SAMBALPUR UNIVERSITY:JYOTI VIHAR:BURLA
SAMBALPUR, ODISHA-768019

Proceedings of the meeting of the Board of Studies in Computer Science

Held at 12.00 on date 08/02/2020 in the Administrative Building of the University.

MEMBER PRESENT:-

1. Dr. C. S. Panda
2. Sri. Niranjan Bara
3. Sri. Jagadish Sahoo
4. Sri. Jayakrushna Sagar
5. Sri. Sambit Kumar Mondal
6. Sri Satyabrat Sahoo
7.
8.
9.
10.
11.
12.

BUSINESS TRANSACTED:-

1. ~~Sri~~/Dr/~~Prof~~ C. S. Panda (Dean/Add.) _____ has been elected as the Chairman of the Board for the current academic session 2019-20.
2. Recommended the lists of Examiners, Paper Setters, Moderators and members of the Conducting Board for the following Examinations separately.
   i) All relevant examinations to be held
   ii) during 2020-21.
   iii)
   iv)
   v)

3. Recommended the list of Indian and Foreign Examiners for evaluating of Ph.D. Thesis of the following candidates separately.
   1. Sasmita Kumari Nayak
   2. Sagarika Mishra
   3.
   4.
   5.
   6.
   7.
   8.
   9.
   10.

(During consideration of examiners in respect of Sl. No. 1 and 2
~~Sri~~/Dr. C. S. Panda
respectively remained absent in the meeting)

4. Recommended no change/minor change/in the ***Syllabus, Revised Syllabus*** for the following examinations as in appendix _____ enclosed.

i) [redacted], PGDCA no change.
ii) Recommended revised syllabus for MSc in computer science detail in Annexure-A.
iii) MPhil syllabus no change.
iv) Annexure-A will be submitted by th chairman, after checking typographica errors.

5. Recommended the following modification /amendments in the ***regulation*** for _____ Examinations.

v) Recommended some minor changes in BCA CBCS syllabus effective from academic session 2019-20. Details in Annexure-B

6. Other recommendations, if any.

SIGNATURE OF THE MEMBERS PRESENTS

08/2/2020

Nijan Bar 08/02/2020

Jayakrishna Sagar 08-02-2020

Jagadish Sal 8/2/20

Sambit. 8/2/20

08/02/2020

Appendix- A

SAMBALPUR UNIVERSITY

JYOTI VIHAR, BURLA-768019

Two Year M.Sc. Degree Course in Computer Science

M.Sc. Computer Science

(To be implemented from Academic year 2020-2021)

Semester Structure

First Semester - First August to December.

Second Semester - First January to June.

Third Semester - First July to December.

Fourth Semester - First January to June.

Jagadish Sahoo 8/2/20

Mi Jena 8/2/2020

Sambit 8/2/20

8-2-20

08/2/2020

Course Structure of M.Sc. Computer Science Programme

Semester - I	Semester - II	Semester - III	Semester - IV
Object Oriented Programming using C++	Programming with JAVA	Python Programming	Major Project
Software Engineering &OOAD	Database Management System	Data Communication &Networking	Seminar
Operating System	Data Structure	Digital Image Processing	
Computer Organization and Architecture	Discrete Mathematics	Elective: (Select any one) 1. Artificial Intelligence 2. Parallel Computing 3. Computer Security 4. Analysis & Design of Algorithm	
Lab on C++	Lab on JAVA Programming	Lab on Python Programming	
Lab on Operating System	Lab on DBMS	Lab on Digital Image Processing	

Semester - I

Course Code	Course Title	No. of Credits	No. of Hours/Week
MSC -101	Object Oriented Programming using C++	4	4
MSC -102	Software Engineering &OOAD	4	4
MSC -103	Operating System	4	4
MSC -104	Computer Organization and Architecture	4	4
MSC -105	Lab on C++	3	6
MSC -106	Lab on Operating System	3	6
Total No of Credits		**22**	-

Semester - II

Course Code	Course Title	No. of Credits	No. of Hours/Week
MSC -201	Programming with JAVA	4	4
MSC -202	Database Management System	4	4
MSC -203	Data Structure	4	4
MSC -204	Discrete Mathematics	4	4
MSC -205	Lab on JAVA Programming	3	6
MSC -206	Lab on DBMS	3	6
Total No of Credits		**22**	-

Semester - III

Course Code	Course Title	No. of Credits	No. of Hours/Week
MSC -301	Python Programming	4	4
MSC -302	Data Communication &Networking	4	4
MSC -303	Digital Image Processing	4	4
MSC -304	Elective: (Select any one)		
MSC -304(1)	Artificial Intelligence		
MSC -304(2)	Parallel Computing		
MSC -304(3)	Computer Security		
MSC -304(4)	Analysis & Design of Algorithm		
MSC -305	Lab on Python Programming	3	6
MSC -306	Lab on Digital Image Processing	3	6
Total No of Credits		**22**	-

Semester - IV

Course Code	Course Title	No. of Credits	No. of Hours/Week
MSC -401	Major Project	12	24
MSC -402	Seminar	4	4
Total No of Credits		**16**	-

Total Credits of the Course

	Sem - I	Sem - II	Sem - III	Sem - IV	TOTAL
Total No of Credits	22	22	22	16	**82**

English Sch 8/2/20 Nirja Bara 8/2/2020 8/2/2020

The approved modifications communicated to all concerned vide letter No – 3754 / Acd-I dated 13.11.2020. The copy of the letter and modification have made available in ***Appendix- A-5***.

(B) Any motion for a change in order of Business as set forth on the agenda.

NIL

(C) Business brought forward by the Vice Chancellor as also Business remitted by the Syndicate.

NIL

(D) Business brought forward by the Faculties.

NIL

(E) Business brought forward by the Board of Studies:

(1) ***The Chairman, P.G. Council , Sambalpur University, Jyoti Vihar*** to move on behalf of the Boards of Studies:

That the Academic Council do consider and approve the recommendations of the Board of Studies for academic session 2020-21 in approving changes / revision of syllabi etc. as stated below: -

a. ***B.O. S. in Commerce*** recommended: -

i. **Revised syllabus for M. Com.** for affiliated colleges and M. Com. courses **under self-financing mode** from 2021-22 academic session. Recommended syllabus has been made available in ***Appendix- E-a.***

(**Note** :- BOS has also recommended Regulation for M. Com. course in Self- Financing mode . Matter had been placed before the Vice-Chancellor. As per order ***M. Com. course in Self- Financing*** mode will be regulated by Common P.G. Regulation. The matter related to administration of the said self- financing Couse may be taken care by P.G.C.O. and the Syndicate.)

b. *B.O. S. in Hindi* recommended: -

i. Some modifications syllabus for **M. A. in Hindi**.

Recommended modification has been made available in ***Appendix- E-b.***

c. *B.O. S. in Law* recommended: -

i. Regulation and Syllabus for a new course **P.G. Diploma in Labour Laws**.

Recommended Regulation and Syllabus have been made available in ***Appendix- E-c-1.***

(Note:- P.G. Diploma in Labour Laws ***is a new course*** proposed to be introduced in P.G. Department of Law, Sambalpur University on self-financing mode)

i. Some modifications in ***L.L.M. syllabus*** as follows: -

a. Recommended revised syllabus for one paper (It has been made available in ***Appendix- E-c-2-a.***

b. Recommended addition of one Special paper in Labor Laws (It has been made available in ***Appendix- E-c-2-b.***

d. *B.O. S. in Nursing* recommended: -

i. Regulation and Syllabus for a **new course M.Sc. in Nursing**

Recommended Regulation and Syllabus have been made available in ***Appendix- E-d-1.***

(Note:- M.Sc. in Nursing is a new course proposed to be introduced in affiliated colleges of Sambalpur University)

i. Regulation and Syllabus for a ***new course Ph.D. in Nursing***

Recommended Regulation and Syllabus have been made available in ***Appendix- E-d-2.***

(**Note** :- ***Regulation and syllabus for Ph.D. in Nursing course are not in conformity with the Common Ph. D. Regulation and Course Structure of the University as well as Ph. D. guidelines of the UGC . However the Academic Council may take a decision*** on the matter considering the Gazette Notification on the subject made available in ***Appendix- E-d-3.***

e. ***B.O. S. in Zoology*** recommended: -

i. Revised syllabus for M. Sc, in Zoology.

Recommended syllabus has been made available in ***Appendix- E-e-1.***

i. The BOS in Zoology has recommended ***some suggestion i.e. " Student admitted in UG Zoology (Hons.) must opt for two GE i.e. Chemistry & Botany during the degree course, which will be helpful for their Studies***. The Common Regulation may be modified accordingly. As required by B.Ed. selection & P.G. courses in other state, it will be highly beneficial for the students. ***The Academic Council may consider and take a decision on the matter.***

f. ***B.O. S. in Political Science*** recommended: -

i. Revised syllabus for ***M.A. in Political Science***.

