Department of Computer Science & Technology

Ref. No.: CUPB/HOD/CST/2021/053 **Date:** 03/2/2021

Subject: Minutes of faculty meetings held on 02.02.2021 at 02:00PM

An Academic and Administrative Committee meeting of Department of Computer Science & Technology was held in the office of the HoD, **on 02.02.2021 at 02:30PM**. The following faculty members were present in the meeting:

i. Prof. Amandeep Kaur, Professor
ii. Dr. Satwinder Singh, Associate Professor
iii. Er. Surinder Singh Khurana, Assistant Professor
iv. Dr. Parvinder Singh, Assistant Professor
v. Er. Anam Bansal, AP, CST

During the discussions, the following points emerged:

1. Regarding purchase of 32 GB RAMs and 04 GB RAMs- As few vendors have not provided "Certificate for terms and conditions" as mentioned in Bid document. They are asked to provide the same within two days.
2. Regarding purchase of blinds- The department prefers to purchase blinds instead of curtains due to :-
   I. More dust is accumulated in curtains as compare to blinds, and the presence of dust Detroit the performance of high end and costly systems available in the labs.
   II. Blinds are preferable because of better heat control. The high temperature affects the performance and life of the high end and costly systems in the labs.
   III. Blinds provide better light control.
3. Following committee is constituted for Ph.D admissions in CST department.
   I. Prof. Amandeep Kaur, Professor
   II. Dr. Satwinder Singh, Associate Professor
   III. Dr. Parvinder Singh, Assistant Professor
4. It is decided to organize parents Teacher meet on 10.02.2021. The event coordinators are Dr. Parvinder Singh & Er. Anam Bansal organized by the following committee:-
   i. Prof. Amandeep Kaur, Professor
   ii. Dr. Satwinder Singh, Associate Professor
   iii. Er. Surinder Singh Khurana, Assistant Professor
   iv. Dr. Parvinder Singh, Assistant Professor
   v. Er. Anam Bansal, AP, CST
5. Regarding academic alliance: A request has been received from Babbar Akali Memorial Khalsa College, Garhshankar. For memorandum of academic support. The committee is in the view that department will make a mutual memorandum for the same. The department will also get consulting opportunities.

(Prof. Amandeep Kaur) Professor, CST	(Dr. Satwinder Singh) Associate Professor, CST	(Er. Surinder Singh Khurana) AP, CST	(Dr. Parvinder Singh) AP, CST	(Er. Anam Bansal) AP, CST
4/2/2021	04/2/21			

Copy to:

1. Members of AAC (through email)
2. IQAC Cell for 4/2/21

Department of Computer Science & Technology

Ref. No.: CUPB/HOD/CST/2021/093 **Date:** 15/3/2021

Subject: Minutes of faculty meetings held on 15.03.2021 at 11:00 AM

An Academic and Administrative Committee meeting of Department of Computer Science & Technology was held in the office of the HoD, **on 15.02.2021 at 11:00 AM**. The following faculty members were present in the meeting:

i. Prof. Amandeep Kaur, Professor (Online)
ii. Dr. Satwinder Singh, Associate Professor
iii. Er. Surinder Singh Khurana, Assistant Professor
iv. Dr. Parvinder Singh, Assistant Professor

During the discussions, the following points emerged:

1. It is decided that for the requirement to participate in CCMT 2021, Dr. Satwinder Singh, Associate Professor, will work as PI and Er. Surinder Singh Khurana will work as Co-PI.
2. Dr. Satwinder Singh and Dr. Parvinder Singh will coordinate for following AICTE activities:
   a) Application for extension of approval 2021 for M.Tech CST.
   b) Request for approval of site change.
   c) Application for approval of M.Tech in CST(CBS).

   Mr. Sanjeev Kumar, DEO will assist to collect & upload the data.
3. The work load for even semester of academic year 2020-2021 is as:-

Sr. No.	Course	Course Title	Teaching Hours	Name of Faculty
1	CST	Soft Computing	4	Prof. Amandeep Kaur
2	CBS	Soft Computing	4	
3	CST	Computer Vision	4	
4	CST	Computer Vision Lab	2	
	CST/CBS	Dissertation / Industrial Project	5	
5	CST	Big Data Analytics and Visualization	4	Dr. Satwinder Singh
6	CBS	Big Data Analytics and Visualization	4	
	CST	Big Data Analytics and Visualization - Lab	2	
7	CBS	Big Data Analytics and Visualization - Lab	2	
8	CST	Python Programming for Data Science	4	
9	CST	Python Programming for Data Science - Lab	2	
10	CST/CBS	Dissertation / Industrial Project	5	
11	CST	Digital Forensics	4	Er. Surinder Singh Khurana
12	CBS	Digital Forensics	4	
13	CST	Digital Forensics - Lab	2	
14	CBS	Digital Forensics - Lab	2	
15	CBS	Phython Programming for Security Professionals	4	
16	CBS	Phython Programming for Security Professionals - Lab	2	
17	CST/CBS	Dissertation / Industrial Project	4	
18	CBS	Quantum Cryptography	4	

Department of Computer Science & Technology

19	CBS	Quantum Cryptography - Lab	2	Dr. Parvinder Singh
20	CST	Advance Algorithms	4	
21	CBS	Advance Algorithms	4	
22	CST	Soft Computing - Lab	2	
23	CBS	Soft Computing - Lab	2	
24	CST/CBS	Dissertation / Industrial Project	5	

4. Prof. Amandeep Kaur is allocated as Supervisor and Dr. Parvinder Singh is allocated as Co- Supervisor to Mr. Vivek Sharan , Ph.D. Scholar.

(Prof. Amandeep Kaur)
Professor,
CST

(Dr. Satwinder Singh)
Associate Professor,
CST

(Er. Surinder Singh Khurana)
Assistant Professor,
CST

(Dr. Parvinder Singh)
Assistant Professor,
CST

Copy to:

1. Members of AAC (through email)
2. IQAC Cell for IQAC 16/3/21

Department of Computer Science & Technology

Ref. No.: CUPB/DSEANS/CST/2021/27 Date: 26/2/21

Subject: Minutes of faculty meetings held on 16-02-2021.

The HoD, CST raised an issue of space allocation to the Dean, School of Engineering and Technology. The Dean advised to sort the issue in AAC meeting. As per the advice of the Dean a meeting of Academic and Administrative Committee, Department of Computer Science & Technology was held at 11.30 AM on 16-02-2021 in the office of Dean, School of Engineering and Technology, Central University of Punjab. The following members were present in the meeting:

i. Dr. Amandeep Kaur, Professor

ii. Dr. Satwinder Singh, Associate Professor

iii. Er. Surinder Singh Khurana, Assistant Professor

iv. Dr. Parvinder Singh, Assistant Professor

During the discussions the following points emerged:

1. Issues have been raised regarding the space allocation in the department which were resolved with the detailed discussion and consent of all present.

(Dr. Amandeep Kaur)	(Dr. Satwinder Singh)	(Er. Surinder Singh Khurana)	(Dr. Parvinder Singh)
Professor, CST	Associate Professor , CST	Assistant Professor , CST	Assistant Professor , CST

196 (9)

Department of Computer Science & Technology

Ref. No.: CUPB/HOD/CST/2021/075 **Date:** 25/2/21

Subject: Minutes of faculty meetings held on 17-02-2021.

A meeting of Academic and Administrative Committee, Department of Computer Science & Technology was held at 2.45PM on 17-2-2021 in the office of HoD, Computer Science and Technology, Central University of Punjab. The following members were present in the meeting:

1. Dr. Amandeep Kaur, Professor
2. Dr. Satwinder Singh, Associate Professor
3. Er. Surinder Singh Khurana, Assistant Professor
4. Dr. Parvinder Singh, Assistant Professor

During the discussions the following points emerged:

1. Date sheet for the final examination of 1st semester students has been prepared and attached herewith as annexure–I.
2. It is decided to close the bid for Purchase of 32 GB RAM for Workstation and 04 GB RAM for PC, as no bidder has provided manufacturing authorization form /Certificate and to Re-bid the same.
3. Mr. Dhirendra Mehra, Student of 1st year M.Tech in Computer Science and Technology (Cyber Security) requested to join the classes on 17-02-2021. It is decided that he will be allowed to attend the classes as per University Rules and Regulations.

(Dr. Amandeep Kaur) Professor, CST	(Dr. Satwinder Singh) Associate Professor , CST	(Er. Surinder Singh Khurana) Assistant Professor , CST	(Dr. Parvinder Singh) Assistant Professor , CST

Copy to:

1. Members of AAC (through email).
2. IQAC for Aman 26/2/21

Department of Computer Science & Technology

Ref. No.: CUPB/HOD/CST/2021/093 **Date:** 15/3/2021

Subject: Minutes of faculty meetings held on 15.03.2021 at 11:00 AM

An Academic and Administrative Committee meeting of Department of Computer Science & Technology was held in the office of the HoD, **on 15.02.2021 at 11:00 AM**. The following faculty members were present in the meeting:

i. Prof. Amandeep Kaur, Professor (Online)
ii. Dr. Satwinder Singh, Associate Professor
iii. Er. Surinder Singh Khurana, Assistant Professor
iv. Dr. Parvinder Singh, Assistant Professor

During the discussions, the following points emerged:

1. It is decided that for the requirement to participate in CCMT 2021, Dr. Satwinder Singh, Associate Professor, will work as PI and Er. Surinder Singh Khurana will work as Co-PI.
2. Dr. Satwinder Singh and Dr. Parvinder Singh will coordinate for following AICTE activities:
   a) Application for extension of approval 2021 for M.Tech CST.
   b) Request for approval of site change.
   c) Application for approval of M.Tech in CST(CBS).

   Mr. Sanjeev Kumar, DEO will assist to collect upload the data.
3. The work load for even semester of academic year 2020-2021 is as:-

Sr. No.	Course	Course Title	Teaching Hours	Name of Faculty
1	CST	Soft Computing	4	Prof. Amandeep Kaur
2	CBS	Soft Computing	4	
3	CST	Computer Vision	4	
4	CST	Computer Vision Lab	2	
	CST/CBS	Dissertation / Industrial Project	5	
5	CST	Big Data Analytics and Visualization	4	Dr. Satwinder Singh
6	CBS	Big Data Analytics and Visualization	4	
	CST	Big Data Analytics and Visualization - Lab	2	
7	CBS	Big Data Analytics and Visualization - Lab	2	
8	CST	Python Programming for Data Science	4	
9	CST	Python Programming for Data Science - Lab	2	
10	CST/CBS	Dissertation / Industrial Project	5	
11	CST	Digital Forensics	4	Er. Surinder Singh Khurana
12	CBS	Digital Forensics	4	
13	CST	Digital Forensics - Lab	2	
14	CBS	Digital Forensics - Lab	2	
15	CBS	Phython Programming for Security Professionals	4	
16	CBS	Phython Programming for Security Professionals - Lab	2	
17	CST/CBS	Dissertation / Industrial Project	4	
18	CBS	Quantum Cryptography	4	

Department of Computer Science & Technology

19	CBS	Quantum Cryptography - Lab	2	Dr. Parvinder Singh
20	CST	Advance Algorithms	4	
21	CBS	Advance Algorithms	4	
22	CST	Soft Computing - Lab	2	
23	CBS	Soft Computing - Lab	2	
24	CST/CBS	Dissertation / Industrial Project	5	

4. Prof. Amandeep Kaur is allocated as Supervisor and Dr. Parvinder Singh is allocated as Co- Su pervisor to Mr. Vivek Sharan , Ph.D. Scholar.

(Prof. Amandeep Kaur)
Professor,
CST

(Dr. Satwinder Singh)
Associate Professor,
CST

(Er. Surinder Singh Khurana)
Assistant Professor,
CST

(Dr. Parvinder Singh)
Assistant Professor,
CST

Copy to:

1. Members of AAC (through email)
2. IQAC Cell

Department of Computer Science & Technology

Ref. No.: CUPB/HOD/CST/2021/110 **Date:** 26/3/2021

Subject: Minutes of faculty meetings held on 24.03.2021 at 12:00PM.

