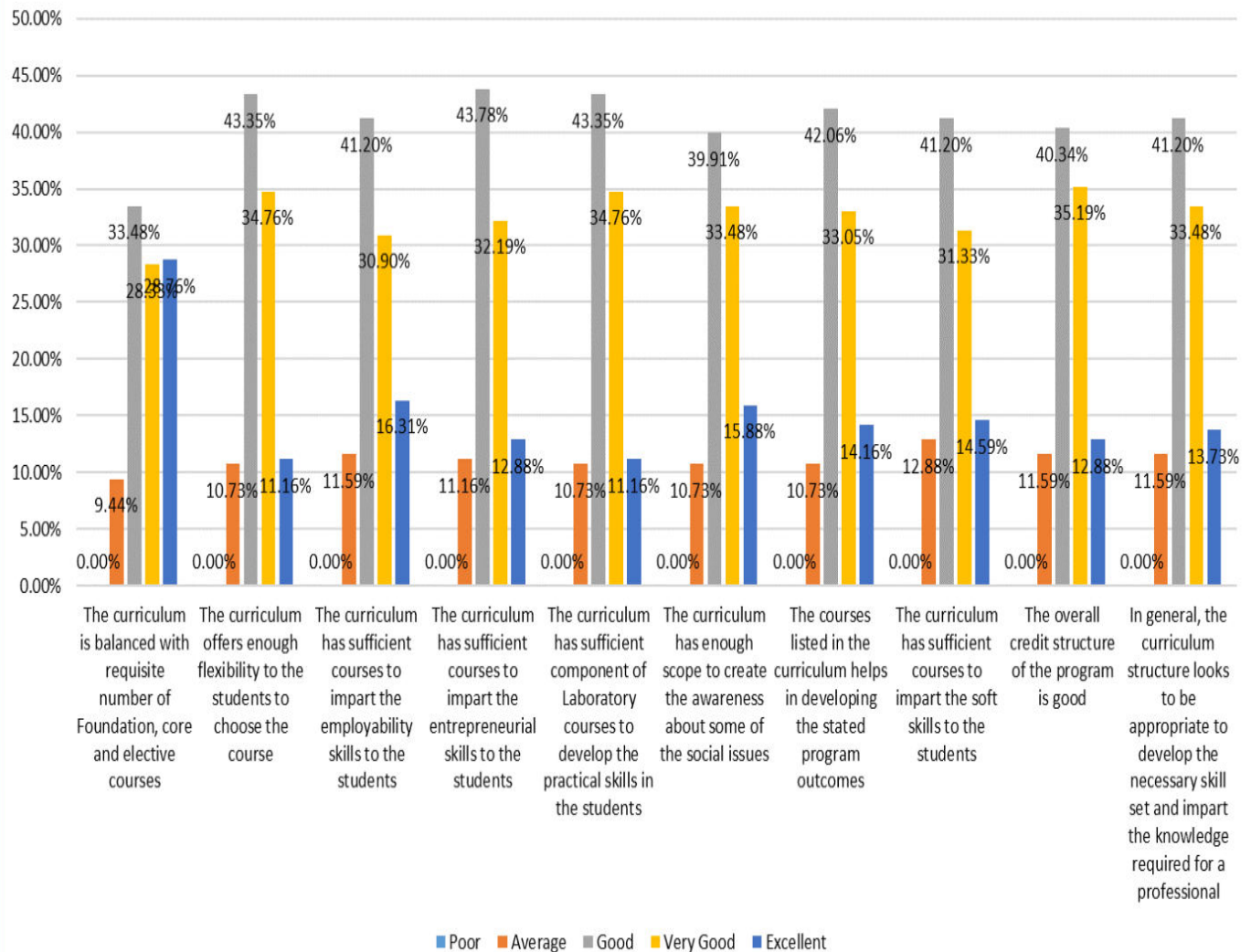| Sl.No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	4. Poor (%)	Total Respondents
1.	The curriculum is balanced with requisite number of Foundation, core and elective courses	28.76	28.33	33.48	9.44	0.00	
2.	The curriculum offers enough flexibility to the students to choose the course	11.16	34.76	43.35	10.73	0.00	7
3.	The curriculum has sufficient courses to	16.31	30.90	41.20	11.59	0.00	

