SCHOOL OF ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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

11th BOS MEETING NOTICE

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

You are hereby requested to attend the meeting.

Agenda:

SOE-CSE 11.1: To approve the minutes of 10th Board of Studies Meeting held on 17th January 2020.

SOE-CSE 11.2: To consider and approve the Program Regulations and Curriculum for B.Tech SOE-CSE

2020 Batches

1. Computer Science and Engineering (Cyber Security)
2. Computer Science and Engineering (Artificial Intelligence and Machine Learning)
3. Computer Science and Engineering (IOT)
4. Computer Science and Engineering (Block Chain)
5. Computer Science and Engineering (Data Science)
6. Computer Science and Technology
7. Computer Science and Technology (DevOps)
8. Computer Science and Technology (Big Data)
9. Computer Science and Technology (specialization in AI & ML)

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

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

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

Curriculum.

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

SOE-CSE 11.4.2: To consider and approve the changes to SOE-CSE M.Tech 2019 batch program structure and curriculum

1. M.Tech in Artificial Intelligence
2. M.Tech in Data Science

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

SOE-CSE 11.6: Approval of list of examiners.

SOE-CSE 11.7: Approval of NPTEL courses to be offered as Discipline/Open electives

SOE-CSE 11.8: Any other matter with the permission of the chair.

Chairperson
BOS-CSE Committee

Copy to:

- Pro-Chancellor, PU
- Registrar, PU
- Dean-SoE, PU
- Vice-Chancellor, PU
- Pro-Vice-chancellor, PU
- Dean-Academics, PU
- Members of the BOS-CSE Committee:

1	Dr. C. Kalaiarasan	10	Dr. J. Andrews
2	Dr. T.K.Thivakaran	11	Dr. Blessed Prince
3	Dr. Satish Chandra Kulhari	12	Dr. A.Jayachandran
4	Dr. Smitha Rao	13	Dr. Nidhi Mishra
5	Dr. R Mahalakshmi	14	Mr. Tapas Guha
6	Dr. J Alamelu Mangai	15	Dr. H.S. Guruprasad, Prof., BMSCE
7	Dr. G.Shanmugarathinam	16	Dr. Rajanikanth, Former Principal, MSRIT
8	Dr. Ramesh V	17	Dr. Srinivas Vivek, Asst. Prof., CSE, IIITB
9	Dr. S.P.Anandaraj	18	Mr. Dipyaman Banerjee, Principal Data Scientist, Airtel India

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SCHOOL OF ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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

Minutes of the 11th Meeting of Board of Studies (Computer Science and Engineering – BOS – CSE)

The 11th meeting of Board of Studies (BOS) of the Computer Science and Engineering is held today on 4th September, 2020 at 02.30 PM, online.

The following members were present:

S. No.	Name	Designation with Affiliation	Status
1	Dr. K.G. Mohan	Professor & Head, CSE, Presidency University	Chairman
2	Dr. C. Kalaiarasan	Associate Dean & Professor, CSE, Presidency University	Member
3	Dr. Smitha Rao	Professor, CSE, Presidency University	Member
4	Dr. T.K.Thivakaran	Professor, CSE, Presidency University	Member
5	Dr. Satish C Kulhari	Professor, CSE, Presidency University	Member
6	Dr. R Mahalakshmi	Associate Professor, CSE, PU	Member
7	Dr. J Alamelu Mangai	Associate Professor, CSE, Presidency University	Member
8	Dr.G.Shanmugarathinam	Associate Professor, CSE, Presidency University	Member
9	Dr. Ramesh V	Associate Professor, CSE, Presidency University	Member
10	Dr. S.P.Anandaraj	Associate Professor, CSE, Presidency University	Member
11	Dr. A.Jayachandran	Associate Professor, CSE, Presidency University	Member
12	Dr. Nidhi Mishra	Associate Professor, CSE, Presidency University	Member

