Proceedings of the meeting of the members of Board of Studies of
Department of Biotechnology and Bioinformatics (BT and BI), Sambalpur University
Held on 07/01/2017 AT 10.30AM

Members Present:

1. Prof. P. K. Naik,   Head, Department of BT and BI (Chairman, BoS)
2. Dr. A. K. Patel   Assoc. Professor, Department of BT and BI
3. Mr. B. P. Bag   Asst. Professor, Department of BT and BI
4. Dr. B. Behera   Asst. Professor, Department of BT and BI
5. Prof. S. N. Nayak,   Professor, School of Physics, Sambalpur University
6. Prof. P. K. Behera   Professor, School of Chemistry, Sambalpur University

Business Transacted:

At the outset the Chairman Board of Studies (BoS), Department of BT and BI, Sambalpur University welcomed all the members present during the meeting. The Head Department of BT and BI briefed the course outline of M. Sc. (Biotechnology) and M. Sc. (Bioinformatics). The proceedings of the meeting are follows:

1. To introduce the M. Phil. (Biotechnology) and Ph.D. Course work in the Department of BT and BI as per UGC Guidelines, which will be effective from January 2018.

   Resolution: Resolved that the course structure for M. Phil. (Biotechnology) and Ph,D. course work as mentioned in Annexure-I is approved and will be effective from January 2018.
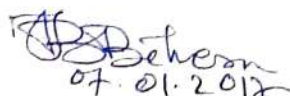
2. To restructure the syllabus of M. Sc. (Biotechnology) and M. Sc. (Bioinformatics) with optional/ elective papers and uniformity in total credit hours, which will be effective from 2017-2018.

   Resolution: Resolved that the revised syllabus attached in Annexure-II is approved and will be effective form the Academic session 2017-2018.

Dr. A. K. Patel   Prof. P. K. Naik   Mr. B. P. Bag

Dr. B. Behera   Prof. S. N. Nayak   Prof. P. K. Behera

BT & BI

COURSES OF STUDY
M.Sc (Biotechnology): Session (2017-2019)

BT & BI

DEPARTMENT OF BIOTECHNOLOGY & BIOINFORMATICS
SAMBALPUR UNIVERSITY, JYOTI VIHAR
BURLA- 768019, ODISHA

OUTLINE OF COURSE STRUCTURE
M.Sc. BIOTECHNOLOGY (Session: 2017-19)
SEMESTER-I

Course Code	Course Name	Credits hours	Marks
BT-411	(A) Physical Sciences (B) Fundamental Biology	3	50
BT-412	Chemistry of Biomolecules	3	50
BT-413	Genetics	3	50
BT-414	Microbiology	3	50
BT-415	Molecular Biology- I	3	50
BT-416	Instrumentation and Techniques	3	50
BT-417	Practical (Genetics and Microbiology)	2	50
BT-418	Practical (Biochemistry)	2	50

NON CREDIT COURSE: Communication Skills

SEMESTER-II

Course Code	Course Name	Credit hours	Marks
BT-421	Probability and Biostatistics	3	50
BT-422	Bioenergetics and Metabolism	3	50
BT-423	Immunology	3	50
BT-424	Molecular Biology- II	3	50
BT-425	Cell and Developmental Biology	3	50
BT-426	Industrial Biotechnology	3	50
BT-427	Practical (Immunology & Molecular Biology)	2	50
BT-428	Practical (Cell Biology & Industrial Biotechnology)	2	50

NON CREDIT COURSE: Personal Development

SEMESTER-III

Course Code	Course Name	Credit hours	Marks
BT-531	Recombinant DNA Technology	3	50
BT-532	Bioinformatics	3	50
BT-533	Bioprocess Engineering & Technology	3	50
BT-534	Cell Culture Techniques	3	50
BT-535 (A/B)	(A) Plant Biotechnology (B) Animal Biotechnology	3	50
BT-536 Elective Paper (Any one)	(A) Agricultural Biotechnology (B) Clinical Pathology & Diagnostics (C) Environmental Biotechnology (D) Pharmaceutical Biotechnology	3	50
BT-537	Practical (Cell Culture & Recombinant DNA Tech.)	2	50
BT-538	Practical (Bioinformatics)	2	50

IV SEMESTER

Course Code	Course Name	Credit hours	Marks
BT-541	Genomics, Proteomics and Metabolomics	3	50
BT-542	IPRs, Biosafety and Bioethics	3	50
BT-543	Seminar	3	50
BT-544	Project work and Viva Voce	(12+3)	250
	Total Course Credit	90 CH	1600

COURSES OF STUDY
M.Sc (Bioinformatics): Session (2017-2019)

BT & BI

DEPARTMENT OF BIOTECHNOLOGY & BIOINFORMATICS
SAMBALPUR UNIVERSITY, JYOTI VIHAR
BURLA- 768019, ODISHA

OUTLINE OF COURSE STRUCTURE
M.Sc. BIOINFORMATICS (Session: 2017-19)

SEMESTER-I

Course Code	Course Name	Credits hours	Marks
BI-411	(A) Physical Sciences (B) Foundation Biology	3	50
BI-412	Chemistry of Biomolecules	3	50
BI-413	Genetics	3	50
BI-414	Microbiology	3	50
BI-415	Molecular Biology- I	3	50
BI-416	Concepts in Computing	3	50
BI-417	Practical (Genetics and Microbiology)	2	50
BI-418	Practical (Biochemistry)	2	50

NON CREDIT COURSE: Communication Skills

SEMESTER-II

Course Code	Course Name	Credit hours	Marks
BI-421	Probability and Biostatistics	3	50
BI-422	Bioenergetics and Metabolism	3	50
BI-423	Immunology	3	50
BI-424	Molecular Biology- II	3	50
BI-425	Bioinformatics Resources	3	50
BI-426	Bioinformatics Programming	3	50
BI-427	Practical (Immunology and Molecular Biology)	2	50
BI-428	Practical (Bioinformatics Resources & Programming)	2	50

NON CREDIT COURSE: Personal Development

SEMESTER-III

Course Code	Course Name	Credit hours	Marks
BI-531	Recombinant DNA Technology	3	50
BI-532	Computational Biology	3	50
BI-533	Molecular Modeling and Simulation	3	50
BI-534	Database Management System	3	50
BI-535	Data Warehouse and Data mining	3	50
BI-536	Python and R language programming	3	50
BI-537	Practical (DBMS, Data warehouse and Data mining)	2	50
BI-538	Practical (Python and R language programming)	2	50

SEMESTER-IV

Course Code	Course Name	Credit hours	Marks
BI-541	Genomics, Proteomics and Metabolomics	3	50
BI-542	Computer Aided Drug Design	3	50
BI-543	Seminar	3	50
BI-544	Project work and Viva voce	(10+3)	200
BI-545	Practical (Computer Aided Drug Design)	2	50
	Total Course Credit	**90 CH**	**1600**

Proceeding of Department Council Meeting of School of Chemistry (Autonomous) held on 9/05/2017

<u>Members Present</u>
1. Prof. C. R. Tripathy, Vice-Chancellor in the chair
2. Prof. B. Satpathy, Chairman, P.G. Council
3. Prof. S.K. Sahu, Registrar
4. Prof. B. Behera, Retd. Professor, Burla
5. Prof. P.K. Kar, VSSUT, Burla
6. Prof. P.K. Behera, Member Secretary & Head of School
7. Prof. (Mrs) P.K. Misra
8. Dr. A.K. Behera
9. Dr. A. Mahapatra
10. Dr. S.N. Sahu
11. Dr. N.K. Behera

<u>Business Transacted</u>

Under the chairmanship of Vice-Chancellor, Head of the School welcome the members of Department Council and presented the activities of the School for the Academic Session 2016-17.

1. *All resolutions taken by the Academic Committee of the School are presented before the committee for consideration and approval.*

   It is approved.

2. *Academic Calendar for the session 2017-18 is placed before the committee for approval.*
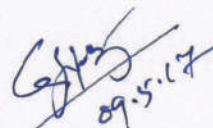
   It is approved.

3. *Increase of seat in M. Sc. in Chemistry in payment category from 6 to 12 (6 nos) and M. Sc. in Applied Chemistry from 10 to 15 (5 nos) from the coming session 2017-18 is placed before the committee for approval.*
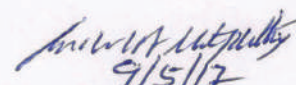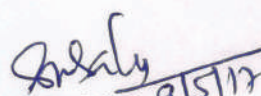
   It is approved.