A meeting of Curriculum Development Committee of Department of Computer Science & Technology was held in the office of the HoD, **on 24.03.2021 at 12:00PM**. The following faculty members were present in the meeting:

i. Prof. Amandeep Kaur, Professor
ii. Dr. Satwinder Singh, Associate Professor
iii. Er. Surinder Singh Khurana, Assistant Professor
iv. Dr. Parvinder Singh, Assistant Professor
v. Er. Anam Bansal, Assistant Professor, CST

During the discussions, the following points emerged:

1. The syllabus of M.Tech in Computer Science and Technology for 2021-2022 batch has been finalized. The following changes have been suggested:-
   a) Subject "CST.526: Python Programming for Data Science" has been moved from Second Semester to First Semester along with the Lab of CST.528: Python Programming for Data Sciences Lab.
   b) Subject "CST.508: Machine Learning" has been moved from First Semester to Second Semester along with its lab CST: 517 Machine Learning Lab.
   c) IDC Course will only be taught in first semester. The IDC Course from second semester will be replaced with VAC subject.
   d) VAC Subject may be removed from 3rd & 4th Semester as per advice of IQAC. All VAC subjects will be moved to second semester. Credits of VAC is changed to 2 Credits.
   e) Subject "CBS.530: Quantum Cryptography" will also be offered to M.Tech in CST as an elective in Second Semester.
   f) No IDC course will be offered in Second Semester. All IDC Subject will be shifted to First Semester.
2. The Syllabus of M.Tech in CST (CBS) for Batch 2021-2023 has been finalized. The following changes have been suggested:-
   a) Subject "CBS.527: Python Programming for Security Professionals" has been moved from Second Semester to First Semester along with the lab.
   b) Subject "CST.508: Machine Learning" has been moved from first semester to Second Semester along with the lab.
   c) Subject "CBS.506: Ethical Hacking" has been moved from Elective-I to Elective-II.
   d) Subject "CBS.508: Data Encryption and Network Security" has been moved from Elective-II to Elective-I.
   e) VAC Subject may be removed from 3rd & 4th Semester as per advice of IQAC. All VAC subjects will be moved to second semester. Credits of VAC is changed to 2 Credits
   f) No IDC course will be offered in Second Semester. All IDC Subject will be shifted to First Semester.
3. The syllabus of PG Diploma in Data Science for BIOLOGY has been revised and attached herewith as annexure–I.
4. It is suggested to change the name of course M.Tech in Computer Science and Technology (Cyber Security) to M.Tech in Computer Science & Engineering (Cyber Security) as per AICTE Nomenclature.
5. It is suggested to reduce the intake of M.Tech in Computer Science and Technology and M.Tech in Computer Science and Technology (Cyber Security) to 24 Seats each.

(Prof. Amandeep Kaur)	(Dr. Satwinder Singh)	(Er. Surinder Singh Khurana)	(Dr. Parvinder Singh)	(Er. Anam Bansal)
Professor, CST	Associate Professor, CST	AP, CST	AP, CST	AP, CST

Copy to:

1. Members of AAC (through email)

Department of Computer Science and Technology

Ref. No.: CUPB/HOD/CST/2021/112 **Date:** 30/3/2021

Subject: Minutes of faculty meetings held on 30.03.2021 at 11:00AM.

A meeting of Academic and Administrative Committee, Department of Computer Science & Technology was held in the office of the HoD,CST on **30.03.2021** at **11:00AM**. The following faculty members were present in the meeting:

i. Prof. Amandeep Kaur, Professor
ii. Dr. Satwinder Singh, Associate Professor
iii. Er. Surinder Singh Khurana, Assistant Professor
iv. Dr. Parvinder Singh, Assistant Professor
v. Er. Anam Bansal, Assistant Professor, CST

During the discussions, the following points emerged:

1. The following evaluation pattern may be followed for the evaluation of students of M.Tech Computer Science & Technology and M.Tech Computer Science & Technology(Cyber Security) :

Sr. No.		Marks	
1.	Surprise Test (Average best Two)	15	Continues Evaluation
2.	Assignment	10	
3.	MST **(Subjective)**	25	
4.	End Term Examination **(Subjective)**	50	End Semester

2. The pattern for end semester examination will be as:-

i. It contains ten question for 02 marks each. Four question for 05 marks each and One question for 10 marks

3. It is decided that Dr. Satwinder Singh, Associate Professor will be allocated as Supervisor to Mr. Ankur Prakash Ph.D. student.

(Prof. Amandeep Kaur) Professor, CST	(Dr. Satwinder Singh) Associate Professor, CST	(Er. Surinder Singh Khurana) AP, CST	(Dr. Parvinder Singh) AP, CST	(Er. Anam Bansal) AP, CST

Copy to:

1. Members of AAC (through email)
2. IQAC Cell

31/3/21

Department of Computer Science & Technology

Ref. No.: CUPB/HOD/CST/2021/126 Date: 30/04/2021

Subject: Minutes of AAC meetings held on 19-04-2021.

An Academic and Administrative Committee meeting of Department of Computer Science & Technology was held in the office of the HoD, **on 19.04.2021**. The following faculty members were present in the meeting:

i. Prof. Amandeep Kaur, Professor
ii. Dr. Satwinder Singh, Associate Professor
iii. Er. Surinder Singh Khurana, Assistant Professor
iv. Dr. Parvinder Singh, Assistant Professor
v. Er. Anum Bansal, Assistant Professor

During the discussions the following points emerged:

1. Teaching load assigned to Er. Parneet Kaur is as:

Subject	Credits
Soft Computing (M.Tech in CST (CBS))	4 (4 Theory hours)
Soft Computing Lab (M.Tech in CST (CBS))	1 (2 Practical hours)
Soft Computing Lab (M.Tech in CST)	1 (2 Practical hours)
Computer Applications (Mass Communication Students)	4 (4 Theory Hours)

2. Subject Research and Publication Ethics(02 Credits) is allocated to Prof.(Dr.) Amandeep Kaur.
3. The schedule for the evaluation of the dissertation is as :

Activities	Date
Thesis submission to the supervisor.	12/05/2021
Uploading the thesis on portal after approval from respective supervisors	21/05/2021
Internal Viva	24/05/2021 to 28/05/2021
External Viva	07/06/2021 to 11/06/2021
Hard copy submission of Thesis	As per University guidelines.

(Prof. Amandeep Kaur)	(Dr. Satwinder Singh)	(Er. Surinder Singh Khurana)	(Dr. Parvinder Singh)	(Er. Anum Bansal)
Professor, CST	Associate Professor, CST	Assistant Professor, CST	Assistant Professor, CST	Assistant Professor, CST

1. Members of AAC (through email)
2. IQAC Cell for IQAC 4/5/21

Department of Computer Science & Technology

Ref. No.: CUPB/HOD/CST/2021/133 **Date:** 24/05/2021

Subject: Minutes of faculty meetings held(online) on 20.05.2021 at 11:00 AM

An Academic and Administrative Committee meeting of Department of Computer Science & Technology was held(online) **on 20.05.2021 at 11:00 AM**. The following faculty members were present in the meeting:

i. Prof. Amandeep Kaur, Professor (Online)
ii. Dr. Satwinder Singh, Associate Professor
iii. Er. Surinder Singh Khurana, Assistant Professor
iv. Dr. Parvinder Singh, Assistant Professor
v. Er. Anam Bansal

During the discussions, the following points emerged:

1. The eligibility is checked for the received applications of 16 students for admission in Masters' and Ph.D. Programme from ICCR. The eligibility status is mention below:

Sr. No.	Name of Student	Programme Applied for	UG by students	Eligibility	Remarks
1.	Abdul Mosawir Kohistani	(M.Sc. Computer Science)	B.Sc. (3 years)	Not Eligible.	1. UG degree is of 3 years 2. Department is not offering M.Sc. program
2.	Abel Weldegeberiel Nerea	(M.Tech.)	BSC(4 years)	Provisionally Eligible. Subject to the condition of equivalence certificate of B.Tech. from AIU	Percentage conversion formula is also missing.
3.	Adamkhan Akmal	(M.Tech.)	BSC (4 years)	Provisionally Eligible. Subject to the condition of equivalence certificate of B.Tech. from AIU	
4.	Hafizullah Rezaie	(M.Sc. Computer Sci. & Tech.)	BSc (4 years)	Provisionally Eligible. Subject to the condition of equivalence certificate of B.Tech. from AIU	Department is having M.Tech program only. Student can apply for it.
5.	Kabul Yama	(M.Tech.)	BSc (4 years)	Provisionally Eligible. Subject to the condition of equivalence certificate of B.Tech. from AIU	
6.	Mohammad Esa Yazdanpana	(M.Tech.)		Provisionally Eligible. Subject to the condition	

Department of Computer Science & Technology

				of equivalence certificate of B.Tech. from AIU	
7.	Mohammad Hafiz	(M.Tech.)		Not Eligible.	B.Engg in Chemical Engineering
8.	Mujtaba Afghan Sultani	(M.Tech.)	BSc (4 years)	Provisionally Eligible. Subject to the condition of equivalence certificate of B.Tech. from AIU	
9.	Neelab Nickzad	(M.Sc. Computer Sci.)	BSc (4 years)	Provisionally Eligible. Subject to the condition of equivalence certificate of B.Tech. from AIU	Department is having M.Tech program only. Student can apply for it.
10.	Pintu Kumar Sutrdhar	(M.Tech.)	B.Sc.(CSE)(4 Years)	Eligible	
11.	Sayed Mansoor Sadat	(M.Tech.)	B.A.(4 years)	Not Eligible	Graduation in Education
12.	Sayed Hashim Quraishi	(MCA)	B.Sc.(3years)	Not Eligible	Graduation Degree is of 3 years
13.	Shafiullah Safdary	(M.Tech.)	BSc (4 years)	Provisionally Eligible. Subject to the equivalence certificate of UG program with B.Tech (Computer Science & Engineering/Information Technology) from AIU.	Degree certificate is missing. Kindly provide the same
14.	Sm Sarwar	(M.Tech.)	B.Sc (Hons.) 4 years	Eligible	
15.	Subhanullah Saqib Barakzai	(M.Tech.)	BSc (4 years)	Provisionally Eligible. Subject to the equivalence certificate of UG program with B.Tech (Computer Science &	

Department of Computer Science & Technology

16.	Sadiq AbdulKarim	(Ph.D. Computer Sic. and Tech.)	M.Sc.(CSE)(1 year)	Provisionally Eligible Subject to the equivalence certificate of PG program with M.Tech (Computer Science & Engineering/Information Technology) from AIU.	Master degree is of one year

Send the consent online via mail & Attended online via Google meet by other members

(Prof. Amandeep Kaur) Professor, CST	(Dr. Satwinder Singh) Associate Professor, CST	(Er. Surinder Singh Khurana) Assistant Professor, CST	(Dr. Parvinder Singh) Assistant Professor, CST	(Er. Anam Bansal) Assistant Professor, CST

24/5

Copy to:

1. Members of AAC (through email)
2. IQAC Cell

Department of Computer Science & Technology

Ref. No.: CUPB/HOD/CST/2021/139 **Date:** 08-06-2021

Subject: Minutes of faculty meetings held (online) on 07.06.2021 at 11:00 AM

An Academic and Administrative Committee meeting of Department of Computer Science & Technology was held(online) **on 07.06.2021 at 11:00 AM**. The following faculty members were present in the meeting:

i. Prof. Amandeep Kaur, Professor (Online)
ii. Dr. Satwinder Singh, Associate Professor
iii. Er. Surinder Singh Khurana, Assistant Professor
iv. Dr. Parvinder Singh, Assistant Professor

During the discussions, the following points emerged:

1. The matter of extension of study leave of Er. Meenakshi, Assistant Professor, Department of Computer Science and Technology is discussed. As the department is going to start a new course, a faculty member in her substitution is required. The committee also recommends to put up her application for extension of leave to the competent authority (through proper channel) with the request to extend her study leave for 01 year.
2. The date sheet of the second semester MST examination is finalized and attached herewith.

Dr. Satwinder has sent his consent online (attached copy of email).

(Prof. Amandeep Kaur) Professor, CST	(Dr. Satwinder Singh) Associate Professor, CST	(Er. Surinder Singh Khurana) Assistant Professor, CST	(Dr. Parvinder Singh) Assistant Professor, CST

Copy to:

1. Members of AAC (through email)
2. IQAC Cell

for IQAC
08/6/21

Department of Computer Science & Technology

Ref. No.: CUPB/HOD/CST/2021/146 **Date:** 16.06.2021

Subject: Minutes of faculty meetings held (online) on 16.06.2021 at 1:30 PM

An Academic and Administrative Committee meeting of Department of Computer Science & Tec hnology was held(online) **on 16.06.2021 at 1:30 PM**. The following faculty members were present in the meeting:

i. Prof. Amandeep Kaur, Professor (Online)
ii. Dr. Satwinder Singh, Associate Professor
iii. Er. Surinder Singh Khurana, Assistant Professor
iv. Dr. Parvinder Singh, Assistant Professor

During the discussions, the following points emerged:

1. The eligibility is checked for the received applications of 38 students for admission in Masters' and Ph.D. Programme from ICCR. The eligibility status is mention below:

Sr. No.	Name of Student	Programme	UG by students	Eligibility	Remarks
1.	Abdul Basir Mohammadi	M.Sc. computer sci.	B.Sc. 3 year	Not Eligible	
2.	Abdul Majid Niazai	M.Tech. Data Science	B.Sc. 3 year	Not Eligible	
3.	AbdulWahid Jahanbeen	M.Tech.	B.Sc.	Provisional eligible	Certificate from AIU required for Equivalence
4.	AHMAD NESAAR RAHMANI	M.Tech. Cyber Security	BCS	Provisional eligible	Certificate from AIU required for Equivalence
5.	AhmadShabir Saify	M.Tech. Cyber security	4 years (3Sem+5 Sem)	Provisional eligible	Certificate from AIU required for Equivalence Degree Certificate required.
6.	AHMED HUSSEIN ABDALHK	M.Tech. CST		--	for admission 60% and Above. WCGPA to Percentage conversion not clear
7.	Amrullah Hamidy	M.Tech.		--	CGPA to Percentage formula is not given
8.	Aqeel Yosuf	M.Tech. Cyber Security	BSc	Provisional eligible	Equivalence Certificate from AIU

17/6/21

5
212

9.	Aryan Faizi	M.Tech. Civil		Not eligible	Department is not offering the Course UG is not in relevant Subject
10.	Bivek Karki	M.Tech.	B.Tech in IT	Eligible	
11.	Boman Ali Arifi	M.Tech.	B.TECH in EE	Not eligible	Department is not offering the Course UG is not in relevant Subject
12.	Ezatullah Askary Shahin	Master Computer Application	BCS	Eligible	Certificate from AIU required for Equivalence Department is not offering the MCA
13.	FAZILHAQ AKHONDZADA	M.Tech.	B.Tech	Eligible	
14.	Ghulam Abbas Ataie	M.Tech.	BSc 4years	Provisiona l eligible	Certificate from AIU required for Equivalence
15.	GUll MOHAMMAD AHMADI	M.Tech.	BSc	Not Eligible	UG(BSc (CS)) is not in relevant Subject and is of 3 years
16.	Hakima Merzayee	M.Tech. CST	BSc(4 Years)	Provisiona lly Eligible	Equivalence certificate is required for UG Course.
17.	Irshadullah Mohammadi	M.Sc. Information Technology	BSc	--	DMCs of UG course is not attached. It is not clear whether UG degree is 3 years or 4 years.
18.	Karimullah Esmaty	Post-Graduation Engineering CST	BTech	Eligible	
19.	MAHMOOD KHORRAMI	M.Sc. Computer Science	BCS (4 Years)	Provisiona lly	Equivalence certificate is required for UG Course.