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13	Dr. Blessed Prince	Associate Prof., CSE, Presidency University	Member
14	Dr. J. Andrews	Associate Prof., CSE, Presidency University	Member
15	Dr. H.S.Guruprasad	Professor & Head, BMSCE, Bangalore.	ExternalMember (Academics)
16	Dr. K. Rajanikanth	Former Principal, M.S.R.I.T, Bangalore	Special Invitee/Co-opted Member
17	Dr. Srinivas Vivek	Assistant Professor, CSE, IIIT Bangalore	External Member (Academics)
18	Mr. Dipyaman Banerjee	Principal Data Scientist, Airtel India, Former Advisory Research Engineer at IBM Research Lab, IEEE Senior Member	External Member (Industry Expert)
19	Mr. Tapas Guha	Assistant Professor, CSE, Presidency University	Member Secretary

The following members are given leave of absence:

Sr. No.	Name	Designation	Status
	NIL		

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

Agenda SOE-CSE 11.1: To approve the minutes of 10th Board of Studies Meeting held on 17th January 2020.

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The minutes of the 10th meeting of the Board of Studies of Computer Science and Engineering held on 17th January 2020 was placed before the members and the same was unanimously approved (**Annexure CSE 11.1**).

Agenda SOE-CSE 11.2: To consider and approve the Program Regulations and Curriculum for SOE-CSE 2020 Batch

1. Computer Science and Engineering (Cyber Security)
2. Computer Science and Engineering (Artificial Intelligence and Machine Learning)
3. Computer Science and Engineering (IOT)
4. Computer Science and Engineering (Block Chain)
5. Computer Science and Engineering (Data Science)
6. Computer Science and Technology
7. Computer Science and Technology (DevOps)
8. Computer Science and Technology (Big Data)
9. Computer Science and Technology [specialization in AI & ML]

The details of the program regulations and curriculum for the new 2020-2024 programs were presented before the members (**Annexure CSE 11.2**). The members discussed the same at length.

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

- Computer Science and Engineering (Cyber Security)

  i. Practical components should be increased in the course Advanced Cryptography.
  ii. The open elective courses should be more practical oriented.

- Computer Science and Engineering (IOT)

  i. A course 'IOT for Smart Cities' may be designed and included in the curriculum.
  ii. The Elective courses may be grouped into different baskets with relevant practical components.

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

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

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

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

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

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

Change in Course

Programs	Existing		Revised	
	Course name	Course code	Course name	Course code
CSE,ISE,IST,COM, CCE	Data Structure Theory and Lab	CSE 201,CSE 251	Data Structure and Algorithm Theory and Lab	CSE 221, CSE 259
ISE,IST ,COM,CCE	Computer Organization	CSE 223	Computer Architecture and Organization	CSE 223

Resolution: The proposed changes are accepted and approved.

Agenda SOE-CSE 11.4:

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

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

Introduction of course:

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A new course Optimization Techniques has been proposed for ISE and COM branches. The members were presented with the course descriptions and outline.

Course Name:	Optimization Technique					
Course Code:	CSE 226	Credit Structure :	L	T	P	C
			3	0	0	3

Course Description:
Optimization is one of the most important branch of modern applied mathematics. Optimization models attempt to express, in mathematical terms, the goal of solving a problem in the best way. Various problems arising in areas of engineering design, economic theory, physical, biological and technological sciences call for minimizing or maximizing functions. The objective of the course is to provide students with the value of optimization and mathematical modeling in real life. Basic techniques to formulate single and multi-objective real problem into a mathematical model. Various techniques to solve linear and nonlinear programming problem. Various techniques to solve transportation and assignment problems.

Reference Materials:

Text Book(s):

1. H.A.Taha, Operations Research: An Introduction, Pearson Education, 9th Ed., 2012.
2. Boyd and Vandenberghe: Convex Optimization, Cambridge University Press 2004.

Reference Books:

1. T. Hastie, R. Tibshirani and M. J. Wainwright, Statistical Learning with Sparsity: the Lasso and Generalizations, Chapman and Hall/CRC Press, 2015.
2. E. Hazan. Introduction to Online Convex Optimization.
3. S. Boyd and L. Vandenberghe, Convex Optimization, The Cambridge University Press, 2003.
4. D. Bertsekas, Nonlinear programming, Athena Scientific, 1999.
5. Y. Nesterov, Introductory lectures on convex optimization, Kluwer-Academic, 2003.
6. E. K. P. Chong and S. H. Zak, An Introduction to Optimization, 2nd Edn., Wiley India Pvt. Ltd., 2010.
7. S. Bubeck, Convex Optimization: Algorithms and Complexity, Foundations and Trends in Machine Learning, 8(3-4): 231-357, 2015.
8. S. Sra, S. Nowozin, and S. Wright, Optimization for Machine Learning, The MIT Press, 2011.