4. *Revised syllabus for M. Sc. (Chemistry & Applied Chemistry) to be effective from the session 2017-18 (approved by Academic Committee held on 25/04/2017) is placed for approval.*

   It is approved to be effective from the session 2017-18

At the end Prof. (Mrs) P.K. Misra offered a vote of thanks to all the members.
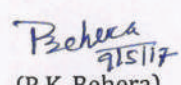
(C. R. Tripathy)
Vice-Chancellor
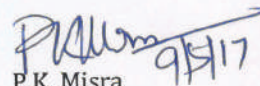
(B. Satpathy)
Chairman, P.G. Council
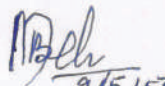
(S.K. Sahu)
Registrar
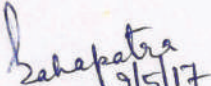
(B. Behera)
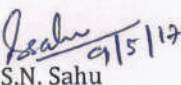
(P.K. Kar)
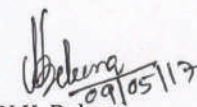
(P.K. Behera)
Head, Chemistry

P.K. Misra

A.K. Behera

A. Mahapatra

S.N. Sahu

N.K. Behera

Semester Syllabus for M. Sc. in Chemistry
(with effect from the session 2017-18)

FIRST SEMESTER

Course No	Course Title	Credit	Mark
CH-401	GROUP THEORY AND SOLID STATE CHEMISTRY	03	50
CH -402	TRANSITION METAL CHEMISTRY	03	50
CH -403	STRUCTURE AND REACTIVITY	03	50
CH -404	STEREOCHEMISTRY	03	50
CH -405	THERMODYNAMICS	03	50
CH -406	DYNAMICS	03	50
CH -407	INORGANIC PRACTICAL-I	02	50
CH -408	ORGANIC PRACTICAL-I	02	50
	Total	**22**	**400**

SECOND SEMESTER

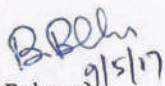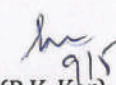| Course No	Course Title	Credit	Mark
CH -411	METAL π-COMPLEXES AND CLUSTERS	03	50
CH -412	BIOINORGANIC CHEMISTRY	03	50
CH -413	ORGANIC REACTION MECHANISM - I	03	50
CH -414	ORGANIC REACTION MECHANISM - II	03	50
CH -415	STATISTICAL THERMODYNAMICS & HMO THEORY	03	50
CH -416	SURFACE CHEMISTRY	03	50
CH -417	INORGANIC PRACTICAL-II	02	50
CH -418	ORGANIC PRACTICAL-II	02	50
	Total	**22**	**400**

THIRD SEMESTER

Course No	Course Title	Credit	Mark
CH -501	INSTRUMENTAL METHODS OF ANALYSIS	03	50
CH -502	INORGANIC REACTION DYNAMICS & NUCLEAR CHEMISTRY	03	50
CH -503	ORGANIC REDOX REACTION & SPECTROSCOPY	03	50
CH -504	PERICYCLIC REACTION, PHOTOCHEMISTRY & RETROSYNTHESIS	03	50
CH -505	QUANTUM CHEMISTRY	03	50
CH -506	ATOMIC & MOLECULAR SPECTROSCOPY	03	50
CH -507	PHYSICAL PRACTICAL	03	50
CH -508	REVIEW WORK	02	50
	Total	**23**	**400**

FOURTH SEMESTER
Core Courses

Course No	Course Title	Credit	Mark
CH -511	ADVANCED ORGANOMETALLIC CHEMISTRY	03	50
CH -512	ADVANCED SPECTROSCOPY	03	50
CH -513	COMPUTER APPLICATION IN CHEMISTRY	02	50
CH -514	ANALYTICAL PRACTICAL	02	50
CH -515	PRACTICAL ON COMPUTER IN CHEMISTRY	02	50
CH -516	SEMINAR	02	50
A student is required to choose any three theory elective courses either from Group A or Group B		09	150
	Total	**23**	**450**

Elective Courses

Group A

CH-521	ADVANCED ORGANIC SYNTHESIS	03	50
CH-522	PHOTOPHYSICAL PROCESSES & INSTRUMENTATION	03	50
CH-523	CHEMISTRY OF NANO MATERIALS	03	50
CH-524	INDUSTRIAL PROCESSES	03	50

Group B

CH-531	ADVACED ANALYTICAL CHEMISTRY	03	50
CH-532	SUPRAMOLECULAR CHEMISTRY	03	50
CH-533	ADVANCED SURFCE CHEMISTRY & CATALYSIS	03	50
CH-534	MATERIAL AND ENERGY BALANCE	03	50

Semester Syllabus for M. Sc. in Applied Chemistry
(With effect from the session 2017-18)

FIRST SEMESTER

Course No	Course Title	Credit	Mark
ACH-401	GROUP THEORY AND SOLID STATE CHEMISTRY	03	50
ACH -402	TRANSITION METAL CHEMISTRY	03	50
ACH -403	STRUCTURE AND REACTIVITY	03	50
ACH -404	STEREOCHEMISTRY	03	50
ACH -405	THERMODYNAMICS	03	50
ACH -406	DYNAMICS	03	50
ACH -407	INORGANIC PRACTICAL	02	50
ACH -408	PHYSICAL PRACTICAL	02	50
	Total	22	400

SECOND SEMESTER

Course No	Course Title	Credit	Mark
ACH -411	METAL π-COMPLEXES AND CLUSTERS	03	50
ACH -412	BIOINORGANIC CHEMISTRY	03	50
ACH -413	ORGANIC REACTION MECHANISM - I	03	50
ACH -414	ORGANIC REACTION MECHANISM - II	03	50
ACH -415	STATISTICAL THERMODYNAMICS & HMO THEORY	03	50
ACH -416	SURFACE CHEMISTRY	03	50
ACH -417	ORGANIC PRACTICAL	02	50
ACH -418	ANALYTICAL PRACTICAL	02	50
	Total	22	400

THIRD SEMESTER

Course No	Course Title	Credit	Mark
ACH -501	INSTRUMENTAL METHODS OF ANALYSIS	03	50
ACH -502	INDUSTRIAL POLLUTION & ITS MANAGEMENT	02	50
ACH -503	INDUSTRIAL POLICY & ENTREPRENEURSHIP	02	50
ACH -504	PROJECT	16	100
	Total	23	250

FOURTH SEMESTER

Course No	Course Title	Credit	Mark
ACH -511	COMPUTER APPLICATION IN CHEMISTRY	02	50
ACH -512	ENERGY & MATERIAL BALANCE AND NANOMATERIALS	03	50
ACH -513	INDUSTRIAL PROCESSES	03	50
ACH -514	MEDICINAL CHEMISTRY	03	50
ACH -515	SURFACTANTS AND DETERGENTS	03	50
ACH -516	PRACTICAL ON COMPUTER IN CHEMISTRY	03	50
ACH -517	INDUSTRIAL PRACTICAL	02	50
ACH -518	REVIEW	02	50
ACH -519	SEMINAR	02	50
	Total	**23**	**450**

No _2081_ / Acd-I   Dated the _11/03/17_

From,

    The Registrar,

To

    All Members of the Academic Council,
    Sambalpur University.

Sub:- Agenda for the meeting of the Academic Council to be held on 08.04.2017.

Ref;- Letter No. 1009/ Acd-I, Dated 07.02.2017.

Sir/ Madam,
    In inviting a subject and reference cited above, I am directed to forward herewith the agenda for the meeting of the Academic Council to be held on 08.04.2017 at 10.00A.M. **in the Seminar Hall of the P.G. Department of Physics**, Sambalpur University, Jyoti Vihar, Burla.

    Any member wishing to move an amendment to the resolution on the Agenda may forward a copy of it to the undersigned not less than nine clear days before 08.04.2017 i.e. **30.03.2017** in terms of the Statute 30(i) of Orissa Universities First Statute,1990.

    I would, therefore, request you kindly to make it convenient to attend the above said meeting on 08.04.2017. Kindly bring along with your own copy of the agenda papers.

                            Yours faithfully

                            Registrar

Memo No. _2082_/Acd-I   Dated the _11/03/17_

    Copy forwarded to:-

1. All Officers, Sambalpur University.
2. All the Section Officers, Sambalpur University.
3. All Heads of P.G. Department, Sambalpur University.
4. The Secretary to the Vice-Chancellor/P.A. to the Registrar/P.A. to the Controller of Examinations/P.A. to Comptroller of Finance, Sambalpur University.
5. The Director, College Development Council/Coordinator, Private Examination Cell/Director, D.D.C.E, Sambalpur University.
6. 50 spare copies to Acd-I Section.

