

## List of New Course(s) Introduced

**Department : Computer Science and Engineering**

**Programme Name : B.Tech.**

**Academic Year : 2021-22**

### **List of New Course(s) Introduced**

Sr. No.	Course Code	Name of the Course
01.	CS08PPE01	Network Security Lab
02.	CS08PPE02	Mobile Application Development Lab
03.	CS08PPE03	Cloud Computing Lab
04.	CS08PPE04	Big Data Analysis Lab
05	CS204THS02	MANAGEMENT I- MANAGEMENT PROCESS AND ORGANIZATIONAL BEHAVIOUR
06.	CS8LPC01	Network Security Lab
07.	CSE7105	Machine Learning
08.	CSE7104	Computer Vision

  
**विभागाध्यक्ष**  
**Head**  
संयुक्त विज्ञान एवं अभियांत्रिकी  
Computer Science & Engg.  
अभियांत्रिकी एवं प्रौ. अध्ययन शाला  
SOS, Engg. & Technology  
गु.घा. विश्वविद्यालय, बिलासपुर (छ.ग.)  
J.G.Vishwavidyalaya, Bilaspur (C.G.)

## Minutes of Meetings (MoM) of Board of Studies (BoS)

<b>Academic Year : 2021-22</b>	
<b>School</b>	<b>: School of Studies of Engineering and Technology</b>
<b>Department</b>	<b>: Chemical Engineering</b>
<b>Date and Time</b>	<b>1. 10 July 2020- 11:00 AM</b> <b>2. 15 December 2021-11:00 AM</b>
<b>Venue</b>	<b>: Department of CSE</b>

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### Minutes of Meeting

Today, on 10 July 2020, the Board of Studies (BOS) meeting was held through online platform ZOOM from 11:00 am onwards. The following members attended this online meeting.

1. Dr. Alok Kumar Singh Kushwaha, (Chairman of BOS)
2. Mrs Nishi Yadav (Member of BOS)
3. Mr. Amit Sharma (External Member, BOS)
4. Dr. Sanjay Kumar (External Member, BOS)
5. Dr. Manish Srivastava (Invitee Member)
6. Mr. Devendra Kumar Singh (Invitee Member)
7. Mr. Nishant Behar (Invitee Member)
8. Mr. Vaibhav Kant Singh (Invitee Member)
9. Mrs. Raksha Pandey (Invitee Member)
10. Mr. Amit Kumar Baghel (Invitee Member)
11. Mr. Satish Kumar Negi (Invitee Member)
12. Mr. Pushendra Kumar Chandra (Invitee Member)
13. Mr. Manjit Jaiswal (Invitee Member)
14. Mrs. Princy Matalani (Invitee Member)

*In this online meeting the following points have been concluded:*

1. B.Tech 4th semester practical subject codes have been rectified for the session 2019 - 20.
2. In B.Tech 3<sup>rd</sup> semester course **Computer Organization Architecture** is renamed as **Computer Organization & Architecture** and will apply with effect from upcoming Session 2020-21.
3. B.Tech 2nd year (3rd semester and 4th semester) Theory and lab credit has been revised and will apply with effect from upcoming session 2020-21.
4. B.Tech 2nd year (3rd semester and 4th semester) course code is also revised and will apply with effect from upcoming Session 2020-21.
5. In B.Tech 5<sup>th</sup> semester following changes has been done and will apply with effect from upcoming Session 2020-21:
  - i. **Microprocessor** and **Data Base Management System** subject has been renamed as **Microprocessor and Interfaces** and **Relational Data Base Management System** respectively.
6. In B.Tech 6<sup>th</sup> semester following changes has been done & will apply with effect from upcoming Session 2020-21:
  - i. **Compiler Design** Subject (theory and lab) replaced with **Java** Subject (theory and lab).

