

URGENT AGENDA FOR THE MEETING OF THE ACADEMIC COUNCIL TO BE HELD ON 03.05.2019

(A) - Ratification of action of the Vice-Chancellor taken in exercise of his power under sub section 15 of Section 6 of the Act.

A-12- The H.O.D., P.G. Deptt. of Library & Information Science, SU to move on behalf of Vice Chancellor.

That, the Academic Council do consider and ratify the action taken by the Vice-Chancellor in exercise of his power vested under sub-section (15) of the Section 6 of the Odisha Universities Act- 1989 in approving Library Committee with effect from 11.04.2019. Details of the Library Committee report placed as **Appendix-A-12**

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

C-10 – The H.O.D. , P.G. Deptt. of Political Science, S.U. to move on behalf of the Vice-Chancellor :

That the Academic Council do consider and approve syllabus for 3rd & 4th Semester P.G. in Psychology Course to be effective from 2018-19 academic session. The detail syllabus as in **Appendix -C-10.**

1

C-11- The H.O.D. , P.G. Deptt. of English, S.U. to move on behalf of the Vice-Chancellor: -

That the Academic Council do consider and approve the proceedings of the Regulation Amending Committee held on 16.4.2019. Details of the proceedings and its annexure are placed as **Appendix -C-11.**

C-12- The H.O.D., P.G. Deptt. of History, SU to move on behalf of Vice Chancellor: -

That, the Academic Council do consider and to take a decision on Letter No.81/PGH dated 27.4.2019 from The H.O. D. , P.G. Department of History on problems related to Ph. D . guide. The said letter has been placed as **Appendix-C-12**

(E) Business Brought forward by the Boards of Studies.

(1) The Chairman, P.G. Council, S.U. to move on behalf of the Board of Studies.

That, the Academic Council do consider and approve the recommendations of various Boards of Studies for academic session 2018-19 in approving changes/revision of syllabi, etc. as stated below:

I- Anthropology : Recommended revised syllabus for M.Phil. in Anthropology to be effective from 2019-20 academic session. Detail syllabus as in **Appendix- E-1-I (M.Phil. Ant.)**

II- Ayurveda: Recommended continuance of the syllabus forwarded by the Principal, G.A.C. Bolangir for M.D. (Ayurveda) Course in the subject “Ayurved Samhita & Siddhanta” Detail syllabus as in **Appendix-E-1-II- (P.G. Ay- SS).**

III- Business Administration:

- (a) Recommended change in Paper No. ABM-304 – Food processing and Form Machinery Management of M.B.A. (Agri- Business) Course. The change will be effective from 2018-19 academic session. Detail of revised syllabus for the paper as in Appendix – E-1-III-a-(MBA-Agri.)
- (b) Recommended inclusion of the book “Entrepreneurship Development : Business policies and practice by K.K. Patra, Published by Heritage publishing House” as Text Book for Paper No.104 GE-Entrepreneurship Development of B.B.A. Course under C.B.C.S.
- (c) Recommended inclusion of the book “An Introduction to E-Commerce by Prof. Satpathy, published by Yugbodh Prakashan , Raipur” for Paper No.305 and 405 for the Paper named (E-Commerce) of M.B.A. Course.
- (d) Recommended inclusion of the Book “International Accounting by Prof.A.K.Das Mahapatra, published by Prentice Hall of India Learning Ltd., New Delhi” for Paper No.503 and the Book” “Management Accounting by Prof. A.K.Das Mohapatra and Biswa Mohan Jena, published by Himalayan Publications for Paper No.303 and the book “International Finance by V.A. Avadhani published by Himalaya Publication” for Paper No.503 of M.B.A. Course. The said books recommend as text book.

2

IV- Commerce : Recommended minor modification in UG-Commerce Pass & Hons. Syllabus effective from 2017-18 academic session. The details of the changes as in **Appendix-E-1-IV (B.Com.)**

V- Computer Science : Recommended syllabus for DSE-4-Big Data Analysis for UG courses in Computer Science Course giving it effect from 2016-17. The detail syllabus as in **Appendix-E-1-V- (Computer Science).**

VI- Economics :

- (a) Recommended “ Indian Economy-I” as GE-I, Money & Banking as GE-II for B.A. Pass students giving effect from 2016-17 academic session. The detail syllabus will be same as Hons. Course as in letter No. 4374/Acd.I, dated. 21.07.2018.
- (b) Recommended DSE Papers for Hons. Students during 5th Semester will be DSE-1 “ Economics of Health and Education or Money E-Fin. Market, DSE-2 during 5th Semester will be “ Pol.Eco-I” or “Pub.Eco.” During 6th Semester DSE-I Paper will be ‘Pol.Eco.-II’ or ‘Env.Eco.’ , DSE-II- Fin.Eco’. or ‘International Economics’. This is for academic session 2016-17.