                            Registrar

1

(1)   *Prof. Pradipta Kumar Behera* 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 2016-17 in approving changes / revision of syllabi etc. as stated below:-

a.   Under Graduate Syllabus under CBCS effective from the academic session 2016-17, which has been   approved by the Vice Chancellor in exercise of his powers vested under Sub Section (15) of Section 6 of Odisha Universities Act, 1989 will be effective for academic session 2017-18.
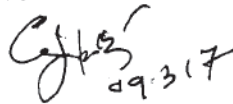
b.   **Library & Information Science** – Board of Studies in **Library & Information Science** for 2016- 17 has recommended revised *syllabus for Two year Master Degree Course* **Library & Information Science** to be effective from the academic session 2017-18. Recommended Syllabus as in *Appendix- E-1*

c.   **Social Work**   – Board of Studies in **Social Work**   for 2016- 17 has recommended revised *syllabus for Ph. D. Course Work in Social Work* to be effective from the academic session 2017-18. Recommended Syllabus as in *Appendix- E-2*

d.   **Geology**   – Board of Studies in **Geology**   for 2016- 17 has recommended question pattern for theory examinations for Under Graduate Courses under CBCS. Recommended pattern as in *Appendix- E-3*

(F)   *Business brought forward by the Members of Academic Council*

NIL

Registrar 9/3/17

Approved

9.3.17

Vice-Chancellor

SYLLABUS FOR

MASTER IN LIBRARY & INFORMATION SCIENCE (MLIS COURSE)

WITH

SEMESTER-CUM-COURSE CREDIT SYSTEM

W.E.F 2017-2018 SESSION

P. G. DEPARTMENT OF LIBRARY & INFORMATION SCIENCE
SAMBALPUR UNIVERSITY
JYOTI VIHAR, BURLA-768019
Website: http://www.suniv.ac.in

SYLLABUS OF
TWO-YEAR MASTER IN LIBRARY & INFORMATION SCIENCE (MLISC) COURSE UNDER
SEMESTER-CUM- COURSE CREDIT SYSTEM

w.e.f. 01.08.2017 (2017-18 Sessions)

(REVISED)

The MLISC Programme under Semester-cum-Course Credit System shall comprise of 24 numbers of papers/courses spread over FOUR semesters and carrying a total credit load of 80 Credit Hours. Each Theory paper/course and practical paper shall carry a load of 4 and 2 credits respectively. Each credit hour shall consist of 12 classes of one hour duration. Semester-wise distributions of the courses along with their respective titles are given here under:

FIRST SEMESTER

Course No.	Course Title	Credit Hours	University Exam.	Internal Assessment/ Periodic test	Home Assign ment	Full Mark/ Total
MLIS-411	Foundation of Library and Information Science	4	80	10	10	100
MLIS-412	Knowledge Organisation (Classification)	4	80	10	10	100
MLIS-413	Knowledge Organisation (Cataloguing)	4	80	10	10	100
MLIS-414	Information Sources, Systems and Services	4	80	10	10	100
MLIS-415-A	Knowledge Organisation (Classification) Practical	2	50	-	-	50
MLIS-415-B	Knowledge Organisation (Cataloguing) Practical	2	50	-	-	50
MLIS-416	Seminar-I (Write up 25, Presentation 25)	2	50	-	-	50

SECOND SEMESTER

Course No.	Course Title	Credit Hours	University Exam.	Internal Assessment/ Periodic test	Home Assign ment	Full Mark/ Total
MLIS-417	ICT and Library Automation	4	80	10	10	100
MLIS-418	Information Storage and Retrieval	4	80	10	10	100
MLIS-419	Search Tools and Techniques	4	80	10	10	100
MLIS-420	Information Needs and Seeking Behaviour	4	80	10	10	100
MLIS-421	ICT and Library Automation Practical	2	100	-	-	100
MLIS-422	Seminar-II (Write up 25, Presentation 25)	2	50	-	-	50

THIRD SEMESTER

Course No.	Course Title	Credit Hours	University Exam.	Internal Assessment/ Periodic test	Home Assign ment	Full Mark/ Total
MLIS-423	Management of Libraries and Information Centres	4	80	10	10	100
MLIS-424	Research Methodology and Bibliometrics	4	80	10	10	100
MLIS-425	Internet and Web Resources	4	80	10	10	100
MLIS-426	Digital Library and Information Systems	4	80	10	10	100
MLIS-427	Digital Library and Web Tools Practical	2	100	-	-	100
MLIS-428	Seminar-III (Write-up-25 and Presentation- 25)	2	50	-	-	50

FOURTH SEMESTER

Course No.	Course Title	Credit Hours	University Exam.	Internal Assessment/ Periodic test	Home Assign ment	Full Mark/ Total
MLIS-429	Preservation and Conservation of Library Resources	4	80	10	10	100
Elective Paper						
MLIS-430A	Electronic Resource Management	4	80	10	10	100
	OR					
MLIS-430B	Marketing of Information and Knowledge Management	4	80	10	10	100
MLIS-431	Effective Communication Skill	2	40	5	5	50
MLIS-432	Project (Project evaluation 75 marks + Viva-voce 25 Marks) to be evaluated jointly by the Internal and the External Examiners	6	100	-	-	100
MLIS-433	Study Tour	2	50	-	-	50

Total Papers = 24
Total Credits = 80
Total Marks = 2050

PROCEEDING OF THE BOARD OF STUDIES MEETING OF DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING & APPLICATIONS HELD ON DATE- 16/07/2017

Members Present

1) Prof. (Dr.) Amiya Kumar Rath, Prof. Dept. CSE, VSSUT, Burla
2) Mr. Pradyumna Kumar Ratha, Head & Asst. Prof. Dept. CSE&A, SUIIT, Burla
3) Mr. Kalyan Das, Asst. Prof. Dept. CSE&A, SUIIT, Burla
4) Mrs. Sushree Subhaprada Pradhan, Asst. Prof. Dept. CSE&A, SUIIT, Burla
5) Dr. (Mrs.) Madhumita Panda, Asst. Prof. Dept. CSE&A, SUIIT, Burla
6) Mr. Sibarama Panigrahi, Asst. Prof. Dept. CSE&A, SUIIT, Burla
7) Mr. Debashreet Das , Asst. Prof. Dept. CSE&A, SUIIT, Burla

The Board of Study meeting of Department of CSE&A, SUIIT was held on 16/07/2017 and discussed a revised course structure for different running programmes (B.Tech CSE, MCA, M.Sc CS, M.Tech CSE, M.Phil CS, and Pre. Ph.D. Course Work). The revised structures approved by all the members of meeting are mentioned from Section A-Section-F.

Signature of Members:

Prof. (Dr.) Amiya Kumar Rath

Mr. Pradyumna Kumar Ratha

Mr. Kalyan Das

Mrs. Sushree Subhaprada Pradhan

Dr. (Mrs.) Madhumita Panda

Mr. Sibarama Panigrahi

Mr. Debashreet Das

SECTION-A
Syllabus 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	4	
3	CSC113	Basic Electrical Engineering	FC(BE)	3	0	1	4	
4	EEC114	Programming in C	FC(CS)	3	0	1	4	
5	HSC115	English for Communication	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:	25	

		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 branch
2	PHC 122	Physics-II	FC(BS)	3	0	0	4	
3	ECC 123	Basic Electronics	FC(BE)	3	0	1	4	
4	CSC 124	Object Oriented Programming using C++	FC(CS)	3	0	1	4	
5	HSC125	Environmental Studies	FC(HS)	4	0	0	4	
6	CSL 126	Object Oriented Programming using C++ Lab.	FC(CS)	0	3	0	2	
7	ECL 127	Basic Electronics Lab.	FC(BE)	0	3	0	2	
8	EDC 128	Engineering Graphics	FC(BE)	0	3	0	2	
						Total Credit:	26	

		Semester – III						
S.No.	Course Code	Course Title	Category	L	P	T	Credits	Remarks
1	MAC 211	Mathematics-III	FC(BS)	4	0	0	4	
2	ECC 212	Data Communication	PC(CE)	4	0	0	4	
3	CSC 213	Data Structures with C	PC(CE)	4	0	0	4	
4	ECC 214	Digital Circuits and Systems	FC(BE)	4	0	0	4	
5	CSC 215	Computer Organization and Architecture	PC(CE)	4	0	0	4	
6	CSL 216	Data Structures with C Lab.	PC(CE)	0	3	0	2	
7	ECL 217	Digital Circuit Lab.	FC(BE)	0	3	0	2	
8	CSL 218	Computer Engineering Workshop	PC(CE)	1	2	0	2	
						Total Credit:	26	