Resolution: The proposed inclusion is approved with the following suggestion.

- Keeping the credit structure as it is, some practical components may be included in the syllabus, which can be demonstrated in the theory lecture hour.

Change in Course title:

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Programs	Existing Course title	Revised Title
Core course for all	Introduction to Artificial Intelligence CSE 228	Principles of Artificial Intelligence CSE 228

Resolution: The proposed change is accepted and approved.

Introduction of Elective courses:

The members were presented with the course descriptions and outline of the following newly proposed Discipline Elective courses.

Course Name:	Data Visualization					
Course Code:	CSE 367	Credit Structure :	L	T	P	C
			1	0	4	3

Course Description:
This course provides an introduction to turning data into presentable graphics. Data Visualization is important today as the usage of data is growing in many different fields. Data visualization techniques help people to better understand this data. The goal of this course is to introduce students to data visualization including principles, techniques and algorithms for creating effective visualizations based on principles from graphic design, visual art, perceptual psychology, and cognitive science. Students will learn the value of visualization, specific techniques in data visualization, grammar of graphics and how to leverage visualization tools.

Reference Materials:

(i) Textbook(s)

1. Ward, Matthew O., Georges Grinstein, and Daniel Keim. Interactive data visualization: foundations, techniques, and applications. CRC Press, 2010.
2. Madhavan, Samir. Mastering Python for Data Science. Packt Publishing Ltd, 2015.

(ii) Reference Book(s)

1. Wilkinson, Leland, The Grammar of Graphics, Springer-Verlag New York,2015
2. Wilke, Claus O. Fundamentals of data visualization: a primer on making informative and compelling figures. O'Reilly Media, 2019.
3. Tamara Munzner, Visualization Analysis and Design (VAD), CRC press, 2014
4. Show Me the Numbers: Designing Tables and Graphs to Enlighten, Few, Stephen. 2nd Edition. Analytics Press.
5. Interactive Data Visualization for the Web by Scott Murray 2nd Edition (2017)
6. Andy Kirk, Data Visualization A Handbook for Data Driven Design, Sage Publications, 2016

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7. Philipp K. Janert, Gnuplot in Action, Understanding Data with Graphs, Manning Publications, 2010.
8. Semiology of Graphics by Jacques Bertin (2010)
9. Sosulski, K. (2018). Data Visualization Made Simple: Insights into Becoming Visual. New York: Routledge.
10. Christopher M. Bishop. 2006. Pattern Recognition and Machine Learning (Information Science and Statistics). Springer-Verlag, Berlin, Heidelberg.

Course Name:	Distributed Systems					
Course Code:	CSE 368	Credit Structure :	L	T	P	C
			3	0	0	3

Course Description:
This course is designed to provide the knowledge of the concepts related to distributed system. The course is aimed at understanding the foundations of distributed systems. It also deals with Peer to peer services and to understand about the system level and support required for distributed system. Further, it focuses on Synchronization, Process and Resource Management. Students will also learn the overview of Distributed system.
Topics include: Introduction to Distributed Systems, Communication in Distributed System, Peer to peer services and file system, Synchronization, Process and resource Management.

Reference Materials:

Text Book(s):

1. T1: George Coulouris, Jean Dollimore and Tim Kindberg, "Distributed Systems Concepts and Design", Fifth Edition, Pearson Education, 2012.

Reference Book(s):

1. R1. Pradeep K Sinha, "Distributed Operating Systems: Concepts and Design", Ninth edition, Prentice Hall of India, 2007.
2. R2. Tanenbaum A.S., Van Steen M., "Distributed Systems: Principles and Paradigms", Second Edition, Pearson Education, 2007.
3. R3. Liu M.L., "Distributed Computing, Principles and Applications", First Edition, Pearson Education, 2004.
4. R4. Nancy A Lynch, "Distributed Algorithms", Second Edition, Morgan Kaufman Publishers, USA, 2003.