- ii. In Professional Elective-I & II, **Advance Operating System** Subject replaced with *Software Testing and Quality Assurance Subject*.
- ii. In Open Elective -I, in place of these subjects (1. **Computer Graphics**, 2. **Geo- Informatics and GIS Applications**, 3. **Cloud Computing**, 4. **Distributed Systems**) the below mentioned new subjects are introduced (1. **Management Information Systems**, 2. **E-Commerce**, 3. **Human Resource Management**, 4. **Business Intelligence**)
- iv. The **Computer Graphics** subject have included in the compulsory subject.
- v. The **Management Information System** Subject is removed from the category of HumanityScience and added in Open Elective category
- 7. B.Tech 3<sup>rd</sup> year (5<sup>th</sup> semester and 6<sup>th</sup> semester) lab and project credit has been revised and will apply with effect from upcoming session 2020-21.
- 8. B.Tech 3<sup>rd</sup> year (5<sup>th</sup> semester and 6<sup>th</sup> semester) course code is also revised and will apply with effect from upcoming session 2020-21.
- 9. In B.Tech 7<sup>th</sup> semester following changes have been done and will apply with effect from upcoming Session 2021-22.:
  - i. **Web Science & Technology** (theory) have been replaced by **Compiler Design** (theory).
  - ii. **Data Mining Lab** have been replaced by **Compiler Design Lab**.
  - ii. In Professional Electives
    - (a) **TCP/IP** subject have been renamed as **TCP/IP Internetworking**.
    - (b) **Pattern Recognition** and **Digital Signal Processing** have been replaced with **WebTechnology** and **Cyber Crime & Security** respectively.
  - iv. In Open Electives subject
    - (a) **Java** has been replaced with **Distributed System**.
    - (b) **VB.Net** subject is renamed as **Visual Basic.Net**
- 10. In B.Tech 8<sup>th</sup> semester following changes has been done and will apply with effect from upcoming Session 2021-22.
  - i. Various Professional Elective-I lab subjects (1. **Network Security Lab** 2. **Mobile Application Development Lab** 3. **Cloud Computing Lab**, 4. **Big Data Analysis Lab**) has been introduced.
  - ii. In Professional Elective-I, subjects **Grid Computing**, **Multimedia System Design** and **Cyber Crime Security** has been replaced by subjects of **Mobile Application Development**, **Cloud Computing**, and **Big Data Analysis** respectively
  - ii. In Open Electives-I & II, subjects **Principle of Management** and **Nano Technology** has been replaced by **Information Retrieval Systems** and **Machine Learning** respectively.
- 11. B.Tech 4<sup>th</sup> year (7<sup>th</sup> semester and 8<sup>th</sup> semester) course code is also revised and will apply with effect from upcoming session 2021-22.
- 12. B.Tech 4<sup>th</sup> year (7<sup>th</sup> semester and 8<sup>th</sup> semester) lab and project credit has been revised and will apply with effect from upcoming session 2021-22.
- 13. Finalization of the PEO, PSO, and POS also has been done.
- 14. Course objective and Course outcomes has been introduced in B. Tech (2nd, 3rd, and 4<sup>th</sup> year) syllabus (theory and lab).
- 15. Syllabus of entrance examination VRET for PhD admission has been finalized.

16. All the valuable suggestions made by Internal and External members are incorporated in the Syllabus and Scheme which are enclosed here with.
17. External Member has joined the meeting through Video-Conferencing and has given his valuable suggestions which are incorporated in the Syllabus and Scheme.
18. Invited Members has joined the meeting through Video-Conferencing and has given his valuable suggestions which are incorporated in the Syllabus and Scheme.

**It was agreed that the approval of external experts and invitee members on MoM along with the related documents will be seeked through email, due to the present pandemic situation.**

**The meeting ended with vote of Thanks.**



**Dr. Alok Kumar Singh Kushwaha**

**(Chairman of BOS)**

**Mr. Amit Sharma,**

**(External Member, BOS)**

**(Consent through e-mail)**

**Dr. Sanjay Kumar**

**(External Member, BOS)**

**(Consent through e-mail)**

<b>Invited Members</b>	
Dr. Manish Srivastava	Consent through e-mail
Mr. Devendra Kumar Singh	Consent through e-mail
Mr. Nishant Behar	Consent through e-mail
Mr. Vaibhav Kant Singh	Consent through e-mail
Mrs. Raksha Pandey	Consent through e-mail
Mr. Amit Kumar Baghel	Consent through e-mail
Mr. Satish Kumar Negi	Consent through e-mail
Mr. Pushpendra Kumar Chandra	Consent through e-mail
Mr. Manjit Jaiswal	Consent through e-mail
Mrs. Princy Matalani	Consent through e-mail

## Scheme and Syllabus

### SCHEME FOR EXAMINATION B.TECH (FOUR YEAR) DEGREE COURSE COMPUTER SCIENCE AND ENGINEERING

#### SCHOOL OF STUDIES IN ENGINEERING & TECHNOLOGY GURU GHASIDAS VISHWAVIDYALAYA FOURTH YEAR, SEMESTER - VIII

W.E.F. SESSION 2021-22

Branch :- Computer Science & Engg.