Semester – IV

S.No.	Course Code	Course Title	Category	L	P	T	Credits	Remarks
1	MAC 221	Mathematics-IV	FC(BS)	4	0	0	4	
2	ECC 222	Microprocessor& Microcontroller	FC(BE)	3	0	0	4	
3	CSC 223	Programming with Java	PC(CE)	3	0	1	4	
4	CSC 224	Analysis and Design of Algorithms	PC(CE)	3	0	0	4	
5	CSC 225	Operating Systems	PC(CE)	3	0	0	4	
6	ECL 226	Microprocessor& Microcontroller Lab.	FC(BE)	0	3	0	2	
7	CSL 227	Programming with Java Lab.	PC(CE)	0	3	0	2	
8	CSL 228	Analysis and Design of Algorithms Lab.	PC(CE)	0	3	0	2	
						Total Credit:	26	

Semester – V

S.No.	Course Code	Course Title	Category	L	P	T	Credits	Remarks
1	MAC 311	Discrete Mathematics	FC (BS)	4	0	0	4	
2	CSC 312	Theory of Computation	PC(CE)	4	0	0	4	
3	CSC 313	Database Management Systems	PC(CE)	3	0	1	4	
4	CSC 314	Computer Networks	PC(CE)	3	0	0	4	
5	XXX XXX	HSS Elective-I	OE (OE)	3	0	1	3	
6	CSL 315	Database Management System Lab.	PC(CE)	0	3	0	2	
7	CSL 316	Computer Network Lab	PC(CE)	0	3	0	2	
8	CSL 317	Open Source Lab.	PC(CE)	0	3	0	2	
						Total Credit:	25	

Semester – VI

S.No.	Corse Code	Course Title	Category	L	P	T	Credits	Remarks
1	CSC 321	Artificial Intelligence	PC(CE)	4	0	0	4	
2	CSC 322	Web Technology	PC(CE)	3	0	1	4	
3	CSC 323	Software Engineering	PC (CE)	3	0	1	4	
4	XXX XXX	Programme Elective-I	PE (CE)	4	0	0	4	
5	XXX XXX	Open Elective-I	IE (IE)	4	0	0	4	
6	CSL 324	Web Technology Lab.	PC(CE)	0	3	0	2	
7	CSL 325	Software Engineering Lab.	PC(CE)	0	3	0	2	
						Total Credit:	24	

Semester – VII

S. No.	Course Code	Course Title	Category	L	P	T	Credits	Remarks
1	CSC 411	Data Warehouse and Data Mining	PC(CE)	4	0	0	4	
2	CSC 412	Compiler Design	PC(CE)	4	0	0	4	
3	XXX XXX	Programme Elective-II	PE (CE)	3	0	0	4	
4	XXX XXX	Open Elective-II	PE (CE)	3	0	0	4	
5	XXX XXX	HSS Elective-II	OE (OE)	3	0	0	3	
6	CSP 413	Minor Project	PP (PW)	3	0	0	4	
7	CSS 414	Technical Seminar	PP (TS)	0	0	0	1	
						Total Credit:	24	

Semester – VIII

S.No.	Course Code	Course Title	Category	L	P	T	Credits	Remarks
1	CSC 421	Cryptography and Network Security	PC(CE)	4	0	0	4	
2	XXX XXX	Programme Elective-III	PE (CE)	3	0	0	4	
3	XXX XXX	Programme Elective-IV	PE (CE)	3	0	0	4	
4	XXX XXX	HSS Elective-III	OE(OE)	4	0	1	3	
5	CSP 422	Major Project	PP (PW)	0	0	0	8	
6	CSV 423	Comprehensive Viva-voce	PP (CV)	0	0	0	3	
						Total Credit:	26	

SEMESTER WISE CREDIT DISTRIBUTION

Year	Credit(50)		Credit(52)		Credit(52)		Credit(50)		
Semester	I	II	III	IV	V	VI	VII	VIII	TOTAL
Total Credit	25	26	26	26	25	27	24	26	205

HSS ELECTIVES

HSS Elective-I

Code	Course Title	Category	L	P	T	Credits
HSE E01	Engineering Economics	OE(IE)	3	0	0	3
HSE E02	Profession Writing and Communication	OE(OE)	3	0	0	3
HSE E03	Science and Technology	OE(OE)	3	0	0	3

HSS Elective-II

Code	Course Title	Category	L	P	T	Credits
HSE E04	Organizational Behavior	OE(OE)	3	0	0	3
HSE E05	Personal Development	OE(OE)	3	0	0	3
HSE E06	Ethics Integrity and attitude	OE(OE)	3	0	0	3
HSE E07	E-Commerce	IE(IE)	3	0	0	3

HSS Elective-III

Code	Course Title	Category	L	P	T	Credits
HSE E08	Entrepreneurial Management	OE(OE)	3	0	0	3
HSE E09	Human Resource Management	OE(OE)	3	0	0	3
HSE E10	Society and Social issues	OE(OE)	3	0	0	3
HSE E11	Law for Engineers	IE(IE)	3	0	0	3

OPEN ELECTIVES

Open Elective-I

Code	Course Title	Category	L	P	T	Credits
OPE E01	Principle of Programming Language	IE(IE)	4	0	0	4
OPE E02	Optimization Techniques	IE(IE)	4	0	0	4
OPE E03	Statistical Methods	IE(IE)	4	0	0	4
OPE E04	Digital Signal Processing	IE(IE)	4	0	0	4
OPE E05	Computer Oriented Numerical Methods	IE(IE)	4	0	0	4
OPE E06	Middleware Technologies	IE(IE)	4	0	0	4

Open Elective-II

Code	Course Title	Category	L	P	T	Credits
OPE E07	Information Theory and Coding	IE(IE)	3	0	0	4
OPE E08	VLSI Engineering	IE(IE)	3	0	0	4
OPE E09	Software Project Management	IE(IE)	3	0	0	4
OPE E10	Digital Image Processing	IE(IE)	4	0	0	4

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OPE E11	Pattern Recognition	IE(IE)	3	0	0	4
OPE E12	Wireless Sensor Network	IE(IE)	3	0	0	4
OPE E13	Remote Sensing and Geographic Information Systems	IE(IE)	3	0	0	4

PROGRAMME ELECTIVES

Programme Elective-I

Code	Course Title	Category	L	P	T	Credits
CSE E01	Advanced Computer Architecture	PE(PE)	4	0	0	4
CSE E02	Soft Computing	PE(PE)	4	0	0	4
CSE E03	Semantic Web	PE(PE)	4	0	0	4
CSE E04	Cloud Computing	PE(PE)	4	0	0	4
CSE E05	Human Computer Interaction	PE(PE)	4	0	0	4
CSE E06	Advanced Data Structures	PE(PE)	4	0	0	4
CSE E07	Object Oriented Analysis and Design	PE(PE)	4	0	0	4

Programme Elective-II

Code	Course Title	Category	L	P	T	Credits
CSE E08	Distributed Database Systems	PE(PE)	4	0	0	4
CSE E09	Information Retrieval System	PE(PE)	4	0	0	4
CSE E10	Embedded Systems	PE(PE)	4	0	0	4
CSE E11	Computer Graphics	PE(PE)	4	0	0	4
CSE E12	High Performance Computing	PE(PE)	4	0	0	4
CSE E13	Wireless Communications	PE(PE)	4	0	0	4
CSE E14	Mobile Computing	PE(PE)	4	0	0	4

Programme Elective-III

Code	Course Title	Category	L	P	T	Credits
CSE E15	Parallel Computing	PE(PE)	4	0	0	4
CSE E16	Grid Computing	PE(PE)	4	0	0	4
CSE E17	Big data analytics	PE(PE)	4	0	0	4
CSE E18	Simulation and Modeling	PE(PE)	4	0	0	4
CSE E19	Introduction to Bioinformatics	PE(PE)	4	0	0	4
CSE E20	Internet of Things	PE(PE)	4	0	0	4
CSE E21	Management Information Systems	PE(PE)	4	0	0	4

Programme Elective-IV

Code	Course Title	Category	L	P	T	Credits
CSE E22	Machine Learning	PE(PE)	4	0	0	4
CSE E23	Advanced Software Engineering	PE(PE)	4	0	0	4
CSE E24	Network Management	PE(PE)	4	0	0	4
CSE E25	Distributed Systems	PE(PE)	4	0	0	4
CSE E26	Software Design and Validations	PE(PE)	4	0	0	4
CSE E27	Storage Area Networks	PE(PE)	4	0	0	4
CSE E28	Ethical Hacking	PE(PE)	4	0	0	4
CSE E29	Game Programming	PE(PE)	4	0	0	4
CSE E29	Real time Systems	PE(PE)	4	0	0	4

NB:

Examination and Evaluation procedure for Technical Seminar, summer internship, Comprehensive Viva-Voce and Project Work (minor & Major) will be as per Academic & Examination Guidelines of SUIIT.