Course Name:	Introduction to Bioinformatics					
Course Code:	CSE 325	Credit Structure :	L	T	P	C
			3	0	0	3

Course Description:

This course is designed to provide the knowledge of the concepts related to bioinformatics. The course is aimed at understanding the DNA and Protein sequences and databases. It also deals with Pairwise comparison and calculating the scoring matrix. Further, it focuses on Sequence Alignment techniques, discovering the Motifs in the sequence. Students will also learn the overview of Structural Bioinformatics and Genome sequencing.

Reference Materials:

Text Book(s):

1. Bioinformatics: Sequence and Genome Analysis, David W. Mount, Cold Spring Harbor Laboratory Press, 2004.
2. Introduction to Bioinformatics, Arthur Lesk, Fifth Edition, Oxford University Press, 2019

Reference Book(s):

1. Bioinformatics Methods and Applications, S. C. Rastogi, N.Mendiratta, P.Rastogi, Fourth Edition, Prentice Hall India.
2. Bioinformatics Algorithms- An Active Learning Approach, Phillip Compeau & Pavel Pevzner, 2nd Edition, Vol. I & II, Active Learning Publishers, 2015

Resolution: Resolved that the proposed elective courses are relevant with the current industry trend and should be offered to the students. The same is approved.

Change in offering semester

Programs	Course title	Existing Semester	Proposed Semester
COM,ISE	Machine Learning using Python CSE 261	6	5

Resolution: The proposed change in offering semester is approved.

Removal of Course

The existing course Principles of Programming Languages is removed from 5th semester CSE.

Course Name:	**Principles of Programming Languages**					
Course Code:	**CSE 214**	**Credit Structure :**	**L**	**T**	**P**	**C**
			3	**0**	**0**	**3**

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Course Description:

The Course covers features of programming languages and introduces different programming paradigms, and their semantics.
Topics include: Data types and Data Abstraction, Scope and Parameter passing and Concurrency related features. Various aspects of runtime environments like global and local data, code, function call stacks, dynamically allocated data, exceptions and threads, formal elements of lambda calculus, functional paradigm. Logic programming paradigm, Scripting as a paradigm. Domain specific languages.

Reference Materials:

Text Book(s):

Robert W. Sebesta, "Concepts of Programming Languages", The Benjamin Cummings Publishing Company, Inc.

Reference Book(s):

1. Ravi Sethi , "Programming Languages: Concepts and Constructs" Addison Wesley.
2. Aho, Lam, Sethi and Ullman, "Compilers Principles, Techniques, and Tools". Pearson Education.

Resolution: The proposed removal is accepted and approved.

11.4.2: To consider and approve the changes to SOE-CSE M.Tech 2019 batch program structure and curriculum

1. M.Tech In Artificial Intelligence
2. M.Tech In Data Science

Inclusion of two courses to the list of Discipline Electives of M.Tech-Artificial Intelligence program.

CSE 465 – Reinforcement Learning
CSE 466 – Natural Language Processing

The members were presented with the following course details.

Course Name:	**Reinforcement Learning**					
Course Code:	**CSE 465**	**Credit Structure :**	**L**	**T**	**P**	**C**
			3	**0**	**0**	**3**

Course Description:

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This course provides an introduction to Reinforcement Learning and Deep Reinforcement Learning - core challenges, approaches, generalization and exploration. Reinforcement Learning is a branch of machine learning that deals with how software agents take actions in an environment in order to maximize rewards.

Topics to include: Key features of Reinforcement Learning, exploration-exploitation trade-off , value based and policy based methods, bandit problems, Markov's Decision Process, Bellman Equations, dynamic programming, Deep reinforcement learning algorithms: Deep Q-Networks (DQN), Deep Deterministic Policy Gradients (DDPG), Monte Carlo methods, Function Approximation methods, Policy Gradients, criteria for analyzing and evaluating RL algorithms, implementation of common RL algorithms.

Text Books:

1. Reinforcement Learning: An Introduction, Sutton and Barto, 2nd Edition
2. Russell, S. and Norvig, N. Artificial Intelligence: A Modern Approach . Prentice Hall Series in Artificial Intelligence. 2003.