During 2018-19 session 5th Semester DSE-I Eco. Of Health and Education or Money Banking, DSE-II Pol.Eco-I or New Institution Eco. For 6th Semester DSE-I Pol.Eco-II or Env.Eco., DSE-2 Fin. Eco. or International Eco.

Course of Studies for the M. Phil Degree (Anthropology)

2019-2020

Under Semester System of Teaching and Examination



P.G. DEPARTMENT OF ANTHROPOLOGY

Sambalpur University, Jyoti Vihar,

Burla-768019

A course of Studies for the M. Phil Degree (Anthropology) Under Semester System of Teaching and Examination

Course Scheme

The M. Phil. course shall comprise of two semesters of 40 CH (20 CH in each semester). In the first semester, there shall be three theory papers (one general paper (Paper-I) bearing course no. 611 and one elective paper (Paper-II) bearing course no. 612 under the specialization groups, i.e. Social / Physical Anthropology. Course no. 613 (Paper-III) is a research methodology paper to be studied by all the students. Course no.614 & 615 are practical papers each having 4 CH. The second semester shall consist of two papers, i.e. (1) course no. 621: Seminar presentation and (2) course no. 622: Fieldwork, Dissertation and Viva-voce. The distribution of the total 40 credit hours has been presented below. All the theory papers, viz. paper-I, II and III shall be evaluated by the external examiners. Paper IV (614) shall be evaluated by one external examiner in consultation with an internal examiner and Paper V (615) shall be evaluated by the internal examiners. Paper- VI (621) shall be evaluated by internal examiners and Paper VII (622) shall be evaluated by one external and internal examiner.

FIRST SEMESTER (20 CH)

Paper-I: (Course-611) Theories and Methods in Socio-Cultural Anthropology (4 CH)

Paper-II: (Course-612)

(Social Anthropology) Anthropology of Children and Childhood (4 CH)

OR

(Physical Anthropology) Development, Growth and Ageing (4 CH)

Paper-III (Course-613) Research Methodology (4 CH)

Paper-IV: (Course-614) Soft Skill Development and Capacity Building (4 CH)

Paper-V: (Course-615) Review of Research papers published in referred journals (4 CH)

Review Report: 2 CH; Seminar: 2 CH

SECOND SEMESTER (20 CH)

Paper-VI: (Course-621) Seminar Presentation (2 CH)

Seminar presentation on fieldwork findings

Paper-VII: (Course-622) Fieldwork, Dissertation and viva-voce (18 CH)

(Interim 8 CH +Final 10 CH)

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

C-10 – The H.O.D. , P.G. Deptt. of Political Science, S.U. to move on behalf of the Vice-Chancellor :

That the Academic Council do consider and approve syllabus for 3rd & 4th Semester P.G. in Psychology Course to be effective from 2018-19 academic session. The detail syllabus as in **Appendix -C-10.**

1

C-11- The H.O.D. , P.G. Deptt. of English, S.U. to move on behalf of the Vice-Chancellor: -

That the Academic Council do consider and approve the proceedings of the Regulation Amending Committee held on 16.4.2019. Details of the proceedings and its annexure are placed as **Appendix -C-11.**

C-12- The H.O.D., P.G. Deptt. of History, SU to move on behalf of Vice Chancellor: -

That, the Academic Council do consider and to take a decision on Letter No.81/PGH dated 27.4.2019 from The H.O. D. , P.G. Department of History on problems related to Ph. D . guide. The said letter has been placed as **Appendix-C-12**

(E) Business Brought forward by the Boards of Studies.

(1) The Chairman, P.G. Council, S.U. to move on behalf of the Board of Studies.

That, the Academic Council do consider and approve the recommendations of various Boards of Studies for academic session 2018-19 in approving changes/revision of syllabi, etc. as stated below:

VII- Geology : Recommended revised syllabus for M.Sc. in Applied Geology effective from the academic session 2019-20. The detail syllabus as in **Appendix-E-1-VII- (M.Sc. Appl.Geo.)**.

VIII- History :

- (a) Recommended deletion of Paper Code SEC-HIS-Understanding Heritage (For both Pass & Hons. Students).
- (b) Recommended revised syllabus for M.A. in History (For affiliated Colleges) effective from 2019-20. The detail syllabus as in **Appendix-E-1-VIII- b-(M.A.Hist.)**.
- (c) Recommended detail course structure for M.A. in History for academic session 2017-18. The detail course structure as in **Appendix-1-VIII-c- (M.A.Structure)**.