Syllabus Structure
(Masters in Computer Applications)

Semester – I						
Code	Course Title	Category	L	P	T	Credits
MC 511	Discrete Mathematics	FC	4	0	0	4
MC 512	English for Business Communications	FC	3	0	0	3
MC 513	Computer Programming with C	CC	3	0	1	4
MC 514	Business Accounting	FC	3	0	0	3
MC 515	Computer Organization and Architecture	CC	4	0	0	4
MC 516	Programming in C Lab.	CC	0	3	0	2
MC 517	Hardware and Assembly Programming Lab.	CC	0	3	0	2
				Total Credit:		22

Semester – II						
Code	Course Title	Category	L	P	T	Credits
MC 521	Probability and Statistics	FC	4	0	0	4
MC 522	Object Oriented Programming using C++	CC	3	0	1	4
MC 523	Data Structure with C	CC	3	0	1	4
MC 524	Optimization Techniques	FC	4	0	0	4
MC 525	Ecology and Environment	FC	4	0	0	4
MC 526	Object Oriented Programming Lab.	CC	0	3	0	2
MC 527	Data Structure using C Lab.	CC	0	3	0	2
MC 528	Technical Seminar – I	TS	0	0	0	2
				Total Credit:		26

Semester – III						
Code	Course Title	Category	L	P	T	Credits
MC 531	Computer Oriented Numerical Methods	CC	4	0	0	4
MC 532	Programming with Java	CC	3	0	1	4
MC 533	Data Communication and Computer Networks	CC	4	0	0	4
MC 534	Database Management Systems	CC	3	0	0	4
	Elective-I	PE	3	0	1	4
MC 53E1	Human Computer Interaction					
MC 53E2	Computer Graphics					
MC 53E3	Distributed Systems					
MC 53E4	E-Commerce					
MC 535	Programming with Java Lab.	CL	0	3	0	2
MC 536	Database Management Systems Lab.	CL	0	3	0	2
				Total Credit:		24

Semester – IV						
Code	Course Title	Category	L	P	T	Credits
MC 541	Theory of Computation	CC	4	0	0	4
MC 542	Analysis and Design of Algorithms	CC	4	0	0	4
MC 543	Operating System	CC	4	0	0	4
MC 544	Business Finance	CC	3	0	0	3
	Elective-II	PE	3	0	1	4
MC 54E1	Artificial Intelligence					

	MC 54E2	Advanced data structure					
	MC 54E3	Information Retrieval System					
MC 545	Analysis and Design of Algorithms Lab		CC	0	3	0	2
MC 546	Operating System Lab		CL	0	3	0	2
MC 547	Seminar – II		TS	0	0	0	2
					Total Credit:		25

Semester – V

Code	Course Title		Category	L	P	T	Credits
MC 551	Software Engineering		CC	4	0	0	4
MC 552	Web Technology		CC	4	0	0	4
MC 553	Information Security		CC	4	0	0	4
	Programme Elective-III		PE	3	0	0	4
	MC 55E1	Advance database					
	MC 55E2	Data warehousing and Data Mining					
	MC 55E3	Mobile Computing					
	Programme Elective-IV		PE	3	0	0	4
	MC 55E4	Simulation Modeling					
	MC 55E5	Soft Computing					
	MC 55E6	Cloud Computing					
	MC 55E7	Compiler Design					
	Web Technology Lab.		CL	0	3	0	2
MC 554	Minor Project		PW	0	3	0	4
					Total Credit:		26

Semester – VI

Code	Course Title	Category	L	P	T	Credits
MC 561	Project Work	PW				16
MC 562	Comprehensive Viva - Voce	CV				6
				Total Credit:		22

SEMESTER WISE CREDIT DISTRIBUTION							
Semester	I	II	III	IV	V	VI	TOTAL
Total Credit	22	26	24	26	24	22	144

N.B.

Seminar-I/Seminar-II: Students will choose two different topics from latest technological development / research in CSE or in allied field present in two successive seminar respectively. They will submit synopsis for each presentation in an approved format on the day of presentation.

Project work and Comprehensive Viva-Voce will be as per Academic & Examination Guidelines of SUIIT.

SECTION-C

Syllabus Structure

(Masters in Science in Computer Science)

Semester – I							
Code	Course Title	Category	L	P	T	Credits	
CS 511	Mathematics Foundation	Foundation	4	0	0	4	
CS 512	Statistical Methods for Computing	Foundation	4	0	0	4	
CS 513	Digital Circuits and Systems	Core	4	0	0	4	
CS 514	Programming in C	Core	3	0	1	4	
CS 515	Data Structure and Algorithm	Core	4	0	0	4	
CS 516	Programming in C Lab.	Core	0	3	0	2	
CS 517	Digital Electronics lab.	Core	0	3	0	2	
				Total Credit:		24	

Semester – II						
Code	Course Title	Category	L	P	T	Credits
CS 521	Linear Algebra and Calculus	Foundation	4	0	0	4
CS 522	Theory of Computation	Core	4	0	0	4
CS 523	Operating Systems	Core	4	0	0	4
CS 524	Object Oriented Programming with C++	Core	3	0	1	4
CS 525	Computer Organization and Architecture	Core	4	0	0	4
CS 526	Object Oriented Programming Lab.	Core	0	3	0	2
CS 527	Operating Systems Lab.	Core	0	3	0	2
				Total Credit:		24

Semester – III							
Code	Course Title		Category	L	P	T	Credits
CS 531	Database Management System		Core	3	0	1	4
CS 532	Computer Graphics		Core	4	0	0	4
CS 533	Data Communications and Computer Networks		Core	4	0	0	4
CS 534	Compiler Design		Core	4	0	0	4
XX XXXX	Elective-I		Prog. Elect.				
	CS 53E1	Mobile Computing		4	0	0	4
	CS 53E2	Information Retrieval System					
	CS 53E3	Information Security					
	CS 53E4	Management Information System					
CS 535	Database Management Systems Lab		Core	0	3	0	2
CS 536	UML Lab.		Core	0	3	0	2
					Total Credit:		24

Semester – IV							
Code	Course Title		Category	L	P	T	Credits
CS 541	Software Engineering		Core Course	4	0	0	4
CS 542	Artificial Intelligence		Core Course	4	0	0	4
CS 543	Ecology and Environment		Foundation	4	0	0	3
XX XXXX	Elective-II		Prog. Elect.				
	CS 54E1	Data Mining and Data Warehousing		4	0	0	4
	CS 54E2	Wireless Sensor Networks					
	CS 54E3	Cloud Computing					
	CS 54E4	Simulation Modeling					
	CS 54E5	Introduction to Big Data Analytics					
CS 544	Project		Project Work	-	-	-	8
CS 545	Seminar		Tech. Seminar	-	-	-	1
					Total Credit:		24

SEMESTER WISE CREDIT DISTRIBUTION					
Semester	I	II	III	IV	TOTAL
Total Credit	24	24	24	24	96

SECTION-D
Syllabus Structure
(Masters in Technology in Computer Science and Engineering)

		Semester – I				
Code	Course Title	Category	L	P	T	Credits
CS 611	Foundations of Mathematics	Foundation Course	4	0	0	4
CS 612	Advanced Data structures and Algorithms	Core Course	4	0	0	4
CS 613	Advanced Programmed Languages	Core Course	3	0	0	4
XX XXXX	Elective –I	Programme Elective	3	0	1	4
XX XXXX	Elective –II	Programme Elective	3	0	0	4
CS 614	Open source lab	Core Course	0	3	0	2
CS 615	Advanced programming lab.	Core Course	0	3	0	2
CS 616	Seminar & Technical Writing-I	Technical Seminar	-	-	-	2
					Total Credit:	26

Semester-I Elective Pool (for Elective-I and Elective-II)	
CS 61E1	Image Processing
CS 61E2	Information retrieval and web search
CS 61E3	Pattern Recognition
CS 61E4	Advanced Computer Networking
CS 61E5	Advanced Databases
CS 61E6	Advanced Computer Architecture
CS 61E7	Mobile Computing
CS 61E8	Principles of Programming Languages
CS 61E9	Intellectual Property Rights and Cyber Laws
CS 61E10	Formal Language and Automata Theory

