DEPARTMENT OF DIGITAL SCIENCES

REPORT ON FEEDBACK ANALYSIS AND ACTION TAKEN

- The attainment of course outcomes are evaluated by direct and indirect assessment methods.
- At regular intervals, the student feedback is collected about the course teacher, as well as about the course.
- Most of the programmes are offered and evaluated on the basis of Outcome Based Education and Continuous Improvement mode.
- Feedback from all the stakeholders including Students, Parents, Alumni, Industry/ Employers, and Faculty is periodically obtained and analysed.

1. STUDENTS' FEEDBACK ANALYSIS AND ACTION TAKEN:

The customary practice is to obtain regular feedback from students and update/ extend the curricular, co-curricular and extra-curricular activities accordingly. The criteria followed to receive the feedback is given in the following section. The action taken in response to the obtained feedbacks are also reflected in the corresponding BoS, following the survey of feedback.

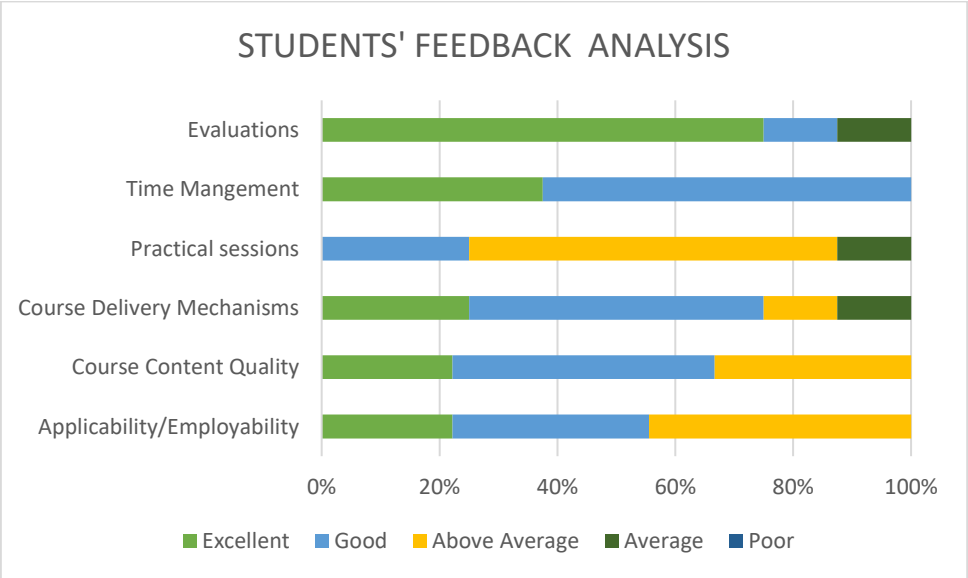


Fig. 1. Students' Feedback Analysis

It has been observed from fig. 1, that the students' appreciation on the curriculum, teaching and learning practices, and evaluation schemes are rated high. Students' expectations on more practical exposure has been taken into serious concern and sufficient changes are brought into the academic courses with more emphasis on market-valued programming courses to be included.

As a result, necessary inclusions of course (as listed below) are made in the following BoS (minutes attached) and additional practical training are provided:

- E-mail Forensics (18CA2019) – included in the Academic Year Book - 2019
- Big Data Analytics (18CA2001)
- Big Data Analytics Lab (18CA2026)
- Data Analytics using Python (18CA2012)
- Data Analytics using Python Lab (18CA2013)

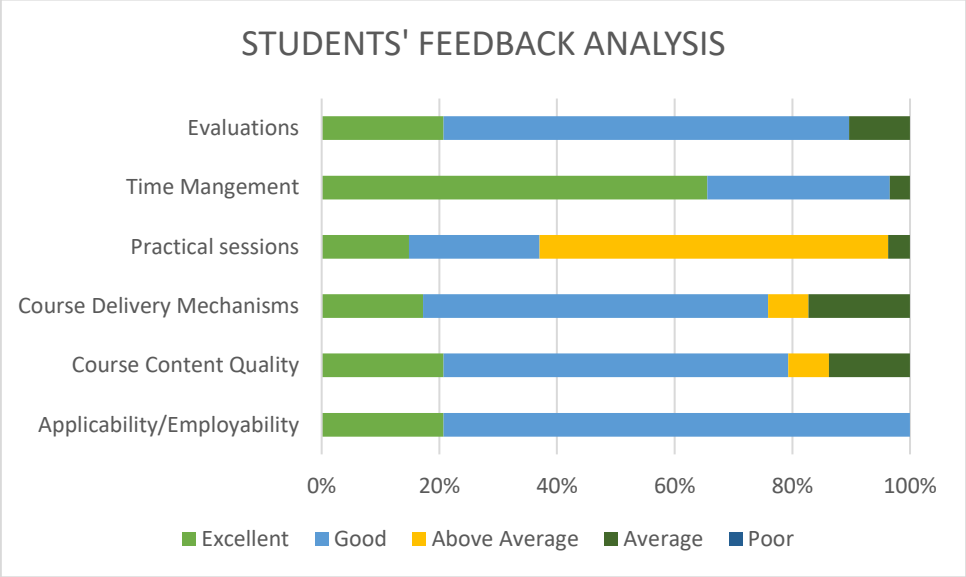


Fig. 2. Students' Feedback Analysis

Analysing fig.2, it is obvious that students were quite satisfied with the teaching process, evaluations, applicability and employability nature of courses. However, they requested for additional practical sessions and some more upgraded courses on Digital Forensics and new AI based Security Mechanisms.

To fulfil the requirements of students, immediate counsel on the required courses and their content are made and efforts were made to frame their syllabus effectively. The prepared

courses (listed below) passed the council of Board of Studies (minutes attached) and were implemented in the consecutive year (in the Academic Year Book - 2020):

- Inclusion of additional lab experiments on Advanced Digital Forensics
- Python for Network and Security (20CA2048)
- Python for Network and Security Lab(20CA2049)
- Artificial Intelligence Security (20CA3016)
- Internet of Things Security (20CA3015)

2. ALUMNI FEEDABACK ANALYSIS AND ACTION TAKEN:

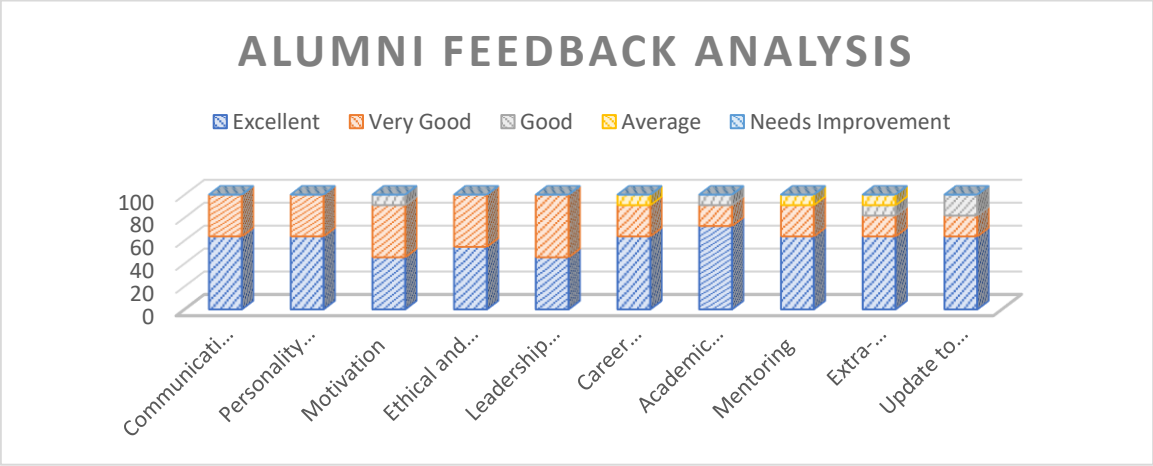


Fig. 3. Alumni Feedback Analysis

It is evident from the fig.3 that the courses offered, delivery mechanisms, personal and academic support, and career guidance are specified to be excellent according to the alumni taught. Alumni had indicated the need for upgrading syllabus to include emerging technologies.