Year : IV

Sem- VIII

S.No.	Code No.	Subject	Periods			Evaluation Scheme			Credits
			L	T	P	IA	ESE	Total	
1	CS08TPEX	Professional Elective-I	3	0	0	30	70	100	3
2	CS08TOEX	Open Elective-I	3	0	0	30	70	100	3
3	CS08TOEX	Open Elective-II	3	0	0	30	70	100	3
<b>PRACTICAL</b>									
1	CS08PPEX	Professional Elective-I Lab	0	0	3	30	20	50	1.5
2	CS08PPR04	Major Project -II	0	0	12	120	80	200	6
<b>Total</b>									<b>16.5</b>

Professional Elective-I Subject VIII Sem.				Open Elective-I & II Subject VIII Sem.			
S.No	Subject Code	Subject	Credits	S.No	Subject Code	Subject	Credits
1	CS08TPE13	Network Security	3	1	CS08TOE09	Enterprise Resource Management	3
2	CS08TPE14	Mobile Application Development	3	2	CS08TOE10	Information Retrieval Systems	3
3	CS08TPE15	Cloud Computing	3	3	CS08TOE11	Wireless Sensor Network	3
4	CS08TPE16	Big Data Analysis	3	4	CS08TOE12	Machine Learning	3

Professional Elective Subject Lab VIII Sem			
S.No	Subject code	Subject	Credits
1	CS08PPE01	Network Security Lab	1.5
2	CS08PPE02	Mobile Application Development Lab	1.5
3	CS08PPE03	Cloud Computing Lab	1.5
4	CS08PPE04	Big Data Analysis Lab	1.5

<b>Sub Title: NETWORKSECURITY LAB</b>	
<b>Sub Code: CS08PPE01</b>	<b>No. of Credits : 1.5=0: 0: 1.5(L-T-P)</b>
<b>Exam Duration : 3 hours</b>	<b>IA+ESE =30+20</b>

<p><b>Lab OBJECTIVE:</b></p> <ol style="list-style-type: none"> <li>1. To train more professional in the area of Network Security</li> <li>2. To support in developing vulnerability free web applications</li> <li>3. To support industry in Cyber security research</li> </ol>
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<b>Unit No.</b>	<b>Content</b>	<b>Teaching Hours</b>
<b>I, II, III, IV and V</b>	<ul style="list-style-type: none"> <li>• Implement Caesar cipher encryption-decryption.</li> <li>• Implement Monoalphabetic cipher encryption-decryption.</li> <li>• Implement Playfair cipher encryption-decryption.</li> <li>• Implement Polyalphabetic cipher encryption-decryption.</li> <li>• Implement Hill cipher encryption-decryption.</li> <li>• To implement Simple DES or AES.</li> <li>• Implement Diffi-Hellmen Key exchange Method.</li> <li>• Implement RSA encryption-decryption algorithm.</li> <li>• Write a program to generate SHA-1 hash.</li> <li>• Implement a digital signature algorithm.</li> <li>• Perform various encryption-decryption techniques with cryptool.</li> <li>• Study and use the Wireshark for the various network protocols.</li> </ul>	18

<p><b>LAB OUTCOMES:</b> The students would have learnt</p> <p>CO1: Define the concepts of Information security and their use.</p> <p>CO2: Describe the principles of symmetric and asymmetric cryptography.</p> <p>CO3: Understand and apply the various symmetric key algorithms.</p> <p>CO4: Understand and apply the various asymmetric key algorithms.</p> <p>CO5: Understand the concepts of hashing with algorithms and apply them</p>
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Text Books:

1. Cryptography And Network Security, Principles And Practice Sixth Edition, William Stallings, Pearson
2. Information Security Principles and Practice By Mark Stamp, Willy India Edition
3. Cryptography & Network Security, Forouzan, Mukhopadhyay, McGrawHill

Reference Books:

1. Fundamentals of computer Algorithms, Horowitz, Sahani, Galgotia. 2nd Edition, 1998. ISBN 81-

7515-257-5

2. Cryptography and Network Security Atul Kahate, TMH
3. Cryptography and Security, C K Shyamala, N Harini, T R Padmanabhan, Wiley-India
4. Information Systems Security, Godbole, Wiley-India
5. Information Security Principles and Practice, Deven Shah, Wiley-India
6. Security in Computing by Pfleeger and Pfleeger, PHI
7. Build Your Own Security Lab : A Field Guide for network testing, Michael Gregg, Wiley India