		Semester – II				
Code	Course Title	Category	L	P	T	Credits
CS 621	Artificial intelligence	Core Course	4	0	0	4
CS 622	Software Engineering	Core Course	4	0	0	4
XX XXXX	Elective –III	Programme Elective	3	0	0	4
XX XXXX	Elective –IV	Programme Elective	3	0	1	4
XX XXXX	Elective –V	Programme Elective	3	0	0	4
CS 623	Network programming lab.	Core Course	0	3	0	2
CS 624	Seminar and technical writing-II	Technical Seminar	-	-	-	2
					Total Credit:	24

Semester-II Elective Pool (for Elective-III, Elective-IV, and Elective-V)	
CS 62E1	Cryptography and Network Security
CS 62E2	Internet of Things
CS 62E3	Storage Area Networks
CS 62E4	Game Theory
CS 62E5	Data warehousing and data Mining
CS 62E6	Machine Learning
CS 62E7	Big Data Analytics
CS 62E8	Cloud Computing
CS 62E9	Soft Computing
CS 62E10	Embedded Systems
CS 62E11	Wireless Sensor Network & Applications
CS 62E12	Semantic Web and Social Networking
CS 62E13	Advanced Operating Systems
CS 62E14	Software Project Management
CS 62E15	Parallel algorithms

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Semester – III

Code	Course Title	Category	Credits
CS 631	Project Work Review-I Comprehensive Viva-Vice	Project Work	12
		Total Credit:	12

Semester – IV

Code	Course Title	Category	Credits
CS 641	Project Work Review-II Project Evaluation (Viva-Voce)	Project Work	20
		Total Credit:	20

SEMESTER WISE CREDIT DISTRIBUTION					
Semester	I	II	III	IV	TOTAL
Total Credit	26	24	12	20	82

Special Instructions:

* **Selection of Electives:** For Elective-I/II choose two different courses from Elective Pool-I and for Electives-III/IV/V choose three different courses.
* **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 / teachers 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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SECTION-E
Syllabus Structure
(Masters in Philosophy in Computer Science)

Semester – I

Code	Course Title	Category	L	P	T	Credits
MP 2101	Research Methodology	Core Course	4	0	0	4
MP 2102	Advanced Data Structure & Algorithms	Core Course	4	0	0	4
XXXXXX	Elective-I:	Programme Elective				4
MP 2201	Research Programming Lab.	Core Course	0	6	0	4
MP 6501	Review Work	Technical Seminar				4
		Semester Total Credit:				20

LIST OF ELECTIVES

Code	Course Title	L	P	T
MP 5101	Software Engineering	4	0	0
MP 5102	Cryptography and Network Security	4	0	0
MP 5103	Data Mining And Data Warehousing	4	0	0
MP 5104	Wireless Sensor Network & Applications	4	0	0
MP 5105	Artificial Intelligence	4	0	0
MP 5106	Advanced Databases	4	0	0

Semester – II

Code	Course Title	Category	Credits
MP 6502	Seminar	Technical Seminar	2
MP 6701	Dissertation (Interim)	Project Work	8
	Dissertation (Final)	Project Work	10
		Semester Total Credit:	20

- **REVIEW WORK:** This review works is review of research papers published in referred journals. Student will submit Review Reports / Synopsis (2 CH) & at least appear two Seminars of 2 CH each.
- **SEMINAR:** At least two seminars in two different topics.
- **DISSERTATION:** The entire dissertation work will be carried away in three different stages -
  - **DISSERTATION (INTERIM):** Mid semester Evaluation of dissertation.
  - **DISSERTATION PRE-FINAL EVALUATION (NON CREDIT):** Student must clear this test to appear final stage of dissertation.
  - **DISSERTATION (FINAL):** Final Evaluation

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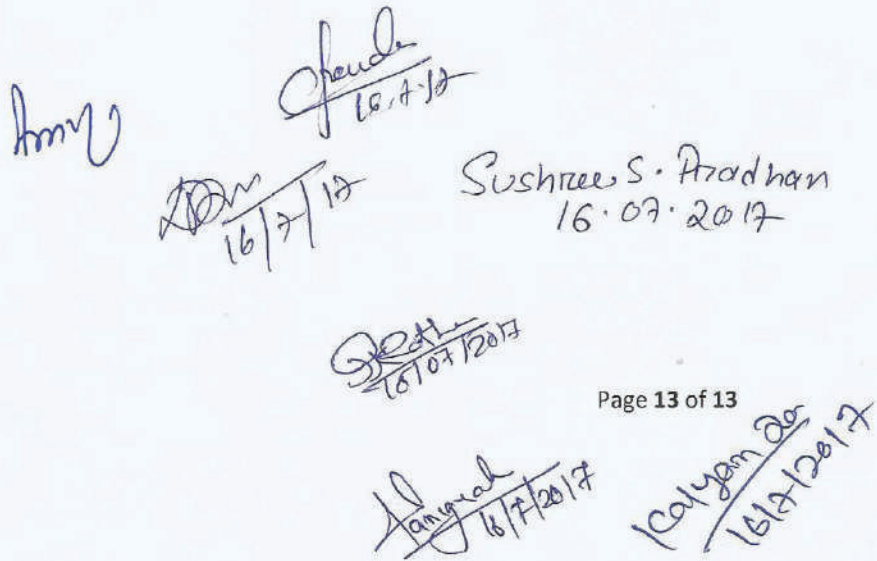
Syllabus Structure
(Pre-Ph.D. Course Work in Computer Science and Enginerring)

Code	Course Title	Category	L	P	T	Credits
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Course Work

Code	Course Title	Category	L	P	T	Credits
PD 2101	Research Methodology	Core Course	4	0	0	4
PD 2102	Artificial Intelligence	Core Course	4	0	0	4
XX XXXX	Elective-I	Programme Elective				4
XX XXXX	Elective-II	Programme Elective				4
PD 6501	Review Work	Core Course				4
		Semester Total Credit:				**20**

LIST OF ELECTIVES

Code	Course Title	L	P	T
PD 5101	Cryptography and Network Security	4	0	0
PD 5102	Data Mining And Data Warehousing	4	0	0
PD 5103	Wireless Sensor Networks & Applications	4	0	0
PD 5104	Machine Learning	4	0	0
PD 5105	Soft Computing	4	0	0
PD 5106	Information Theory and Coding	4	0	0
PD 5107	Digital Image Processing	4	0	0
PD 5108	Mobile Computing	4	0	0
PD 5109	Cloud Computing	4	0	0
PD 5110	Advance Database Systems	4	0	0
PD 5111	Advanced Computer Architecture	4	0	0
PD 5112	Parallel and Distributed Computing	4	0	0
PD 5113	High Performance Computing	4	0	0
PD 5114	Big Data Analytics	4	0	0
PD 5115	Internet of Things	4	0	0
PD 5116	System Simulation and Modeling	4	0	0

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Department of Electronics & Communication Engineering
Curriculum of B. Tech(Electronics & Communication Engineering)
2017-21

First Semester (Structure Common to all branches)

S. No	Course codes	Course titles	L	T	P	Contact hours per week	Credits	SUBJECT Category
1.		Mathematics-I	3	1	0	4	4	BS&H
2.		Physics-I	3	1	0	4	4	BS&H
3.		English for Communication Or Ecology and Environmental Sciences	3	0	0	4	3	BS&H/HSS
4.		Basic Electrical Engineering Or Basic Electronics	3	1	0	4	4	EEE/EC
5.		Computer Programming in C Language	3	1	0	4	4	CSE
6.		Physics Lab	0	0	3	3	2	BS&H
7.		Basic Electrical Engineering Lab or Basic Electronics Lab	0	0	3	3	2	EEE/EC
8.		Computer Programming in C Lab	0	0	3	3	2	CSE
		Total	15	4	9	29	25	

Second Semester (Structure Common to all branches)

Semester-II

S. No	Course codes	Course titles	L	T	P	Contact hours per week	Credits	Subject Category
1.		Mathematics-II	3	1	0	4	4	BS&H
2.		Basic electronics or Basic Electrical Engineering	3	1	0	4	4	EC/EEE
3.		Object Oriented Programming using Java	3	1	0	4	4	CSE
4.		Physics-II	3	1	0	4	4	BS&H
5.		Ecology and Environment or English for Communication	3	0	0	4	3	HSS/BS&H
6.		Basic Electronics Lab or Basic Electrical Engineering Lab	0	0	3	3	2	EC/EEE
7.		Object Oriented Programming using Java Lab	0	0	3	3	2	CSE
8.		Engineering Drawing Lab	0	0	3	3	2	CSE
		Total	15	4	9	29	25	