Recommended syllabus has been made available in ***Appendix- E-f-1.***

g. ***B.O.S. in Performing Arts*** recommended: -

i. Revised syllabus for ***Master of Performing Arts (Dance & Drama).***

Recommended syllabus has been made available in ***Appendix- E-i-1.***

h. ***B.O.S. in Odia*** recommended: -

i. Some modifications in ***M.A. in Odia*** syllabus

Recommended syllabus has been made available in ***Appendix- E-h-1.***

ii. Some modifications in ***M.Phil. in Odia*** syllabus

Recommended syllabus has been made available in ***Appendix- E-h-2.***

i. ***B.O.S. in Geography*** has recommended that ***SEC-II*** (University Option) for Semester-IV shall be "***Research Methodology***" of 50 Marks.

(Note :- ***The BOS has not submitted detail course for "Research Methodology***)

j. ***B.O.S. in History*** has recommended some minor modification in ***UG Syllabus in History,*** which are as follow: -

Sem.-III -- -SEC-I- Indian Society & Culture substituted as SEC-I

GE- History of Odisha (From Early time to 1568)

Sem.-IV- SEC-IV -Freedom Movement in India

GE- History of Odisha (From 1568 to 1936)

Sem.-4 Growth & Development of Education in British India (1813 to 1950)

(Note:- The ***BOS has not submitted detail course*** for the said papers)

k. ***B.O.S. in Business Administration*** recommended some modifications in syllabus of ***MBA (Regular) 3rd. Semester,*** Paper -HR-308- Human Recourses Development: Strategies and System.

Recommended revised syllabus has been made available in ***Appendix- E-k-1.***

l. ***B.O. S. in Psychology*** has recommended: -

i. Revised Syllabus for **M.A. in Psychology.** Recommended Syllabus have been made available in Recommended modification has been made available in ***Appendix- E-l-1.***

i. Syllabus for **M.A. in Applied Psychology**. Recommended Syllabus have been made available in Recommended modification has been made available in ***Appendix- E-l-2.***

(Note:- **M.A. in Applied Psychology** proposed to be introduced in P.G. Department of Sambalpur University on self-financing mode)

m. ***B.O. S. in Physics*** has endrudged ***some suggestions*** given by one member of BOS for consideration to ***forward it to Odisha State Higher Education Council*** for consideration. The suggestions have been made available in ***Appendix- E-m-1.***

The Academic Council may take a decision on the said suggestions.

Course Details at a glance

Semester I

1. CP-101-Principles and Practices of Management - 4 Credit Point
2. CP-102-Business Statistics and Analysis - 4 Credit Point
3. CP-103-Managerial Economics - 4 Credit Point
4. CP-104-Business Environment - 4 Credit Point
5. CP-105-Business Communication - 4 Credit Point
6. CP-106-Human Values and Professional Ethics - 4 Credit Point
7. CP-107-Financial Accounting for Managers - 4 Credit Point
8. CP-108-Computer Application in Management - 4 Credit Point

Semester II

1. CP-201-Legal Aspects of Business - 4 Credit Point
2. CP-202-Quantitative Techniques for Managers - 4 Credit Point
3. CP-203-Human Resource Management - 4 Credit Point
4. CP-204-Corporate Financial Management - 4 Credit Point
5. CP-205-Marketing Management - 4 Credit Point
6. CP-206-Operations Management - 4 Credit Point
7. CP-207-Business Research Methods - 4 Credit Point
8. CP-208-Organisational Behaviour - 4 Credit Point

Semester III

1. CP-301-Strategic Management - 4 Credit Point
2. CP-302-International Business Management - 4 Credit Point
3. CP-303-Summer Training, Project Report & Viva-voce - 4 Credit Point

Finance (Major Specialisation)

1. F-304-Security Analysis and Portfolio Management - 4 Credit Point
2. F-305-International Financial Management - 4 Credit Point
3. F-306-International Accounting - 4 Credit Point
4. F-307-Financial Derivatives - 4 Credit Point
5. F-308-Project Planning Analysis & Management - 4 Credit Point
6. F-309-Corporate Restructuring - 4 Credit Point

Marketing (Major Specialisation)

1. M-304-Consumer Behaviour - 4 Credit Point
2. M-305-Advertising Management - 4 Credit Point
3. M-306-Strategic Management - 4 Credit Point
4. M-307-International Marketing - 4 Credit Point
5. M-308-Sales & Distribution Management - 4 Credit Point
6. M.309-Planning & Managing Retail Business - 4 Credit Point

Human Resource (Major Specialisation)

1. HR-304-Management of Industrial Relations - 4 Credit Point
2. HR-305-Performance and Reward Management - 4 Credit Point
3. HR-306-Legal Framework Governing Human Relations - 4 Credit Point
4. HR-307-Management Training & Development - 4 Credit Point
5. HR-308-Human Resource Development-Strategies & Systems - 4 Credit Point
6. HR-309-Human Resource Planning & Development - 4 Credit Point

Information Technology (Major Specialisation)

1. IT-304-Database Management System - 4 Credit Point
2. IT-305-Data Communication - 4 Credit Point
3. IT-306-Software Engineering - 4 Credit Point
4. IT-307-System Analysis and Design - 4 Credit Point
5. IT-308-Information Security - 4 Credit Point
6. IT-309-E-Commerce and Cyber Law - 4 Credit Point

Production & Operations (Major Specialisation)

1. PO-304-Purchaing & Materials Management : 4 Credit Point
2. PO-305-Total Quality Management : 4 Credit Point
3. PO-306-Production Planning & Control : 4 Credit Point
4. PO-307-Applied Operations Research : 4 Credit Point
5. PO-308-Logistics Management : 4 Credit Point
6. PO-309-Goal Programming in Management : 4 Credit Point

Insurance & Risk Management (Major Specialisation)

1. IR-304-Principles & Practices of Life & General Insurance : 4 Credit Point
2. IR-305-Finance for Insurance : 4 Credit Point
3. IR-306-Health and Personal Accident Insurance : 4 Credit Point
4. IR-307-Data Mining Technique : 4 Credit Point
5. IR-308-Actuarial Mathematics : 4 Credit Point
6. IR-309-Risk Management & Life Insurance Underwriting : 4 Credit Point

Semester IV

1. CP-401-Enterpenuership Development : 4 Credit Point
2. CP-402-Project Management : 4 Credit Point
3. CP-403-Dissertation and Viva-voce, Immersion Programme : 4 Credit Point

Finance (Minor Specialisation)

1. F-404-Security Analysis & Portfolio Management : 4 Credit Point
2. F-405-International Accounting : 4 Credit Point
3. F-406-Project Planning Analysis & Management : 4 Credit Point

Marketing (Minor Specialisation)

1. M-404-Advertising Management : 4 Credit Point
2. M-405-International Marketing : 4 Credit Point
3. M-406-Planning & Managing Retail Business : 4 Credit Point

Human Resource (Minor Specialisation)

1. HR-404-Manpower Development for Technological Change : 4 Credit Point
2. HR-405-Legal Framework Governing Human Relations : 4 Credit Point
3. HR-406-Human Resource Development: Strategies & Systems : 4 Credit Point

Information Technology (Minor Specialisation)

1. IT-404-System Analysis & Design : 4 Credit Point
2. IT-405-Information Security : 4 Credit Point
3. IT-406-E-Commerce & Cyber Law : 4 Credit Point

Production & Operations (Minor Specialisation)

1. PO-404-Purchasing & Materials Management : 4 Credit Point
2. PO-405-Total Quality Management : 4 Credit Point
3. PO-406-Logistics Management : 4 Credit Point

Insurance & Risk Management (Minor Specialisation)

1. IRM-404-Principles & Practices of Life & General Insurance : 4 Credit Point
2. IRM-405-Finance for Insurance : 4 Credit Point
3. IRM-406-Health and Personal Accident Insurance : 4 Credit Point

The weightage distribution for evaluation shall be as follows:

A.

	Mid Term Test-I	Mid Term Test-II	End Term Semester Test	Total
Subjects without Practical	10	10	80	100

B. Dissertation/Project

Identification of Problem	Literature Review	Methodology	Finding and Analysis	Project Report or Thesis	Viva-voce	Total
10	10	10	40	10	20	100

GUIDELINE FOR CONDUCT OF EXAMINATION AND QUESTION PATTERN

The end semester examination will be of three hours irrespective of marks.

For subject without having practical full marks are 100 per paper out of which 20 marks allotted for Mid-Semester Examination (Internal) and 80 marks for end Semester Examination.