Reference Books:

1. Reinforcement Learning: State-of-the-Art, Marco Wiering and Martijn van Otterlo, Eds
2. Ian Goodfellow, Yoshua Bengio, Aaron Courville, "Deep Learning", MIT Press.

Course Name:	**Natural Language Processing**					
Course Code:	**CSE 466**	**Credit Structure :**	**L**	**T**	**P**	**C**
			3	**0**	**0**	**3**

Course Description:

This course covers a wide range of tasks, basic to advance, in Natural Language Processing. NLP deals with the study of computing systems that can process, understand, and communicate in human language. It addresses fundamental questions at the intersection of human languages and computer science. This course also provides an introduction to current techniques, strategies and toolkits for natural language processing.
Topics to include: Key features of NLP and text classification, basic text processing, syntax, semantics, pragmatics, parsing, language modelling, N-grams, tokenization, lemmatization, POS tagging, HMMs, Context free grammars, word and sequence embeddings, sequence tagging, sequence to sequence models, sentiment analysis, information extraction, dialogue systems, machine translation, implement NLP Toolkits

Textbook:

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

Reference Books:

1. Christopher D. Manning and Hinrich Schütze. 1999. Foundations of Statistical Natural Language Processing. MIT Press
2. Natural Language Processing by Jacob Eisenstein
3. Foundations of Statistical Natural Language Processing by Chris Manning and Hinrich Schuetze
4. Linguistics Fundamentals for NLP by Emily Bender

Resolution: The proposed inclusion of two new Discipline Elective courses is accepted and approved.

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

The details of the program regulations and curriculum were presented before the members (**Annexure CSE 11.3**). The members discussed the same at length

Resolution: Resolved that the program regulations and curriculum of the new Three year B.C.A programs are approved unanimously.

Agenda SOE-CSE 11.6: Approval of list of examiners

List of examiners were presented before the committee.

Resolution: The same was unanimously approved (**Annexure CSE 11.4**).

Agenda SOE-CSE 11.7: Approval of NPTEL courses to be offered as Discipline/Open electives

The proposed list of MOOC courses was presented before the members and was approved. Courses from the same are going to be taken up by the students for credit transfer (**Annexure CSE 11.5**).

Agenda SOE-CSE 11.8: Any other matter with the permission of the Chair

11.8.1: To consider and approve the inclusion of Value Added Courses (VAC)

For all B.Tech 20-24 new programs, Value Added Course is introduced. A proposed list for the same is presented. The members approve the list of VACs (**Annexure CSE 11.6**).

11.6.2: To consider and approve the changes in Program structure and Curriculum for SOE-CSE 2018 Batch UTA students of CSE, ISE, IST and COM.

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

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Note: Students of SOE-CSE 2018 Batch registered for University of Texas, Arlington (UTA) program will complete 3 year of study at Presidency University earning a minimum of 159 credits and will study final year at University of Texas, Arlington, USA and earn a minimum of 21 credits which will be transferred to Presidency University for their B.Tech degree from Presidency University

Details of Summer Term courses

Following courses were offered in Summer Term 2020 for UTA registered students:

- CSE: PHY 204 (General Physics), CSE 394 (Circuits and Signals) and CSE 320 (Graphics Programming)
- COM: PHY 204 (General Physics), CSE 394 (Circuits and Signals) and CSE 290 (Digital Circuits)
- ISE & IST: PHY 204 (General Physics), CSE 394 (Circuits and Signals) and CSE209 (Graph Theory and Combinatorics)

Introduction of the course

Internet of Things (CSE 220) offered to all the UTA registered 2018 batch of students as Special Summer Term Course during Dec 20-Jan21.

Modification of course

- Microprocessors and Microcontrollers (CSE-206) & Microprocessors and Microcontrollers-Lab (CSE-254) will be combined and offered as a 3 credit Open Elective (Fundamentals of Microprocessors) to UTA registered COM students of 2018 batch during 6th semester.
- The syllabi of the courses Microprocessors and Microcontrollers and Operating Systems have to be modified as per UTA requirements.

Resolution: The modifications in curriculum were accepted and approved.