				Eligible	
20.	Maiwand Atal	M.Sc. Cyber Security	BCS (4 Years)	Provisionally Eligible	Equivalence certificate is required for UG Course.
21.	Mehrullah Mehr	M.Tech.	4 Years UG	Provisionally Eligible	Equivalence certificate is required for UG Course.
22.	Mohammad Anwar Osmani,	MSc. Computer Science	BSc (4 Years)	Provisionally Eligible	Equivalence certificate is required for UG Course.
23.	MOHAMMAD ARIF Hakimi	M.Tech. Structure Engg.	BS (4 Years)	Not Eligible	UG in not relevant Subject
24.	Mohammad Farid Qanet	M.Tech. Cyber Security	4 Years UG	Provisionally Eligible	Equivalence certificate is required for UG Course.
25.	MOHAMMAD YAHYA FARDIN	Master Computer Applications	BS (4 Years)	Provisionally Eligible	Equivalence certificate is required for UG Course.
26.	Mohammed Ghaleb Mohammed Almusharref	Ph.D. Computer Science	UG: 4 years BSc PG: MSc	Not Eligible	MTech/ME required for admission in Ph.D.
27.	Nisar Ahmad Ahmadi	M.Tech.	B.Tech	Eligible	B.Tech from India
28.	Noor Ahmad Ahadi	M.Tech. Data Science	BSc (3+1 Years)	Provisional Eligible	Certificate from AIU required for Equivalence Degree Certificate required.
29.	Noorullah Nooran,	M.Tech Cyber security	BSc (4 Years)	Provisionally Eligible	Equivalence certificate is required for UG Course.
30.	Raz Mohammad Sahar	M.Tech.	B.Tech	Eligible	B.Tech from India

Department of Computer Science & Technology

31.	Samuel Molalegn Chekol	M.Tech.	BSc (5 Years)	Not Eligible	UG degree in mechanical engineering
32.	Sayed Jawad Mosavi	M.Tech.	BSc (4 Years)	Provisionally Eligible	Equivalence certificate is required for UG Course.
33.	Shah Wali Shaheen	PG- Computer Sci.	BCS (4 Year)	Provisionally Eligible	Equivalence certificate is required for UG Course. Applied Course is not mentioned
34.	Shamsullah Azizi	M.Sc. Computer Science	B.Sc. 3 year	Not eligible	Course not offered, UG is of 3 Years
35.	Shuaib Ullah Sakhizada	Master of Computer Application	BCA 3 year	Not eligible	Course not offered, UG is of 3 Years
36.	WALEED RASOULY	M.Tech. CST			UG Mark sheet Not readable
37.	Yosef Hailemariam Ambaye	M.Tech.	B.Sc.	Not Eligible	B.Sc in Chemical Engineering
38.	Ziaurahman Zia	M.Tech.	BCS (4 Year) (Data bases and information)	Provisionally Eligible	Equivalence certificate is required for UG Course. Applied Course is not mentioned

The eligibility is checked for the courses (MTech in CST and M.Tech in CST(CBS)) offered by department of Computer Science & Technology.

Email consent attached

16/6/2024

Email Consent Attached

(Prof. Amandeep Kaur) Professor, CST	(Dr. Satwinder Singh) Associate Professor, CST	(Er. Surinder Singh Khurana) Assistant Professor, CST	(Dr. Parvinder Singh) Assistant Professor, CST

Copy to:

1. Members of AAC (through email)
2. IQAC Cell

Ref. No.: CUPB/HOD/CST/2021/176 **Date:** 23/07/2021

Subject: Minutes of faculty meetings held(online) on 22.07.2021 at 02:00 PM

An Academic and Administrative Committee meeting of Department of Computer Science & Technology was held(online) **on 22.07.2021 at 02:00 PM**. The following faculty members were present in the meeting:

i. Prof. Amandeep Kaur, Professor ~~(Online)~~ offline
ii. Dr. Satwinder Singh, Associate Professor
iii. Er. Surinder Singh Khurana, Assistant Professor
iv. Dr. Parvinder Singh, Assistant Professor
v. Er. Anam Bansal

During the discussions, the following points emerged:

1. Date sheet for practical Examination and End Semester Examination is finalized and attached as annexure-I and annexure-II.
2. It is decided to purchase following items/services:-

S.No.	Items	Tentative Budget Allocation
a.	IOT boards and sensors (Dr Amandeep Kaur will pursue the case)	200000/-
b.	Repair of online UPS (Er. Surinder Singh will pursue the case)	20000/-
c.	Flex Board Printing and Photo Frames	10000/-
d.	Stationery Items (Dr. Satwinder Singh will pursue the case)	20000/-
e.	Curtains for Two labs (Er. Anam Bansal, will pursue the case)	8000/-
f.	Cloud Services Subscription	50000/-
g.	Digital Pen Tablet	10000/-

Anam Bansal

3. It is decided to engage the students admitted through CCMT immediately after their admission.

4. ATAL FDP on "Quantum Information & Application" has been approved by AICTE. The schedule of the same is attached as annexure-3

(Prof. Amandeep Kaur) Professor, CST	(Dr. Satwinder Singh) Associate Professor, CST	(Er. Surinder Singh Khurana) Assistant Professor, CST	(Dr. Parvinder Singh) Assistant Professor, CST	(Er. Anam Bansal) Assistant Professor, CST

Copy to:

1. Members of AAC (through email)
2. IQAC Cell

Annexure – I

Exam Schedule for End Semester Practical Exam
Department of Computer Science & Technology (CST)
Session: April 2021– August 2021

Course-Semester	CST-2nd Sem	
Day/Date	**Code**	**Subject**
Monday 26-07-2021 **Timings: 10.00 AM to 01.00 PM**	CBS.534	Big Data Analytics and Visualization-Lab
Monday 26-07-2021 **Timings: 10.00 AM to 01.00 PM**	CST.533	Computer Vision-Lab
Tuesday 27-07-2021 **Timings: 10.00 AM to 01.00 PM**	CST.528	Python Programming for Data Science – Lab
Wednesday 28-07-2021 **Timings: 10.00 AM to 01.00 PM**	CST.527	Soft Computing-Lab
Thursday 29-07-2021 **Timings: 10.00 AM to 01.00 PM**	CBS.535	Digital Forensics-Lab

Dr. Parvinder Singh
AP, CST

Dr. Satwinder Singh
HOD, CST

Annexure I

Annexure – I

Exam Schedule for End Semester Practical Exam
Department of Computer Science & Technology (Cyber Security)
Session: April 2021– August 2021

Course-Semester	CBS-2nd Sem	
Day/Date	**Code**	**Subject**
Monday 26-07-2021 **Timings: 10.00 AM to 01.00 PM**	CBS.534	Big Data Analytics and Visualization-Lab
Tuesday 27-07-2021 **Timings: 10.00 AM to 01.00 PM**	CBS.529	Python Programming for Security Professionals –Lab
Wednesday 28-07-2021 **Timings: 10.00 AM to 01.00 PM**	CBS.527	Soft Computing-Lab
Thursday 29-07-2021 **Timings: 10.00 AM to 01.00 PM**	CBS.535	Digital Forensics-Lab
Thursday 29-07-2021 **Timings: 10.00 AM to 01.00 PM**	CBS.538	Quantum Cryptography-Lab

Dr. Parvinder Singh
AP, CST

Dr. Satwinder Singh
HOD, CST

Annexure – I
2/16

Annexure - II

Date Sheet for End-Semester Exam
Department of Computer Science & Technology
Session: April-August 2021

Course-Semester	CST- 2nd Sem		CBS-2nd Sem		Invigilator
Day/Date	**Code**	**Subject**	**Code**	**Subject**	
Monday 09-08-2021	Inter Disciplinary Course (IDC)		Inter Disciplinary Course (IDC)		By Subject Expert
Wednesday 11-08-2021 **Timings: 10.00 AM to 11.00 AM**	CST-521	Advance Algorithm	CST-521	Advance Algorithm	Dr.Parvinder Singh
Thursday 12-08-2021 **Timings: 10.00 AM to 11.00 AM**	CST-526	Python Programming for Data Sciences	CST-528	Python Programming for Security Professionals	Dr. Satwinder Singh/ Er. Surinder Singh Khurana
Saturday 14-08-2021 **Timings: 10.00 AM to 11.00 AM**	CBS-524	Big Data Analysis and Visualization	CBS-524	Big Data Analysis and Visualization	Dr. Satwinder Singh
	CST-523	Computer Vision	-	-	Dr. Amandeep Kaur
Monday 16-08-2021 **Timings: 10.00 AM to 11.00 AM**	CST-522	Soft Computing	CBS-522	Soft Computing	Dr. Amandeep Kaur/ Er. Parneet Kaur
Wednesday 18-08-2021 **Timings: 10.00 AM to 11.00 AM**	CBS-527	Digital Forensics	CBS-527	Digital Forensics	Er. Surinder Singh Khurana
	-	-	CBS-530	Quantum Cryptography	Dr.Parvinder Singh

Dr. Parvinder Singh
AP, CST

Dr. Satwinder Singh
HOD, CST

Annexure - II

Annexure - 3 214

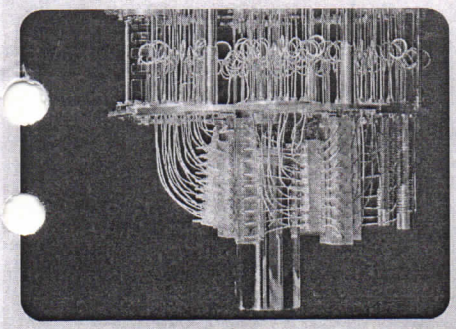
Patron
Prof. R. P Tiwari
(Vice Chancellor, CUPB)

Convenor
Dr. Amandeep Kaur
(Dean , SET)

Co-convenor
Dr. Satwinder Singh
(HOD, Dept of CST)

Coordinator
Dr. Parvinder Singh
(Asst Prof, Dept of CST)

Co-coordinator
Er. Surinder Singh Khurana
(Asst Prof, Dept of CST)



About us

The Central University of Punjab, Bathinda (CUPB) was established in 2009 along with other new Central Universities by an Act of Parliament (No 25, of 2009). The University is now accredited with 'A' grade from NAAC. It is credited with highest per capita research funding. The university has a mission of providing a wide range of instructional and research facilities across integrated and cross-disciplines, promote innovation in teaching, learning and research, and cross-pollinate new ideas, new technologies and new world-views. The University is also among the top 100 universities according to the National Institutional Ranking Framework (NIRF) and got 87th rank in NIRF-2020.

The department of Computer Science and Technology was established in 2011 under the School of Engineering and Technology. The aim of the department is to build a strong Research and Teaching environment for Computer Science and Technology discipline. The department has well equipped laboratories for academics and research with high-end servers, workstations and computer systems.