As majority of the feedback of alumni was similar to the students' expectation of the academic year, necessary actions were taken to add additional industrial-need based courses like

- Essentials of Python Programming (20CA2008) and
- Programming in Python Lab (20CA2009)

The curriculum has been updated according to the need of the environment and digital market. More concentration has been given onto the analysis of the curriculum and development. The data collected were statistically analysed. Additional lab sessions were included such that the practical skills of students meet the requirements of the IT market. Also, higher focus has been given for the employability coefficient based on the technical knowledge obtained.

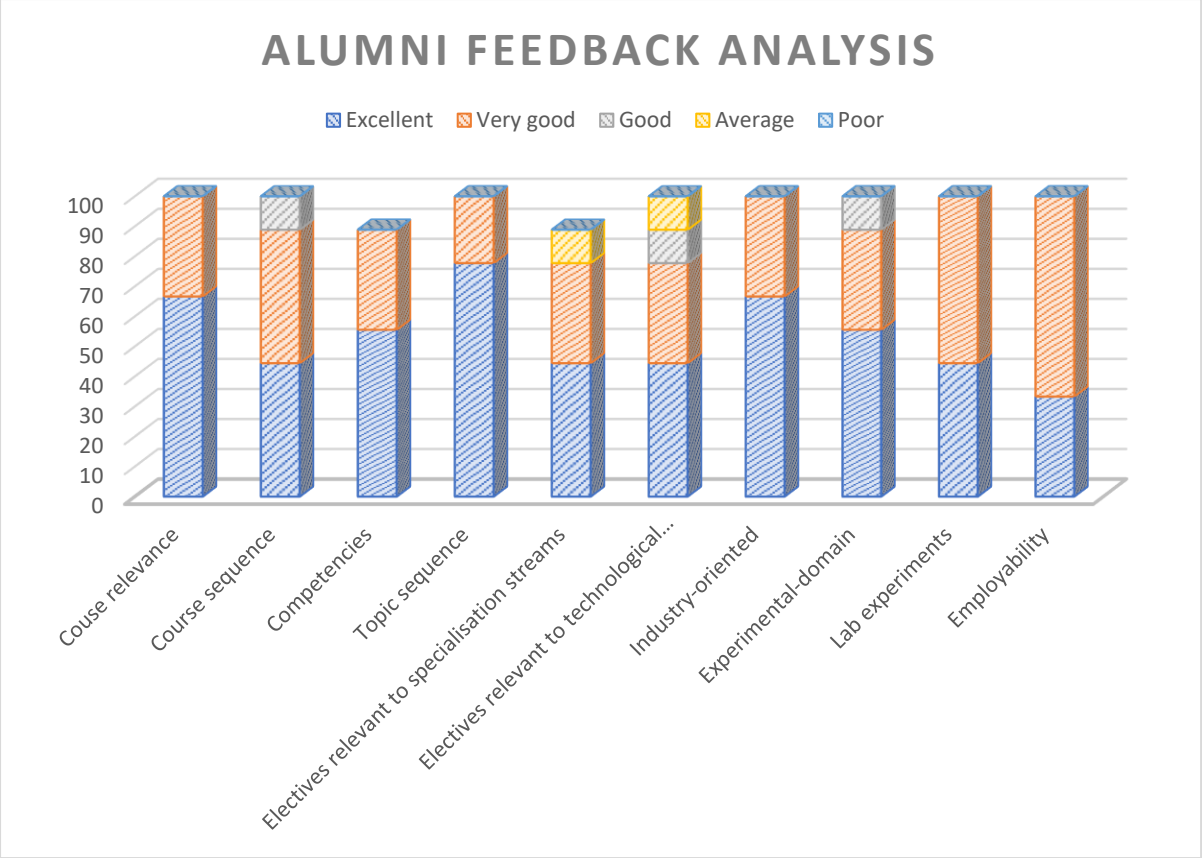


Fig. 4. Alumni Feedback Analysis

It has been observed from fig. 4, that the average of students' satisfaction has been maintained. It is important to note that more changes encouraging industrial practice accommodated in the syllabus has been appreciated. Their request on additional lab sessions were taken into concern.

Additional lab sessions were included such that the practical skills of students meet the requirements of the IT market. Also, higher focus has been given for the employability coefficient based on the technical knowledge obtained.