IX- Home Science :

- (a) Recommended minor changes in DSE-1 (For Hons. & Pass) during 5th Semester to be effective from the academic session 2017-18. The details regarding recommended changes are as in **Appendix-E-1-IX-a – (DSE-I- Home Science)**.
- (b) Recommended SEC-C syllabus for B.A. Pass students opting Home Science as GE to be effective from 2017-18. The detail syllabus as in **Appendix-E-1-b-SEC-IX-b-(SEC-C-Home Science)**.
- (c) Recommended “Human Nutrition” as GE-I during 5th Semester, “Nutrition, A Life span Approach as GE-II during 6th Semester effective e for 2016-17 and 2017-18 batch of B.A. Pass students. The detail syllabus are same as Hons. Course.
- (d) Recommended change in DSE-1 during 5th Semester for B.A. Pass students. Childhood in India changed and Food Science is included as DSE-I to be effective from 2017-18 batch.

3

X- Hindi :

- (a) Recommended inclusion of SEC-B for B.A. (Pass). The detail syllabus will be same as recommended by the B.O.S. during 2017-18.
- (b) Recommended that project for DSE-IV will be of 30 pages instead of Pages recommended last year for Hons. Students.

XI – Political Science :

- (a) Recommended revised syllabus for M.Phil in Political Science and Public Administration to be effective from the academic session 2019-20. Detail recommended syllabus as in **Appendix-E-1-XI-a- (M.Phil-Pol.Sc. & Pub.Admn..)**
- (b) Recommended regulation and syllabus as well as comprehensive of credit load for P.G. Diploma in Human Right Course. The detail recommendation as in **Appendix – E-1-xi-b- (Human Right)**.

**Courses of Studies for M. Sc. Examination in Applied Geology
(From the academic session 2019-20 onwards till further revision)**

**M. Sc. Applied Geology
(Semester System)**

PART – I Semester - I		Credit Hour	Mark
Course- AG. C. 411	Crystallography and General Geology	4 CH	100
Course- AG. C. 412	Mineralogy and Optical Mineralogy	4 CH	100
Course- AG. C. 413	Geomorphology, Geostatistics and Remote Sensing	4 CH	100
Course- AG. C. 414	(Practical corresponding to AG. C. 411 & 412)	2CH	50
Course- AG. C. 415	(Practical corresponding to AG. C. 413)	2CH	50
Course- AG. C. 416	Seminar	2CH	50
Add on Non Credit Course (Optional)			
1. Communicative Skill in English			
2. Leadership and Personality Development			
	Grand total	18CH	
Semester - II			
Course- AG. C. 421	Igneous Petrology	4 CH	100
Course- AG. C. 422	Sedimentary Petrology and Metamorphic Petrology	4 CH	100
Course- AG. C. 423	Structural Geology and Geotectonics	4 CH	100
Course- AG. C. 424	Meteorology, Environmental Geology and Marine Geology	4 CH	100
Course- AG. C. 425	Practical corresponding to AG. C. 421 & 422	2CH	50
Course- AG. C. 426	Practical corresponding to AG. C. 423 & Report on Geological Mapping	2CH	50
Course- AG. C. 427	Seminar	2CH	50
	Grand total	22CH	

PART - II Semester - III			
Course- AG. C. 511	Hydrology and Engineering Geology	4 CH	100
Course- AG. C. 512	Geochemistry, Theories of Mineral Formation, Mineral Exploration and Surveying	4 CH	100
Course- AG. C. 513	Metallic Minerals/ Ores and Industrial Minerals	4 CH	100
Course- AG. C. 514	(Practical corresponding to AG. C. 511 & 512)	2CH	50
Course- AG. C. 515	(Practical corresponding to AG. C. 513)	2CH	50
Course- AG. C. 516	Seminar	2CH	50
Add on Non Credit Course (Optional)			
1. Soft skill and IT Skill			
2. Diploma in Entrepreneurship and Development			
	Grand total	18CH	
Semester - IV			
Course- AG. C. 521	Paleontology	4 CH	100
Course- AG. C. 522	Stratigraphy	4 CH	100
Course- AG E. 523	Fossil Fuels, Nuclear Minerals, Mineral Economics, Environmental Laws and Mining Laws	4 CH	100
Course- AG. C. 524	Elective	4 CH	100
Course- AG. C. 525	Practical corresponding to AG. C. 521 & 522	2CH	50
Course- AG. C. 526	Practical corresponding to AG. E. 523 & 524 Dissertation/ Field Report	2CH	50
Course- AG. C. 427	Seminar	2CH	50
	Grand total	22 CH	

Semester - I	12 CH Theory	4 CH Practical	2 CH Seminar	18 CH
Semester - II	16 CH Theory	4 CH Practical	2 CH Seminar	22 CH
Semester - III	12 CH Theory	4 CH Practical	2 CH Seminar	18 CH
Semester - IV	16 CH Theory	4 CH Practical	2 CH Seminar	22 CH
			Grand total	80 CH

DMI NOTE 9 PRO MAX
QUAD CAMERA

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

Proceedings of the meeting of the Board of Studies in Education
held at 12.00 on date _____ in the Administrative Building of the University.