<b>Sub Title: MOBILEAPPLICATIONDEVELOPMENT LAB</b>	
<b>Sub Code: CS08PPE02</b>	<b>No. of Credits : 1.5=0: 0: 1.5(L-T-P)</b>
<b>Exam Duration : 3 hours</b>	<b>IA+ESE =30+20</b>

<p><b>Lab OBJECTIVE:</b></p> <ol style="list-style-type: none"> <li>1. To understand the components and structure of mobile application development frameworks for Android and windows OS based mobiles.</li> <li>2. To understand how to work with various mobile application development frameworks.</li> <li>3. To learn the basic and important design concepts and issues of development of mobile applications.</li> <li>4. To understand the capabilities and limitations of mobile devices.</li> </ol>
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<b>Unit No.</b>	<b>Content</b>	<b>Teaching Hours</b>
<b>I, II, III, IV and V</b>	<ul style="list-style-type: none"> <li>• Develop an application that uses GUI components, Font and Colours</li> <li>• Develop an application that uses Layout Managers and event listeners.</li> <li>• Write an application that draws basic graphical primitives on the screen.</li> <li>• Develop an application that makes use of databases.</li> <li>• Develop an application that makes use of Notification Manager</li> <li>• Implement an application that uses Multi-threading</li> <li>• Develop a native application that uses GPS location information</li> <li>• Implement an application that writes data to the SD card.</li> <li>• Implement an application that creates an alert upon receiving a message</li> <li>• Write a mobile application that makes use of RSS feed</li> <li>• Develop a mobile application to send an email.</li> <li>• Develop a Mobile application for simple needs (Mini Project)</li> </ul>	18

<p><b>LAB OUTCOMES:</b> The students would have learnt</p> <p>CO1: Develop mobile applications using GUI and Layouts</p> <p>CO2: Develop mobile applications using Event Listener.</p> <p>CO3: Develop mobile applications using Databases.</p> <p>CO4: Develop mobile applications using RSS Feed, Internal/External Storage, SMS, Multi-threading and GPS.</p> <p>CO5: Analyze and discover own mobile app for simple needs</p>
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Text Books:

1. Build Your Own Security Lab, Michael Gregg, Wiley India.

Reference Books:

1. Build Your Own Security Lab, Michael Gregg, Wiley India.



<b>Sub Title: CLOUDCOMPUTING LAB</b>	
<b>Sub Code: CS08PPE03</b>	<b>No. of Credits : 1.5=0: 0: 1.5(L-T-P)</b>
<b>Exam Duration : 3 hours</b>	<b>IA+ESE =30+20</b>

**Lab OBJECTIVE:**

1. To discuss the fundamental concepts of Cloud Computing
2. To learn how to use install and configure Hadoop/MapReduce/HDFS
3. To learn how to create application using Hadoop/MapReduce
4. To learn Various Cloud services provided by Amazon Web Service etc.

<b>Unit No.</b>	<b>Content</b>	<b>Teaching Hours</b>
<b>I, II, III, IV and V</b>	<ul style="list-style-type: none"> <li>• Installation and configuration of Hadoop/MapReduce/HDFS</li> <li>• Service deployment and usage over cloud.</li> <li>• Create an application using Hadoop/MapReduce</li> <li>• Case Study: Google App Engine/ Microsoft Azure/ Amazon Web Services</li> </ul>	18

**LAB OUTCOMES:** The students would have learnt

- CO1: Examine the installation and configuration of Hadoop/Map Reduce  
CO2: Describe the functioning of Platform as a Service  
CO3: Create application using Hadoop/MapReduce  
CO4: Analyze and understand the functioning of different components involved in Amazon web services cloud platform.

**Text Books:**

1. Cloud Computing: Principles and Paradigms by Rajkumar Buyya, James Broberg, Andrzej M. Goscinski, Wiley.
2. Cloud Computing” by M. N. Rao, PHI.
3. Cloud Computing: A Practical Approach” by Toby Velte, Anthony Vote and Robert Elsenpeter, McGraw Hill.