Five Days AICTE-ATAL Sponsored Faculty Development Programme

On

"Quantum Information Processing & Applications"

From 23-08-2021 to 27-08-2021

Organized by

Central University of Punjab, Bathinda

VPO-Ghudda, Bathinda

Punjab, India- 151401

About Programme

Quantum information processing has emerged as an interdisciplinary research area at the interface of diverse academic disciplines such as computer science and technology, mathematics and physics. It deals with the study of computational and information processing tasks using the fundamental laws of quantum mechanics to discover many interesting and exciting capabilities for manipulation, communication and transmission of information. Apart from being central to the fundamentals of quantum mechanics and quantum entanglement is used as an efficient resource for quantum information processing protocols such as dense coding, teleportation, secret sharing, entanglement swapping, and cryptography. Quantum Computing is an emerging technology that will rewrite the future computing and communication with this it will be the hottest sector for research and job professionals.

Programme Objectives

The Programme will provide a forum for participants to exchange ideas on the state of art research and latest developments in the Quantum Information Processing. It also introduce basic knowledge and fundamental concepts for Quantum Information processing and Quantum Computing. In programme, Hands on Training using Computational Tools in Quantum Computing will provide, that helps to develop necessory skills required to simulate the Quantum information processing protocols. The programme will also help to identify future research needs in the interdisciplinary research fields. The research scholars will also get wider exposure and interaction opportunities with industrial experts and eminent academicians in the field of Quantum Computing.

Programme Content

This workshop will provide basic concepts, terminology and hands on training in the quantum information processing, computing and related fields.

- Basic introduction of quantum mechanics.
- Introduction to Quantum Information and Computation.
- Hand-on training on Linear Algebra and Hilbert Space.
- Quantum Correlation Entanglement and Non-Locality.
- Quantum Information Processing Applications.
- Quantum Cryptography.
- Practical Training on Quantum Simulator Qiskit.
- Game theoretic perspective of Quantum Information Processing.
- Quantum Cryptography Practical Approach.
- Realization of Quantum Gates and Circuits.

Who can attend

The program is open to all faculty members and Research Scholars of AICTE/UGC affiliated institutes/ Universities. Maximum 200 participants are allowed to attend the programme.

Registration

Instructor of Course

Eminent personalities with rich experience and standing in their respective domain from reputed Institutions like IIT/ NITTTR/CSIR/ and Central University are resource persons in this programme.

Tentative Keynote Speakers

1. Prof. Arvind
2. Prof. Archan S Majumdar
3. Prof. Anirban Pathak
4. Dr. Ramandeep Singh Johal
5. Prof. Amandeep Kaur
6. Dr. Satyabrata Adhikari
7. Dr. Bibhas Adhikari
8. Dr. Atul Kumar
9. Dr. Ashok Kumar
10. Dr. Navneet Sharma
11. Dr. Parvinder Singh (Coordinator)
12. Dr. Hargeet Kaur
13. Dr. Mandeep Kaur (MD)

Contact Persons

Dr. Parvinder Singh
Assistant Professor
Dept. of Computer Science & Technology
Central University of Punjab, Bathinda-151001
Email: parvinder.singh@cup.edu.in
Ph. 9461495133

Ref. No.: CUPB/HOD/CST/2021/194 Date: 12/08/2021

Subject: Minutes of faculty meetings held(online) on 05.08.2021 at 03:00 PM

An Academic and Administrative Committee meeting of Department of Computer Science & Technology was held(online) **on 05.08.2021 at 03:00 PM**. The following faculty members were present in the meeting:

i. Prof. Amandeep Kaur, Professor (Online)
ii. Dr. Satwinder Singh, Associate Professor
iii. Er. Surinder Singh Khurana, Assistant Professor
iv. Dr. Parvinder Singh, Assistant Professor
v. Er. Anam Bansal

During the discussions, the following points emerged:

1. For building academic-industrial relations Department of CST and Advanced Tech India Pvt LTD have agreed to go for an academic alliance. A draft has been prepared and attached herewith (Annexure-1). It is coordinated by Dr. Parvinder Singh. It is decided to send the draft to IQAC for vetting.

2. Subject's allocation for the coming semester has been done and attached as (Annexure-1).

M.TECH COMPUTER SCIENCE AND TECHNOLOGY		
Course Code	**Course Title**	**Course Coordinator**
CST.506	Advanced Data Structures	Er. Anam Bansal
CST.507	Mathematical Foundation of Computer Science	Dr. Satwinder Singh
CST.526	Python programming for Data Sciences	Dr. Satwinder Singh
CST.512	Information Security	Dr. Parvinder Singh
CST.606	Research Methodology and IPR	Dr. Amandeep Kaur
CST.515	Advanced Data Structures – Lab	Er. Anam Bansal
CST.528	Python Programming for Data Science Lab	Dr. Satwinder Singh
CST.519	Information Security Lab	Dr. Parvinder Singh
CST.553	Intelligent System	Dr. Amandeep Kaur
CST.557	Software Matrices	Er. Anam Bansal
CBS.504	Report Writing using LaTeX	Dr. Parvinder Singh
CST.559	Capstone Lab	Dr. Amandeep Kaur/ Dr. Satwinder Singh/ Er. Surinder Singh Khurana/ Dr. Parvinder Singh/Er. Anam Bansal
CBS.600	Dissertation	Dr. Amandeep Kaur/ Dr. Satwinder Singh/ Er. Surinder Singh Khurana/ Dr. Parvinder Singh

M.TECH COMPUTER SCIENCE AND TECHNOLOGY (Cyber Security)		
Course Code	**Course Title**	**Course Coordinator**
CBS.512	Advanced Data Structures and Algorithms	Er. Anam Bansal
CBS.513	Mathematical and statistical Foundation of Computer Science	Dr. Satwinder Singh
CBS.508	Data Encryption & Network Security	Dr. Parvinder Singh
CBS.528	Python Programming for Security Professionals	Er. Surinder Singh Khurana
CBS.506	Ethical Hacking	Er. Surinder Singh Khurana
CBS.606	Research Methodology and IPR	Dr. Amandeep Kaur
CBS.515	Advanced Data Structures and Algorithms – Lab	Er. Anam Bansal
CBS.529	Python Programming for Data Science Lab	Er. Surinder Singh Khurana
CBS.520	Data Encryption & Network Security-Lab	Dr. Parvinder Singh
CBS.510	Ethical Hacking-Lab	Er. Surinder Singh Khurana
CST.553	Intelligent System	Dr. Amandeep Kaur
CST.557	Software Matrices	Er. Anam Bansal
CBS.504	Report Writing using LaTeX	Dr. Parvinder Singh
CBS.559	Capstone Lab	Dr. Amandeep Kaur/ Dr. Satwinder Singh/ Er. Surinder Singh Khurana/ Dr. Parvinder Singh
CBS.600	Dissertation	Dr. Amandeep Kaur/ Dr. Satwinder Singh/ Er. Surinder Singh Khurana/ Dr. Parvinder Singh

3. It is decided to purchase two licenses (for 1 year) of software entitled "style editor" for proof reading and text processing from recurring budged of the department. Dr. Amandeep Kaur will pursue the case.

4. It is also decided to purchase perpetual license of NVIVO – tool for qualitative text analysis from the recurring budget of the department. Dr. Satwinder Singh will pursue the case.

5. Datesheet of PhD course work has been prepared and attached herewith as annexure-3.

6. A committee has been constituted for smooth organization of AICTE ATAL FDP and the same is attached herewith as annexure-3.

(Prof. Amandeep Kaur) Professor, CST	(Dr. Satwinder Singh) Associate Professor, CST	(Er. Surinder Singh Khurana) Assistant Professor, CST	(Dr. Parvinder Singh) Assistant Professor, CST	(Er. Anam Bansal) Assistant Professor, CST

Copy to :-

1. IQAC 12/8/21
2. AAC Members (through email)

Annexure-I

Academic Alliance

BETWEEN

Department of Computer Science and Technology

School of Engineering and Technology

Central University of Punjab Bathinda (India)

AND

ADVANCE TECH INDIA Pvt Ltd.,

Sco -8 , Ajit Enclave , Zirakpur – Kalka Highway

Near City Palace ,Dhakoli, Zirakpur Distt- S.A.S Nagar, Punjab-140603BRANCH OFFICE

SCO-61, Top Floor, Near Gurdwara, Sector-20 C, Chandigarh-160020

This Academic Alliance (AA) made on **August, 2021**, by and between **Central University of Punjab Bathinda** and **ADVANCETECH INDIA PVT LTD,** each a "party" and collectively the parties. The provisions of this Academic Alliance shall apply to working of R & D Project Proposals, technical support in setting up labs and resource centers, placement, industrial training and in implementing live projects by PG and PhD students, other fruitful interaction awarded in conjunction with **ADVANCETECH INDIA PVT LTD, CENTRAL UNIVERSITY OF PUNJAB., BATHINDA** collectively.

ABOUT THE INSTITUTE (First Party)

The Central University of Punjab, Bathinda (CUPB) was established in 2009 along with other new Central Universities by an Act of Parliament (No 25, of 2009). The University is now accredited with 'A' grade from NAAC. It is credited with highest per capita research funding. The university has a mission of providing wide range of instructional and research facilities across integrated and cross-disciplines, promote innovation in teaching, learning and research, and cross-pollinate new ideas, new technologies and new world-views. The University is also under top 100 universities according to National Institutional Ranking Framework (NIRF) and got 95th rank in NIRF-2019 and 87th rank in NIRF-2020. The campus of the university is environment friendly, high-tech with modern facilities and ICT enabled learning resources according to the requirements of the curriculum and norms of statutory/regulatory bodies. The university campus is designed according to its vision and strategic

plan. The university has adequate state-of-the-art infrastructure facilities for teaching and learning.

ABOUT THE DEPARTMENT

The department of Computer Science and Technology was established in 2011 under the School of Engineering and Technology. The aim of the department is to build a strong Research and Teaching environment for Computer Science and Technology discipline. The department has well equipped laboratories for academics and research with high-end server, workstations and computer systems.

ABOUT ADVANCE TECH INDIA PVT. LTD. (Second Party)

A leading Chandigarh based an ISO 9001:2008 Certified Company established in 2013, company having three different verticals, offering complete range of solutions. Company offer various solutions under industrial automation using PLC and customized electronics related products design etc. It offer various sensor based data loggers, like ph, humidity, soil, energy etc. Company have wide range of data display and good facility for AGRI, Biomedical and defense based projects. Advance Tech India Pvt. Ltd. also offer special design facilities for DRDO & CSIR and other premier research labs as well as industries. Company also provides new tools for Building automation, ICT products for smart education, Automation in defense and biomedical, precision agriculture and environmental solutions.

ARTICLE-I: SCOPE OF THE PROJECT

This Project details the modalities and general conditions regarding collaboration between **Central University of Punjab Bathinda** and **Advance Tech India Pvt. Ltd.** for enhancing, within the country, the availability of highly qualified manpower in the areas of **Computer Science and Technology**. The areas of cooperation can be extended through mutual consent.

ARTICLE-II: SCOPE AND TERMS OF INTERACTIONS

Both **Central University of Punjab Bathinda and Advance Tech India Pvt. Ltd.** shall encourage interactions between the Engineers, Scientists, Research fellows, faculty members and students in the area of respective research and prototype modeling:

a. Exchange of personnel through deputation as per the rules of the respective institute, forlimited periods as mutually agreed upon;

b. Organization of joint conferences, seminars and workshop;

c. Practical training of **Central University of Punjab Bathinda** students at **Advance Tech India Pvt. Ltd** –internship/final year projects etc.

Aman Bansal

d. Joint guidance of student projects/thesis in **Precision Agriculture, Internet of things related, embedded system, AI** and other areas of national interest at **Central University of Punjab Bathinda** by **Advance Tech India Pvt. Ltd** on mutually agreeable terms;

e. **Advance Tech India Pvt. Ltd** would accommodate M. Tech./PhD students as a partof industrial training.

f. **Advance Tech India Pvt. Ltd** may depute its personnel for research and innovation;

g. **Advance Tech India Pvt. Ltd** personnel, as well as research scholars, may also be allowed toenroll for their Ph.D./M.Tech. at **Central University of Punjab Bathinda** , subject to availability of seats, research facilities and subject to their fulfilling eligibility criteria and all other academic regulations of **Central University of Punjab Bathinda** .

h. **Advance Tech India Pvt. Ltd** may seek assistance/guidance of **Central University of Punjab Bathinda faculty** member/s in product/process modification, modernization, trouble shooting, etc in the area of computer science and technology.

i. Would allow the industrial visits of students for half/full day to provide them with an exposure to various equipment, instrument, etc.

j. **Advance Tech India Pvt. Ltd** may showcase its business activities at the seminar/workshop/conference, etc. at **Central University of Punjab Bathinda .**

k. **Advance Tech India Pvt. Ltd** may organize on campus or off campus placement drives for the M.Tech. students of **Central University of Punjab Bathinda .**

l. **Advance Tech India Pvt. Ltd** may avail library, Internet, computational facilities at **Central University of Punjab Bathinda** as per the university norms.

m. Post-graduate student will be allotted a research supervisor from Central University of Punjab Bathinda faculty members. A Research Scientist/Engineer at **Advance Tech India Pvt. Ltd** may be appointeda Co-research guide as per the rules of the university for a student Registered for Ph.D/M.Tech (Regular or Research) degree at **Central University of Punjab Bathinda** .

n. The students will carry out part of their Ph.D. research work or M.Tech. project at **Central University of Punjab Bathinda** and **Advance Tech India Pvt. Ltd** depending on the nature of the work as per rules of the respective organization depending on facilities and requirements.

o. There will be no restriction on the contents of the thesis and on publication of results of the thesis, subject to the condition that no Intellectual Property Rights can be secured for any part of the work which will be decided with mutual consent.

p. Both **Central University of Punjab Bathinda** and **Advance Tech India Pvt. Ltd** will be free to independently carry out follow-up research on the thesis work conducted

under this scheme.

q. If the outcome of a project related to product development, process technology and designetc. which involves matter of secrecy and concern with security of the State and the Country, the same will not be allowed for publication/printing in any form such as Electronically/verbal, etc. If the outcome of a project results into an intellectual property, for which rights can be secured, it will be decided on case to case basis.

r. Research supervisors from both the Organizations will be the corresponding authors in any publication resulting from the collaborative work. All the efforts put by the student/s as a part of this Project will be accounted for by way of reporting the work in thesis and/or paper publication except the part for which IPR needs be claimed.

s. Neither of the supervisors will publish the work carried out under this Project without knowledge of the other.

t. In any of the activities mentioned above, wherever financial aspects are involved, aAcademic Alliance nt, payment conditions, etc. would be spelt out clearly before starting the activity.