MEMBER PRESENT:-

- | | |
|--------------------------|-------------------------------|
| 1. Dr Karunakar Pradhan | 7. Smt Rajeswarini Pattanayak |
| 2. Dr Dibakar Sarangi | 8. |
| 3. Dr Jubraj Khamari | 9. |
| 4. Dr Pradeep Kumar Hota | 10. |
| 5. Smt Dileswari Pradhan | 11. |
| 6. Smt Ramadharini Hota | 12. |

BUSINESS TRANSACTED:-

1. Sri/Dr/Prof. Dr Karunakar Pradhan Dean/Adst 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 during 2020-21.
 - ii)
 - iii)
 - iv)
 - v)
3. Recommended the list of Indian and Foreign Examiners for evaluating of Ph.D. Thesis of the following candidates separately.
 1. Mrs Manjushree Baghy
 2. Smt Snehil Kumar
 - 3.
 - 4.
 - 5.
 - 6.
 - 7.
 - 8.
 - 9.
 - 10.

(During consideration of examiners in respect of Sl. No. _____
Sri/Dr. _____

respectively remained absent in the meeting)

P.T.O.

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

- i) Recommended no changes in UG Syllabi except modification/clarification as in Appendix 'A'
- ii) No change in BEd, MEd & MPhil (Education) syllabi
- iii) Recommended modified integrated BEd-Med syllabus effective from 2018-2019 session as in Appendix 'B'
- iv) Recommended modified integrated BEd-Med syllabus effective from 2019-2020 session as in Appendix 'C'

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

- i) Recommended regulation for integrated BEd-med course for the session 2018-2019 as in App. D'
- ii) Recommended regulation for integrated BEd-med course for the session 2019-2020 as in Appendix 'E'
- iii) Recommended the modification/amendment in the regulation for BEd 1st year course from the session 2019-2020 onwards. There will be no external Practical Examinations in the BEd 1st yr & 2nd yr

6. Other recommendations, if any.

i) Annexure 'A' will be submitted by the chairman from 2019-2020 onwards.

ii) There will be no ~~para~~ External Practical Examinations at BEd 1st year & 2nd year course from the academic session 2019-2020 onwards.

SIGNATURE OF THE MEMBERS PRESENTS.

BL
11-02-2020

Pradeep Kumar H.
11/2/2020

Chf.
11/2/2020

JKA
11.02.2020

Kandhari H.
11.02.2020

Deveswar Pradhan
11.2.2020

COURSES OF STUDY FOR 3-YEAR INTEGRATED B.Ed.-M.Ed. PROGRAMME 2019-2022

(For All Universities/Institutions of Odisha: As per the NCTE Norms and Standards, 2014 and NCTE Curriculum Framework)

Context

The Integrated B.Ed.- M.Ed. Programme is a three-year full-time professional programme in education, without any option of intermediate exit before completing the 3-years study. It aims at preparing teacher educators and other professionals in education, including curriculum developers, educational policy analysts, educational planners and administrators, school principals, supervisors and researchers in the field of education. The completion of the programme shall lead to integrated B.Ed. – M.Ed. degree with specialization in school education (both elementary and secondary).

The integrated programme thus subsumes all curricular elements of B.Ed. and M.Ed. The graduate of an integrated B.Ed.- M.Ed. programme should be equivalent in his/her knowledge and competence, to a graduate of a 2-year M.Ed. programme. Further he/she should have developed the professional competence and skills of a school teacher that a 2-year B.Ed. programme or a 4-year integrated teacher preparation programme should have developed.

While developing the detailed design of this syllabus, the recommendations as advanced in the following documents have been taken into consideration:

- National Curriculum Framework - 2005
- National Curriculum Framework for Teacher Education 2009
- NCTE's Norms and Standards for the 3-year Integrated B.Ed.-M.Ed. Programme, 2014
- Report of the NCTE Sub-Committee for Three Year Integrated B.Ed.-M.Ed. Programme, 2014
- NCTE's Curriculum Framework : Two Year M.Ed. Programme, 2014
- The Right of Children to Free and Compulsory Education Act 2009
- Framework for implementation of Rashtriya Madhyamik Shiksha Abhiyan: A scheme for Universalization of access to and improvement of quality at the secondary stage, 2008
- Sarva Shiksha Abhiyan: Framework for implementation based on the Right of Children to Free and Compulsory Education Act, 2009 (2011).

The following principles have guided the development of this course :

- Reducing the gap between theory and practice,
- Eliminating mismatch between post-graduate teacher education curriculum and teacher education institution realities,
- Inclusion of all relevant curricular components of 2-year B.Ed. and 2-year M.Ed. programmes

- Updating of curricular areas of teacher education in terms of enrichment of content knowledge and pedagogical competence of prospective teacher educators,
- Using variety of approaches and methods for transaction of the course contents,
- Incorporating multi-modal strategies for effective, continuous and comprehensive assessment of the performance of the prospective teacher educators.