Reference Books:

1. Cloud Computing Bible”, Barrie Sosinsky, Wiley India Edition.
2. Cloud Security: A Comprehensive Guide to Secure Cloud Computing”, Ronald L. Krutz, Russell Dean Vines, Wiley- India,2010

<b>Sub Title: BIGDATA ANALYSIS LAB</b>	
<b>Sub Code: CS08PPE04</b>	<b>No. of Credits : 1.5=0: 0: 1.5(L-T-P)</b>
<b>Exam Duration : 3 hours</b>	<b>IA+ESE =30+20</b>

<p><b>Lab OBJECTIVE:</b></p> <ol style="list-style-type: none"> <li>1. Learn Injecting data into Hadoop</li> <li>2. Learn to build and maintain reliable, scalable, distributed systems with Hadoop</li> <li>3. Able to apply Hadoop ecosystem components.</li> <li>4. To teach the fundamental techniques and principles in achieving big data analytics with scalability and streaming capability.</li> <li>5. To enable students to have skills that will help them to solve complex real-world problems in for decision support.</li> </ol>
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<b>Unit No.</b>	<b>Content</b>	<b>Teaching Hours</b>
<b>I, II, III, IV and V</b>	<ul style="list-style-type: none"> <li>• Study of Hadoop ecosystem</li> <li>• Programming exercises on Hadoop</li> <li>• Programming exercises in No SQL</li> <li>• Implementing simple algorithms in Map- Reduce (3) - Matrix multiplication, Aggregates, joins, sorting, searching etc.</li> <li>• Implementing any one Frequent Itemset algorithm using Map-Reduce</li> <li>• Implementing any one Clustering algorithm using Map-Reduce</li> <li>• Implementing any one data streaming algorithm using Map-Reduce</li> <li>• Mini Project: One real life large data application to be implemented (Use standard Datasets available on the web) a) Twitter data analysis b) Fraud Detection c) Text Mining etc.</li> </ul>	18

<p><b>LAB OUTCOMES:</b> The students would have learnt</p> <p>CO1: Preparing for data summarization, query, and analysis.</p> <p>CO2: Applying data modelling techniques to large data sets</p> <p>CO3: Creating applications for Big Data analytics</p> <p>CO4: Building a complete business data analytic solution</p>
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Text Books:

1. Intelligent Data Analysis, Michael Berthold, David J. Hand, Springer, 2007.
2. Hadoop: The Definitive Guide, Tom White, Third Edition, O’reilly Media, 2012.
3. Understanding Big Data: Analytics for Enterprise Class Hadoop and Streaming Data, Chris Eaton,



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Dirk DeRoos, Tom Deutsch, George Lapis, Paul Zikopoulos,, McGrawHillPublishing, 2012.

4. Mining of Massive Datasets, Anand Rajaraman and Jeffrey DavidUllman, CUP, 2012.
5. Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with AdvancedAnalytics, Bill Franks, JohnWiley& sons, 2012.
6. Making Sense of Data, Glenn J. Myatt, John Wiley & Sons, 2007.
7. Big Data Glossary, Pete Warden, O'Reilly, 2011.

Reference Books:

1. Data Mining Concepts and Techniques, Jiawei Han, Micheline Kamber, 2nd Edition, Elsevier, Reprinted 2008.
2. Intelligent Data Mining, Da Ruan, Guoqing Chen, Etienne E.Kerre, Geert Wets, Springer, 2007.
3. Harness the Power of Big Data The IBM Big Data Platform Paul Zikopoulos, Dirkde Roos, Krishnan Parasuraman, Thomas Deutsch, James, Giles , David Corrigan, Tata McGraw Hill Publications, 2012.
4. Big Data Science & Analytics: A HandsOn Approach, Arshdeep Bahga, Vijay Madiseti, VPT, 2016

Analytics in a Big Data World: The Essential Guide to Data Science and its Applications  
(WILEY Big Data Ser

**गुरु घासीदास विश्वविद्यालय**  
(केन्द्रीय विश्वविद्यालय अधिनियम 2009 क्र. 25 के अंतर्गत स्थापित केन्द्रीय विश्वविद्यालय)  
**कोनी, बिलासपुर - 495009 (छ.ग.)**



**Guru Ghasidas Vishwavidyalaya**  
(A Central University Established by the Central Universities Act 2009 No. 25 of 2009)  
**Koni, Bilaspur - 495009 (C.G.)**

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**Department of Computer Science & Engineering**  
**School of Studies in Engineering & Technology**  
**Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)**

**Minutes of Meeting**

Today, on 15 December 2021, the board of studies (BOS) meeting held through online platform google meet from 04:00 pm. The following members attended this online meeting.