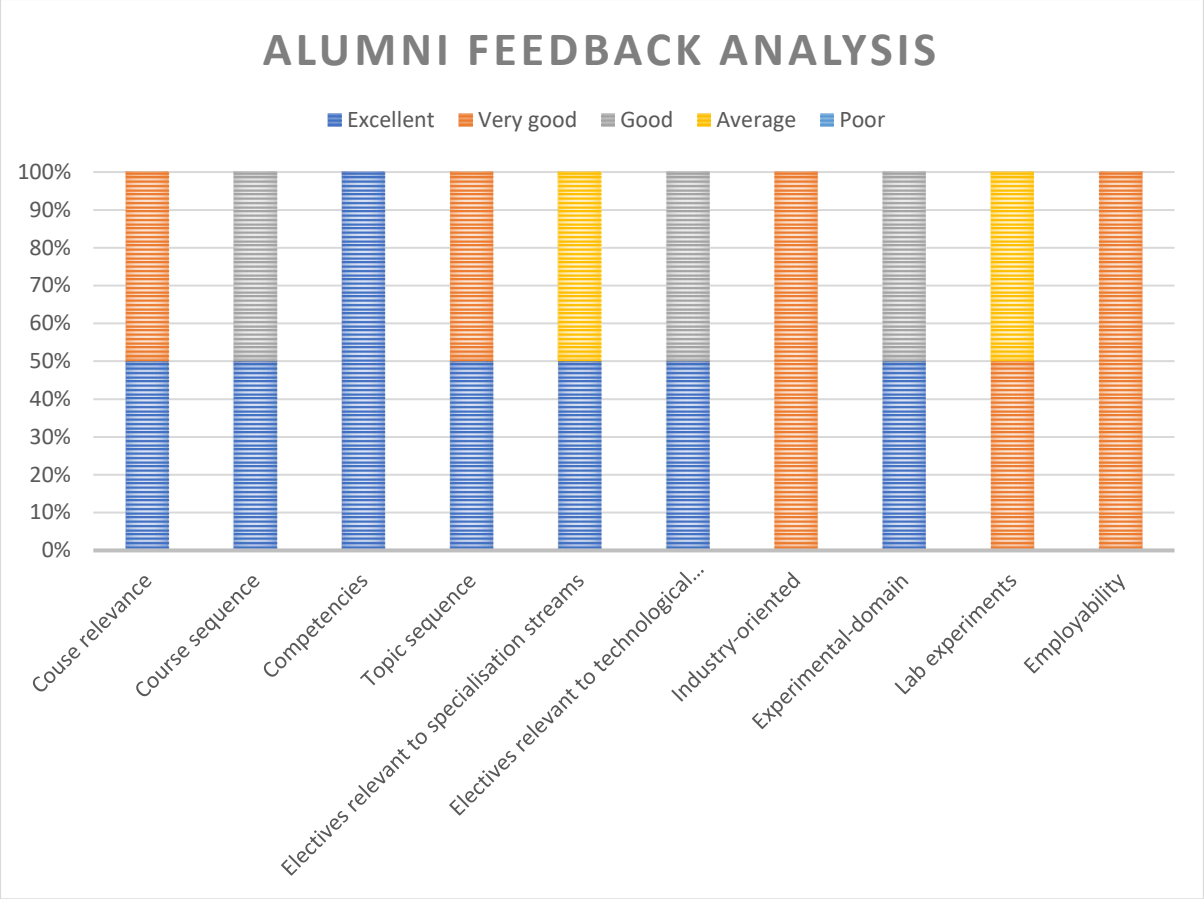


Fig. 5. Alumni Feedback for the Academic year 2019-2020

Assessing the fig.5, it is obvious that the satisfaction of the alumni had decreased in terms of practical sessions, which had been severely affected due to the pandemic. However, it is essential to note that the competencies and employability factors had not been compromised despite the situation. Initially, the grand shift to online learning has made a serious impact on students' learning styles.

Additional mechanisms and arrangements were made for effective online lectures. New evaluation schemes were framed and the demonstration classes were shifted to usage of cloud-based software tools in order to meet the technical challenges faced by the gradated students.

3. TEACHERS' FEEDBACK ACTION TAKEN:

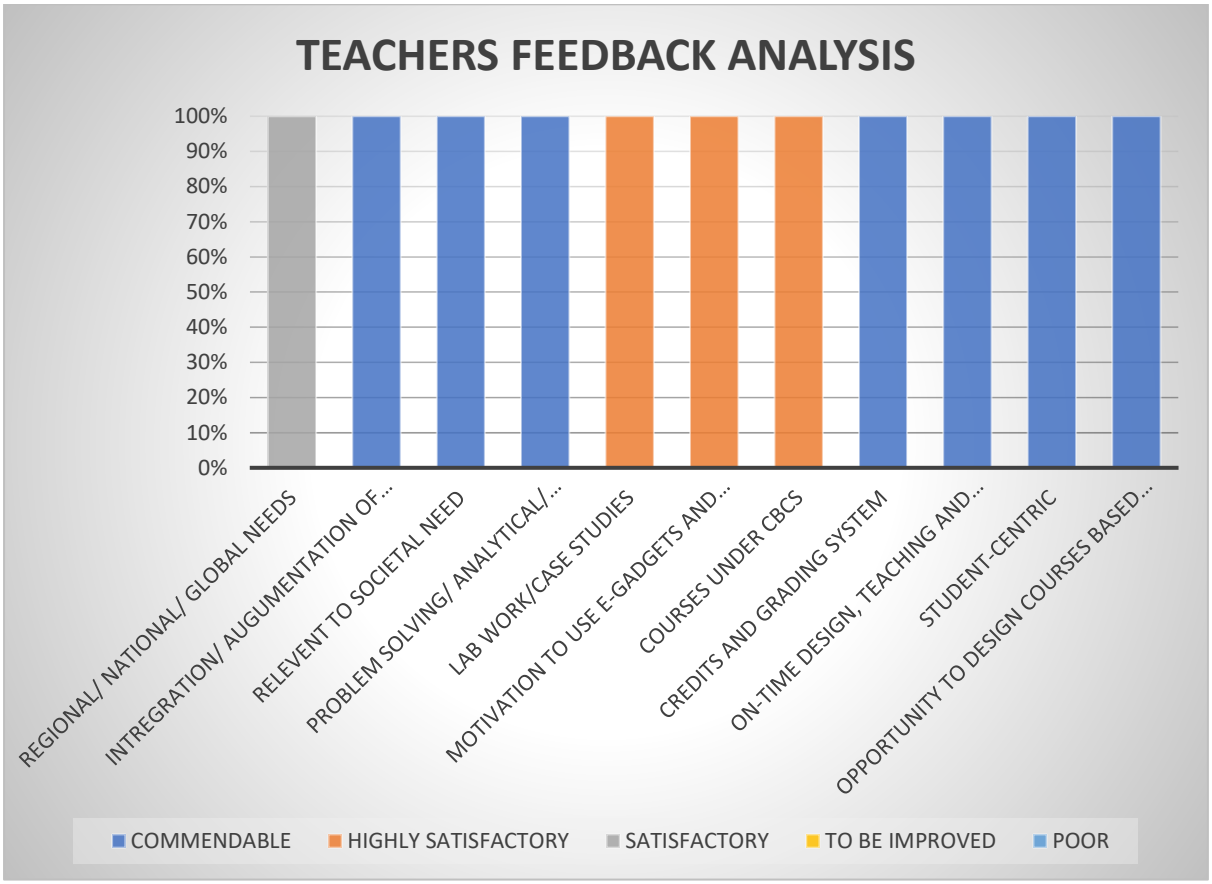


Fig. 6. Teachers' Feedback Analysis

It is clear from fig. 6 that the teachers expected to incorporate courses that relate to the regional, national and global needs.

More relevant updates were made in the courses after passing BoS in the respective academic year, particularly the courses like Email Forensics (18CA2019), Big Data Analytics (18CA2001), Big Data Analytics Lab (18CA2026), Data Analytics using Python (18CA2012) and Data Analytics using Python Lab (18CA2013). Furthermore, changes were planned for further study, scrutiny and implementation in the next academic year.