Course Objectives:

The 3-year Integrated B.Ed.-M.Ed. Course is a professional programme in the field of Teacher Education which aims at preparing Teacher Educators and other professionals including curriculum developers, educational policy analysts, planners, administrators, supervisors, school Principals and researchers. The completion of the programme shall lead to B.Ed.- M.Ed. Degree with specialization in selected areas focusing on both elementary and secondary education.

The programme is designed to provide opportunities for the perspective Teacher Educators to extend and deepen their horizontal of knowledge and understanding of education and teacher education, develop research capacities, specialized in select areas etc. The course includes both critical comprehension of theory as well as hands-on and field based reflective practices, skills and competences.

The Syllabus for Three-year B.Ed.-M.Ed. programme is designed to attain the following broad objectives. After the completion of the course the prospective teacher educators shall:

- Understand the central concepts, tools of inquiry, and structures of the disciplines and can create learning experiences that make these aspects of subject matter meaningful.
- Understand how children learn and develop how they differ in their approaches to learning and create learning opportunities that are adapted to diverse learners and learning contexts.
- Plan learning experiences that are based on learner's existing proficiency, interests, experiences including misconceptions and errors and understand how students come to view, develop and make sense of subject matter contained in the learning experiences.
- Use knowledge of effective verbal, nonverbal and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.
- Understand and use formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social and physical development of the learner.
- Develop sensibilities to identify problems for further probing and abilities to conduct pure, applied and/or action research on the identified issues concerning educational theory and practices.
- Develop self-identity as a teacher educator through continuous experiences and reflective practices that continually evaluate the effects of his/her choices and actions.

Modes of Transaction:

With a view to move away from theoretical discourses and lectures, the student-teacher is required to be engaged in various kinds of learning experience. This programme intends to provide him/her with the specific engagements that are spelt out under each course. However, the nature of engagement of the perspective Teacher-Educator will be of the following kinds:

- **Lecture-cum-Discussion Session:** The teacher educator provides the perspective Teacher-Educator a platform to review their experiences, helps them to develop insights into the disciplinary knowledge base and to relate them to the school realities.
- **Focused Reading and Reflection:** Perspective Teacher-Educator would be led to focus readings on various themes with questions inviting reflections either individually or in small groups.
- **Observation-Documentation-Analysis:** Simulated and real school/ community experiences would be arranged for the student teachers to observe, document in the form of record/ journal/ diary and analyze with an intention to revisit their own understandings or develop new insights.
- **Seminar Presentations:** Students will undertake thematic/topical study, prepare write-up and make seminar presentation followed by open-house discussion with a view to enhance their knowledge base and repertoire of skills in presentation.
- **Attachment to Teacher Education Institution:** Learning experiences would be provided through several teacher education institution-based practicum for development of certain professional qualities and competencies. This would include opportunities for planning and implementation of learning experiences and strategies, and reflecting on their appropriateness and effectiveness.
- **Workshop :** A series of learning experiences in a given performance area would be provided to perspective Teacher-Educator in the form of workshop, engaging them in modeling-practice-feedback sequence with a view to developing specified competencies required for a teacher.
- **Panel Discussion :** A series of panel discussions shall be planned on different themes/issues relating to school education and teacher education and shall be organized in the respective TEIs / University Department in which the prospective teacher educators shall participate and each of them shall prepare a brief report on the conclusion of each panel discussion session.
- **Group Work:** On different dimensions of an issue/theme relating to curricular components or concerning any emerging issues of school education and teacher education, groups shall be formed among the prospective teacher educators who would work on the theme and performance of each individual group shall be reported.
- **Library Work:** On specific theme/issue/problems relating to school education and teacher education or on any other curricular issues, the prospective teacher educators would be asked to consult library, collect information and prepare their individual write-ups for seminar presentation and discussion.
- **Projects:** Course related projects having contemporary concern shall be assigned to individual prospective teacher educator to be completed within a specified period of time with a report.

- **Collaborative Presentations:** The prospective teacher educators in groups along with their allotted mentors shall work collaboratively on a theme and prepare the report for seminar presentation.
- **School Visit and Sharing of Experiences:** As per the requirements of the School Internship programme included in the curriculum, school visits, interaction with students, teachers and other stakeholders and sharing the experiences with them and with peers shall be one of the core activities of the prospective teacher educators. Similar visits to other teacher education institutions, both ETEIs and STEIs, and interaction with student teachers, teacher educators and other stakeholders shall be conducted and the experiences shall be shared.
- **Sessional Work :** Each course paper in this programme has theoretical as well as practical component in the form of assignment which need to be conducted as assessed internally in time.

The topics for the sessional work listed under each course are suggestive. The concerned teacher educator may assign any other topic/issue relevant to the respective course.

Working Days: There shall be at least 215 working days in each year exclusive of the period of admission and inclusive of classroom transaction, practicum, field study and conduct of examination. The institution shall work for a minimum of 36 hours in a week (5 or 6 days). The total duration of the programme will be roughly equivalent to 107 weeks of six days each totaling up to 640 days.