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

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The BOS Chairperson has conveyed that the decisions taken during the 11th meeting of BOS for Computer Science and Engineering will be implemented for 2020-2024, 2019-2023, and 2018-2022 as early as possible wherever applicable. He has conveyed thanks to all the members and informed that the date of next BOS meeting will be notified soon.

The meeting ended with Vote of Thanks to the Chair.

BOS Committee:

S. No.	Name	Status	Signature
1	Dr. K.G. Mohan	Chairman	
2	Dr. C. Kalaiarasan	Internal Member	
3	Dr. Smitha Rao	Internal Member	
4	Dr. T.K.Thivakaran	Internal Member	
5	Dr. Satish C Kulhari	Internal Member	Not Present
6	Dr. R Mahalakshmi	Internal Member	
7	Dr. J Alamelu Mangai	Internal Member	
8	Dr.G.Shanmugarathinam	Internal Member	
9	Dr. Ramesh V	Internal Member	
10	Dr. S.P.Anandaraj	Internal Member	

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11	Dr. A.Jayachandran	Internal Member	
12	Dr. Nidhi Mishra	Internal Member	
13	Dr. Blessed Prince	Internal Member	
14	Dr. J. Andrews	Internal Member	
15	Dr. H.S.Guruprasad	ExternalMember (Academics)	
16	Dr. K. Rajanikanth	Special Invitee/Co-opted Member	
17	Dr. Srinivas Vivek	External Member (Academics)	
18	Mr. Dipyaman Banerjee	External Member (Industry Expert)	
19	Mr. Tapas Guha	Member Secretary	

Annexure CSE 11.1

10TH BOS MEETING

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Annexure CSE 11.2.8

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY

Presidency University Act, 2013 of the Karnataka Act No. 41 of 2013 | Established under Section 2(f) of UGC Act, 1956
Approved by AICTE, New Delhi

School of Engineering

Bachelor of Technology Degree

Program Regulations and Curriculum 2020-2024

B. Tech. Computer Science and Technology (Big Data)

2020-2024

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BACHELOR OF TECHNOLOGY DEGREE PROGRAM IN COMPUTER SCIENCE ANDENGINEERING B.TECH (COMPUTER SCIENCE AND TECHNOLOGY (BIG DATA))

SUGGESTED PROGRAM STRUCTURE

I SEM - PHYSICS CYCLE (Aug-Dec)*									
S. NO.	**COURSE CODE**	**COURSE NAME**	**CREDIT STRUCTURE**				**CONTACT HOURS**	**TYPE OF SKILL**	**COURSE ADDRESSES TO**
			L	**T**	**P**	**CREDITS**			
1	MAT 105	Calculus and Linear Algebra	3	1	0	4	4	F[1]	-
2	PHY 101	Engineering Physics	4	0	0	4	4	F	-
3	EEE 101	Elements of Electrical Engineering	3	0	0	3	3	P[2]	-
4	CIV 101	Elements of Civil Engineering	3	0	0	3	3	P	Env[4]
5	MEC 152	Engineering Graphics	2	0	4	4	6	P	-
6	ENG 103	Technical Written Communication	2	1	0	3	3	F/E[3]	-
7	KAN 101	Kannada Kali	1	0	0	1	1	F	-
8	PHY 151	Engineering Physics Lab	0	0	2	1	2	F	-
9	MEC 151	Workshop Practice	0	0	2	1	2	P	-
10	PPS 105	Building Self Confidence	0	0	2	0	2	E	-
		TOTAL	**18**	**2**	**8**	**24**	**30**		
[1] Foundation Course [2] Professional Skills							[3] Employability Skills [4] Environmental Issues		

I SEM - CHEMISTRY CYCLE (Aug-Dec)#									
S. NO.	**COURSE CODE**	**COURSE NAME**	**CREDIT STRUCTURE**				**CONTACT HOURS**	**TYPE OF SKILL**	**COURSE ADDRESSES TO**
			L	**T**	**P**	**CREDITS**			