ARTICLE-III: CO-ORDINATION OF THE PROGRAMME INCLUDING FINANCIAL ARRANGEMENTS

a. The collaborative programme between **Central University of Punjab Bathinda** and **Advance Tech India Pvt. Ltd** shall be coordinated by a **Central University of Punjab Bathinda & Advance Tech India Pvt. Ltd**.

b. In any of the activities, wherever financial aspects are involved, aAcademic Alliance nt, payment conditions, etc. would be spelt out clearly before starting the activity **according to the finance rules of Central University of Punjab.**

ARTICLE-IV: Intellectual Property Rights (IPR)

- Rights regarding publications, patents, royalty, ownership of software/design/product developed etc. under the scope of this Academic Alliance , shall be decided by the two parties by mutual consent.
- The expenditure connected with securing and maintaining the Intellectual Property Rights shall be shared between the organizations in proportions mutually decided by them, on case tocase basis, based on their respective intellectual, material and financial contributions.

Anam Bawa

ARTICLE-V: Term and Termination

This agreement will be effective for a period of three years from the date it is signed by both parties. The agreement can be renewed for additional five (5) years periods by mutual consent of the parties tothe agreement. Either party to this agreement can terminate it by giving six months' notice. This agreement supersedes all previous agreements executed between Advance Tech India Pvt. Ltd and Central University of Punjab, Bathinda.

ARTICLE-VI: Liability

The financial liability arising from the activities on either of the parties shall be limited to the total charges decided upon for the use of respective facilities and manpower costs, if any. However, any damage to equipment or facilities of one party brought about by negligence or intentional misuse by the personnel of the other party will be chargeable at actual; required for repairing/replacing the equipment/facility. The decision of heads of the respective institutions shall be final and binding on this matter and any related disputes thereof.

ARTICLE-VII: Coordination and Follow-up

Any additions, changes, or deletions must be approved by the authorities of both the organizations who are signatories to this agreement or their respective successors. All notices shall be in writing andshall be directed to these authorities as follows by the signatories of this **Academic Alliance** .

ARTICLE-VIII: Indemnification

Each Party will indemnify the other from any claims arising out of injuries of personnel of one partyat the premises of the other.

ARTICLE-IX: Arbitration

In case of any dispute arising out of this **Academic Alliance** , the heads of the institutions shall endeavor to resolve such controversy or dispute by mutual discussions and in good faith.

IN WITNESS WHEREOF, the parties have executed this Project by their duly authorized representatives on the date first set forth above.

For and on behalf of **Central University of Punjab Bathinda**

Dr. Amandeep Kaur
Professor & Dean (SET),
Department of Computer Science and Technology.
Central University of Punjab Bathinda

Witness

Dr. Anjana Munshi
Professor & Dean (Research)
Department of Human Genetics and Molecular Medicine,
Central University of Punjab Bathinda

Dr. Satwinder Singh
HoD(CST),
Department of Computer Science and Technology.
Central University of Punjab Bathinda

For and on behalf of **Advance Tech India Pvt.Ltd.**

Name: **Arvind Dixit**
Designation: Director & CEO
Advance Tech India Pvt. Ltd.

Annexure – 2

Exam Schedule for PhD Course Work End Semester Theory & Practical Exam
Department of Computer Science & Technology
Session: 2020–2021

Course-Semester	CST		Faculty Name
Day/Date	**Code**	**Subject**	
Monday 06-09-2021 **Timings: 10.00 AM to 01.00 PM**	CST.701	Research Methodology	Dr. Amandeep Kaur & Dr. Satwinder Singh
Tuesday 7-09-2021 **Timings: 10.00 AM to 01.00 PM**	CST.702	Research Methodology Lab	Dr. Amandeep Kaur & Dr. Satwinder Singh
Wednesday 8-09-2021 **Timings: 10.00 AM to 01.00 PM**	CST.751	Research And Publication Ethics(RPE)	Dr. Amandeep Kaur
Monday 13-09-2021 **Timings: 10.00 AM to 01.00 PM**	CST.703	Advanced Image Processing	Dr. Amandeep Kaur
	CBS.524	Big Data Analysis & Visualization	Dr. Satwinder Singh
Tuesday 14-09-2021 **Timings: 10.00 AM to 01.00 PM**	CST.705	Advanced Image Processing Lab	Dr. Amandeep Kaur
	CBS.534	Big Data Analysis & Visualization Lab	Dr. Satwinder Singh

Dr. Parvinder Singh
AP, CST

9/8/21
Dr. Satwinder Singh
HOD, CST

Annexure -3

Department of Computer Science and Technology

Five Days AICTE Sponsored
ATAL-Faculty development Program
On
Quantum Information Processing & Applications
23 August 2021 - 27 August 2021

Department of Computer Science and Technology
Central University of Punjab

Core Committee

Convenor :- Prof. (Dr.) Amandeep Kaur
Co-Convenor:- Dr. Satwinder Singh
Coordinator:- Dr. Parvinder Singh
Co-Coordinator:- Er. Surinder Singh Khurana
Student-Coordinator: Vivek Sharan

Ref. No.: CUPB/HOD/CST/2021/210 Date: 30/08/2021

Subject: Minutes of faculty meetings held on 06.08.2021 at 03:00PM.

A meeting of Curriculum Development Committee of Department of Computer Science & Technology was held in the office of the HoD, **on 06.08.2021 at 03:00PM**. The following faculty members were present in the meeting:

i. Prof. Amandeep Kaur, Professor
ii. Dr. Satwinder Singh, Associate Professor
iii. Er. Surinder Singh Khurana, Assistant Professor
iv. Dr. Parvinder Singh, Assistant Professor

During the discussions, the following points emerged:

1) As per the directions of Dean In-charge Academics, the syllabus of certificate course in Deep Neural Network has been revised. The same is attached herewith as annexure-1. The name of the course is also changed to Post Graduate certificate course in Deep Neural Networks.
2) As per the directions of Dean In-charge Academics, the syllabus of PG diploma in Data Sciences for Bio-informatics has been revised. The same is attached herewith as annexure-2.

(Prof. Amandeep Kaur)	(Dr. Satwinder Singh)	(Er. Surinder Singh Khurana)	(Dr. Parvinder Singh)
Professor, CST	Associate Professor, CST	AP, CST	AP, CST

Copy to:

1. Members of CDC (through email)
2. IQAC Cell Annexure 2/9/21
3. DIA - cc 3/9/21
4. ACADEMIC SECTION - Copy 1/9/21

CENTRAL UNIVERSITY OF PUNJAB, BATHINDA

PG Diploma in Data Science for Bioinformatics

Session - 2021-22

Department of Computer Science & Technology

Proposed Course Curriculum
PG Diploma in Data Science for Bioinformatics

Course Description: The Course provides a broad and practical overview of selected techniques and concepts in rapidly developing areas such as Computational Biology, systems biology, network biology, synthetic biology, data analytics, predictive modelling, machine learning, and machine intelligence. Topics relevant for the student and faculty of computer fratenity, working biologists, computational scientists, and applied investigator (Biotechnology and engineering).

Objective of Programme

The programme provides a broad and practical overview of available techniques and concepts in the area of computational bioscience and machine learning. The aims of the diploma course are:

1. To support the development of Data Sciences field in Life Science and Computer Engineering students. This will be for students either coming from a bioscience or computer science background.
2. To support the analysis of complex biological systems at difference scales, ranging from molecules, cells, organs, to organisms.
3. To acquire a working knowledge on which techniques from machine learning, network theory, modelling, and statistics are useful and how to apply them in the analysis of biological systems.
4. To advance from data to information about significant correlated features hidden in the data and advancing to insights into biological mechanisms.
5. To provide the student with a comprehensive conceptual and in part practical overview of this inter-disciplinary area. Yet programme will include practical computer exercises, in order to ground the lectures in hands-on knowledge.
6. To emphasize the computational technique in life sciences. Computational techniques are necessary, not yet sufficient, to understand and analyse data produced from living systems.

Relevance of the Course:

The course is relevant for the researchers in life-science in academia or industry, and data-scientists developing new analytic techniques in research or industry. Upon the completion of the course the student can readily advance to further studies in selected sub-areas. Alternatively, the student develops the background and ability to collaborate and identify the relevant specialists in the appropriate sub-area.

Pre-Requisite:

Knowledge and skills corresponding to basic Mathematics and Statistics.

Eligibility: Minimum qualification as UG Courses in Life Sciences/Pharmacy, B.E./B.Tech(Computer Science & Technology, Information Technology, Bio-Technology)/BCA/B.Sc(Information Technology, Computer Science).

Duration of Program: 1 Year (2 Semester)

No. of seats: 30

Semester -I				
Course Code	Course Name	Type	Credit	Credit hours
BAI-701	Statistics in Data Sciences	Core/Theory	2	2
BAI-702	Omics in Health Informatics	Core/Theory	3	3
BAI-703	Artificial Neural Network	Theory	3	3
BAI-704	Python Programming for ANN -Lab	Practical	2	4
BAI-741	Seminar	Practical	2	4
BAI-798	Project	Practical	8	16
	Total		**20**	**32**

Semester -II				
Course Code	Course Name	Type	Credit	Credit hours
BAI-751	Machine Learning for Data Science	Theory	4	4
BAI-752 BAI-753 BAI-75X	**Elective-I(Any One)** 1.Biological Intelligence 2.Neuronal Networking 3.Any other Equivalent from Health science School as Elective	Theory	4	4
BAI-760	Machine Learning for Data Science Lab	Practical	2	4
BAI-742	Seminar	Practical	2	4
BAI-799	Project	Practical	8	12
	Total		**20**	**28**

Semester- I

L	T	P	Cr
2	0	0	2

Course Code: BAI-701 **Hours: 30**
Course Title: Statistics in Data Science

Course Outcomes

1. Able to perform inferential statistics for the data analysis of biological data.
2. Learn about the computer skills for biological data management; Able to learn statistics software for graphical presentation.
3. Students will able to implement the statistical techniques over biological data.

UNIT I **15 Hours**

Overview of Statistics: Types of Studies, Levels of Measurements, Presentation of Data: Frequency tables and diagrams, Descriptive statistics: Measures of central tendency and dispersal, Kurtosis and Skewness, Error Bars, Moments, Normality Tests and Outliers

UNIT II **15 Hours**

Inferential Statistics-I: t-Distribution and tests of significance based on t-distribution, F-distribution and tests of significance based on F distribution, $\chi 2$ Distribution and tests of significance based on $\chi 2$ distribution, Comparing Proportions, Gaussian, Binomial, Lognormal and Poisson Distributions, Pearson's Correlation, Simple Linear Regression, Non-Linear Regression, Nonparametric tests, One-way and two-way analysis of variance (ANOVA)
Inferential Statistics-II: Standard errors of regression coefficients, Comparing two regression lines, Pearson Product-Moment Correlation Coefficient, Spearman Rank Correlation Coefficient, Power and sampling size in correlation and regression.

Transactional Modes:

- Lecture cum Demonstration
- Peer Learning/Teaching
- E-tutorial
- Self-Learning

Text Books:

1. Motulsky, Harvey. *Intuitive biostatistics: a nonmathematical guide to statistical thinking*. Oxford University Press, USA, 2014.
2. Van Belle, Gerald, et al. *Biostatistics: a methodology for the health sciences*. Vol. 519. John Wiley & Sons, 2004.

Suggested Readings:

1. Le, Chap T., and Lynn E. Eberly. *Introductory biostatistics*. John Wiley & Sons, 2016.
2. Norman, Geoffrey R., and David L. Streiner. *Biostatistics: the bare essentials*. PMPH USA (BC Decker publishers), 2008.
3. Rohlf, F. James, and Robert R. Sokal. *Biometry: the principles and practice of statistics in biological research*. New York: Freeman publishers, 1995

L	T	P	Cr
3	0	0	3

Course Code:BAI-702 **Hours: 45**
Course Title: Artificial Neural Networks

Course Outcomes:
After completion of course, students would be able to:

1. Define and describe the concepts of artificial neural networks.
2. Use the different types of neural networks.
3. Breakdown a practical problem of neural network learning and exploitation.
4. Propose a solution to the given problem with different ANN techniques.