Attendance: Minimum attendance shall be 80% for Theory Courses and Practicum and 90% for Field Attachment.

COURSE OUTLINE OF 3-YEAR INTEGRATED B.ED. - M.ED. PROGRAMME,

Major Course Area	Course	Credit	Marks		
			Internal	External	Total
A. Common Core (78)					
A.1 Perspective Courses (PC)(36)					
Philosophy of Education	PC-1 Introduction to Study of Education	4	30	70	100
	PC-2 Philosophical Perspectives in Education	4	30	70	100
Sociology-History-Political Economy of Education	PC-3 Education, School and Society	4	30	70	100
	PC-4 Historical, Political and Economic Perspectives of Education	4	30	70	100
Psychology of Education	PC-5 Childhood and Growing up	4	30	70	100
	PC-6 Learner and Learning	4	30	70	100
Contemporary Concerns of Education	PC-7 Contemporary Concerns in Education	4	30	70	100
Curriculum Studies	PC-8 Curriculum Studies	4	30	70	100
Language across Curriculum	PC-9 Language across Curriculum	2	15	35	50

Learning Assessment	PC-10 Learning Assessment	2	15	35	50
A.2 Research, Tools and Self Development (26) (RTS)					
Theory (14)					
Research Methods	RTS-1 Introduction to Research Methods	4	30	70	100
	RTS-2 Advanced Research Methods	4	30	70	100
Inclusive Schooling	RTS-3 Inclusive Schooling	2	15	35	50
ICT in Education	RTS-4 ICT in Education	2	50		50
Self Development	RTS-5 Self Development	2	50		50
Practicum (12)					
Research Project leading to dissertation	RTS-P1 Dissertation Work	8	150	50	200
Student Research Seminar	RTS-P2 Research Seminars	2	50	---	50
Academic/ Professional Writing	RTS-P3 Communication and Expository Writing	2	50	---	50
A.3. Teacher Education Courses (TEC) (12)					
Theory(8)					
Teacher Education	TEC-1 Perspectives in Teacher Education	4	30	70	100
	TEC-2 Issues and Research in Teacher Education	4	30	70	100
Practicum (4)					
Attachment with / Internship in TEI	TEC-P Attachment with TEIs (Elementary and Secondary TEIs)	4	100		100
A.4. School related Field Experience (SFE) (Practicum-4)					
School Experience (Observation of schools)	SI-1 School Internship – I (School Exposure)	4	100		100
B. Stage Specific Courses					
B.1 Core Courses (46)					
B.1.1 Stage Specific Concerns in School Education (SSC) (12)					
School Education : Systems, Structures and Functions	SSC-1 School Education: Systems, Structures and Functions	4	30	70	100
Emerging Scenario in School Education	SSC-2 Emerging Scenario in Elementary Education	4	30	70	100
	SSC-3 Emerging Scenario in Secondary and Senior Secondary Education	4	30	70	100
B.1.2 Pedagogy of School Subjects (PPP + one subject from Gr.A and one from Gr.B)** (20)					
	PPP- Pedagogy Processes and Practices	4	30	70	100
Pedagogy of School Subjects Gr. A : Odia, English.	PSS-A: Paper-1	4	30	70	100
	PSS-A:Paper-2	4	30	70	100

Mathematics and Bio-Science(any one)					
Pedagogy of School Subjects-B: Social Science and Physical Science(any one)	PSS-B:Paper-1	4	30	70	100
	PSS-B:Paper-2	4	30	70	100
B.1.3 School-related Field Experiences in Elementary / Secondary & Senior Secondary Levels PSS-Practicum (14)					
On-site Content – Pedagogy Related Observations and Activities	PSS-Pr. I: SI-2 School Internship-II (Exposure to Multi-cultural Contexts in schools)	4	100		100
Practice teaching and related activities	PSS-Pr. II SI-3 School Internship – III (Classroom Transaction and Related Activities)	8	200		200
Community Engagement	PSS-Pr. III Interaction with Community on their Involvement in School Activities	1	25		25
Exposure to non-school agencies having pertinent linkages with schools	PSS-Pr. I Discourse with other related agencies/ Institutions on their roles in school education	1	25		25
B.2 Theme-based Specialization (20)					
Theory(16)					
Theme Areas (Any TWO)	TS-1 Educational Management and Leadership (P.1&P.2)	4+4	30+30	70+70	100+100
	TS-2 Education Policy and Planning(P.1&P.2)	4+4	30+30	70+70	100+100
	TS-3 ICT in Education(P.1&P.2)	4+4	30+30	70+70	100+100
	TS-4 Environment Education (P.1&P.2)	4+4	30+30	70+70	100+100
	TS-5 Guidance and Counselling (P.1&P.2)	4+4	30+30	70+70	100+100
	TS- 6 Pre-School Education (P.1&P.2)	4+4	30+30	70+70	100+100
	Theme Area Practicum (4)	4	100		100
TOTAL					3,600

**** PSS Combinations:**

Science student teacher educators: Math,& Phy.Sc.; BioSc, & Phy.Sc.