#						
4.	The curriculum has sufficient courses to impart the entrepreneurial skills to the students	12.88	32.19	43.78	11.16	0.00
5.	The curriculum has sufficient component of Laboratory courses to develop the practical skills in the students	11.16	34.76	43.35	10.73	0.00
6.	The curriculum has enough scope to create	15.88	33.48	39.91	10.73	0.00
7.	The courses listed in the curriculum helps in	14.16	33.05	42.06	10.73	0.00
8.	The curriculum has sufficient courses to impart the soft skills to the students	14.59	31.33	41.20	12.88	0.00
9.	The overall credit structure of the program	12.88	35.19	40.34	11.59	0.00
10.	In general, the curriculum structure looks to be appropriate to develop the necessary skill set and impart the knowledge required for a professional	13.73	33.48	41.20	11.59	0.00
Average		15.15	32.75	40.99	11.12	0.00

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EMPLOYER FEEDBACK ANALYSIS- BSC. DS 2021-22


STUDENTS FEEDBACK ON CURRICULUM, 2021-22

Program: BSc. - DS

Sl.No.	Questions	5. Excellent (%)	4. Very Good (%)	3. Good (%)	2. Average (%)	4. Poor (%)	Total Respondents
1.	How do you rate the syllabus of the courses that you have studied?	22.11	28.42	31.58	11.58	6.32	10
2.	Course Applicability /relevance to real life situations (Employability)	29.47	15.79	33.68	16.84	4.21	

No.	Question						
3.	Learning value in terms of skills, concepts, knowledge and analytical abilities	33.68	18.95	41.05	4.21	2.11	
4.	How do you rate the sequence of the Courses that you have studied in the previous semester?	28.42	28.42	40.00	1.05	2.11	
5.	How do you rate the sequence of the units in the Course?	27.37	20.00	46.32	3.16	3.16	
6.	How do you rate the offering of the electives in terms of their relevance to the specialization streams?	33.68	29.47	32.63	3.16	1.05	
7.	How do you rate the relevance of the Text Books and reference books to the Courses?	23.16	36.84	35.79	1.05	3.16	
8.	How do you rate the percentage of courses having LAB components?	21.05	36.84	34.74	4.21	3.16	
9.	How do you rate the experiments in relation to the real life applications?	24.21	29.47	36.84	7.37	2.11	
10.	How do you rate the allocation of the credits to the courses?	28.42	29.47	37.89	1.05	3.16	
	Average	27.16	27.37	37.05	5.37	3.05	