UNIT I **12 Hours**

Artificial Intelligence, Introduction to Artificial Neural Networks, Model of ANN, Building Blocks, Network Topology, Activation Functions and Types, Neural Network Learning Rules, Adaptation in ANN, Types of Learning in ANN.

UNIT II 13 **Hours**

Supervised Learning: McCullah Pitts Neuron, Perceptron, Adaline and Madaline Networks, Backpropagation Neural Network, Generalized Delta Learning Rule, Learning Vector Quantization, Adaptive Resonance Theory.

Feedforward neural networks —Linear responsibility X-OR problem and solution. -Analysis of pattern mapping networks summary of basic gradient search methods.

Feed back neural networks Pattern storage networks, stochastic networks and simulated annealing

UNIT III **12 Hours**

Kohonen Self Organizing Feature Maps, Associative Memory Network: Auto Associative Memory, Hetero associative Memory, Hopfield Networks: Discrete and continuous Hopfield networks, Boltzmann machine, Brain-State-In-Box Network.

UNIT IV **13 Hours**

Deep Neural Networking: Introduction to learning process of deep neural networks, Challenges in training the deep learning models, Tuning Deep Learning Models and Trends in Deep Learning.

Transactional Modes:

- Lecture cum Demonstration
- Peer Learning/Teaching
- E-tutorial
- Self-Learning

Text Book:

1. Yegnanarayana, B. Artificial Neural Networks, Prentice-Hall of India. *New Delhi* (2006)

Suggested Readings:

1. Norvig, P. and Russel S. Artificial Intelligence. *A Modern Approach*. Upper Saddle River, NJ, USA:Prentice Hall, 2002
2. Negnevitsky, Michael. *Artificial Intelligence*. Pearson Education India, 2005
3. Freeman, James A., and David M. Skapura. *Neural networks: algorithms, applications, and programming techniques*. Addison Wesley Longman Publishing Co., Inc., 1991

L	T	P	Cr
3	0	0	3

Course Code:BAI-703 **Hours: 45**
Course Title: Omics in Health Informatics

Course Outcomes
At the end of this course students will be able to

- Learn genomic sequences and knowledge about online databases of genomic sequences
- Observe the gene expression and functional interpretation of array data
- Explain the variations in genes and human diseases, phenology, comparative genomics
- Apply the alignment tools, NAR databases tools and software

Is going to be develop by Human Gentics Department

Transactional Modes:

- Lecture cum Demonstration
- Peer Learning/Teaching
- E-tutorial
- Self-Learning

Suggested Readings:

L	T	P	Cr
0	0	4	2

Course Code: BAI-704 **Hours: 45**

Course Title: Python Programming for ANN -Lab

Course Outcomes:

After completion of course, students would be able to:

- Implementation of basic operations in python.
- Implementation of lists, operations, tuples and user defined functions along with file handling in python
- Deploy the various Supervised and Un-supervised models of ANN

List of Practical (but not limited to:)

1. Variables and Variables type, Data types, Data Types Conversion, Operators
2. Python Decision making (if, el if, else, nested if),
3. Python loops (while, for, nested loops), Break and continue statements.
4. Sequence introduction, Number operations, String Operations
5. Implementation of List and operations.
6. Implementation of Tuples and its operation
7. User defined functions, Functions with parameters, Keywords and optional parameters
8. Modules, Standard Modules (Sys, Math, Time)
9. Python File handling: Read Write and Update operations
10. Implementation of Supervised ANN
11. Implementation of Un-Supervised ANN

Suggested Readings

1. Paul Gries, Jennifer Campbell, Jason Montojo, Practical Programming- An Introduction to Computer Science Using Python 3.6, Shroff Publications and Distributors, 2018
2. Guttag, John V. *Introduction to computation and programming using Python*. MIT Press, 2013.

L	T	P	Cr
0	0	4	2

Course Code:BAI-742

Course Title: Seminar **Hours: 60 Hrs**

Course outcomes

- Learn to present the latest techniques in Data Sciences and Bio-Informatics
- Working of latest tools for Data Sciences and Bio-Informatics
- Review of research in the field of Data Sciences and Bio-Informatics

Content

Student should give the seminar of half an Hour along with Seminar Report.

L	T	P	Cr
0	0	16	8

Course Code:BAI-799
Course Title: Project **Hours: 120 Hrs**

Course outcomes

- Prepare the problem in the field of Life Science/Bio-informatics/Computer Science
- Designing of the solution of problem
- Implementation and analysis of solution designed for the problem

Content

Student should prepare the solution of the designed problem and give the Viva at the end of semester.

Semester – II

Course Code	Course Name	Type	Credit	Credit hours
BAI-751	Machine Learning for Data Science	Theory	4	4
BAI-752 BAI-753 BAI-75X	**Elective-I(Any One)** 1.Biological Intelligence 2.Neuron Networking 3.Any other Equivalent from Health science School as Elective	Theory	4	4
BAI-760	Machine Learning for Data Science Lab	Practical	2	4
BAI-742	Seminar	Practical	2	4
BAI-799	Project	Practical	8	12
	Total		**20**	**28**

L	T	P	Cr
4	0	0	4

Course Code:BAI-751 **Hours: 60**

Course Title: Machine Learning for Data Sciences

Course outcomes

At the end of this course students will be able to

- Apply basic concepts of machine learning such as types of learning, bias, evaluation cross validation
- Implement the linear regression, Bayesian learning , Naïve baise classifier over the data
- Use classification techniques such as k nearest neighbour, support vector machines, linear SVM formulation, Non-linear SVM, neural networks and recurrent networks

UNIT I **15 Hours**

Introduction to Machine Learning: Basic definitions, types of learning, hypothesis space and inductive bias, evaluation, cross-validation.

Description of Data: Usage of Python Libraries for Machine learning like Pandas, Numpy, Matploytlib and Scipy

UNIT II **15 Hours**

Linear Regression: Introduction, Definition, (Linear functions and other functions), Various Types of regression models, multiple linear regression, Assumption for errors, The least square regression line

Bayesian Learning: Bayes theorem, Bayes Optimal Classifier, Naïve Bayes classifier, Gibbs algorithm, Bayesian belief networks.

UNIT III **15 Hours**

Classification Techniques: K-Nearest Neighbors, Support Vector Machines, Linear SVM formulation, Nonlinear SVM, Feature Space Kernel Function, KNN modeling, SVM modeling, Decision Trees Neural networks: Perceptron, Multilayer Neural Network, Backpropagation Algorithm, Recurrent Networks.

UNIT IV **15 Hours**

Unsupervised Learning: Hierarchical Clustering, K-means Clustering, Expectation Maximization (EM) Algorithm. Combining Multiple Classifiers: Voting, Bagging, Boosting, AdaBoost

Transactional Modes:

- Lecture cum Demonstration
- Peer Learning/Teaching
- E-tutorial
- Self-Learning

Text Book

1. Cory Lesmeister, Mastering Machine Learning with R, Packt Publishing, 3rd Edition, January 2019

2. Abhijit Ghatak, Machine Learning with R, Springer Nature Singapore Pte Ltd. 2017

Suggested Readings:

1. Kevin Murphy, Machine Learning: Probabilistic Perspective, MIT Press. August 2012

2. Sebastian Raschka and Vahid Mirjalili, Python Machine Learning, Packt Publishing, Sept 2017

3. Shai Shalev-Shwartz, Shai Ben-David, Understanding Machine Learning: From Theory to Algorithms, Cambridge University Press, 2014

4. Stephen Marsland, Machine Learning: An Algorithmic Perspective, CRC Press, 2nd Edition, 2015

5. Machine Learning Online Course: http://nptel.ac.in/courses/106105152/

L	T	P	Cr
3	0	0	3

Course Code:BAI-752
Course Title: Neuron Networking

Total Hours: 45

Learning Outcomes:
After completion of course, students would be able:

- To illustrate the identification of the Big Data problem.
- To differentiate structured data from unstructured data.

Content is prepared by Department of Pharmacology

Transactional Modes:

- Lecture cum Demonstration
- Peer Learning/Teaching
- E-tutorial
- Self-Learning

Suggested Readings:

L	T	P	Cr
0	0	4	2

Course Code:BAI-760
Course Title: Machine Learning for Data Science Lab **Hours: 60 Hrs**
Course outcomes

- Learn to clean of structured data using various operations
- Implementation of various operations for handling missing data and modeling of data
- Working with semi structured and unstructured data for prediction model building and analysis

List of Practical (But not limited to:)

1. Descriptive analysis and operations over the structured data.
2. Operations for Data Cleaning over structured data
3. Operations for Handling Missing Data for structural data
4. Modelling of Big Data for inferential information
5. Handling Semi-Structured data
6. Conversion of Semi-structured data to Structured data with No-Sql Techniques
7. Operations over Semi-structured data with MongoDB.
8. Handling Un-structured Data
9. Conversion of Un-structured data into Structured format
10. Operation over unstructured data with MongoDB

Suggested Reading:

Lab Manual

L	T	P	Cr
0	0	4	2

Course Code:BAI-742
Course Title: Seminar **Hours: 60 Hrs**

Course outcomes

- Learn to present the latest techniques in Data Sciences and Bio-Informatics
- Working of latest tools for Data Sciences and Bio-Informatics
- Review of research in the field of Data Sciences and Bio-Informatics

Content

Student should give the seminar of half an Hour along with Seminar Report.

L	T	P	Cr
0	0	4	2

Course Code:BAI-742
Course Title: Seminar **Hours: 60 Hrs**

Course outcomes

- Learn to present the latest techniques in Data Sciences and Bio-Informatics
- Working of latest tools for Data Sciences and Bio-Informatics
- Review of research in the field of Data Sciences and Bio-Informatics

Content

Student should give the seminar of half an Hour along with Seminar Report.

L	T	P	Cr
0	0	16	8

Course Code:BAI-799
Course Title: Project **Hours: 120 Hrs**

Course outcomes

- Prepare the problem in the field of Life Science/Bio-informatics/Computer Science
- Designing of the solution of problem
- Implementation and analysis of solution designed for the problem

Content

Student should prepare the solution of the designed problem and give the Viva at the end of semester.

CENTRAL UNIVERSITY OF PUNJAB
BATHINDA

Post Graduate Certificate Course in Deep Neural Networks

Session – 2021-22

Department of Computer Science & Technology

Proposed Course Curriculum
Certificate Course in Deep Neural Networks

Course Description: Deep neural networks are an emerging area and is effecting the research in mostly all disciplines. Thus there is a strong need to train our students from various departments in the area of neural networks and deep learning. The course is designed for Second year PG students and PhD research Scholars. The course will be based on case studies from various disciplines with hands on training.

The course duration will be of 6 months. The broad topics to be covered are given below.

Programme Objectives

Deep neural networks are used in most fields from Education, Law to Medical Science, Defense and other critical areas. The objective of this certificate course is to introduce the students from various disciplines to the area of Deep Neural Networks. The certificate course will help the students from various disciplines to:

1. Understand the concept of neural networks and its evolution to deep neural networks
2. Discuss major technology trends driving Deep Learning
3. Be able to build, train and apply deep neural networks to their area specific problems
4. Recognize the key parameters in a neural network's architecture that effect the results

Desirable: Basic programming skill

Eligibility: Any UG Program in Science or Humanities with minimum 50% marks.