Arts student teacher educators: Eng.& Soc.Sc.; Odia & Soc.Sc.; Math.&Soc.Sc.

N.B. All the course components under ‘School Internship and Field Attachment’ have to be completed within 30 weeks.

SEMESTER-WISE COURSES AND CREDITS
SEMESTER – I (20 +4 Credits)

Course	Title	Credit (s)		Marks		
		Theory (Teaching Hrs.)	Practicum (hours/ weeks)	Internal Assessment	External Exam.	Full Marks
PC-3	Education, School and Society	4 (64 Hrs.)	1(32)	30	70	100
PC-5	Childhood and Growing up	4 (64 Hrs.)	1(32)	30	70	100
PC-8	Curriculum Studies	4 (64 Hrs.)	1(32)	30	70	100
PPP	Pedagogy Processes and Practices	4(64 Hrs.)	1(32)	30	70	100
PSS-A	Pedagogy of School Subject Gr.A-P.I	4 (64 Hrs.)	1(32)	30	70	100
PSS-Pr.-I	SI -I School Exposure	-	04 (2 weeks)	100	-	100
Total		20 (320Hrs.)	04 (160hrs & 2 weeks)	150+ 100	350	500+ 100

SEMESTER- II (18 +6 CREDITS)

Course	Title	Credit (s)		Marks		
		Theory (Teaching Hrs.)	Practicum (weeks)	Internal Assessment	External Exam.	Full Marks
PC-4	Historical, Political and Economic Perspectives of Education	4 (64 Hrs.)	-	30	70	100
PC-6	Learner and Learning	4 (64 Hrs.)	-	30	70	100
PC-10	Learning Assessment	2 (32 Hrs.)	-	15	35	50
RTS-3	Inclusive Schooling	2(32 Hrs.)	-	15	35	50
RTS-4	ICT in Education	2(32 Hrs.)	-	15	35	50
PSS-A	Pedagogy of School Subjects Gr.A- P.2	4 (64 Hrs.)	-	30	70	100
RTS-P3	Communication and Expository Writing	-	02 (64Hrs)	50	-	50
PSS-Pr.-II	SI-II Exposure to Multi-cultural Contexts in Schools	-	04 (4 weeks)	100	-	100
Total		18 (320Hrs.)	06	135+ 150	315	450+ 150

SEMESTER- III (14+10 CREDITS)

Course	Title	Credit (s)		Marks		
		Theory (Teaching Hrs.)	Practicum (Hrs./weeks)	Internal Assessment	External Exam.	Full Marks
PC-1	Introduction to Study of Education	4(64 Hrs.)	-	30	70	100
PC-9	Language across Curriculum	2(32 Hrs.)	-	15	35	50
RTS-1	Introduction to Research Methods	4(64 Hrs.)	-	30	70	100
PSS-B	Pedagogy of School Subjects-Gr.B-.P.1	4(64 Hrs.)	-	30	70	100
RTS Pr.-1	Dissertation	-	2 (64 Hrs.)	50	-	50
RTS Pr.-2	Research Seminar	-	2 (64 Hrs.)	50	-	50
PSS-Pr.III	SI-III Classroom Transaction and related activity	-	4 (6 weeks)	100	-	100
PSS Pr. IV	Interaction with Community	-	1 (1 week)	25	-	25
PSS-Pr. V	Discourse with Other Related Agencies	-	1 (1 week)	25	-	25
Total		14 (224 Hrs.)	10	105+ 250	245	350+ 250

SEMESTER- IV (18 +6 CREDITS)

Course	Title	Credit (s)		Marks		
		Theory (Teaching Hrs.)	Practicum (weeks)	Internal Assessment	External Exam.	Full Marks
PC-2	Philosophical Perspectives in Education	4(64 Hrs.)		30	70	100
RTS-5	Self Development	2(32 Hrs.)		15	35	50
TEC-1	Perspectives in Teacher Education	4(64 Hrs.)		30	70	100
PSS-2	Pedagogy of School Subjects-2.P.II	4(64 Hrs.)		30	70	100
SSC-1	School Education: Systems, Structures and Functions	4(64 Hrs.)		30	70	100
RTS Pr.-1	Dissertation		2 (64 Hrs.)	50	--	50
TEC-Pr	Attachment with TEIs (Elementary and Secondary TEIs)		4 (6 weeks)	100	--	100
Total		18 (288Hrs.)	6	135+ 150	315	450+ 150

SEMESTER- V (16 +8 CREDITS)