Third Semester

S. No	Course codes	Course titles	L	T	P	Contact hours per week	Credits	Subject Category
1.		Mathematics-III	3	1	0	4	4	BS&H
2.		Signals and systems	3	1	0	4	4	EC
3.		Computer organization and architecture	3	1	0	4	4	CSE
4.		Analog electronics circuit	3	1	0	4	4	EC
5.		Network Analysis and synthesis	3	1	0	4	4	EEE
6.		Digital Circuit and System	3	1	0	4	4	EC
7.		Analog Electronics Lab	0	0	3	3	2	EC
8.		Digital Circuit Lab	0	0	3	3	2	EEE
		Total	18	6	6	30	28	

Fourth Semester

S. No	Course codes	Course titles	L	T	P	Contact hours per week	Credits	Subject Category
1.		Mathematics-IV	3	1	0	4	4	BS&H
2.		Analog Communication Systems	3	1	0	4	4	EC
3.		Electronic Measurement and Instrumentation	3	1	0	4	4	EC
4.		Microprocessor and Microcontroller	3	1	0	4	4	EC
5.		Digital Signal Processing	3	1	0	4	4	EC
6.		Analog Communication Lab	0	0	3	3	2	EC
7.		Microprocessor and Microcontroller Lab	0	0	6	6	4	EC
		Total	15	5	9	29	26	

Fifth Semester

S. No	Course codes	Course titles	L	T	P	Contact hours per week	Credits	Subject Category
1.		Digital Communication	3	1	0	4	4	EC
2.		Electromagnetic Theory	3	1	0	4	4	EC
3.		HSS Elective-I	3	0	0	3	3	HSS
4.		Open Elective-I (LNDP)	3	1	0	4	4	OE
5.		Program Elective-I	3	1	0	4	4	PE
6.		Digital Communication Lab	0	0	3	3	2	EC
7.		Digital Signal Processing Lab	0	0	3	3	2	EC
		Total	15	4	6	25	23	

Sixth Semester

S. No	Course codes	Course titles	L	T	P	Contact hours per week	Credits	Subject Category
1.		Control Systems Engg-L	3	1	0	4	4	EEE
2.		Embedded Systems	3	1	0	4	4	EC
3.		VLSI Engineering	3	1	0	4	4	EC
4.		Program Elective-II	3	1	0	4	4	PE
5.		Open Elective-II	3	1	0	4	4	OE
6.		Embedded Systems lab	0	0	3	3	2	EC
7.		VLSI lab	0	0	3	3	2	EC
		Total	15	5	6	26	24	

Seventh Semester

S. No	Course codes	Course titles	L	T	P	Contact hours per week	Credits	Subject Category
1.		Optical communication	3	1	0	4	4	EC
2.		Program Elective-III	3	1	0	4	4	PE
3.		Program Elective-IV	3	1	0	4	4	PE
4.		Open Elective-III	3	1	0	4	4	OE
5.		HSS Elective-II	3	0	0	3	3	HSS
6.		Optical Communication lab	0	0	3	3	2	EC
7.		Minor Project	0	0	6	6	4	
		Total	15	4	9	28	25	

Eighth Semester

S. No	Course codes	Course titles	L	T	P	Contact hours per week	Credits	Subject Category
1.		Major Project	0	0	9	9	6	
2.		Program Elective-V	3	1	0	4	4	PE
3.		Program Elective-VI	3	1	0	4	4	PE
4.	E	HSS Elective-III	3	0	0	3	3	HSS
5.		Comprehensive Viva	0	0	0	0	2	
		Total	9	3	9	17	19	

Total credit(1st to 8th semester)	194

List of Program Electives

S .No	Course codes	Course Titles	Credit
1.		Information Theory and Coding	
2.		Wireless Communication	
3.		CAD VLSI	
4.		Microwave Engineering	
5.		Satellite Communication	
6.		Radar & TV	
7.		Mobile Communication	
8.		Virtual Instrumentation	
9.		IC Technology	
10.		Speech and Audio Processing	All 4 Credits Each
11.		Adaptive signal processing	
12.		Antennas and propagation	
13.		Bio-medical Instrumentation	
14.		Telephone Switching Network	
15.		Mixed signal design	
16.		Broadband Communication	
17.		Electrical Machines	
18		Advanced Microcontrollers	
19		Optical Communication	
20		Image and Video Processing	

List of Open Electives

S .No	Course codes	Course Titles	Credit
1.		Computer architecture and organization	
2.		Computer networks and distributed processing	
3.		Power electronics	
4.		Digital image processing	
5.		Optimization technique	
6.		Advance database concepts	
7.		Wireless sensor networks	
8.		Advance computer architecture	
9.		Control System Engineering-II	All 4 Credits Each
10.		Digital signal processing	
11.		Machine learning	
12.		Artificial intelligence	
13.		Database management system	
14.		Data structures	
15.		Probability and stochastic processes	
16.		Multimedia technology	
20		Principles of Communications	

HSS Electives

S. No	Course Codes	Course Titles	Credit
1.		Introduction to logic	3
2.		Life and Psychology	3
3.		Organization Behaviour	3
4.		Ecology and Environment	3
5.		Engineering Economics	3
6.		Entrepreneurial Management	3
7.		Society and Social Issues	3

M.Tech in Embedded System Design Syllabus

Semester-1

Code	Subject	Hour per week	Credits
	Digital VLSI Design	4	4
	FPGA Based System Design	4	4
	Elective-I	4	4
	Elective-II	4	4
	Elective-III	4	4
	Elective Lab-I	3	2
	VLSI Lab	3	2
			24

Semester-2

Code	Subject	Hour per week	Credits
	Analog VLSI	4	4
	Advanced Digital Signal Processing	4	4
	Elective-IV	4	4
	Elective-V	4	4
	Elective-VI	4	4
	Embedded Lab	3	2
	Elective Lab-II	3	2
			24

Semester-3

Code	Subject	credit
	Masters Research Project(Phase-I)	20
	Summer Project	2
		22

Semester-4

Code	Subject	Credit
CE 6502	Masters Research Project (Phase-II)	20
	Comprehenssive Viva	4
		24

Total Credits=94

List of Electives

1. ELECTRONIC CIRCUIT AND SYSTEM DESIGN
2. Microcontroller Systems Design
3. Embedded C & C++ Programming Languages
4. Embedded Operating Systems & Real time OS
5. Embedded Design Cycle
6. Algorithm and Model based design
7. WIRE AND WIRELESS COMMUNICATION
8. ACCESS TECHNOLOGIES AND SMART CARD
9. AUTOMOTIVE EMBEDDED SYSTEMS
10. Mobile computing using Embedded System
11. DSP on FPGA
12. VLSI ENGINEERING
13. WIRELESS SENSOR NETWORKS
14. Internet of Things

Elective Labs:

1. Embedded Lab
2. Microcontroller lab
3. Advance DSP lab
4. Internet of things lab
5. VLSI lab
6. FPGA Lab
7. Simulation techniques for wireless communication lab
8. Wireless channel modelling lab

MTech in Communication System Engineering Syllabus

Semester-1

Code	Subject	Hour per week	Credits
	Probability and Stochastic Processes	4	4
	Advance Digital Signal Processing	4	4
	Elective-I	4	4
	Elective-II	4	4
	Elective-III	4	4
	Elective Lab-I	3	2
	Advance Digital Signal Processing Lab	3	2
			24

Semester-2

Code	Subject	Hour per week	Credits
	Advanced Communication Theory	4	4
	Wireless Communication	4	4
	Elective-IV	4	4
	Elective-V	4	4
	Elective-VI	4	4
	Advanced Communication Theory Lab	3	2
	Elective Lab-II	3	2
			24

Semester-3

Code	Subject	credit
	Masters Research Project(Phase-I)	20
	Summer Project	2
		22

Semester-4

Code	Subject	Credit
CE 6502	Masters Research Project (Phase-II)	20
	Comprehenssive Viva	4
		24

Total Credits=94

List of Electives

1. MOBILE SATELLITE COMMUNICATION
2. Detection and Estimation
3. RANDOM PROCESSES AND QUEUEING THEORY
4. WIRELESS NETWORKS AND MOBILE COMPUTING
5. RF MEMS
6. Integrated Opto-Electronics
7. Wireless sensor Network
8. Advanced Techniques for Wireless Reception
9. Secure Communication
10. Communication Switching & Multiplexing
11. Signal Compression
12. APPLICATION SPECIFIC INTEGRATED CIRCUITS
13. Error Control Coding
14. Digital Image Processing
15. Digital Speech Processing
16. CAD VLSI
17. Adaptive Signal Processing
18. Internet of Things
19. RF and Microwave system
20. Optical communication
21. Optical Network
22. Digital Mobile system
23. VLSI Engineering

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16/7/17
16/7/17

List of Elective Lab

1. Optical communication Lab

2. Communication Design and simulation Lab

3. Free Space optical communication lab

4. Simulation techniques for wireless communication lab

5. Antenna design lab

6. Wireless channel modeling lab

7. Embedded system Lab

8. VLSI Lab

9. Statistical simulation lab

10. HFSS lab

11. Internet of things(IOT) Lab

12. Adaptive signal processing lab

SAMBALPUR UNIVERSITY INSTITUTE OF INFORMATION TECHNOLOGY, JYOTI VIHAR, BURLA
Department of Electrical and Electronics Engineering
Bachelor of Technology in Electrical & Electronics Engineering
(Four Years Course) 2017-21

First Semester.