The question papers shall be divided into two parts such as Group-A & Group-B.

i. Group-A will carry 10 short questions (two short questions from each units0 of two marks each.
ii. Group-B shall have 5 long type questions of twelve marks each and there shall be one question from each unit with one alternative.

Further, the committee considered the introduction of courses of skill enhancement for employability and resolved that, the following four add-on courses shall be introduced in PG Level which shall be over and above credit hours.

i) Soft and IT skills
ii) Leadership / Personality Development
iii) Communicative English
iv) Entrepreneurship and Development

BOARD OF STUDIES MEETING

Department of Computer Science & Engineering and Applications

Sambalpur University Institute of Information Technology (SUIIT)

Academic Session 2020-2021

Course Structure

Master of Computer Applications (MCA)

(Two Years)

(Effective from the academic Session 2020-2021)

Department of Computer Science & Engineering and Applications

Sambalpur University Institute of Information Technology (SUIIT)

Sambalpur University, Jyoti Vihar-768019, Burla

Course Structure
Masters of Computer Applications

Semester – I						
Code	**Course Title**	**Category**	**L**	**P**	**T**	**Credits**
MC 511	Mathematical Foundations of Computer Science	CC	4	0	0	3
MC 512	Database Management Systems	CC	4	0	0	3
MC 513	Programming and Data Structures	CC	3	0	1	3
MC 514	Operating Systems	CC	4	0	0	3
MC 515	Computer Systems Architecture	CC	4	0	0	3
MC 517	Programming and Data Structures Lab.	CL	0	3	0	2
MC 518	Database Management Systems Lab.	CL	0	3	0	2
MC 519	Communicative English Lab.	CL	0	2	0	2
					Total Credit:	**21**

Semester – II						
Code	**Course Title**	**Category**	**L**	**P**	**T**	**Credits**
MC 521	Software Engineering	CC	4	0	0	3
MC 522	Object Oriented Programming using Java	CC	3	0	1	3
MC 523	Design and Analysis of Algorithms	CC	3	0	1	3
MC 524	Data Communication and Computer Networks	CC	4	0	0	3
MC 525	Theory of Computation	CC	3	0	0	3
MC 527	Object Oriented Programming using Java Lab.	CL	0	3	0	2
MC 528	Design and Analysis of Algorithms Lab.	CL	0	3	0	2
MC 529	UML Lab.	CL	0	2	0	2
MC 530	Financial Accounting (MOOCs-1)		3	0	0	3
					Total Credit:	**24**

Semester – III						
Code	**Course Title**	**Category**	**L**	**P**	**T**	**Credits**
MC 531	Information and Cyber Security	CC	4	0	0	3
MC 532	Artificial Intelligence	CC	4	0	1	3
MC 533	Web Technology	CC	4	0	0	3
MC 535	Elective-I 1. Machine Learning 2. Soft Computing 3. Mobile Computing 4. Computer Graphics 5. Simulation and Modeling 6. Compiler Design	CC	3	0	0	3
MC 536	Elective-II 1. Data warehousing and Data Mining 2. Cloud Computing 3. Big Data Analytics 4. Wireless Sensor Networks 5. Advanced Databases 6. Management Support Systems	CC	3	0	0	3
MC 537	Open Source Lab	CL	0	3	0	2
MC 538	Web Technology Lab	CL	0	3	0	2
MC539	Technical Seminar	TS	0	2	0	2
MC 540	Soft Skills and Personality Development (MOOCs-2)		3	0	0	3

					Total Credit:	**24**
Semester – IV						
Code	**Course Title**	**Category**	**L**	**P**	**T**	**Credits**
MC 561	Project Work	PW				12
MC562	MOOCs-3 (Decision Support Systems for Managers)	MOC	4	0	0	4
MC563	MOOCs-4(Data Science for Engineers)		3	0	0	3
MC 564	Comprehensive Viva – Voce	CV				6
					Total Credit:	**25**

SEMESTER WISE CREDIT DISTRIBUTION					
Semester	I	II	III	IV	**TOTAL**
Total Credit	**21**	**24**	**24**	**25**	**94**

N.B.

- **A student will be eligible to get MCA degree only if he/she completes the course work including the MOOCs courses recommended by the department.**
- **The students can register for these courses through SWAYAM (Govt. of India) directly as per the courses offering in Odd/Even Semesters by them.**
- **SWAYAM will charges minimal fee per course and awards a certificate of completion. Students need to register for the course on payment of their own and submit the certificate to the institute.**
- **For registration to MOOCs, the students shall abide by the norms and policies proposed by SWAYAM.**
- For technical seminar, students shall choose a topic from the latest technological developments / research in Computer Science and Application or in allied fields in consultation with the faculty. They shall submit synopsis for the presentation in an approved format on the day of presentation.
- Project work and Comprehensive Viva-Voce shall be as per Academic & Examination Guidelines of SUIIT.

Course Structure

B.Tech.(Computer Science& Engineering)

(Effective from the academic Session 2020-2021)

Department of Computer Science & Engineering and Applications

Sambalpur University Institute of Information Technology (SUIIT)

Sambalpur University, Jyoti Vihar-768019, Burla

Course Structure
(B.Tech Computer Science and Engineering)

Semester – I

S.No.	Course Code	Course Title	Category	L	P	T	Credits	Remarks
1	MAC111	Mathematics-I	FC(BS)	4	0	0	4	Common to all branch
2	PHC112	Physics-I	FC(BS)	3	0	0	3	
3	CSC113	Programming in C	FC(CS)	3	0	1	3	
4	EEC114	Basic Electrical Engineering	FC(BE)	3	0	1	3	
5	HSC115	Communicative English	FC(HS)	3	0	0	3	
6	EEL116	Basic Electrical Lab.	FC(BE)	0	3	0	2	
7	CSL117	Programming in C Lab.	FC(CS)	0	3	0	2	
8	PHL118	Physics Lab.	FC(BS)	0	3	0	2	
						Total Credit:	22	

Semester – II

S.No.	Course Code	Course Title	Category	L	P	T	Credits	Remarks
1	MAC 121	Mathematics-II	FC(BS)	4	0	0	4	Common to all branches
2	PHC 122	Physics-II	FC(BS)	3	0	0	4	
3	ECC 123	Basic Electronics	FC(BE)	3	0	1	3	
4	CSC 124	Data Structures using C	FC(CS)	3	0	1	3	
5	HSC125	*Environmental Studies (Non-Credit)	FC(HS)	3	0	0	0	
6	ECL 126	Basic Electronics Lab.	FC(BE)	0	3	0	2	
7	EDC 127	Engineering Graphics Lab.	FC(BE)	0	3	0	2	
8	CSL 128	Data Structure using C Lab.	FC(CS)	0	3	0	2	
						Total Credit:	20	

Semester – III

S.No.	Course Code	Course Title	Category	L	P	T	Credits	Remarks
1	MAC 231	Mathematics-III	FC(BS)	4	0	0	4	
2	ECC 232	Data Communication	PC(CE)	4	0	0	3	
3	CSC 233	Object Oriented Programming	FC(CS)	4	0	0	3	
4	ECC 234	Digital Circuits and Systems	FC(BE)	4	0	0	3	
5	CSC 235	Computer Organization and Architecture	PC(CE)	4	0	0	4	
6	CSL 236	Object Oriented Programming Lab.	FC(CS)	0	3	0	2	
7	ECL 237	Digital Circuits Lab.	FC(BE)	0	3	0	2	
						Total Credit:	21	

Semester – IV

S.No.	Course Code	Course Title	Category	L	P	T	Credits	Remarks
1	MAC 241	Mathematics-IV	FC(BS)	4	0	0	4	
2	ECC 242	Microprocessors & Microcontrollers	FC(BE)	3	0	0	3	
3	HSC 243	Organizational Behavior	OE(OE)	3	0	1	3	
4	CSC 244	Analysis and Design of Algorithms	PC(CE)	3	0	0	3	
5	CSC 245	Operating Systems	PC(CE)	3	0	0	4	
6	ECL 246	Analysis and Design of Algorithms Lab.	PC(CE)	0	3	0	2	
8	CSL 247	Microprocessors & Microcontrollers Lab.	FC(BE)	0	3	0	2	
9	MOC 248	Google Cloud Computing	MOOC	0	0	0	3	

		Foundations(MOOCs-1)						
						Total Credit:	**24**	

	Semester – V							
S.No.	Course Code	**Course Title**	**Category**	**L**	**P**	**T**	**Credits**	**Remarks**
1	MAC 351	Discrete Mathematics	FC (BS)	3	0	1	**3**	
2	CSC 352	Theory of Computation	PC(CE)	3	0	0	**3**	
3	CSC 353	Database Management Systems	PC(CE)	3	0	1	**3**	
4	CSC 354	Professional Elective-I	PE(CE)	3	0	0	**3**	
5	HSC 355	Engineering Economics	OE (OE)	3	0	1	**3**	
6	CSL 356	Database Management System Lab.	PC(CE)	0	3	0	**2**	
7	CSL 357	Web Technology Lab	PC(CE)	0	3	0	**2**	
8	MOC 358	Soft Skills and Personality Development (MOOCs-2)	MOOC	0	0	0	**3**	
						Total Credit:	**22**	