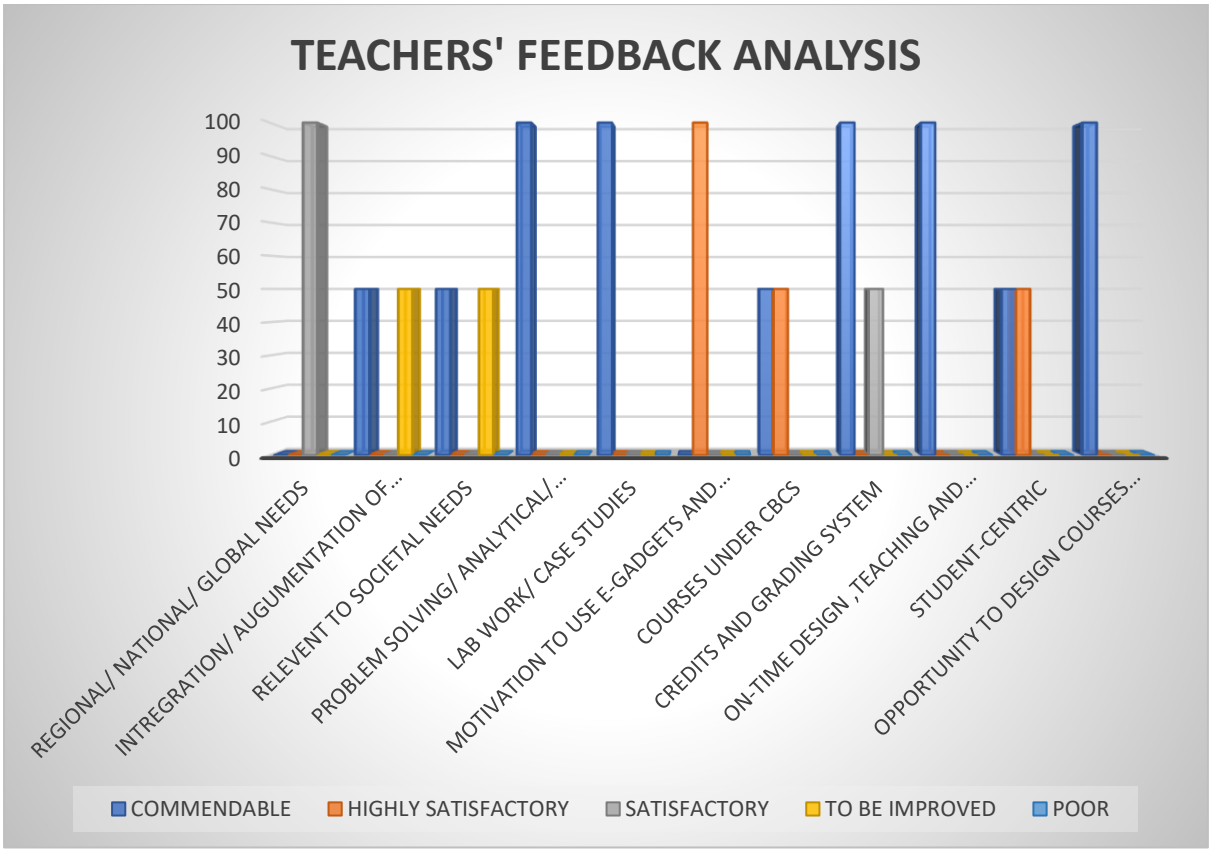


Fig. 7. Teachers' Feedback Analysis

It is imperative that more of emphasis had been given for the inclusion of courses that meet the contextual needs and global importance. Further, the change in the credits and grading system had been observed to affect the teachers.

After a thorough scrutiny on the courses to be included in the curriculum and several rounds of discussions and preparations, the BoS approved on the delivery of the following courses:

- Essentials of Python Programming (20CA2008)
- Python for Network and Security (20CA2048)
- Artificial Intelligence Security (20CA3016)

It is good to note that after implementing new systems for online education, it has been well appreciated by teachers and almost they were satisfied in all the categories. The grading system seems to still have an impact, due to the performance of students online.

4. EMPLOYERS' FEEDBACK ACTION TAKEN:

Employers were satisfied with almost all the criteria. However, as indicated in certain areas like professional knowledge, leadership qualities, application/ technical skills and technical aptitude were taken into concern, to plan for future enhancements. In order to fulfil the expectations of companies, special webinars and trainings were arranged to students, to provide them with special training on aptitude development and technical skills, and personality development.

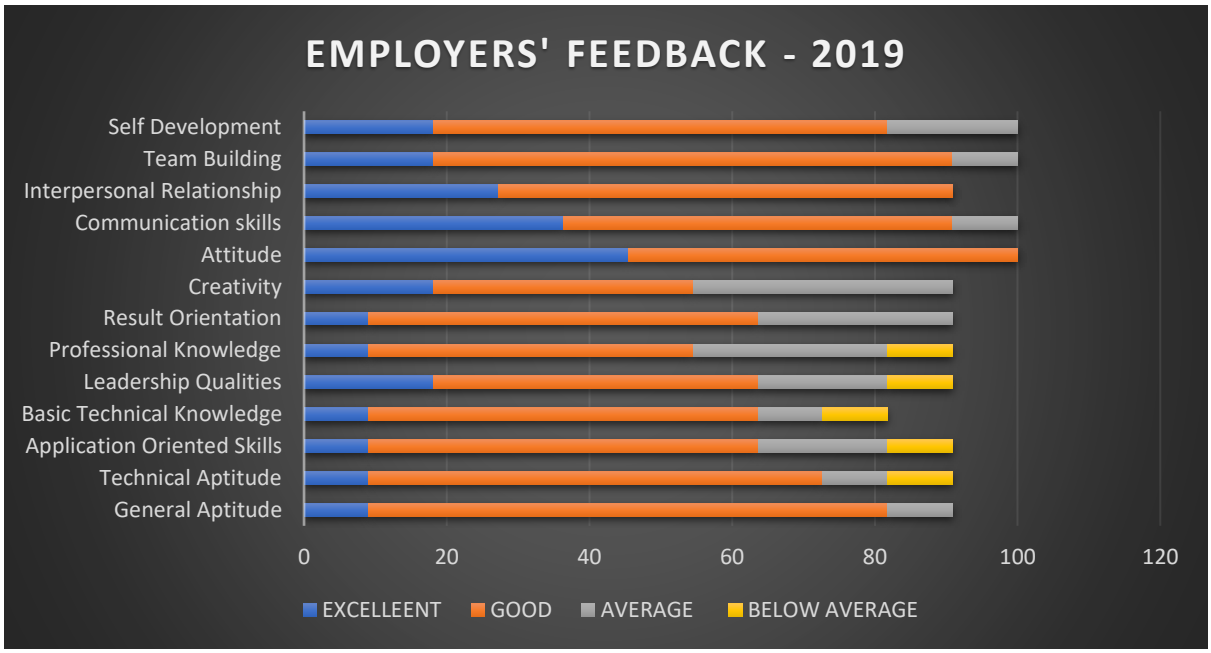


Fig. 8. Employers' Feedback Report

As observed from fig.8. Employers were satisfied with almost all the criteria. However, as indicated in certain areas like professional knowledge, leadership qualities, application/ technical skills and technical aptitude were taken into concern, to plan for future enhancements.

In order to fulfil the expectations of companies, special webinars and trainings were arranged to students, to provide them with special training on aptitude development and technical skills, and personality development.

5. PARENTS' FEEDBACK ACTION TAKEN:

Parents are considered to be one among the important stakeholders and are adequately interviewed or received feedback in written form. The criteria used are to reflect their observation on their children and their needs.