Duration: 06 months

Number of Seats: 30

The certificate course comprises of two papers with project work:

S.No	Course Name	Type	Hours	Credits
1.	Artificial Neural Networks	Theory	4	4
		Practical	4	2
2.	Deep Neural Networks	Theory	4	4

		Practical	**4**	2
3.	Capstone Project	**Practical**	**16**	8

Course Code:

Course Title: Artificial Neural Networks

L	T	P	Cr
4	0	4	6

Learning Outcomes

After completion of the course the students will be able to

- Describe Artificial Intelligence and Machine Learning
- Explain the architecture and characteristics of Artificial Neural Networks
- Discuss the different types of neural network training algorithms
- Build simple neural network models using open source tools

Unit I: Introduction to Artificial Intelligence and Machine learning and their role in emerging areas. 10 Hrs

Unit II: Fundamentals of Artificial Neural Networks (ANN): Definition, Introduction to the ANN Architecture, Characteristics of neural networks, Example uses of ANN. 12 **Hrs**

Unit III: Neural Networks Training Algorithms: Supervised and Unsupervised Training Algorithms, Learning using Hebbian, competitive and Boltzmann method, Types of Activation Functions. **18 Hrs**

Unit IV: Building a neural network from scratch using either MatLab, Python. Introduction to open source libraries for machine learning like Tensor flow. 20 **Hrs**

Suggested Reading

1. Neil Wilkins, Artificial Intelligence: An Essential Beginner's Guide to AI, Machine Learning, Robotics, The Internet of Things, Neural Networks, Deep Learning, Reinforcement Learning and Our Future, Bravex Publications (20 July 2019)

2. Herbert Jones, Neural Networks: An Essential Beginners Guide to Artificial Neural Networks and their Role in Machine Learning and Artificial Intelligence
3. Stuart Russell and Peter Norvig, Artificial Intelligence – A Modern Approach, (3rd Edition)
4. Chandra S.S.V, Artificial Intelligence and Machine Learning, Prentice Hall India Learning Private Limited; 1st edition (1 January 2014)
5. Denis Rothman, Artificial Intelligence By Example, Packt Publishing; 1st edition (31 May 2018)

Course Code:

Course Title: Deep Neural Networks

L	T	P	Cr
4	0	4	6

Learning Outcomes

After completion of the course the students will be able to

- Discuss the Deep Neural Network Models and their types
- Apply various Deep Neural Network Training algorithms
- Describe Transfer Learning and its types
- Design Deep Neural Network model as minor project and Identify and fine tune the Deep Neural Network parameters

Unit I: Deep Neural Networks, Types of Deep Neural Network Models (RNN, CNN, LSTM, Deep Belief Network, semantic Hashing). Uses, merits and demerits of various models. Training deep neural network: Training process of deep neural networks, Challenges in training the deep learning models and frontier areas of research. 20 Hrs

Unit II: Overview of Transfer Learning: Inductive, unsupervised and Transductive 15 **Hrs**

Unit III: Building deep neural network based project 15 Hrs

Unit IV: Tuning Deep Learning Models, Trends in Deep Learning, Deep Neural Networks Case Studies **10 Hrs**

Suggested Reading

1. Seth Weidman, Deep Learning from Scratch: Building with Python from First Principles, O`Reilley.
2. David Julian, Deep Learning with PyTorch Quick Start Guide: Learn to train and deploy neural network models in Python, Packt Publishing Limited (24 December 2018)
3. Yuxi (Hayden) Liu, Hands-On Deep Learning Architectures with Python: Create deep neural networks to solve computational problems using TensorFlow and Keras, Packt Publishing Limited (30 April 2019).
4. Charu C. Aggarwal, Neural Networks and Deep Learning: A Textbook, Springer; 1st ed. 2018 edition (13 September 2018)

Ref. No.: CUPB/HOD/CST/2021/211 Date: 30/08/2021

Subject: Minutes of AAC meetings held on 30.08.2021 at 11:30 AM

An Academic and Administrative Committee meeting of Department of Computer Science & Technology was held **on 30.08.2021 at 11:30 AM in the office of HoD**. The following faculty members were present in the meeting:

i. Prof. Amandeep Kaur, Professor
ii. Dr. Satwinder Singh, Associate Professor
iii. Er. Surinder Singh Khurana, Assistant Professor
iv. Dr. Parvinder Singh, Assistant Professor

During the discussions, the following points emerged:

1. Supervisors have been allocated for dissertation work to M.Tech second year students. The allotment is follows:

Regd No.	Student Name	Supervisor
20mtcsnt17	Malik Muzamil Ishaq	Dr. Amandeep kaur
20mtcsnt01	Aabid Fayaz	
20mtcsnt18	tabasum rafiq	
20mtcsnt07	Aarif Ramzan	
20mtcysc14	MOHD ASIF	
20mtcysc18	Swati	
20mtcysc03	Anshika sharma	
20mtcysc07	Zubair Mushtaq Dar	
20mtcysc11	Seyed Muzaffar	Dr. Satwinder Singh
20mtcysc01	AMIR HUSSAIN	
20mtcysc19	Asadullah	
20mtcysc08	Md Majid Reza	
20mtcysc06	Hari Mohan Dixit	
20mtcysc04	Aquib Azhar	
20mtcsnt13	Shalini singh	
20mtcysc09	SAMAR ANSH	
20mtcysc02	Angana Das	Er. Surinder Singh Khurana
20mtcsnt12	Mohsin Ahmad Sheikh	
20mtcsnt10	Arsh kumar	
20mtcsnt14	Nancy Mittal	
20mtcysc10	Sasmit De	
20mtcsnt05	Rayees Ahmad Laway	
20mtcsnt03	Naveen Kumar Mahaur	
20mtcsnt04	Nikhil Maurya	
20mtcsnt08	Sameer Ahmad Bhat	
20mtcsnt02	Aadil Ahmad Dar	Dr. Parvinder Singh
20mtcysc20	Simran gull	
20mtcsnt15	Rameez Raja	
20mtcysc05	Gazy Abbas	
20mtcsnt16	Mariya Hassan	
20mtcysc13	Rameez Raja	
20mtcsnt11	Irfan Hamid	
20mtcysc17	Md Mansoor Safder Khan	

2. It is decided to deposit the imprest account money including the amount collected during conference and computer literacy programme, to the University account

(Prof. Amandeep Kaur) Professor, CST	(Dr. Satwinder Singh) Associate Professor, CST	(Er. Surinder Singh Khurana) Assistant Professor, CST	(Dr. Parvinder Singh) Assistant Professor, CST

Copy to:

1. Members of AAC (through email)
2. IQAC Cell 1/9/21

1/1

Ref. No.: CUPB/HOD/CST/2021/245 Date: 01/10/2021

Subject: Minutes of AAC meetings held on 28.09.2021 at 11:00 AM

An Academic and Administrative Committee meeting of Department of Computer Science & Technology was held **on 28.09.2021 at 11:00 AM in the office of HoD**. During the discussions, the following points emerged:

1. It is decided to purchase Antivirus for the Computers in labs of Department of Computer Science & Technology as the same is not available with Computer Centre for lab computers.
2. Er. Surinder Singh is nominated for Universal Human Values mentor as per the requirement of AICTE.
3. As per the email sent by Er. Surinder Singh Khurana, Assistant Professor, the committee suggests the timely implementation of the AICTE Guidelines for direct recruitment and CAS promotions as these guidelines are applicable to technical institutes and universities imparting technical education.
4. It is decided to purchase one year subscription of python skill based courses from realpython.com.
5. It is also decided to prepare mapping of learning outcomes and syllabus content by Thursday (30-9-2021).
6. It is decided to upload following MoU/MoA with following organization/industries on the AICTE internship portal:
    a. AIIMS, Bathinda
    b. ICMR, Bhopal
    c. BAKM College, Garhshanker
    d. EC Council
    e. Advanced Tech (Under Process)
    f. E-Beta (Under Process)
7. The Synopsis seminars of M.Tech 3rd Semester students dissertation work are scheduled to be held from 28/10/2021 onwards. The students should upload synopsis (duly approved by the supervisor) on evaluation portal by 28/10/2021.

(Prof. Amandeep Kaur) **Professor, CST**	**(Dr. Satwinder Singh)** **Associate Professor, CST**	**(Er. Surinder Singh Khurana)** **Assistant Professor, CST**	**(Dr. Parvinder Singh)** **Assistant Professor, CST**

Copy to:

1. Members of AAC (through email)
2. IQAC Cell

Ref. No.: CUPB/HOD/CST/2021/248 Date: 07/10/2021

Subject: Minutes of AAC meetings held on 07.10.2021

An Academic and Administrative Committee meeting of Department of Computer Science & Technology was held **on 07.10.2021 in the office of HoD**. During the discussions, the following points emerged:

1. The documents of Mr. Riyadh Mohammed Musaed Al-Tam, applicant for PhD. are checked for eligibility. To finally decide whether he is eligible or not, conversion formula is required to convert his marks into percentage. The candidate may be asked to provide the conversion formula to convert masters' degree marks into percentage.

(Prof. Amandeep Kaur) Professor, CST	(Dr. Satwinder Singh) Associate Professor, CST	(Er. Surinder Singh Khurana) Assistant Professor, CST	(Dr. Parvinder Singh) Assistant Professor, CST

Copy to:

1. Members of AAC (through email)
2. IQAC Cell

Ref. No.: CUPB/HoD/CST/2021/263 **Date:** 10/11/2021

Subject: Minutes of AAC meetings held on 03.11.2021 at 12:00 noon

An Academic and Administrative Committee meeting of Department of Computer Science & Technology was held **on 03.11.2021 at 12:00 noon in the office of HoD**. During the discussions, the following agenda items discussed:

Agenda 1 : Regarding Movement of Department files.

It is decided that the files related to department can be issued to the faculty members of department. The faculty member receiving the file will sign the entry regarding the issuance of file in movement/dak register maintained by HoD office. Also before taking the file he/she will also inform the HoD through email/telephonically/ in-person.

Agenda 2: Regarding the work performance of Data Entry Operators.

The following points are reported by Dr. Amandeep Kaur, Er. Surinder Singh Khurana and Dr. Parvinder Singh regarding the performance of Ms. Lovleen,DEO:
a. As per the assigned duty she has never reported to the office of dean, SET.
b. Most of the time she is not reporting back about the progress of the work assigned to her.

Dr. Satwinder Singh reported the following points about the performance of Ms. Anjali, DEO:
a. She never informed whenever she is on leave.
b. She never do the pending work assigned by HoD and also do not report the status of the assigned work.
c. It was also reported by Dr. Satwinder Singh that she always sit idle on her seat.

It is decided that all the members of AAC (in combined meeting) will advise and guide them to improve the work performance.

Agenda 3: Procedure to issue stationary Items in the department.

An indent book will be maintained by HoD office to issue consumable items to faculty and staff. The entries of the same will be done in the consumable stock register of the department. All members of AAC are agreed for the same.

Agenda 4: Retaining the copy of Annual Performance Appraisal Report (APAR) signed by HoD

As per the previous practice followed by the department the faculty demands to provide the copy of Annual Performance Appraisal Report (APAR) submitted by them after signed by HoD. However, Dr. Satwinder Singh, HoD is in view that after signed by the HoD copy of the same cannot be provided to faculty submitting his/her APAR. He will clarify the same from higher authority/share the rule in regard to this.

On this issue Dr. Amandeep Kaur, Er. Surinder Singh Khurana and D. Parvinder Singh are in the view that this document is about self appraisal and the copy of the same should be shared with

the concerned faculty member after signed by HoD as per previous practices followed by the department. They also requested to the HoD to share the rules(if any) mentioning that the signed(by HoD) copy of APAR that is related to a faculty member cannot be provided to that faculty member.

Agenda 5: Regarding sending email to students

Dr. Satwinder Singh, HoD raised the issue about sending the email(before the minutes of AAC meeting have been signed) to the students decided(in AAC meeting) to work with a faculty member for their dissertation work.

All the members agreed that any decision of AAC will be conveyed only after the minutes will be signed and circulated by HoD.

Agenda 6: To timely provide required information/documents

To provide the information and related proofs to various offices as required on timely manner, it is decided that all faculty members maintain soft copy of their documents on online drive and share the access with HoD, CST. It is also decided that the files related to various departmental activities/purchases will be submitted to the HoD office after the completion of the activity/ purchase process.

10/11/21

(Prof. Amandeep Kaur)	**(Dr. Satwinder Singh)**	**(Er. Surinder Singh Khurana)**	**(Dr. Parvinder Singh)**
Professor,	**Associate Professor,**	**Assistant Professor,**	**Assistant Professor,**
CST	**CST**	**CST**	**CST**

Copy to:

1. Members of AAC (through email)
2. IQAC Cell

11/11/21

Ref. No.: CUPB/HOD/CST/2021/262. Date: 10/11/2021

Subject: Minutes of AAC meetings held on 10.11.2021 at 11 AM

An Academic and Administrative Committee meeting of Department of Computer Science & Technology was held on 10.11.2021 at 11 AM noon in the office of HoD. During the discussions, the following agenda items discussed:

Agenda 1: Scrutiny of applications of M.Tech admissions.

After scrutiny of applications of M.Tech admissions a list of applicants along with eligibility status has been prepared and attached here with as annexture-1.

Agenda 2: Repair of projector

The repair will be done through engineering/Estate section.

Agenda 3:- To prepare suggestive list of members for BOS .

A suggestive list of BOS members is prepared as annexure-2

Agenda 4: Request of Mr. Samar Ansh student for exemption of attending university in offline mode.

The medical certificate does not clearly mention the inability of the student to have full covid vaccination. The student is advised to provide medical certificate clearly mentioning that student cannot be fully vaccinated. On submission of the same is application will be forwarded to university authorities for their consideration.

It is also decided to send advisory/reminder to the student to ensure attendance as per university notification.