1. Dr. Alok Kumar Singh Kushwaha, **Head and Chairman of BOS**
2. Mr. Amit Sharma, **External Member, BOS**
3. Dr. Sanjay Kumar, **External Member, BOS**
4. Dr. Manish Shrivastava, Assistant Prof., CSE:
5. Mrs. Raksha Pandey, Assistant Prof., CSE:
6. Dr. Princy Matlani, Assistant Prof., CSE:

Invited Members  
Invited Members  
Invited Members

**In this online meeting the following point has been concluded**

1. Finalize the Scheme and Syllabus of PhD Pre-Course work from Session 2021-22.
2. B.Tech 2<sup>nd</sup> year (3<sup>rd</sup> semester and 4<sup>th</sup> semester) course code is revised and will be effected from Session 2021-22.
3. The subject "System Software" is replaced with the Subject "Management-1" in the B.Tech 4<sup>th</sup> semester.

The Meeting ended with a vote of thanks by the Head of the Department.

Mr. Amit Sharma  
**(External Member, BOS)**  
(Consent through e-mail)

Dr. Sanjay Kumar  
**(External Member, BOS)**  
(Consent through e-mail)

  
Dr. Alok Kumar Singh Kushwaha

  
Dr. Manish Shrivastava

  
Mrs. Raksha Pandey

  
Dr. Princy Matlani

**SCHEME FOR EXAMINATION B.TECH (FOUR YEAR) DEGREE**  
**COURSE COMPUTER SCIENCE AND ENGINEERING**  
**SCHOOL OF STUDIES IN ENGINEERING & TECHNOLOGY**  
**GURU GHASIDAS VISHWAVIDYALAYA**  
**SECOND YEAR, SEMESTER - III & IV**  
**W.E.F. SESSION 2021-22**

**Branch:- Computer Science & Engg.**

**Year: II**

**Sem:- III**

S.No	Code no.	Subject	Periods			Evaluation Scheme			Credits
			L	T	P	IA	ESE	Total	
1	CS203TES06	Digital logic & Design	3	1	0	30	70	100	4
2	CS203TPC01	IT workshop (C++ / python )	3	1	0	30	70	100	4
3	CS203TPC02	Computer Network	3	1	0	30	70	100	4
4	CS203TPC03	Computer Organization & Architecture	3	1	0	30	70	100	4
5	CS203TBS05	Mathematics III (Numerical Methods)	3	1	0	30	70	100	4
<b>PRACTICAL</b>									
1	CS203PPC01	IT workshop (C++ / python ) Lab	0	0	3	30	20	50	1.5
2	CS203PPC02	Computer Network Lab	0	0	3	30	20	50	1.5
3	CS203PES06	Digital Logic & Design Lab	0	0	3	30	20	50	1.5
<b>Total</b>									<b>24.5</b>

**Branch:- Computer Science & Engg.**

**Year: II**

**Sem:- IV**

S.No	Code no.	Subject	Periods			Evaluation Scheme			Credits
			L	T	P	IA	ESE	Total	
1	CS204TPC04	Discrete Mathematics	3	1	0	30	70	100	4
2	CS204TES07	Electronic Device & Circuits	3	0	0	30	70	100	3
3	CS204TPC05	Operating System	3	1	0	30	70	100	4
4	CS204TPC06	Data Structure & Algorithms	3	1	0	30	70	100	4
5	CS204THS02	MANAGEMENT I- MANAGEMENT PROCESS AND ORGANIZATIONAL BEHAVIOUR	3	0	0	30	70	100	3
<b>PRACTICAL</b>									
1	CS204PPC03	Operating System Lab	0	0	3	30	20	50	1.5
2	CS204PPC04	Data Structure & Algorithms Lab	0	0	3	30	20	50	1.5
3	CS204PES07	Electronic Device &	0	0	3	30	20	50	1.5

		Circuits Lab							
	<b>Total</b>								<b>22.5</b>





**Sub Title: MANAGEMENT PROCESS AND ORGANIZATIONAL BEHAVIOUR**

<b>Sub Code: CS204THS02</b>	<b>No. of Credits : 3=3: 0: 0(L-T-P)</b>	<b>No of lecture hours/week :03</b>
<b>Exam Duration : 3 hours</b>	<b>IA+ESE=30+70</b>	<b>Total no of contact hours:23</b>

**COURSE OBJECTIVES:**

1. To help the students to develop cognizance of the importance of Management processes.
2. To enable students to describe how people behave under different conditions and understand why people behave as they do.
3. To provide the students to analyses specific strategic human resources demands for future action.
4. To enable students to synthesize related information and evaluate options for the most logical and optimal solution such that they would be able to predict and control