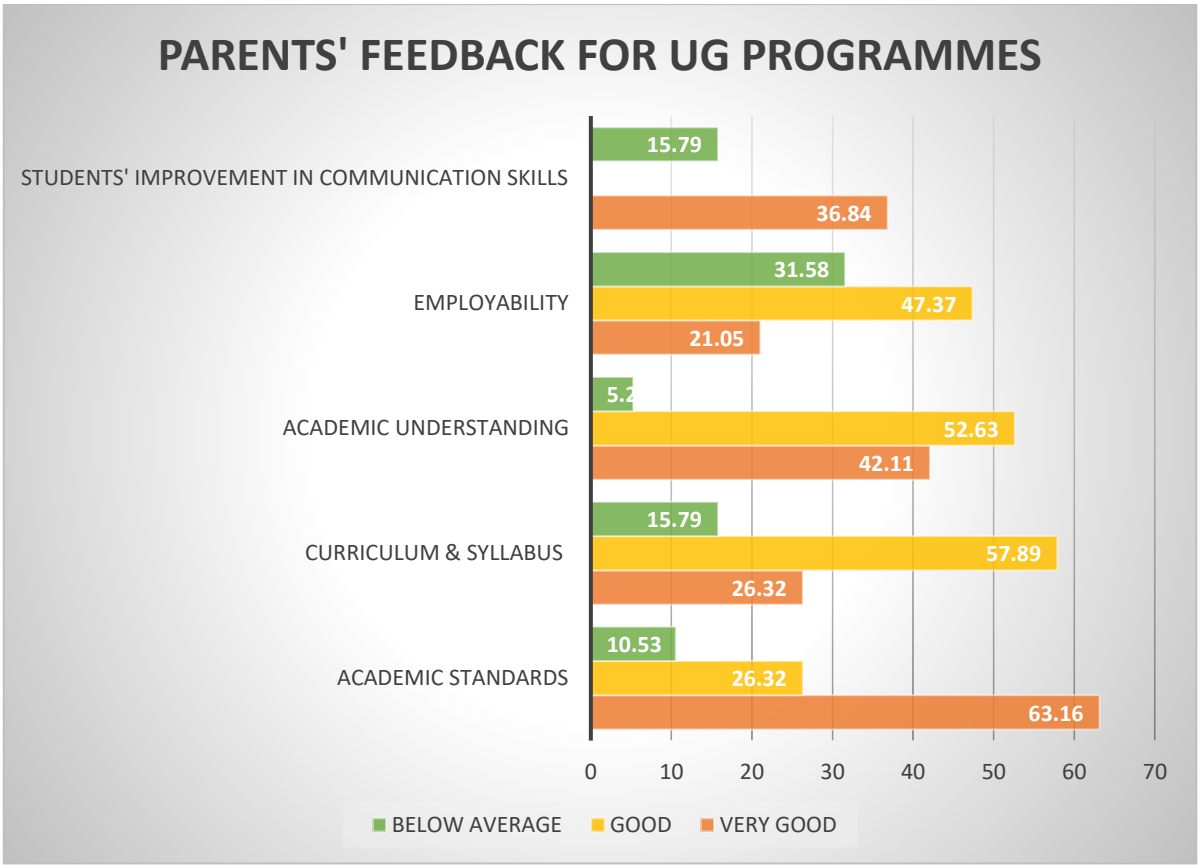


Fig. 9. Parents' Feedback Report of the Undergraduate Programmes

It can be noted that the parents were particular in including additional courses that improve the employability coefficient of students both in terms of technical and communication skills.

In response to the parents' feedback, action has been taken to include more industrial-oriented courses in the subsequent academic years. Every year a special team to analyze and work on the market teams have been designated and sufficient enhancements were made in the curriculum (as indicated in the previous sections too). The courses passed in BoS (minutes attached) and included after their feedback are:

- Python for Cyber Security (20CA3020)
- Python for Cyber Security lab (20CA3021)
- Problem Solving Using Programming (20CA2002)
- Problem Solving Lab(20CA2003)
- Essentials of Python Programming (20CA2008)
- Programming in Python Lab (20CA2009)