	Semester – VI							
S.No.	Corse Code	**Course Title**	**Category**	**L**	**P**	**T**	**Credits**	**Remarks**
1	CSC 361	Computer Networks	PC(CE)	4	0	0	**3**	
2	CSC 362	Software Engineering	PC(CE)	3	0	1	**3**	
3	CSC 363	Professional Elective-II	PE (CE)	3	0	1	**3**	
4	XXX XXX	Professional Elective-III	PE (CE)	4	0	0	**3**	
5	XXX XXX	Open Elective-I	IE (IE)	4	0	0	**3**	
6	CSL 364	Computer Network Lab	PC(CE)	0	3	0	**2**	
7	CSL 365	Software Engineering Lab	PC(CE)	0	3	0	**2**	
8	MOC 366	Python for Data Science (MOOCs-3)	MOOC	0	0	0	**2**	
						Total Credit:	**21**	

	Semester – VII							
S.No.	Course Code	**Course Title**	**Category**	**L**	**P**	**T**	**Credits**	**Remarks**
1	CSC 471	Data Warehousing and Data Mining	PC(CE)	3	0	0	**3**	
2	CSC 472	Compiler Design	PC(CE)	3	0	0	**3**	
3	XXX XXX	Professional Elective-IV	PE (CE)	3	0	0	**3**	
4	XXX XXX	Professional Elective-V	PE (CE)	3	0	0	**3**	
5	XXX XXX	Open Elective-II	OE (OE)	3	0	0	**3**	
6	CSP 473	Minor Project	PP (PW)	4	0	0	**4**	
7	CSS 474	Seminar	TS(PW)				**1**	
8	MOC 475	Software Testing (MOOCs-4)	MOOC	0	0	0	**4**	
						Total Credit:	**24**	

	Semester – VIII							
S.No.	Course Code	**Course Title**	**Category**	**L**	**P**	**T**	**Credits**	**Remarks**
1	XXX XX	Professional Elective-VI	PC(CE)	4	0	0	**3**	
2	XXX XXX	Open Elective-III	OE(OE)	3	0	0	**3**	
3	XXX XXX	Open Elective-IV	OE(OE)	3	0	0	**3**	
4	CSP 482	Major Project	PP (PW)	0	0	0	**10**	
5	CSV 483	Comprehensive Viva-voce	PP (CV)	0	0	0	**2**	
						Total Credit:	**21**	

SEMESTER WISE CREDIT DISTRIBUTION									
Year	Credit (40)		Credit (40)		Credit (40)		Credit (40)		
Semester	I	II	III	IV	V	VI	VII	VIII	TOTAL
Total Credit	22	20	21	24	22	21	24	21	175

OPEN ELECTIVES					
Open Elective-I					
Code	Course Title	L	P	T	Credits
OPE E01	Embedded Systems	4	0	0	3
OPE E02	Optimization Techniques	4	0	0	3
OPE E03	Management Information Systems	4	0	0	3
OPE E04	Digital Signal Processing	4	0	0	3
OPE E05	Middleware Technologies	4	0	0	3
Open Elective-II					
Code	Course Title	L	P	T	Credits
OPE E06	Internet of Things	3	0	0	3
OPE E07	Simulation and Modeling	3	0	0	3
OPE E08	Digital Image Processing	3	0	0	3
OPE E09	Soft Computing	3	0	0	3
OPE E10	Mobile Computing	3	0	0	3
Open Elective-III					
Code	Course Title	L	P	T	Credits
OPE E11	Information Theory and Coding	3	0	0	3
OPE E12	Pattern Recognition	3	0	0	3
HSC 483	Entrepreneurship Management	3	0	0	3
OPE E14	Computer Oriented Numerical Methods	3	0	0	3
Open Elective-IV					
Code	Course Title	L	P	T	Credits
OPE E15	Machine Learning	3	0	0	3
OPE E16	Software Project Management	3	0	0	3
OPE E17	Remote Sensing and Geographic Information Systems	3	0	0	3
OPE E18	Personal Development	3	0	0	3
OPE E19	E-Commerce	3	0	0	3

PROFESSIONAL ELECTIVES					
Professional Elective-I					
Code	Course Title	L	P	T	Credits
CSE E01	Computer Graphics	4	0	0	3
CSE E02	Web Technology	4	0	0	3
CSE E03	Real Time Systems	4	0	0	3
CSE E04	Advanced Operating Systems	4	0	0	3
CSE E05	Advanced Data Structures	4	0	0	3
Professional Elective-II					
Code	Course Title	L	P	T	Credits
CSE E06	Advanced Computer Architecture	4	0	0	3
CSE E07	Human Computer Interaction	4	0	0	3
CSE E08	Parallel Computing	4	0	0	3
CSE E09	Wireless Communications	4	0	0	3
CSE E10	Distributed Database Systems	4	0	0	3

Professional Elective-III					
Code	Course Title	L	P	T	Credits
CSE E11	Artificial Intelligence	4	0	0	3
CSE E12	Grid Computing	4	0	0	3
CSE E13	Semantic Web	4	0	0	3
CSE E14	Advanced Software Engineering	4	0	0	3
CSE E15	Storage Area Networks	4	0	0	3
Professional Elective-IV					
Code	Course Title	L	P	T	Credits
CSE E16	Wireless Sensor Networks	4	0	0	3
CSE E17	Distributed Systems	4	0	0	3
CSE E18	Software Design and Validations	4	0	0	3
CSE E19	High Performance Computing	4	0	0	3
CSE E20	Natural Language Processing	4	0	0	3
Professional Elective-V					
Code	Course Title	L	P	T	Credits
CSE E21	Cryptography and Network Security	4	0	0	3
CSE E22	Ethical Hacking	4	0	0	3
CSE E23	Introduction to Bioinformatics	4	0	0	3
CSE E24	Game Programming	4	0	0	3
Professional Elective-VI					
Code	Course Title	L	P	T	Credits
CSE E25	Cloud Computing	4	0	0	3
CSE E26	Big Data Analytics	4	0	0	3
CSE E27	Object Oriented Analysis and Design	4	0	0	3
CSE E28	Advanced Database Systems	4	0	0	3

N.B-

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Course Structure

M.Tech.(Computer Science & Engineering)

(Effective from the academic Session 2020-2021)

Department of Computer Science & Engineering and Applications

Sambalpur University Institute of Information Technology (SUIIT)

Sambalpur University, Jyoti Vihar-768019, Burla

Course Structure
(Master of Technology in Computer Science and Engineering)

Semester – I						
Code	Course Title	Category	L	P	T	Credits
CS 601	Mathematical Foundations of Computer Science	Foundation Course	4	0	0	4
CS 602	Advanced Data Structures and Algorithms	Core Course	4	0	0	3
CS 603	Advanced Programming Languages	Core Course	3	0	1	3
XX XXXX	Elective –I	Professional Elective	3	0	1	3
XX XXXX	Elective –II	Professional Elective	3	0	1	3
CS 604	Open source lab-1	Core Course	0	3	0	2
CS 605	Advanced Programming Languages lab.	Core Course	0	3	0	2
CS 606	Seminar & Technical Writing-I	Technical Seminar	-	-	-	2
MOC 607	Cloud Computing (MOOCs-1)	MOOC	3	0	0	3
					Total Credit:	25

Semester – II						
Code	Course Title	Category	L	P	T	Credits
CS 621	Cryptography and Network Security	Core Course	4	0	0	4
CS 622	Data Warehousing and Data Mining	Core Course	4	0	0	4
XX XXXX	Elective –III	Professional Elective	3	0	0	3
XX XXXX	Elective –IV	Professional Elective	3	0	1	3
XX XXXX	Elective –V	Professional Elective	3	0	0	3
CS 623	Network programming lab.	Core Course	0	3	0	2
CS 624	Seminar & Technical Writing-II	Technical Seminar	-	-	-	2
MOC 625	Data Science for Engineers (MOOCs-2)	MOOC	3	0	0	3
					Total Credit:	24

Semester – III			
Code	Course Title	Category	Credits
CS 631	Dissertation Review-I	Project Work	20
MOC 632	Deep Learning (MOOCs-3)	MOOC	4
		Total Credit:	24

Semester – IV			
Code	Course Title	Category	Credits
CS 641	Final Dissertation Review	Project Work	20
		Total Credit:	20