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1	MAT 105	Calculus and Linear Algebra	3	1	0	4	4	F	-
2	CHE 101	Engineering Chemistry	4	0	0	4	4	F	-
3	ECE 101	Elements of Electronics Engineering	3	0	0	3	3	P	-
4	MEC 101	Elements of Mechanical Engineering	3	0	0	3	3	P	-
5	CIV 102	Environmental Science and Disaster Management	3	0	0	3	3	F	Env
6	ENG 104	Technical Spoken Communication	1	0	2	2	3	E	-
7	CSE 151	Computer Programming	2	0	4	4	6	E	-
8	CHE 151	Engineering Chemistry Lab	0	0	2	1	2	F	-
9	PPS 105	Building Self Confidence	0	0	2	0	2	F	PE[5]/S[6]
		TOTAL	**19**	**1**	**8**	**24**	**30**		

[5] Professional Ethics
[6] Sustainability Issues

II SEM - CHEMISTRY CYCLE (Jan-May)#

S. NO.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS	TYPE OF SKILL	COURSE ADDRESSES TO
			L	T	P	CREDITS			
1	MAT 106	Calculus, Differential Equations and Complex Variables	3	1	0	4	4	F	-
2	CHE 101	Engineering Chemistry	4	0	0	4	4	F	-
3	ECE 101	Elements of Electronics Engineering	3	0	0	3	3	P	-
4	MEC 101	Elements of Mechanical Engineering	3	0	0	3	3	P	-
5	CIV 102	Environmental Science and Disaster Management	3	0	0	3	3	F	Env
6	ENG 104	Technical Spoken Communication	1	0	2	2	3	E	-
7	CSE 151	Computer Programming	2	0	4	4	6	E	-

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8	CHE 151	Engineering Chemistry Lab	0	0	2	1	2	F	-
9	PPS 106	Effective Communication	0	0	2	0	2	E	-
		TOTAL	**19**	**1**	**8**	**24**	**30**		

II SEM - PHYSICS CYCLE (Jan-May)*									
S. NO.	**COURSE CODE**	**COURSE NAME**	**CREDIT STRUCTURE**				**CONTACT HOURS**	**TYPE OF SKILL**	**COURSE ADDRESSES TO**
			L	**T**	**P**	**CREDITS**			
1	MAT 106	Calculus, Differential Equations and Complex Variables	3	1	0	4	4	F[1]	-
2	PHY 101	Engineering Physics	4	0	0	4	4	F	-
3	EEE 101	Elements of Electrical Engineering	3	0	0	3	3	P[2]	-
4	CIV 101	Elements of Civil Engineering	3	0	0	3	3	P	Env
5	MEC 152	Engineering Graphics	2	0	4	4	6	P	-
6	ENG 103	Technical Written Communication	2	1	0	3	3	F/E[3]	-
7	KAN 101	Kannada Kali	1	0	0	1	1	F	-
8	PHY 151	Engineering Physics Lab	0	0	2	1	2	F	-
9	MEC 151	Workshop Practice	0	0	2	1	2	P	-
10	PPS 106	Effective Communication	0	0	2	0	2	E	-
		TOTAL	**18**	**2**	**8**	**24**	**30**		

Note: At the end of the 1st year (Common to all B. Tech. Programs) the total credits offered is 48.

The 1st year B.Tech Program structure is executed in two cycles.

* The students undergoing the "Physics" cycle shall take the Courses as indicated.

The students undergoing "Chemistry" cycle shall take the Courses as indicated

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III SEMESTER								
S.No.	**COURSE CODE**	**COURSE NAME**	**CREDIT STRUCTURE**				**CONTACT HOURS**	**TYPE OF SKILL**
			L	**T**	**P**	**C**		
1	MAT2001	Transform Techniques and Partial Differential Equations	3	0	0	3	3	F
2	CSE2006	Data Structures	3	0	2	4	5	F/EM/EN
3	CSE2009	Computer Organization and Architecture	3	0	0	3	3	S/EM
4	CSE2017	Graph Theory and Combinatorics	3	0	0	3	3	F
5	XXX XXXX	Open Elective – I	3	0	0	3	3	P/E
6	PPS107	Design Thinking and Team Building	0	0	2	0	2	E
7	CSE2008	Programming in Java	1	0	4	3	5	S/EM
8	CSEXXXX	Discipline Elective – I	3	0	0	3	3	P/E
		TOTAL	**19**	**0**	**8**	**22**	**27**	