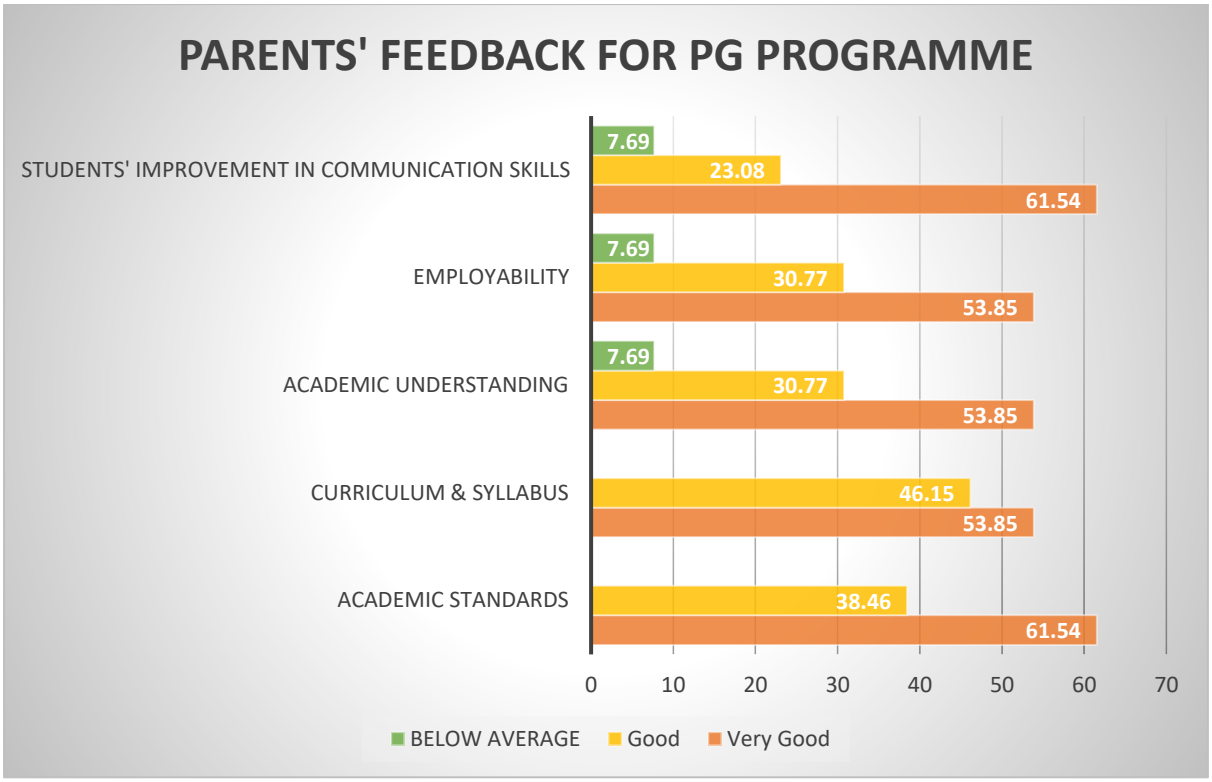


Fig. 10. Parents' Feedback Report of the Postgraduate Programmes

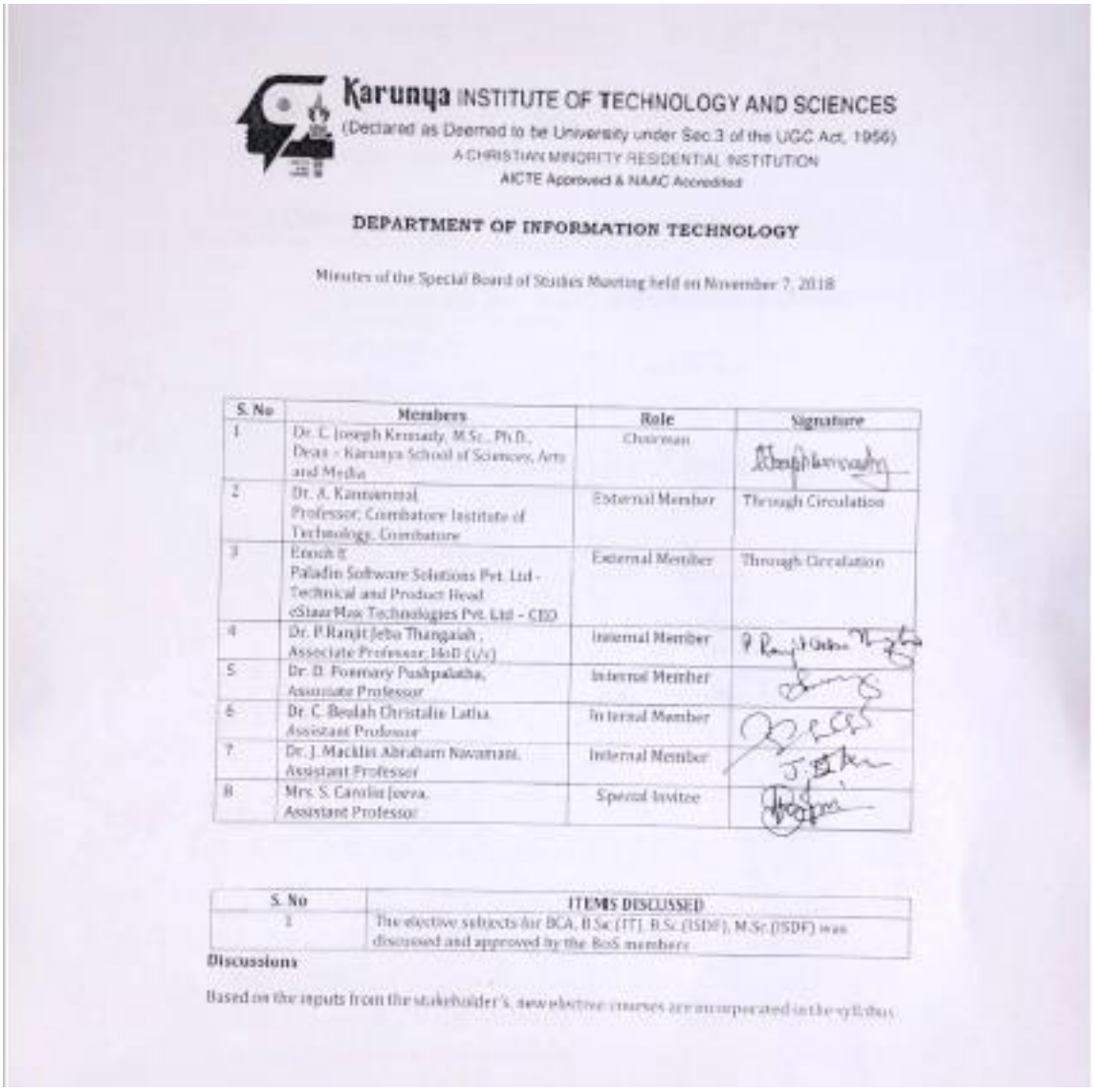
It can be noted that the parents were particular in including additional courses that improve the employability coefficient of students both in terms of technical and communication skills.

In response to the parents' feedback, action has been taken to include more industrial-oriented courses in the subsequent academic years. Every year a special team to analyze and work on the market teams have been designated and sufficient enhancements were made in the curriculum (as indicated in the previous sections too). The courses passed in BoS (minutes attached) and included after their feedback are:

- Python for Cyber Security (20CA3020)
- Python for Cyber Security lab (20CA3021)
- Problem Solving Using Programming (20CA2002)
- Problem Solving Lab(20CA2003)
- Essentials of Python Programming (20CA2008)
- Programming in Python Lab (20CA2009)

It is interesting to note that the parents were quite happy with the provisions available in the campus, programme standards, course delivery and the employability of students. A smaller fraction of parents had reflected on the need on further more improvements on communication skills and employability. Seminars, workshops and special trainings have been arranged to amplify the skills of students in terms of language and applicability.

Board of Studies Minutes dated 7th November, 2018



Karunya INSTITUTE OF TECHNOLOGY AND SCIENCES
(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)
A CHRISTIAN MINORITY RESIDENTIAL INSTITUTION
AICTE Approved & NAAC Accredited

DEPARTMENT OF INFORMATION TECHNOLOGY

Minutes of the Special Board of Studies Meeting held on November 7, 2018

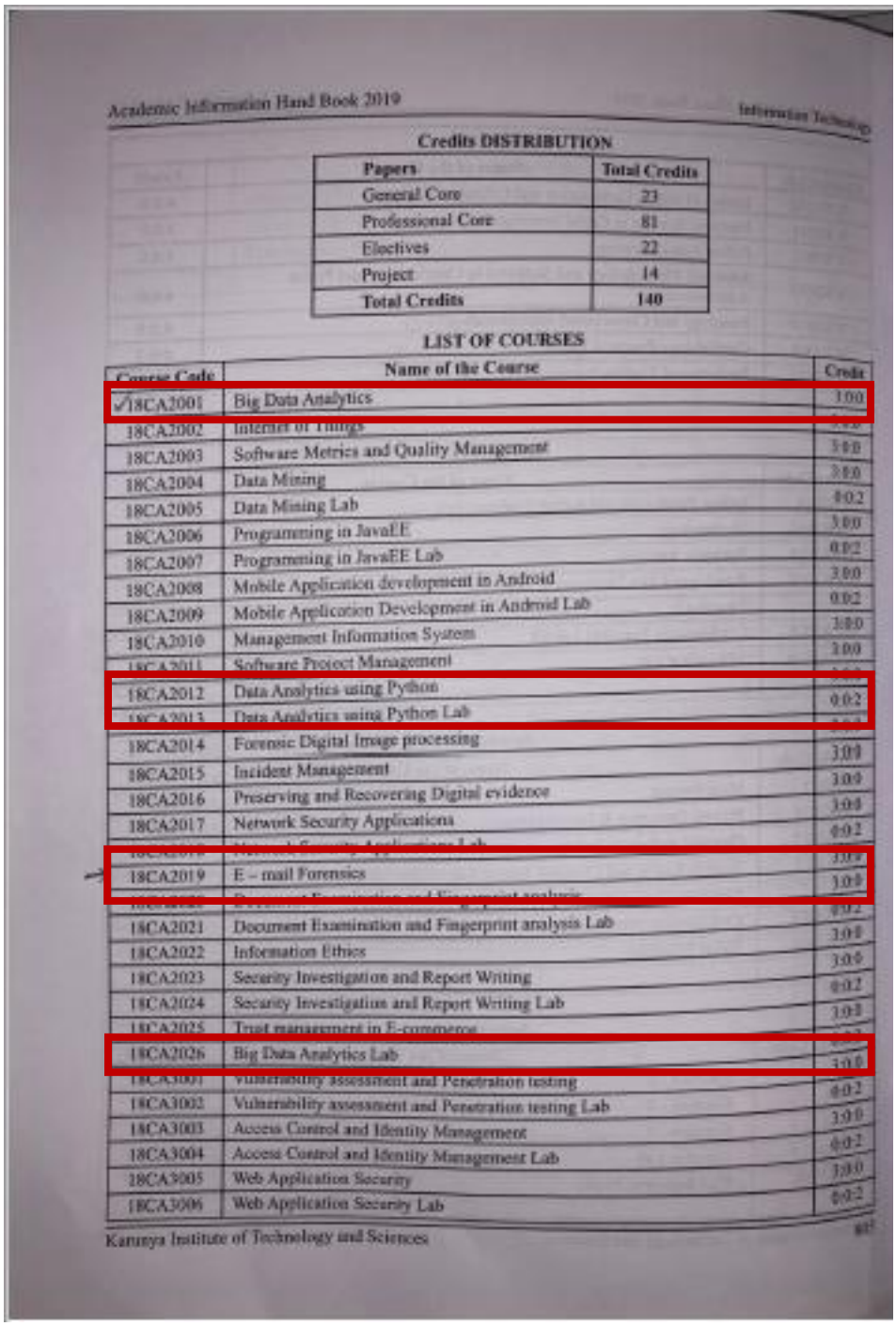
S. No	Members	Role	Signature
1	Dr. C. Joseph Kennady, M.Sc., Ph.D., Dean - Karunya School of Sciences, Arts and Media	Chairman	
2	Dr. A. Kannammal, Professor, Coimbatore Institute of Technology, Coimbatore	External Member	Through Circulation
3	Enock E, Paladin Software Solutions Pvt. Ltd - Technical and Product Head, eStarMax Technologies Pvt. Ltd - CEO	External Member	Through Circulation
4	Dr. P. Ranjit Jeba Thangaiah, Associate Professor, HoD (i/c)	Internal Member	
5	Dr. D. Pommary Pushpalatha, Associate Professor	Internal Member	
6	Dr. C. Beulah Christalin Latha, Assistant Professor	Internal Member	
7	Dr. J. Macklin Abraham Navamani, Assistant Professor	Internal Member	
8	Mrs. S. Carolin Jeeva, Assistant Professor	Special Invitee	