Elective Pool (for Elective-I to VII)	
CS 6E01	Artificial Intelligence
CS 6E02	Information retrieval and web search
CS 6E03	Pattern Recognition
CS 6E04	Advanced Computer Networking
CS 6E05	Advanced Databases
CS 6E06	Advanced Computer Architecture
CS 6E07	Mobile Computing
CS 6E08	Principles of Programming Languages
CS 6E09	Intellectual Property Rights and Cyber Laws
CS 6E10	Formal Languages and Automata Theory
CS 6E11	Image Processing
CS 6E12	High Performance Computing
CS 6E13	Internet of Things
CS 6E14	Storage Area Networks
CS 6E15	Game Theory
CS 6E16	Software define network
CS 6E17	Machine Learning
CS 6E18	Big Data Analytics
CS 6E19	Cloud Computing
CS 6E20	Soft Computing
CS 6E21	Real time system
CS 6E22	Software Engineering
CS 6E23	Wireless Sensor Network & Applications
CS 6E24	Semantic Web and Social Networking
CS 6E25	Advanced Operating Systems
CS 6E26	Software Project Management
CS 6E27	Parallel algorithms
CS 6E28	Probability & Stochastic Process
CS 6E29	Time Series Analysis
CS 6E30	Computer Based Numerical and Statistical Methods

SEMESTER WISE CREDIT DISTRIBUTION					
Semester	I	II	III	IV	TOTAL
Total Credit	25	24	24	20	93

Special Instructions:

- **Selection of Electives:** Choose Electives from elective pool. Electives will be offered based on availability of concerned course instructor.
- **SEMINAR AND TECHNICAL WRITING-I & II :** Student will review research papers published in referred journals (at least six different papers in an installment of two seminars). In this work student will prepare and display posters, prepare and submit synopsis, give seminar on the topic. All faculty members / teacher's council of the department will be the reviewer of the course. Equal weightage will be given to Seminal and Technical writing.
- **DISSERTATION – I:** Third Semester dissertation evaluation as per the Academic guide lines of SUIIT.
- **DISSERTATION – II:** Fourth semester or final dissertation and student will be allowed only if after successful completion of third semester project evaluation and the evaluation will be as per the Academic guide lines of SUIIT.

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Course Structure

M.Sc. (Computer Science)

(Effective from the academic Session 2020-2021)

Department of Computer Science & Engineering and Applications

Sambalpur University Institute of Information Technology (SUIIT)

Sambalpur University, Jyoti Vihar-768019, Burla

Syllabus Structure

M.Sc.(Computer Science)

Semester – I						
Code	**Course Title**	**Category**	**L**	**P**	**T**	**Credits**
CS 511	Mathematical Foundations of Computer Science	Foundation	4	0	0	4
CS 512	Programming in C	Foundation	4	0	0	3
CS 513	Computer Systems Architecture	Core	4	0	0	4
CS 514	Database Management Systems	Core	3	0	1	3
CS 515	Data Communication and Computer Networks	Core	4	0	0	4
CS 516	Programming in C Lab.	Core	0	3	0	2
CS 517	Database Management Systems Lab.	Core	0	3	0	2
					Total Credit:	**22**

Semester – II						
Code	**Course Title**	**Category**	**L**	**P**	**T**	**Credits**
CS 521	Object Oriented Programming using Java	Foundation	3	0	0	3
CS 522	Theory of Computations	Core	3	0	0	4
CS 523	Software Engineering	Core	3	0	0	3
CS 524	Data Structures	Core	3	0	1	3
CS 525	Operating Systems	Core	3	0	0	3
CS 526	Object Oriented Programming using Java Lab.	Core	0	3	0	2
CS 527	Data Structures Lab.	Core	0	3	0	2
MOC528	Google Cloud Computing Foundations (MOOCs-1)	MOOC	3	0	0	3
					Total Credit:	**23**

Semester – III							
Code	**Course Title**		**Category**	**L**	**P**	**T**	**Credits**
CS 531	Compiler Design		Core	3	0	1	3
CS 532	Design and Analysis of Algorithms		Core	4	0	0	4
CS 533	Computer Graphics		Core	4	0	0	3
CS 534	Web Technology		Core	4	0	0	3
XX XXXX	Elective-I		Prog. Elect.				
	CS 53E1	Mobile Computing		4	0	0	3
	CS 53E2	Information Retrieval Systems					
	CS 53E3	Optimization Techniques					
	CS 53E4	Management Information Systems					
	CS53E5	Computer Based Numerical and Statistical Methods		4	0	0	
CS 535	Web Technology Lab.		Core	0	3	0	2
CS 536	Python Programming Lab.		Core	0	3	0	2
MOC 537	Big Data Computing (MOOCs-2)		MOOC	3	0	0	3
						Total Credit:	**23**

Semester – IV							
Code	**Course Title**		**Category**	**L**	**P**	**T**	**Credits**
CS 541	Data Warehousing and Data Mining		Core Course	4	0	0	4
CS 542	Artificial Intelligence		Core Course	4	0	0	4
XX XXXX	Elective-II		Prog. Elect.				
	CS 54E1	Wireless Sensor Networks		4	0	0	4
	CS 54E2	Cloud Computing					
	CS 54E3	Machine Learning					
	CS 54E4	Introduction to Big Data Analytics					
	CS 54E5	Information & Cyber Security					
CS 543	Project		Project Work	-	-	-	8
CS 544	Seminar		Tech. Seminar	-	-	-	2
						Total Credit:	**22**

SEMESTER WISE CREDIT DISTRIBUTION					
Semester	**I**	**II**	**III**	**IV**	**TOTAL**
Total Credit	**22**	**23**	**23**	**22**	90

N.B-

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Proceedings of Board of Studies meeting held on 15/9/2020 at 4.00 P.M. in SUIIT (via online mode/Google Meet) to finalize the course structure and syllabi of B. Tech Electronics and Communication Engineering), M. Tech Communication Systems Engineering, M. Tech Embedded Systems Design for the session 2020-2024(for B. Tech Programme), 2020-2022(for M. Tech programmes).

Members Present

1. Dr. Umaranjan Jena, Professor, Dept. of E&TC, VSSUT,Burla

2. Dr. Kabiraj Sethi, Associate Professor, Dept. of E&TC, VSSUT, Burla

3. Mrs. Shibani Kar, Head I/C & Assistant Professor, Dept. of ECE,SUIIT

5. Mr. Premananda Mishra, Assistant Professor, Dept. of ECE, SUIIT

6. Mr. Bajra Panjar Mishra, Assistant Professor, Dept. of ECE,SUIIT

8. Mr. Pramod Nayak, Assistant Professor, Dept. of ECE,SUIIT

9. Dr. Santanu kumar Dash, student of M.Tech Embedded Systems Design , batch 2013, SUIIT

Minutes of meeting are as follows:

1. Members reviewed the course structure and syllabi of B. Tech ECE for the session 2020-2024 and suggested some changes which are incorporated in the structure attached herewith.

2. Members reviewed the course structure and syllabi of M. Tech Communication Systems Engineering and M. Tech Embedded Systems Design for the session 2020-2022 and suggested some changes which are incorporated in the structure attached herewith.

Members Signatures

1. Dr. Umaranjan Jena
2. Dr. Kabiraj Sethi
3. Mrs. Shibani Kar
4. Mr. Premananda Mishra
5. Mr. Bajra Panjar Mishra
6. Mr. Pramod Nayak
7. Dr. Santanu kumar Dash

Department of Electronics & Communication Engineering-I
Curriculum of B. Tech (Electronics & Communication Engineering)
2020-2024

Semester-I
(Common to all branches)

S .No	Course Codes	Course Titles	L	T	P	Credits	Subject Category
1.	MAC111	Mathematics-I	4	0	0	4	BS&H
2.	PHC112	Physics-I	3	1	0	3	BS&H
3.	CSC113	Programming in C	3	1	0	3	CSE
4.	EEC114	Basic Electrical Engineering	3	1	0	3	EEE
5.	HSC115	Communicative English	3	1	0	3	BS&H
6.	EEL116	Basic Electrical Lab	0	0	3	2	EEE
7.	CSL117	Programming in C Lab	0	0	3	2	CSE
8.	PHL118	Physics-I Lab	0	0	3	2	BS&H
		TOTAL				22	

Semester-II
(Common to all branches)

S .No	Course Codes	Course Titles	L	T	P	Credits	Subject Category
1.	MAC121	Mathematics-II	4	0	0	4	BS&H
2.	PHC122	Physics-II	4	0	0	4	BS&H
2.	ECC123	Basic Electronics	3	1	0	3	ECE
3.	CSC124	Data Structures using C	3	1	0	3	CSE
4.	HSC125	Environmental Studies	3	1	0	Non Credit	BS&H
5.	ECL126	Basic Electronics Lab	0	0	3	2	ECE
6.	EDC127	Engineering Graphics Lab	0	0	3	2	BS&H
7.	CSL128	Data Structures using C Lab	0	0	3	2	CSE
		TOTAL				20	