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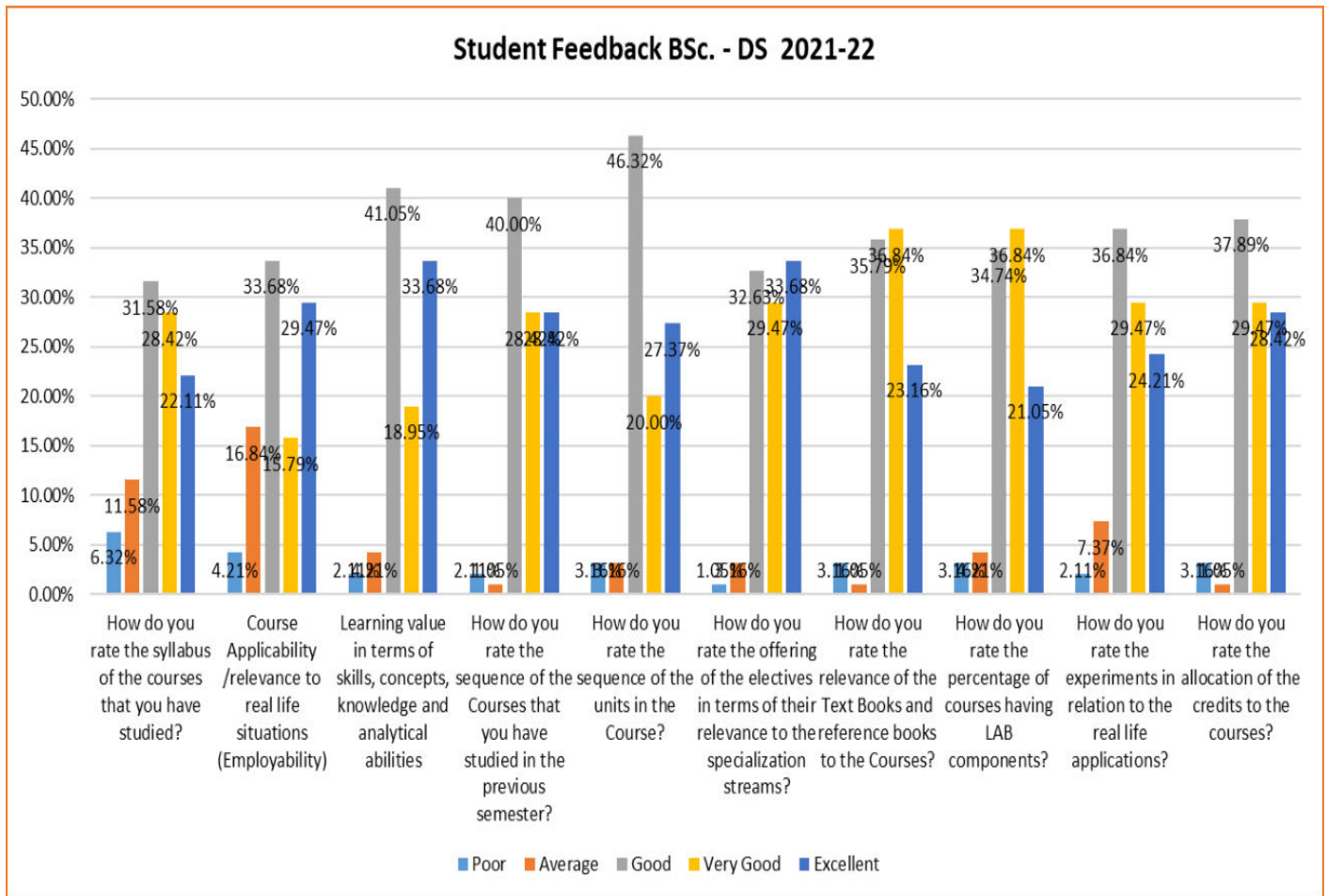
Student Feedback BSc. - DS 2021-22

Annexure – 1

List of Courses in which Content Revision is undertaken for the Academic Year 2021-22 (BSc. DS Program)

S.No	COURSE	Course Code	Credits
1	Relational Database Management Systems	BCA2003	3
2	Web Design and Development	BCA2011	3
3	Big Data Analytics	BCA2018	3
4	C# Programming for Unity	BCA273	3

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List of New Courses included for the Academic Year 2021-22 (BSc. DS Program)

S.No	COURSE	Course Code	Credits
1.	Essentials of Cloud Computing	BCA2020	3
2.	Ethical Hacking	BCA3003	3
3.	Natural Language Processing	BCA3008	3
4.	360 Video Production	BCA2019	2
5.	Visual Effects and Compositing	BCA3009	3
6.	Infographics	BCA2021	2
7.	3D Video And Graphics	BCA3010	3
8.	Mixed Reality for Hand held Devices	BCA3011	3
9.	Advanced AR Development	BCA3012	3
10.	Advanced VR Development	BCA3013	3
11.	2D Animation	BCA2026	3
12.	3D Game Design and Development	BCA2029	4

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