S. No	ITEMS DISCUSSED
1	The elective subjects for BCA, B.Sc (IT), B.Sc (ISDF), M.Sc (ISDF) was discussed and approved by the BoS members

Discussions

Based on the inputs from the stakeholder's, new elective courses are incorporated in the syllabus

Reference from Academic Information Handbook - 2019



Credits DISTRIBUTION

Papers	Total Credits
General Core	23
Professional Core	81
Electives	22
Project	14
Total Credits	**140**

LIST OF COURSES

Course Code	Name of the Course	Credit
18CA2001	Big Data Analytics	3:0:0
18CA2002	Internet of Things	
18CA2003	Software Metrics and Quality Management	3:0:0
18CA2004	Data Mining	3:0:0
18CA2005	Data Mining Lab	0:0:2
18CA2006	Programming in JavaEE	3:0:0
18CA2007	Programming in JavaEE Lab	0:0:2
18CA2008	Mobile Application development in Android	3:0:0
18CA2009	Mobile Application Development in Android Lab	0:0:2
18CA2010	Management Information System	3:0:0
18CA2011	Software Project Management	3:0:0
18CA2012	Data Analytics using Python	0:0:2
18CA2013	Data Analytics using Python Lab	
18CA2014	Forensic Digital Image processing	3:0:0
18CA2015	Incident Management	3:0:0
18CA2016	Preserving and Recovering Digital evidence	3:0:0
18CA2017	Network Security Applications	0:0:2
	Network Security Applications Lab	3:0:0
18CA2019	E – mail Forensics	3:0:0
	Document Examination and Fingerprint analysis	0:0:2
18CA2021	Document Examination and Fingerprint analysis Lab	3:0:0
18CA2022	Information Ethics	3:0:0
18CA2023	Security Investigation and Report Writing	0:0:2
18CA2024	Security Investigation and Report Writing Lab	3:0:0
18CA2025	Trust management in E-commerce	
18CA2026	Big Data Analytics Lab	3:0:0
18CA3001	Vulnerability assessment and Penetration testing	0:0:2
18CA3002	Vulnerability assessment and Penetration testing Lab	3:0:0
18CA3003	Access Control and Identity Management	0:0:2
18CA3004	Access Control and Identity Management Lab	3:0:0
18CA3005	Web Application Security	0:0:2
18CA3006	Web Application Security Lab	

Board of Studies Minutes dated 28th August, 2020

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A CHRISTIAN MINORITY RESIDENTIAL INSTITUTION

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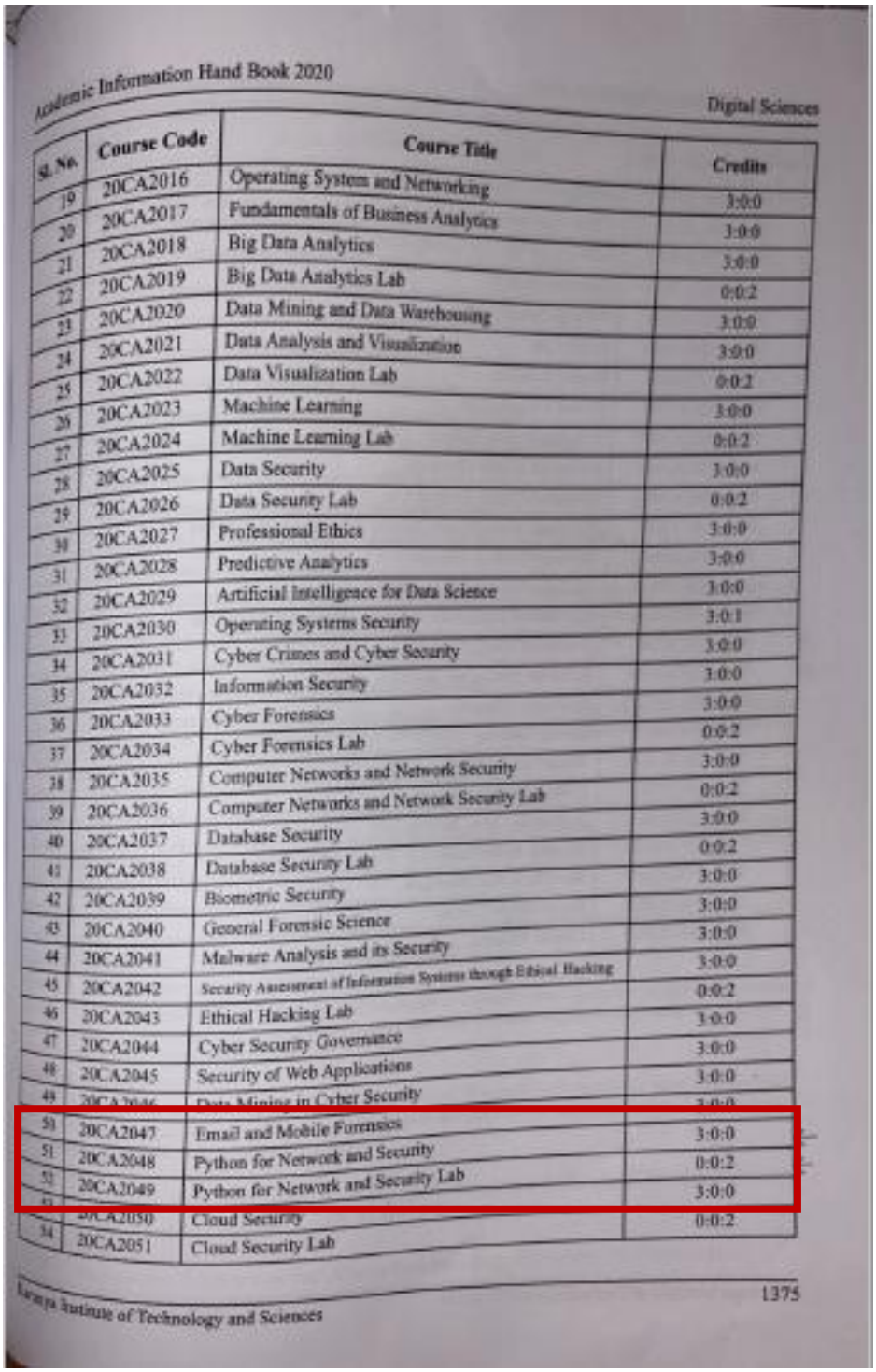
DEPARTMENT OF DIGITAL SCIENCES