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Department of Electronics & Communication Engineering-I
Curriculum of B. Tech (Electronics & Communication Engineering)
2020-2024

SEMESTER-III

S .No	Course Codes	Course Titles	L	T	P	Credits	Subject Category
1.	MAC231	Mathematics-III	4	0	0	4	BS&H
2.	ECC232	Analog Electronics Circuit	3	1	0	3	ECE
3.	EEC233	Network Analysis and Synthesis	3	1	0	3	EEE
4.	ECC234	Digital Circuit and System	3	1	0	3	ECE
5.	ECC235	Electronic Measurement & Instrumentation	3	1	0	3	ECE
6.	ECC236	Signal and System	3	1	0	3	ECE
7.	ECL237	Digital Circuit Lab	0	0	3	2	ECE
8.	ECL238	Analog Electronics Lab	0	0	3	2	ECE
		TOTAL				**23**	

Semester-IV

S .No	Course Codes	Course Titles	L	T	P	Credits	Subject Category
1.	MAC241	Mathematics-IV	4	0	0	4	BS&H
2.	ECC242	Microprocessor and Microcontroller	3	1	0	3	ECE
3.		**Open Elective-I**	3	1	0	3	BS&H
4..	ECC244	Analog Communication Systems	3	1	0	3	ECE
5..	ECC245	Advance Electronic Circuit	3	1	0	3	ECE
6..	ECC246	Digital Signal Processing	3	1	0	3	ECE
7.	ECL247	Analog Communication Lab	0	0	3	2	ECE
8.	ECL248	Microprocessor and Microcontroller Lab	0	0	3	2	ECE
9.	EMOC249	MOOCS ONLINE COURSE 1 (8 weeks)				3	Online MOOCS course offered by Swayam Govt. of India
		TOTAL				**26**	

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Department of Electronics & Communication Engineering-I
Curriculum of B. Tech (Electronics & Communication Engineering)
2020-2024

Semester- V

S .No	Course Codes	Course Titles	L	T	P	Credits	Subject Category
1.	ECC351	Digital Communication	3	1	0	3	ECE
2.	ECC352	Electromagnetic Theory	3	1	0	3	ECE
3.		OE-II	3	1	0	3	BS&H
4.		OE-III	3	1	0	3	OE
5.		PE-I	3	1	0	3	PE
6.	ECL356	Digital Communication Lab	0	0	3	2	ECE
7.	ECL357	Digital Signal Processing Lab	0	0	3	2	ECE
8.	EMOC358	MOOCS ONLINE COURSE 2 (12 Weeks)				4	Online MOOCS course
		TOTAL				**23**	

VI Semester

S .No	Course Codes	Course Titles	L	T	P	Credits	Subject Category
1.	EEC351	Control System Engineering-I	3	1	0	3	EEE
2.	ECC362	Embedded Systems	3	1	0	3	ECE
3.	ECC363	VLSI Engineering	3	1	0	3	ECE
4.		OE-IV	3	1	0	3	OE
5..		PE-II	3	1	0	3	PE
6.	ECL366	Embedded Systems Lab	0	0	3	2	ECE
7.	ECL367	VLSI Lab	0	0	3	2	ECE
8.	EMOC368	MOOCS ONLINE COURSE 3 (12 Weeks)				4	Online MOOCS course
		TOTAL				**23**	

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Department of Electronics & Communication Engineering-I
Curriculum of B. Tech (Electronics & Communication Engineering)
2020-2024

VII SEMESTER

S .No	Course Codes	Course Titles	L	T	P	Credits	Subject Category
1.	ECC471	Optical Communication	3	0	0	3	ECE
2.		PE-III	3	0	0	3	PE
3.		PE-IV	3	0	0	3	PE
4.		OE-V	3	0	0	3	PE
5..		OE-VI	3	0	0	3	BS&H
6.	ECL476	Optical Communication Lab	0	0	3	2	ECE
7.	ECP477	Minor Project	0	0	3	2	ECE
8.	ECC472	SEMINAR	0	0	3	2	ECE
9.	EMOC479	MOOCS ONLINE COURSE 4 (8 Weeks)				3	ONLINE MOOCS Course
		TOTAL				**24**	

VIII Semester

S .No	Course Codes	Course Titles	L	T	P	Credits	Subject Category
1.	ECP481	Major Project	0	0	3	8	ECE
2.		PE--V	3	0	0	3	PE
3.		PE-VI	3	0	0	3	PE
4.		OE-VII	3	0	0	3	BS&H
5.	ECV485	Comprehensive Viva	0	0	0	2	ECE
		TOTAL				**19**	

I	II	III	IV	V	VI	VII	VIII
22	20	23	26	23	23	24	19

Total Credit (1st to 8th semester)	**180**

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15/09/2020 15/09/2020 15/09/2020

15/9/2020

Department of Electronics & Communication Engineering-I
Curriculum of B. Tech (Electronics & Communication Engineering)
2020-2024

List of Professional Electives

S. No	Course Codes	Course Titles	Credit
1.	ECE01	Information Theory and Coding	3
2.	ECE02	Wireless Communication	3
3.	ECE03	CAD VLSI	3
4.	ECE04	Microwave Engineering	3
5.	ECE05	Satellite Communication	3
6.	ECE06	Radar & TV	3
7.	ECE07	Mobile Communication	3
8.	ECE08	Virtual Instrumentation	3
9.	ECE09	IC Technology	3
10.	ECE10	Speech and Audio Processing	3
11.	ECE11	Adaptive Signal Processing	3
12.	ECE12	Antennas and Propagation	3
13.	ECE13	Bio - medical Instrumentation	3
14.	ECE14	Telephone Switching Network	3
15.	ECE15	Mixed Signal Design	3
16.	ECE16	Broadband Communication	3
17.	ECE17	Electrical Machines	3
18.	ECE18	Advanced Micro-controllers	3
19.	ECE19	Image and Video Processing	3

List of Open Electives

S. No	Course Codes	Course Titles	Credit
1.	CSC354	Computer Networks	3
2.	EEC352	Power Electronics	3
3	OPEE08	Digital Image Processing	3
4.	OPEE02	Optimization Techniques	3
5.	CSEE28	Advance Database	3
6.	CSEE16	Wireless Sensor Network	3
7.	CSEE06	Advance Computer Architecture	3
8.	EEC362	Control System Engineering-II	3
9.	OPEE15	Machine Learning	3
10.	CSEE11	Artificial Intelligence	3
11.	CSC353	Database Management System	3

13.		Probability and Stochastic Processes	3
15.	ECOE01	Principles of Communications /OR Communication Systems Engineering	3
17.	CSC235	Computer Organization & Architecture	3
		Dept. of BS&H	
18.	HSC243	Organization Behaviour	3
19.	HSC355	Engineering Economics & Costing	3
20.		Life and Psychology	3
21.		Ecology and Environment	3
22.	HSC483	Entrepreneurial Management	3
23.		Society and Social Issues	3

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15/9/2020 15/09/2020

15/09/2020 15/09/2020 15/9/2020

15/09/2020 15/09/2020

M.Tech Communication Systems Engineering Syllabus

(2020-22)

SEMESTER-I

S. No	Course Codes	Subject	Credits	Subject Category
1.	CSY611	Advance Communication Theory	4	ECE
2.	CSY612	Advance Digital Signal Processing	4	ECE
3.		Program Elective-I	4	PE
4.		Program Elective-II	4	PE
5.		Program Elective-III	4	PE
6.	CSY613	Advance Communication Lab	2	ECE
7.	CSY614	Advance Digital Signal Processing Lab	2	ECE
		TOTAL	**24**	

SEMESTER-II

Code	Course Codes	Subject	Credits	Subject Category
1.	CSY621	Secure communication	4	ECE
2.	CSY622	Advance Wireless Communication	4	ECE
3.		Program Elective-IV	4	PE
4.		Program Elective-V	4	PE
5.		Program Elective-VI	4	PE
6.	CSY623	Advance Wireless Communication Lab	2	ECE
7.		Program Elective Lab-I	2	PE
8.	EMOC624	MOOCS ONLINE COURSE 1	4	Online MOOCS course offered by Swayam Govt. of India
		TOTAL	**28**	

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M.Tech Communication Systems Engineering Syllabus

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SEMESTER-III				
S. No	**Course Codes**	**Subject**	**Credits**	**Subject Category**
1.	CSY631	Masters Research Project(Phase-I)	20	ECE
2.	EMOC632	MOOCS ONLINE COURSE 2	4	Online MOOCS course offered by Swayam Govt. of India
		TOTAL	**24**	