IV SEMESTER								
S.No.	**COURSE CODE**	**COURSE NAME**	**CREDIT STRUCTURE**				**CONTACT HOURS**	**TYPE OF SKILL**
			L	**T**	**P**	**C**		
1	MAT2002	Numerical Methods, Probability and Sampling Techniques	3	0	0	3	3	F
2	CSE2007	Design and Analysis of Algorithms	2	0	2	3	4	S/EM/EN
3	ECE2002	Digital Electronics	3	0	2	4	5	F/S
4	CSE2010	Operating Systems	3	0	0	3	3	S/EM
5	CSE2012	Database Management Systems	2	0	4	4	6	S/EM
6	CSE2016	Discrete Mathematical Structures	3	0	0	3	3	EM
7	XXX XXXX	Open Elective – II	3	0	0	3	3	P/E
8	PPS108	Being Corporate Ready	0	0	2	0	2	E
		TOTAL	**19**	**0**	**10**	**23**	**29**	

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V SEMESTER								
S.No.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS	TYPE OF SKILL
			L	T	P	C		
1	CSE2011	Data Communications and Computer Networks	2	0	2	3	4	S/EM
2	CSE3002	Big Data Technologies	2	0	2	3	4	S/EM/EN
3	CSE2014	Software Engineering	3	0	0	3	3	S/EM
4	CSE2018	Theory of Computation	3	0	0	3	3	F
5	MGT113/MGT112	Digital Entrepreneurship/ Engineering Economics	3	0	0	3	3	S
6	CSE3001	Artificial Intelligence and Machine Learning	2	0	2	3	4	S/EM
7	CSE2024	No SQL Databases	2	0	2	3	4	S/EM/EN
8	CSEXXXX	Discipline Elective – II	3	0	0	3	3	P/E
9	PIP 101	Professional Practice - I	-	-	-	5	-	P/E
			20	0	8	29	28	

VI SEMESTER								
S.No.	COURSE CODE	COURSE NAME	CREDIT STRUCTURE				CONTACT HOURS	TYPE OF SKILL
			L	T	P	C		
1	CSE2013	Cloud Computing	3	0	0	3	3	S/EM/EN
2	CSE2067	Web Technologies	2	0	**2**	3	4	S/EM
3	CSE3031	Web Intelligence and Analytics	2	0	2	3	4	S/EM
4	CSE3032	Streaming data Analytics	2	0	2	3	4	S/EM
5	CSE3034	Big data Security and Privacy	3	0	0	3	3	S/EM
6	CSEXXXX	Discipline Elective – III	3	0	0	3	3	P/E
7	MGT113/MGT112	Digital Entrepreneurship/ Engineering Economics	3	0	0	3	3	S/EM/EN

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8	CSEXXXX	Discipline Elective – IV	3	0	0	3	3	P/E
9	SIC 501	Social Immersion Course	-	-	-	0	-	P
		TOTAL	**21**	**0**	**6**	**24**	**27**	

VII SEMESTER								
S.No.	**COURSE CODE**	**COURSE NAME**	**CREDIT STRUCTURE**				**CONTACT HOURS**	**TYPE OF SKILL**
			L	**T**	**P**	**C**		
1	CSEXXXX	Discipline Elective – V	3	0	0	3	3	P/E
2	CSEXXXX	Discipline Elective – VI	3	0	0	3	3	P/E
3	CSEXXXX	Discipline Elective – VII	3	0	0	3	3	P/E
4	CSEXXXX	Discipline Elective – VIII	3	0	0	3	3	P/E
5	CSEXXXX	Discipline Elective – IX	3	0	0	3	3	P/E
6	CSEXXXX	Discipline Elective – X	3	0	0	3	3	P/E
7	XXX XXXX	Open Elective – III	3	0	0	3	3	P/E
		TOTAL	21	0	0	21	21	

VIII SEMESTER								
S.No.	**COURSE CODE**	**COURSE NAME**	**CREDIT STRUCTURE**				**CONTACT HOURS**	**TYPE OF SKILL**
			L	**T**	**P**	**C**		
1	PIP102	Professional Practice II	-	-	-	15	-	P/E
		TOTAL	**-**	**-**	**-**	**15**	**-**	

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