No	Subject Code	Subject	Credit
1		Mathematics-I	4
2		Physics - I	4
3		Computer Programming in C	4
4	EEE101	Basic Electrical Engineering OR Basic Electronics Engineering	4
5		English for communication OR Ecology & Environmental Science	3
		LABORATORY	
1	EEEL102	Basic Electrical Engg Lab OR Basic Electronics Lab	2
2		Programming in C Lab	2
		Physics Lab	2

Second Semester.

No	Subject Code	Subject	Credit
1		Mathematics-II	4
2	EEE101	Basic Electrical Engineering OR Basic Electronics Engineering	4
3		Ecology & Environmental Science OR English for communication	3
4		Object Oriented Programming Using JAVA	4
5		Physics-II	4
		LABORATORY	
1		Basic Electrical Engg Lab OR Basic Electronics Lab	2
2		Engineering Drawing	2
3		Object Oriented Programming Using JAVA Lab	2

Third Semester.

No	Subject Code	Subject	Credit
1		Engineering Economics & Costing OR Organization Behaviour	3
2	EEE201	Network Analysis & Synthesis	4
3	EEE202	Electrical Machine-I	4
4		Mathematics-III	4
5		Analog Electronics Circuits	4
		LABORATORY	
1	EEEL203	Network Analysis & Synthesis Lab	2
2	EEEL204	Electrical machine-I Lab	2
3		Analog Electronics Circuit Lab	2

Fourth Semester.

No	Subject Code	Subject	Credit
1		Mathematics IV	4
2		Engineering Economics & Costing OR Organization Behaviour	3
3	EEE205	Electrical machine-II	4
4		Signal and System	4
5		Digital Electronics Circuits	4
		LABORATORY	
1	EEEL206	Electrical machine-II Lab	2
2		Digital Electronics Circuit	2
		Simulation Lab	2

16/7/2017   16/7   16/7/17

16/7/17   16-7-17

2
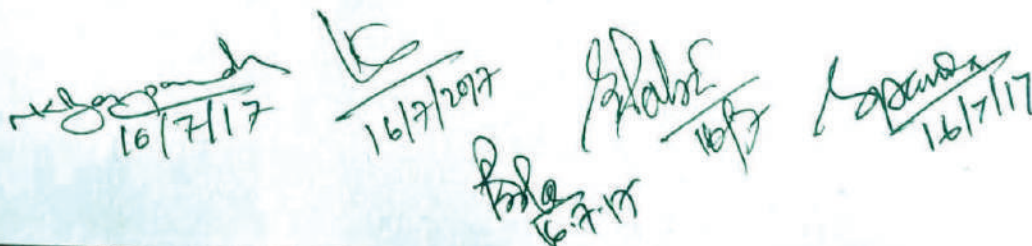
Fifth Semester.

No	Subject Code	Subject	Credit
1		Microprocessor and Micro controllers	4
2	EEE301	Power Station Engineering	4
3	EEE302	Control system Engineering-I	4
4	EEE303	Power Electronics	4
5		Electromagnetic field Theory	4
		LABORATORY	
1	EEEL304	Control & Instruentation System Lab	2
2	EEEL305	Power Electronics Lab	2
3		Micro Processor & Micro Controller Lab	2

Sixth Semester.

No	Subject Code	Subject	Credit
1	EEE306	Electrical power Transmission and Distribution Systems	4
2	EEE307	Electrical and Electronics Measurement	4
3	EEE308	Control System Engineering-II	4
4		Digital Signal Processing	4
5	EEE309	*Electrical Drives *Opto-Electronics Devices and Instrumentation *Industrial Instrumentation * Utilization of Electrical Energy *Bio-medical Instrumentation * Internet Of Things (Any One)	4
		LABORATORY	
1	EEEL310	Electrical and Electronics Measurement Lab	2
2		Digital Signal Processing Lab	2
3	EEEL311	Machine Design and Simulation Lab	2

16/7/17   16/7/2017   16/7   16/7/17
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Seventh Semester.

No	Subject Code	Subject	Credit
1	EEE401	Power System Operation and Control	4
2	EEE402	Renewable Energy Systems	4
3		Flexible AC Transmission Systems	4
4	EEE403	*HVDC Transmission * Power Quality *Mobile Communication *Adaptive & Optimal Control (Any One)	4
5		VLSI Theory and Design	4
		LABORATORY	
1	EEEL404	Power System & Simulation Lab	2
2	EEEP405	Minor Project	2
3	EEES406	Seminar	2

Eighth Semester.

No	Subject Code	Subject	Credit
1	EEE407	Power system Protection	4
2	EEE408	Electrical Engineering Material	4
3		*Satellite Communication Systems *Digital Image Processing *Entrepreneurial Management *Embedded Systems (Any One)	4
4			
5			
		LABORATORY	
1	EEEV408	Comprehensive Viva	2
2	EEEP409	Major Project	8

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SAMBALPUR UNIVERSITY

INSTITUTE OF INFORMATION TECHNOLOGY

JYOTI VIHAR, BURLA

Syllabus for

Department of Electronics (M. Sc)

(Two Year Course) 2017-19

M.Sc. ELECTRONICS

Semester – I

Code	Course Title	Credits
	Mathematics Foundation for Electronics	4
	Signals & Systems	4
	C Programming and Data Structure	4
ELC2001	Network and Circuit Theory	4
ELC2101	Electronics Devices and Circuits	4
	C Programming and Data Structure Lab.	2
ELC2201	Electronics Devices and Circuits Lab	2
	Total Credit:	24

Semester – II

Code	Course Title	Credits
	Digital Circuits and Systems	4
ELC2108	Analog and Digital Communication Techniques	4
ELC2102	Instrumentation and Control System	4
	Computer Organization and Architecture	4
	Professional Elective – I	4
	Digital Circuit Lab	2
ELC2208	Communication Lab	2
	Total Credit:	24

Semester – III

Code	Course Title	Credits
ELC2103	VLSI Design	4
ELC2104	Biomedical Instrumentation	4
ELC2105	Microprocessor and Microcontroller	4
ELC2106	Microwave and Antenna Theory	4
	Professional Elective-II	4
ELC2203	VLSI Design Lab	2
ELC2204	Microprocessor and Microcontroller Lab	2
	Total Credit:	24

(handwritten margin notes: EL531, EL532, EL533, EL544, EL536, EL537)

Semester – IV

Code	Course Title	Credits
ELC2107	Laser and Opto- Electronics	4
	Environment Studies	3
	Professional Elective-III	4
ELC2205	Opto- Electronics Lab	2
ELP2001	Major Project	10
	Total Credit:	23

Code	Course Title
ELE2101	IC Technology and Fabrication
ELE2102	Artificial Intelligence
ELE2103	Numerical Methods And Computational Techniques
ELI2101	Software Engineering
ELE2104	Digital design with VHDL
ELE2105	VLSI and CAD
ELE2106	Antenna And Wave Propagation
ELI2102	Robotics
ELE2107	Modern Instrumentation and Measurement
ELE2108	Wired and Wireless Communication
ELI2103	Wireless Sensor Networks
ELE2109	Advance Communication Techniques
ELE2113	Virtual Instrumentation, Sensors and Transducer
ELE2110	Mobile Communication
ELE2111	Mobile Computing
ELE2112	Soft Computing