Semester-IV				
S. No	**Course Code**	**Subject**	**Credits**	**Subject Category**
1.	CSY641	Masters Research Project (Phase-II)	20	ECE
2.	CSY642	Comprehensive Viva	4	ECE
		TOTAL	**24**	

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I	II	III	IV	TOTAL
24	28	24	24	100

List of Electives(Credit 4)

1. Mobile satellite communication (CSY6E01)
2. Detection and Estimation (CSY6E02)
3. Random processes and queueing theory (CSY6E03)
4. Wireless networks and mobile computing (CSY6E04)
5. RF MEMS (CSY6E05)
6. Integrated Opto-Electronics(CSY6E06)
7. Wireless sensor Network (CSY6E07)
8. Advanced Techniques for Wireless Reception(CSY6E08)
9. Probability and Stochastic Processes (CSY6E09)
10. Communication Switching & Multiplexing(CSY6E10)
11. Signal Compression (CSY6E11)
12. Application Specific Integrated Circuits(CSY6E12)
13. Error Control Coding (CSY6E13)
14. Digital Image Processing (CSY6E14)
15. Digital Speech Processing (CSY6E15)

16. CAD VLSI (CSY6E16)
17. Adaptive Signal Processing(CSY6E17)
18. Internet of Things (CSY6E18)
19. RF and Microwave system (CSY6E19)
20. Optical communication Systems(CSY6E20)
21. Optical Network(CSY6E21)
22. Digital Mobile system(CSY6E22)
23. Analog VLSI Design(CSY6E23)

List of Elective Lab (Credit-2)

1. Optical communication Lab(CSY6EL01)
2. Communication Design and simulation Lab (CSY6EL02)
3. Free Space optical communication lab(CSY6EL03)
4. Simulation techniques for wireless communication lab(CSY6EL04)
5. Antenna design lab(CSY6EL05)
6. Wireless channel modelling lab((CSY6EL06)
7. Embedded system Lab(CSY6EL07)
8. VLSI Lab(CSY6EL08)
9. Statistical simulation lab(CSY6EL09)
10. HFSS lab(CSY6EL10)
11. Internet of things(IOT) Lab(CSY6EL11)
12. Adaptive Signal Processing Lab (CSY6EL12)

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N.B-

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- **The students can register for these courses through SWAYAM (Govt. of India) directly as per the courses offering in Odd/Even Semesters by them.**
- **SWAYAM will charges minimal fee per course and awards a certificate of completion. Students need to register for the course on payment of their own and submit the certificate to the institute.**
- **For registration to MOOCs, the students shall abide by the norms and policies proposed by SWAYAM.**
- For Masters Research Project, students shall choose a topic from the latest technological developments / research in Communication Systems Engineering or in allied fields in consultation with the faculty. They shall submit a thesis for the presentation in an approved format on the day of presentation.
- Project work and Comprehensive Viva-Voce shall be as per Academic & Examination Guidelines of SUIIT.

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M. Tech in Embedded System Design Syllabus
(2020-22)
Semester-I

Code	Subject	Credits
ESD611	Embedded system Design	4
ESD612	Digital VLSI Design	4
	Program Elective-I	4
	Program Elective-II	4
	Program Elective-III	4
	Elective Lab-I	2
ESD613	VLSI Lab	2
	TOTAL	**24**

Semester-II

Code	Subject	Credits	
ESD621	Embedded OS and Real Time OS	4	
ESD622	FPGA based system design	4	
	Program Elective-IV	4	
	Program Elective-V	4	
	Program Elective-VI	4	
ESD623	Embedded Systems Lab	2	
	Elective Lab-II	2	
EMOC624	MOOCS ONLINE COURSE 1	4	Online MOOCS course offered by Swayam Govt. of India
	TOTAL	28	

M. Tech in Embedded System Design Syllabus
(2020-22)

Semester-III

Code	Subject	Credits	
ESD631	Masters Research Project (Phase-I)	20	
EMOC632	MOOCS ONLINE COURSE 2	4	Online MOOCS course offered by Swayam Govt. of India
	TOTAL	24	

Semester-IV

Code	Subject	Credits
ESD641	Masters Research Project (Phase-II)	20
ESD642	Comprehensive Viva	4
	TOTAL	24

I	II	III	IV	Total
24	28	24	24	100

List of Electives

1. Electronic circuit and system design (ESD6E01)
2. Microcontroller Systems Design(ESD6E02)
3. Embedded C & C++ Programming Languages(ESD6E03)
4. Analog VLSI Design (ESD6E04)
5. Advance Digital Signal Processing(ESD6E05)
6. Algorithm and Model based design(ESD6E06)
7. Wire and wireless communication (ESD6E07)
8. Access technologies and smart card(ESD6E08)
9. Automotive embedded systems(ESD6E09)

10.Mobile computing using Embedded System(ESD6E10)
11.DSP on FPGA(ESD6E11)
12.VLSI Signal Processing (ESD6E12)
13.Wireless sensor networks (ESD6E13)
14.Internet of Things(ESD6E14)
15. Artificial Intelligence(ESD6E15)

Elective Labs

1. Embedded Lab(ESDEL01)
2. Microcontroller lab(ESDEL02)
3.Advance DSP lab(ESDEL03)
4. Internet of things lab(ESDEL04)
5. VLSI lab-I(ESDEL05)
6. VLSI lab-II(ESDEL06)
7.Simulation techniques for wireless communication lab(ESDEL07)
8. Wireless channel modelling lab(ESDEL08)
9. Industrial Applications of control systems(DCS,PLC based control system(ESDEL09)

N.B-

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- For Masters Research Project, students shall choose a topic from the latest technological developments / research in Embedded System Design or in allied fields in consultation with the faculty. They shall submit a thesis for the presentation in an approved format on the day of presentation.
- Project work and Comprehensive Viva-Voce shall be as per Academic & Examination Guidelines of SUIIT.

PROCEEDING OF BOARD OF STUDIES MEETING OF THE DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING HELD ON DATE- 15 / 09 /2020

Members Present

1. Dr. Ambarish Panda, Assistant Professor and Head, Dept. of EEE, SUIIT, Burla (Chairman)
2. Prof. (Dr.) Bibhuti Bhusan Pati, Professor, Dept. of EE, VSSUT, Burla. (External Expert)
3. Prof. (Dr.) S. Patra, Professor, Dept. of ECE, NIT, Rourkela. (External Expert)
4. Prof. (Dr.) Sidhartha Panda, Professor, Dept. of EEE, VSSUT, Burla. (External Expert)
5. Er. Gyanaranjan Dash, Chief, Burla Power House, Burla. (External Expert)
6. Dr. Swarnabala Upadhyaya, Assistant Professor, Dept. of EEE, SUIIT, Burla. (Member)
7. Mr. Ashribad Pattnaik, Assistant Professor, Dept. of EEE, SUIIT, Burla. (Member)
8. Mr. Abishes Kumar Mahapatra, Assistant Professor, Dept. of EEE, SUIIT, Burla . (Member)
9. Mr. Charan Prusty, Assistant Professor, Dept. of EEE, SUIIT, Burla.(Member)

The Board of Studies meeting of The Department of Electrical and Electronics Engineering was held on online mode on15 /09 /2020 at 4 P.M. A discussion about revised course structure for Bachelor of Technology in Electrical and Electronics Engineering was done. The revised structure is approved by all the members of meeting as mentioned below.

Signature of Members

15.9.2020
Prof. (Dr.) Bibhuti Bhusan Pati

15/9/20
Prof. (Dr.) Sidhartha Panda

15.09.2020
Dr. Ambarish Panda

Er. Gyanaranjan Dash

15.09.2020
Dr. Swarnabala Upadhyaya

15/9/2020
Mr. Ashribad Pattnaik

15/09/2020
Mr. Abishes Kumar Mahapatra

15/09/20
Mr. Charan Prusty

First Semester

Sl. No	Course Code	Course Title	Hours Per Week			Total Contact Hours	Credit
			Lecture	Tutorial	Practical		
1	MAC111	Mathematics-1	3	1	0	4	4
2	PHC112	Physics-1	3	1	0	4	3
3		Programming in C	3	1	0	4	3
4	EEC114	Basic Electrical Engineering	3	1	0	4	3
5	HSC115	Communicative English	3	1	0	4	3
Laboratory Courses							
6	EEL116	Basic Electrical Laboratory	0	0	3	3	2
7		Programming in C Laboratory	0	0	4	4	2
8	PHL118	Physics-1 Laboratory	0	0	3	3	2
Total Credits							22

Second Semester

Sl. No	Course Code	Course Title	Hours Per Week			Total Contact Hours	Credit
			Lecture	Tutorial	Practical		
1	MAC121	Mathematics-2	4	0	0	4	4
2	PHC122	Physics-2	3	1	0	4	4
3	ECC123	Basic Electronics	3	1	0	4	3
4		Data Structure Using C	3	1	0	4	3
5	HSC125	Environmental Studies	3	1	0	4	0
Laboratory Courses							
6	ECL126	Basic Electronics Laboratory	0	0	3	3	2
7	EDC127	Engineering Graphics Lab	0	0	3	3	2
8	CSL128	Data Structure Laboratory	0	0	4	4	2
Total Credits							20