<b>UNIT No</b>	<b>Syllabus Content</b>	<b>No of Hours</b>
<b>1</b>	School of Management Thought: Evolution of Management thought, Systems and Contingency approach of management, Decision Theory School.	<b>10</b>
<b>2</b>	Managerial processes, functions, skills and roles in an organization. Nature, process and technique of planning, Organizing, Staffing, Directing, Coordinating, Control.	<b>10</b>
<b>3</b>	Behaviour: Concept, Significance, Understanding and Managing individual behavior – Personality, Perceptions, Values, Attitudes, Learning, Work-motivation, Individual Decision Making and Problem solving.	<b>10</b>
<b>4</b>	Understanding and Managing Group Processes: Interpersonal and Group dynamics. Applications of emotional intelligence in organizations. Group decision making. Leadership and Influence Process : Concept, styles and Theories.	<b>8</b>
<b>5</b>	Managing Organizational Systems, Organizational Conflict – sources, pattern levels and types of conflict. Organizational design and structure. Work stress.	<b>7</b>

**COURSE OUTCOMES:** On completion of this course, the students will be able to

CO1 : To understand the concept of Management.

CO2 : Demonstrate the applicability of the concept of Management processes to understand the functioning of the organization.

CO3 : Demonstrate the applicability of the concept of organizational behavior to understand the behavior of people in the organization.

CO4: Analyze the complexities associated with management of the group behavior in the organization.

CO5 : Demonstrate the applicability to manage the organization.

### **Suggested Readings**

1. Koontz, Harold, Cyril O'Donnell, and Heinz, Whelrich. Essentials of Management. New Delhi: Tata Mc Graw Hill.
2. Robbins, S.P. Organizational Behaviour. New Delhi: PHI.  
Luthans, F. Organisational Behaviour. New York: Mc Graw H

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**SCHOOL OF STUDIES (ENGINEERING AND TECHNOLOGY)**  
**GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G)**  
**EVALUATION SCHEME FOR Pre- Ph.D. COURSE WORK**

**EFFECTIVE FROM SESSION 2021-2022**

S. No.	Name of Subject	Subject Code	Periods /Week L-T-P	ESE Duration	ESE MARKS		Credits
					Max	Min	
1	Research Methodology in Engineering	IT7100	3-1-0	3Hrs	100	50	4
2	Elective -I	CSE71XX	3-1-0	3Hrs	100	50	4
3	Elective -II	CSE71XX	3-1-0	3Hrs	100	50	4
4	Seminar	IT7101	-	-	Qualified/ Not Qualified		0
	Total		9-3-0		300	150*	12
	<b>LIST OF ELECTIVES</b>	**	Duration of Semester will be 6 months				
S.N.	Name of the Subject	Subject Code	<ul style="list-style-type: none"> <li>• Candidate has to score minimum 60% of the aggregate marks to qualify in ESE.</li> <li>• Two core subjects as Electives (4 Credits each) to be decided by the DRC.</li> </ul>				
1	Network Security	CSE7102					
2	Simulation & Modeling	CSE7103					
3	Computer Vision	CSE7104					
4	Machine Learning	CSE7105					

ESE: End Semester Examination L: Lecture T: Theory P: Practical  
Max: Maximum marks in ESE;  
Min: Minimum pass Marks in each subject as 50%

# COMPUTER VISION

## **UNIT- I**

Fundamentals of Image Formation, Transformation: Orthogonal, Euclidean, Affine, Projective, etc; Fourier Transform, Convolution and Filtering, Image Enhancement, Restoration, Histogram Processing.

## *UNIT- II*

Edges , Canny, LOG, DOG; Line detectors (Hough Transform), Corners , Harris and Hessian Affine, Orientation Histogram, SIFT, SURF, HOG, GLOH, Scale,Space Analysis, Image Pyramids and Gaussian derivative filters, Gabor Filters and DWT.

## *UNIT -III*

Region Growing, Edge Based approaches to segmentation, Graph,Cut, Mean,Shift, Texture Segmentation; Object detection.

## *UNIT- IV*

Clustering: K,Means, K,Medoids, Mixture of Gaussians, Classification: Discriminate Function, Supervised, Un,supervised, Semi,supervised; Classifiers: Bayes, KNN, ANN models; Dimensionality Reduction: PCA, LDA, ICA; Non,parametric methods.