(Prof. Amandeep Kaur)	**(Dr. Satwinder Singh)**	**(Er. Surinder Singh Khurana)**	**(Dr. Parvinder Singh)**
Professor,	**Associate Professor,**	**Assistant Professor,**	**Assistant Professor,**
CST	**CST**	**CST**	**CST**

Copy to:

1. Members of AAC (through email)
2. IQAC Cell

11/11/21

(Annexure 1)

List of applicants for M.Tech Admissions along with eligibility status

M.Tech Computer Science and Technology

S.No.	Form No.	Name	Eligibility Status	Remarks
1.	CUP0016009	SHEELENDRA PAL SINGH	Not Eligible	MSc. At Graduation Level (B.E/B.Tech Required)
2.	CUP0015032	SHIV SAGAR	Eligible	
3.	CUP0011367	VAIBHAV VAIBHAV	Eligible	
4.	CUP0011317	ARKA DEY	Eligible	
5.	CUP0001068	MANISH KUMAR KUSHWAHA	Provisionally Eligible	Latest OBC Certificate as per Govt. of India norms is Required.
6.	CUP0001443	ABHILASHA YADAV	Provisionally Eligible	Latest OBC Certificate as per Govt. of India norm is Required. And Bachelor Degree/DMCS of all semester required to verify CGPA/percentage.
7.	CUP0022262	SHYAM SUNDER	Provisionally Eligible	OBC Certificate as per Govt. of India Norm is required.
8.	CUP0014769	SONALI SINGH	Provisionally Eligible	Clear copy of Degree/ DMC is required to verify CGPA/ Percentage.
9.	CUP0019783	KRISHNA KUMAR	Provisionally Eligible	Degree/DMC of all Semester
10.	CUP0001401	ADITI SANJAY FATING	Provisionally Eligible	Latest OBC Certificate as per Govt. of india Norm is Required.

M.Tech Computer Science and Technology(Cyber Security)

S.No.	Form No.	Name	Eligibility Status	Remarks
1.	CUP0006434	AFZALUR RAHAMAN CHOUDHURY	Provisionally Eligible	Degree/DMC of all Semester required to be verified CGPA.
2.	CUP0002444	KRISHAN KUMAR	Provisionally Eligible	Degree/DMC of all Semester required to be verified CGPA.
3.	CUP0000480	DHIRENDRA SINGH MAHRA	Eligible	
4.	CUP0000418	NAKUL CHAHAL	Not Eligible	MCA (Required B.E/ B.Tech)
5.	CUP0001256	KEERTHANA B	Provisionally Eligible	Latest OBC Certificate (as per Govt. of india) Required.
6.	CUP0018895	RAJ PAL	Provisionally Eligible	Latest OBC Certificate as per Govt. of india is Required.
7.	CUP0009928	FAYIZ	Eligible	Latest OBC Certificate as per Govt. of India is required.
8.	CUP0009624	INDU KUMARI	Provisionally Eligible	Latest OBC Certificate as per Govt. of India is required.
9.	CUP0000461	MUSHAHID NAZIR BHAT	Provisionally Eligible	Degree/DMC of all Semester is required to verify CGPA.
10.	CUP0013108	UTKARSH VARSHNEY	Eligible	
11.	CUP0000179	JAYANTI SINGH	Eligible	
12.	CUP0014892	ROHIT KUMAR	Provisionally Eligible	Degree/DMC of all Semester is required to verify CGPA.

(Annexure 2)

Suggestive list of Members for Board of Studies

S.No.	Members	Designation	Department	Remarks
1.	Dr. Satwinder Singh	Head of Department	Department of Computer Science and Technology	**Chairperson** (Under clause XI.1.1)
2.	Dr. Amandeep Kaur	Professor	Department of Computer Science and Technology	**Member** (Under clause XI.1.2)
3.	Er. Surinder Singh Khurana	Assistant Professor	Department of Computer Science and Technology	**Member** (Under clause XI.1.3)
4.	Dr. Parvinder Singh	Assistant Professor	Department of Computer Science and Technology	**Member** (Under clause XI.1.3)
5.	Dr. Sudip Chakraborty	Assistant Professor	Department of Computational sciences	**Member (Under clause XI.1.4)**
6.	Prof. Gauree Shanker	Professor	Department of Mathematics	**Member (Under clause XI.1.5)**
7.	Dr. Puneet Bansal	Associate Professor	Department of Pharmacology	**Member** (Under clause XI.1.5)
8.	Prof. Ajay Mittal	Professor	Department of Computer Science and Engineering, UIET, Punjab University Chandigarh,	**Member** (Under clause XI.1.6)
8.	Prof. Jatinder Chhabra	Professor	Department of Computer Science and Engineering, NIT, Kurukshetra	**Member** (Under clause XI.1.6)
9.	Prof. Himanshu Bansal	Professor	UCOE, Punjabi University Patiala	**Member** (Under clause XI.1.6)
10.	Dr. Pavitdeep Singh	Associate Vice Professor	Royal Bank of Scotland Pvt. Ltd, Gurgaon. Office Address: Block No. 1, Candor TechSpace, Sector 21 , Gurugram, Haryana, 122002 Pavitdeep.singh@rbs.com Mobile: 9871013902	Special Invitee (Industry expert)
12.	Er. Manmeet Singh	Alumni of the Department	Department of Computer Science and Technology	NAAC Students representative
13	Ms. Akashdeep Kaur	Alumni of the Department	Department of Computer Science and Technology	NAAC Students representative

Ref. No.: CUPB/HOD/CST/2021/278 **Date:** 02/12/2021

Subject: Minutes of AAC meetings held on 30.11.2021 at 11:00 AM

An Academic and Administrative Committee meeting of Department of Computer Science & Technology was held **on 30.11.2021 at 11:00 AM in the online mode**. During the discussions, the following point emerged:

1. Screening of admission application for PG Diploma and Certificate courses is done. The list of candidates along with eligibility status is attached herewith as Annexure – I.

(Prof. Amandeep Kaur) **Professor, CST**	**(Dr. Satwinder Singh)** **Associate Professor, CST**	**(Er. Surinder Singh Khurana)** **Assistant Professor, CST**	**(Dr. Parvinder Singh)** **Assistant Professor, CST**

Copy to:

1. Members of AAC (through email)
2. IQAC Cell

2/12/2021

Annexure - 1

Candidate List

Show entries S

S No.	Application id. / Form	Name	Programme	Category	UG Programme
1	ST2100016 Application Form	Gurinder Singh virk(Provisionally Selected in EWS)	Certificate Programme in Neural Networks and Deep Learning	EWS	Bsc agriculture
2	ST2100092 Application Form	Shagundeep Singh(Selected in Unreserved)	Certificate Programme in Neural Networks and Deep Learning	General	B.Tech Mechanical Engineering
3	ST2100065 Application Form	mansi jain(Selected in Unreserved)	Certificate Programme in Neural Networks and Deep Learning	General	b.Sc. (hons biotechnol
4	ST2100009 Application Form	AERiES(Selected in Unreserved)	Certificate Programme in Neural Networks and Deep Learning	General	btech
5	ST2100080 Application Form	JYOTI(Selected in Unreserved)	Certificate Programme in Neural Networks and Deep Learning	General	B.Sc Medic
	ST2100042	Syeda Uzma	Certificate Programme in		

S No.	Application id. / Form	Name	Programme	Category	UG Programme
10	ST2100059 Application Form	Ramandeep kaur(Selected in SC)	Certificate Programme in Neural Networks and Deep Learning	SC	BA
11	ST2100017 Application Form	jyoti sharma(Selected in EWS)	PG Diploma in Data Sciences for Bioinformatics	EWS	bsc
12	ST2100092 Application Form	Shagundeep Singh(Not Eligible)	PG Diploma in Data Sciences for Bioinformatics	General	B.Tech Mechanical Engineerin
13	ST2100065 Application Form	mansi jain(Selected in Unreserved)	PG Diploma in Data Sciences for Bioinformatics	General	b.Sc. (hons biotechnol
14	ST2100075 Application Form	Pankaj Ror(Selected in Unreserved)	PG Diploma in Data Sciences for Bioinformatics	General	B.Sc. (Hons Zoology
15	ST2100080 Application Form	JYOTI(Selected in Unreserved)	PG Diploma in Data Sciences for Bioinformatics	General	B.Sc Medic
16	ST2100045 Application Form	Sagarika Paul(Selected in Unreserved)	PG Diploma in Data Sciences for Bioinformatics	General	B.Tech - Computer Science an Engineerin
17	ST2100042 Application Form	Syeda Uzma Rahman(Selected in Unreserved)	PG Diploma in Data Sciences for Bioinformatics	General	B.Sc
	ST2100030	SUNANDA	PG Diploma in Data Sciences		

S No.	Application id. / Form	Name	Programme	Category	UG Programme
22	ST2100085 Application Form	SUREKHA URSIL A TIRKEY(Selected in Unreserved)	PG Diploma in Data Sciences for Bioinformatics	ST	BSC

Showing 1 to 22 of 22 entries

Ref. No.: CUPB/HOD/CST/2021/286 Date: 20/12/2021

Subject: Minutes of faculty meetings held on 03.12.2021 at 11:30 AM

An Academic and Administrative Committee meeting of Department of Computer Science & Technology was held on 03.12.2021 at 11:30 AM in the office of HOD Office. The following faculty members were present in the meeting:

i. Prof. Amandeep Kaur, Professor
ii. Dr. Satwinder Singh, Head of Department
iii. Er. Surinder Singh Khurana, Assistant Professor
iv. Dr. Parvinder Singh, Assistant Professor
v. Er. Anam Bansal

During the discussions, the following points emerged:

1. Midterm viva of Dissertation will be scheduled to held from 04-01-2022 to 07-01-2022. The student need to submit midterm report before the viva.
2. The practical exam and viva of VAC : "Report writing using Latex" is scheduled to be held on 03-01-2022.
3. It is decided to do the physical verification of the assets in the department and its faculty. The assets available in department will compared by the inventory list mentioned by CUPB store and the department. All the members will check their inventory and prepare the report. These reports will be discussed in next AAC meeting on 13-12-2021.
4. The workload of certificate and diploma courses is allotted as:-

Course Name	S.No.	Subject Name	Faculty Coordinator
PG Diploma in Data Science for Bioinformatics	1.	Statistics in Data Science	Er. Parneet Kaur
	2.	Artificial Neural Network	Er. Anam Bansal
	3.	Python Programming for ANN -Lab	Dr. Satwinder Singh Er. Ankur
Certificate Course in Deep Neural Network	4.	Artificial Neural Network (Theory)	Er. Anam Bansal
	5.	Artificial Neural Network(Practical)	Dr Amandeep Kaur Mr. Vivek Sharan (Ph.D.

Anam Bansal

			Scholar)
	6.	Deep Neural Network (Theory)	Dr. Amandeep Kaur
	7.	Deep Neural Network (Practical)	Dr. Amandeep Kaur Ms. Palwinder Kaur (Ph.D. Scholar)

5. It is decided that Dr. Parvinder Singh will supervise Er. Surinder Singh Khurana, Ph.D. students.
6. Dr. Parvinder Singh will take subject Research methodology Theory and Lab for PhD Students.
7. After the classes of diploma and certificate courses, the following workload will be shifted :-
   (a) Advanced Data Structures and Algorithms (CBS. 512): Er. Parneet Kaur
   (b) Advanced Data Structures (CST. 506): Dr Parvinder Singh
   (c) Advanced Data Structures Lab (CST): Er. Surinder Singh Khurana
8. As no student has opted the course entitled "Python Programming for Security Professionals, the department doesn't run this course for this session.

(Prof. Amandeep Kaur) **Professor,** **CST**	**(Dr. Satwinder Singh)** **Associate Professor,** **CST**	**(Er. Surinder Singh Khurana)** **Assistant Professor,** **CST**	**(Dr. Parvinder Singh)** **Assistant Professor,** **CST**	**(Er. Anam Bansal)** **Assistant Professor,** **CST**

Copy to:

1. Members of AAC (through email)
2. IQAC Cell

Schedule for the End Semester Exam (3rd Semester)
Department of Computer Science & Technology
Session: July- December 2021

Day/Date	Subject/ Exam	Timing	Supervisor/ Guide Name	Students/ Scholar Name
Monday 03-01-2022	VAC, Report Writing using LaTeX	**Timings: 02.00 PM to 05.00 PM**	Dr. Parvinder Singh	All students enrolled for VAC
Tuesday 04-01-2022 and Wednesday 05-01-2022	Capstone Lab Project	**Timings: 10.00 AM to 05.00 PM**	Prof. Dr. Amandeep Kaur Dr. Satwinder Singh Er. Surinder Singh Khurana Dr. Parvinder Singh	All students
Thursday 06-01-2022 and Friday 14-01-2022	Mid Term Review and Presentation of Dissertation work	**Timings: 10.00 AM to 05.00 PM**	Prof. Dr. Amandeep Kaur Dr. Satwinder Singh Er. Surinder Singh Khurana Dr. Parvinder Singh	All students
Monday 17-01-2022	Intelligent System	**Timings: 10.00 AM to 01.00 PM**	Prof. Dr. Amandeep Kaur	All students
Wednesday 19-01-2022	Software Metrics	**Timings: 10.00 AM to 01.00 PM**	Er. Anam Bansal	CST Students
Wednesday 19-01-2022	Cyber Threat Intelligence	**Timings: 2.00 PM to 05.00 PM**	Er. Anam Bansal	CBS Students

Dr. Parvinder Singh
AP, CST

Dr. Satwinder Singh
HOD, CST