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Third Semester

Sl. No	Course Code	Course Title	Hours Per Week			Total Contact Hours	Credit
			Lecture	Tutorial	Practical		
1	MAC231	Mathematics-3	3	1	0	4	4
2	ECC232	Analog Electronics Circuit	3	1	0	4	3
3	EEC233	Network Analysis and Synthesis	3	1	0	4	3
4	EEC234	Electrical Machine - 1	3	1	0	4	3
5		Electromagnetic Field Theory	3	1	0	4	3
Laboratory Courses							
6	EEL236	Electrical Machine-1 Laboratory	0	0	3	3	2
7	EEL237	Network Analysis and Synthesis Laboratory	0	0	3	3	2
8	ECC238	Analog Electronics Laboratory	0	0	3	3	2
Total Credits							22

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Fourth Semester

Sl. No	Course Code	Course Title	Hours Per Week			Total Contact Hours	Credit
			Lecture	Tutorial	Practical		
1	MAC241	Mathematics-4	3	1	0	4	4
2		Digital Circuits and Systems	3	1	0	4	3
3	HSC243	Organizational Behaviour	3	1	0	4	3
4	EEC244	Electrical Machine – 2	3	1	0	4	3
5		Signal and System	3	1	0	4	3
Laboratory Courses							
6	EEL246	Electrical Machine-2 Laboratory	0	0	3	3	2
7		Digital Electronics Laboratory	0	0	3	3	2
8	EMOC247	MOOCs1	0	0	0		3
Total Credits							23

Fifth Semester

Sl. No	Course Code	Course Title	Hours Per Week			Total Contact Hours	Credit
			Lecture	Tutorial	Practical		
1	EEC351	Control System Engineering-I	3	1	0	4	3
2	EEC352	Power Electronics	3	1	0	4	3
3		[Professional Elective-1]	3	1	0	4	3
4		[Open Elective-1]	3	1	0	4	3
5	HSC355	Engineering Economics	3	1	0	4	3
Laboratory Courses							
6	EEL356	Control System Laboratory	0	0	3	3	2
7	EEL357	Power Electronics Laboratory	0	0	3	3	2
8	ECL358	Microprocessor and Microcontroller Laboratory	0	0	3	3	2

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9	EMOC359	MOOCs2	0	0	0		4
Total Credits							25

Sixth Semester

Sl. No	Course Code	Course Title	Hours Per Week			Total Contact Hours	Credit
			Lecture	Tutorial	Practical		
1	EEC361	Electrical Power Transmission and Distribution System	3	1	0	4	3
2	EEC362	Control System Engineering -2	3	1	0	4	3
3		[Professional Elective-2]	3	0	0	4	3
4		[Professional Elective – 3]	3	0	0	4	3
5		[Open Elective-2]	3	0	0	4	3
Laboratory Courses							
6	EEL366	Measurement and Instrumentation Laboratory	0	0	3	3	2
7	EEL367	Electrical Engineering Simulation Laboratory	0	0	3	3	2
8	ECL368	Digital Signal Processing Laboratory	0	0	3	3	2
9	EMOC369	MOOCs3	0	0	0		4
Total Credits							25

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Seventh Semester

Sl. No	Course Code	Course Title	Hours Per Week			Total Contact Hours	Credit
			Lecture	Tutorial	Practical		
1	EEC471	Power System Operation and Control	3	1	0	4	3
2		[Professional Elective-4]	3	1	0	4	3
3		[Professional Elective-5]	3	1	0	4	3
4		Open Elective-3	3	1	0	4	3
Laboratory Courses							
5	EEL475	Power System Simulation Laboratory	0	0	3	3	2
6	EES476	Seminar	0	0	3	3	2
7	EEP477	Minor Project	0	0	3	3	2
8	EMOC478	MOOCs4	0	0	0		3
Total Credits							21

Eighth Semester

Sl. No	Course Code	Course Title	Hours Per Week			Total Contact Hours	Credit
			Lecture	Tutorial	Practical		
1	EEC481	Power System Protection	3	1	0	4	3
2		Professional Elective-6	3	1	0	4	3
3		Open Elective-4	3	1	0	4	3
Laboratory Courses							
4	EEV485	Comprehensive Viva	0	0			2
5	EEP484	Major Project	0	0			8
Total Credits							19

SEMESTER WISE CREDIT DISTRIBUTION									
Year	Credit (42)		Credit (45)		Credit (50)		Credit (40)		
Semester	I	II	III	IV	V	VI	VII	VIII	TOTAL
Total Credit	22	20	22	23	25	25	21	19	177

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List of Courses for Professional Electives		
Professional Elective-1		
1	EEE353	Power Station Engineering
2	EEE358	Computer Architecture
3	EEE359	Big Data Analysis
Professional Elective-2		
1	EEE363	Electrical and Electronics Measurement
2	EEE365	Computer Networks
3	EEE367	Internet of Things
Professional Elective-3		
1	EEE364	Electric Drives and Traction
2	EEE368	Special Electrical Machine
3	EEE369	Electrical and Hybrid Vehicles
Professional Elective-4		
1	EEE473	Renewable Energy Sources
2	EEE476	Distributed Generation and Micro-grid
3	EEE477	High Voltage Engineering
Professional Elective-5		
1	EEE474	Power Quality
2	EEE478	Soft Computing and Applications
3	EEE479	Adaptive and Optimal Control
Professional Elective-6		
1	EEE482	Flexible AC Transmission System
2	EEE485	Industrial Instrumentation
3	EEE487	Digital Control System
4	EEE488	Electrical Engineering Material
5	EEE489	Energy Conservation and Audit

List of Courses for Open Electives		
Open Elective-1		
1	ECE354	Microprocessor and Microcontroller
2		Advance Electronic Circuit
3		VLSI Engineering
Open Elective-2		
1	ECE365	Digital Signal Processing
2		Embedded System
3		Mobile Communication System
Open Elective-3		
1	ECE475	Communication System Engineering
2		Embedded System
3		Digital Image Processing
Open Elective-4		
1	HSC483	Entrepreneurial Management
2		Biomedical Instrumentation
3		Satellite Communication

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6. Dr. Swarnabala Upadhyaya, Assistant Professor, Dept. of EEE, SUIIT, Burla. (Member)

The Board of Studies meeting of The Department of Electrical and Electronics Engineering was held on online mode on 15 /09 /2020 at 4 P.M. A discussion about the revised course structure for Ph.D coursework in Electrical and Electronics Engineering was done. The revised structure is approved by all the members of meeting as mentioned below.

Signature of Members

15/9/2020

Prof. (Dr.) Bibhuti Bhusan Pati

15/9/2020

Prof. (Dr.) S. Patra

15/9/2020

Prof. (Dr.) Sidhartha Panda

15.09.2020

Dr. Ambarish Panda

Er. Gyanaranjan Dash

15/09/2020

Dr. Swarnabala Upadhyaya

Rules and Regulations

A Ph.D scholar who has registered for Ph.D. program in Electrical and Electronics Engineering (EEE) in Sambalpur University, Burla, Odisha needs to choose **two branch specific papers** from the following papers given in Table 2 according to his/her specialization/interest. This is in addition to Research Methodology which is common to all branches and Power System Management (Core Course). The detailed course structure for pre-Ph.D course work is mentioned in Table 1.

Table 1: Detailed Structure for PhD Course Work in EEE

Course Code	Name of Course	Contact Hours (L T P)	Credits
EEPH01	Power System Management	4-0-0	4
	Research Methodology	4-0-0	4
	Paper-1 (Elective)	4-0-0	4
	Paper-2 (Elective)	4-0-0	4
EEPHS04	Seminar		2
EEPHR05	Research Review Report		2
Total Credit			20

Table 2: Specialization papers (Electives) for Electrical and Electronics Engineering

Sl. No.	Course Code	Course Title	Credit
1	EEPH02	**Power System Analysis**	4
2	EEPH03	**Distribution system Engineering**	4
3	EEPH04	**Power Electronics Control of Drives**	4
4	EEPH05	**Power Quality Problems and Mitigation**	4
5	EEPH06	**Power System Reliability**	4
6	EEPH07	**Advanced Control System**	4
7	EEPH08	**Dynamics of Electrical Machines**	4
8	EEPH09	**Renewable Energy Sources**	4
9	ECPH10	**Advanced Communication Theory**	4
10	ECPH11	**Advanced Image Processing**	4
11	ECPH12	**Advanced signal processing**	4

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