MINUTES OF THE BOARD OF STUDIES MEETING HELD ON 28 August 2020

S. No	Members	Designation	Signature
1	Dr. C. Joseph Kennady, M.Sc., Ph.D., Dean – Karunya School of Sciences, Arts and Media	Chairman	
2	Dr. A. Kannammal, Professor, Coimbatore Institute of Technology, Coimbatore	External Member	**Through Circulation**
3	Enoch E Paladin Software Solutions Pvt. Ltd - Technical and Product Manager & eStarMax Technologies Pvt. Ltd – CEO	External Member	
4	Dr. P. Ranjit Jeba Thangaiah, Associate Professor, HoD (i/c)	Internal Member	
5	Dr. D. Ponmary Pushpalatha, Associate Professor	Internal Member	
6	Dr. C. Beulah Christalin Latha, Assistant Professor	Internal Member	
7	Dr. J. Macklin Abraham Navamani, Assistant Professor	Internal Member	
8	Dr. S. Carolin Jeeva, Assistant Professor	Special Invitee	

S. No	ITEMS DISCUSSED
1.	Curriculum for B.Sc. (Information Security and Digital Forensics) – 2020 batch is approved and passed as in Table CA-1.
2.	Curriculum for M.Sc. (Information Security and Digital Forensics) - 2020 is approved and passed as in Table CA-2.
3.	The Programme Outcome, Programme Specific Outcome is approved and passed as in Annexure –I.
4.	The new courses introduced for 2020 batch onwards is listed in Table CA-3.
5.	The revised courses based on the feedback from stake holders is listed in Table CA-4.
6.	The syllabi in Annexure -II is approved and passed for the courses listed in CA-3 and CA-4.
7.	The courses with employability, skill development and entrepreneurship are listed in Table CA-5.
8.	The syllabi in Annexure –III is ratified for the courses listed in Table CA-6.
9.	The Course Objective and Course Outcome for 17CA and 18CA courses is approved and passed as in Annexure –IV

Reference from Academic Information Handbook – 2020 (Volume – III)



Sl. No.	Course Code	Course Title	Credits
19	20CA2016	Operating System and Networking	3:0:0
20	20CA2017	Fundamentals of Business Analytics	3:0:0
21	20CA2018	Big Data Analytics	3:0:0
22	20CA2019	Big Data Analytics Lab	0:0:2
23	20CA2020	Data Mining and Data Warehousing	3:0:0
24	20CA2021	Data Analysis and Visualization	3:0:0
25	20CA2022	Data Visualization Lab	0:0:2
26	20CA2023	Machine Learning	3:0:0
27	20CA2024	Machine Learning Lab	0:0:2
28	20CA2025	Data Security	3:0:0
29	20CA2026	Data Security Lab	0:0:2
30	20CA2027	Professional Ethics	3:0:0
31	20CA2028	Predictive Analytics	3:0:0
32	20CA2029	Artificial Intelligence for Data Science	3:0:0
33	20CA2030	Operating Systems Security	3:0:1
34	20CA2031	Cyber Crimes and Cyber Security	3:0:0
35	20CA2032	Information Security	3:0:0
36	20CA2033	Cyber Forensics	3:0:0
37	20CA2034	Cyber Forensics Lab	0:0:2
38	20CA2035	Computer Networks and Network Security	3:0:0
39	20CA2036	Computer Networks and Network Security Lab	0:0:2
40	20CA2037	Database Security	3:0:0
41	20CA2038	Database Security Lab	0:0:2
42	20CA2039	Biometric Security	3:0:0
43	20CA2040	General Forensic Science	3:0:0
44	20CA2041	Malware Analysis and its Security	3:0:0
45	20CA2042	Security Assessment of Information Systems through Ethical Hacking	0:0:2
46	20CA2043	Ethical Hacking Lab	3:0:0
47	20CA2044	Cyber Security Governance	3:0:0
48	20CA2045	Security of Web Applications	3:0:0
49	20CA2046	Data Mining in Cyber Security	3:0:0
50	20CA2047	Email and Mobile Forensics	3:0:0
51	20CA2048	Python for Network and Security	0:0:2
52	20CA2049	Python for Network and Security Lab	3:0:0
53	20CA2050	Cloud Security	0:0:2
54	20CA2051	Cloud Security Lab	

Sl. No.	Course Code	Course Title	Credits
55	20CA2052	Information Security Ethics	3:0:0
56	20CA3001	Cyber Criminology and Criminal Justice Administration	4:0:0
57	20CA3002	Information Security Management	3:0:0
58	20CA3003	Network Security	3:0:0
59	20CA3004	Network Security Lab	0:0:2
60	20CA3005	Cyber Law	4:0:0
61	20CA3006	Digital Forensics	3:0:0
62	20CA3007	Digital Forensic Lab	0:0:2
63	20CA3008	Web Application Security	3:0:0
64	20CA3009	Advanced Digital Forensics	3:0:0
65	20CA3010	Advanced Digital Forensic Lab	0:0:2
66	20CA3011	Business Continuity and Disaster Recovery Management	3:0:0
67	20CA3012	Database Security Management	3:0:0
68	20CA3013	Database Security Management Lab	0:0:2
69	20CA3014	Information Security Governance, Risk and Compliance	3:0:0
70	20CA3015	Internet of Things Security	3:0:0
71	20CA3016	Artificial Intelligence Security	3:0:0
72	20CA3017	Economic Offences	3:0:0
73	20CA3018	Ethical Hacking	3:0:0
74	20CA3019	Ethical Hacking Lab	0:0:2
75	20CA3020	Python for Cyber Security	3:0:0
76	20CA3021	Python for Cyber Security Lab	0:0:2
77	20CA3022	Security in the Cloud	3:0:0
78	20CA3023	Security in the Cloud Lab	0:0:2
79	20CA3024	Social Media Crimes	3:0:0
80	20CA3025	Digital Security	3:0:0

Semester IV

Sl. No.	Course Code	Course Title	Credits
1		Elective – I	3:0:0
2		Elective – II	3:0:0
3		Elective Lab	0:0:2
4	PSP3998	Part Semester Project	0:0:12
		OR	
	FSP3999	Full Semester Project	0:0:20
		Total	**20**

Credit Distribution

Sl.No.	Course Component	Credits
1	Programme Core	72
2	Electives	8/0
3	Part Semester Project/Full Semester Project	12/20
	Total Credits	**92**

* Including online courses (offered by NPTEL, SWAYAM, Coursera) from II to V semesters

LIST OF NEW COURSES

Sl. No.	Course Code	Course Title	Credits
1	19CA3001	Data Mining Techniques	3:0:0
2	19CA3002	Machine Learning for Image Processing	3:0:0
3	19CA3003	Artificial Intelligence for Big Data	3:0:0
4	20CA2001	Computational Thinking for Problem Solving	3:0:0
5	20CA2002	Problem Solving using Programming	3:0:0
6	20CA2003	Problem Solving Lab	0:0:2
7	20CA2004	Fundamentals of Information Technology	3:0:0
8	20CA2005	Computer Fundamentals Lab	0:0:2
9	20CA2006	Foundation of Data Science and Analytics	3:0:0
10	20CA2007	Foundation of Data Science and Analytics Lab	0:0:2
11	20CA2008	Essentials of Python Programming	3:0:0
12	20CA2009	Programming in Python Lab	0:0:2
13	20CA2010	Python for Data Science and Analytics	3:0:0
14	20CA2011	Python for Data Science and Analytics Lab	0:0:2
15	20CA2012	Data Structures	3:0:0
16	20CA2013	Data Structures Lab	0:0:2
17	20CA2014	Database Management System	3:0:0
18	20CA2015	Database Management System Lab	0:0:2