## *UNIT- V*

Methods for 3D vision – projection schemes , shape from shading, photometric stereo ,shape from texture , shape from focus , active range finding , surface representations , point,based representation , volumetric representations, 3D object recognition , 3D reconstruction , introduction to motion , triangulation , bundle adjustment , translational alignment , parametric motion – spline,based motion ,optical flow , layered motion.

## *REFERENCES:*

1. Richard Szeliski, Computer Vision: Algorithms and Application, Springer,Verlag LondonLimited 2011.
2. Computer Vision : A Modern Approach, D.A. Forsyth, J. Ponce, Pearson education , 2003.
3. Richard Hartley and Andrew Zisserman, Multiple View Geometry in Computer Vision,Second Edition, Cambridge University Press, March 2004.
4. R.C. Gonzalez and R.E. Woods, Digital Image Processing, Addison, Wesley, 1992.

# MACHINE LEARNING

## *UNIT - I*

**Introduction** - Well-posed learning problems, Designing a learning system, Perspectives and issues in machine learning Concept learning and the general to specific ordering–Introduction, A concept learning task, Concept learning as search, Find-S: finding a maximally specific hypothesis, Version spaces and the candidate elimination algorithm, Remarks on version spaces and candidate elimination, Inductive bias.

## *UNIT - II*

**Decision Tree learning** – Introduction, Decision tree representation, Appropriate problems for decision tree learning, The basic decision tree learning algorithm, Hypothesis space search in decision tree learning, Inductive bias in decision tree learning, Issues in decision tree learning **Artificial Neural Networks** – Introduction, Neural network representation, Appropriate problems for neural network learning, Perceptions, Multilayer networks and the back propagation algorithm, Remarks on the back propagation algorithm, An illustrative example face recognition

Advanced topics in artificial neural networks

**Evaluation Hypotheses** – Motivation, Estimation hypothesis accuracy, Basics of sampling theory, A general approach for deriving confidence intervals, Difference in error of two hypotheses, Comparing learning algorithms

## *UNIT - III*

**Bayesian learning** – Introduction, Bayes theorem, Bayes theorem and concept learning, Maximum likelihood and least squared error hypotheses, Maximum likelihood hypotheses for predicting probabilities, Minimum description length principle, Bayes optimal classifier, Gibbs algorithm, Naïve Bayes classifier, An example learning to classify text, Bayesian belief networks The EM algorithm

**Computational learning theory** – Introduction, Probability learning an approximately correct hypothesis, Sample complexity for Finite Hypothesis Space, Sample Complexity for infinite Hypothesis Spaces, The mistake bound model of learning - **Instance-Based Learning**- Introduction, k -Nearest Neighbour Learning, Locally Weighted Regression, Radial Basis Functions, Case-Based Reasoning, Remarks on Lazy and Eager Learning

**Genetic Algorithms** – Motivation, Genetic Algorithms, An illustrative Example, Hypothesis Space Search, Genetic Programming, Models of Evolution and Learning, Parallelizing Genetic Algorithms

## *UNIT - IV*

**Learning Sets of Rules** – Introduction, Sequential Covering Algorithms, Learning Rule Sets: Summary, Learning First Order Rules, Learning Set of First Order Rules: FOIL, Induction as Inverted

Deduction, Inverting Resolution

**Analytical Learning**-Introduction, Learning with Perfect Domain Theories: Prolog-EBG Remarkson Explanation-Based Learning, Explanation-Based Learning of Search Control Knowledge.

### *UNIT - V*

**Combining Inductive and Analytical Learning** – Motivation, Inductive-Analytical Approaches to Learning, Using Prior Knowledge to Initialize the Hypothesis, Using Prior Knowledge to Alter the Search Objective, Using Prior Knowledge to Augment Search Operators,

**Reinforcement Learning** – Introduction, The Learning Task, Q Learning, Non-Deterministic, Rewards and Actions, Temporal Difference Learning, Generalizing from Examples, Relationship to Dynamic Programming

### *TEXT BOOKS:*

1. Machine Learning – Tom M. Mitchell, - MGH
2. Machine Learning: An Algorithmic Perspective, Stephen Marsland, Taylor & Francis (CRC)

### *REFERENCE BOOKS:*

1. Machine Learning Methods in the Environmental Sciences, Neural Networks, William W Hsieh, Cambridge Univ Press.
2. Richard o. Duda, Peter E. Hart and David G. Stork, pattern classification, John Wiley & Sons Inc., 2001
3. Chris Bishop, Neural Networks for Pattern Recognition, Oxford University Press, 1995.
4. Machine Learning by Peter Flach , Cambridge.