Course	Title	Credit (s)		Marks		
		Theory (Teaching Hrs.)	Practicum (Hrs./weeks)	Internal Assessment	External Exam.	Full Marks
PC-7	Contemporary Concerns in Education	4(64 Hrs.)		30	70	100
RTS-2	Advanced Research Methods	4(64 Hrs.)		30	70	100
TS	Theme-based Specialization (a.P.I)	4(64 Hrs.)		30	70	100
	Theme-based Specialization (b.P.I)	4(64 Hrs.)		30	70	100
RTS Pr.-1	Dissertation		2 (64 Hrs.)	50	--	50
PSS-Pr.III	SI-III Classroom Transaction and related activity(Contd.)		4 (6 weeks)	100	--	100
TS Pr.1	Theme Area Practicum		2 (2 weeks)	50	--	50
Total		16 (256Hrs.)	8	120+ 200	280	400+ 200

SEMESTER- VI (20 +4 CREDITS)

Course	Title	Credit (s)		Marks		
		Theory (Teaching Hrs.)	Practicum (Hrs./ weeks)	Internal Assessment	External Exam.	Full Marks
TEC -2	Issues and Research in Teacher Education	4(64 Hrs.)		30	70	100
SSC -2	Emerging Issues in Elementary Education	4(64 Hrs.)		30	70	100
SSC -3	Emerging Issues in Secondary and Senior Secondary Education	4(64 Hrs.)		30	70	100
TS	Theme-based Specialization (a. P.II)	4(64 Hrs.)		30	70	100
	Theme-based Specialization (b. P.II)	4(64 Hrs.)		30	70	100
RTS Pr.-1	Dissertation		4 (64 Hrs.)	50	50	100
TS Pr.2	Theme Area Practicum		2 (2 weeks)	50	--	50
Total		20 (320 Hrs.)	4	150+ 100	350+ 50	500+ 150

Assessment Criteria

The performance of the prospective teacher-educators in the course under the perspective courses, research tool courses, teacher education courses, specialization courses, internship and spreading over six semesters as detailed below.

Common Core Courses

- The performance of each prospective teacher-educator in each core course shall be assessed internally out of 30 marks and externally out of 70 marks.
- Sessional work in respect of each prospective teacher-educator shall be assessed internally out of 30 marks by the faculty member concerned both on the process and final product (report) and shall be awarded marks accordingly. The detailed criteria of assessment of the sessional work shall be spelt out by a committee of faculty members chosen by the head of the institution.

Specialization Courses

The performance of each prospective teacher-educator in the specialization course, opted by him / her shall be assessed both internally and externally out of 30 marks and 70 marks respectively in the manner as indicated above for the core courses.

Internship and Field Attachment

The performance of each prospective teacher-educator in this course shall be assessed internally by the faculty members (Mentors) under whom he / she is assigned the work.

Research Leading to Dissertation

The performance of each prospective teacher-educator in research-based activities in Semester III and IV shall be assessed internally out of 10 marks each. Such activities IV in second semester shall be assessed both internally out of 20 marks and externally out of 50 marks. The internal assessment of the research-based activities I, II and III in both the semesters shall be made through seminar presentations by the student-teachers. A panel of faculty/ experts shall assess their performance in the semester and award a consensus mark out of 10 to each student-teacher.

The internal assessment for RBA-IV (Final Report of the Dissertation) shall be made in the seminar presentation by a group of experts/ faculty and a consensus marks shall be awarded to the student-teacher out of 20. At this stage if any improvement in the dissertation is suggested by the expert group that can be incorporated before the final submission of the same for external assessment. The final dissertation shall be assessed externally through viva-voce in which a consensus mark out of 50 is given by the both internal and external examiners to the student-teacher concerned.

Practicum

The performance of each student-teacher in the Practicum I, II and III in the first semester shall be assessed internally out of 10 each. The faculty members concerned shall award marks to each student-teacher during his/her performance in demonstration, observation and teaching classes. The performance of each student teacher in Practicum-IV i.e. final teaching shall be assessed by the internal and external examiners both out of 50 and a consensus mark shall be awarded to each student-teacher on his/her performance. The assessment of records and other related materials of teaching practice shall be assessed internally out of 20 in respect of each student-teacher by the faculty members concerned.

Both internal and external marks shall be reflected in the final mark sheet of each student-teacher.

EXAMINATION AND CERTIFICATION

1. The respective Universities shall conduct the semester-end examination for 3-year Integrated B.Ed.-M.Ed. course in every semester. The time of examination shall be decided by the Examination Committee of the Universities concerned.
2. The examination shall be conducted by means of Written Test (for Theory Papers) and test of Practical (for Practical Papers) and shall be in accordance with such instruction as may be decided and issued by the Universities concerned.
3. The examinations shall be opened to the candidates who have been duly selected as per the approved admission guidelines of the Institutions/Universities and admitted into the course.
4. The candidates who have prosecuted their Courses of Study by attending both theory and practical classes thereby securing not less than 80% attendance in each paper (70% on production of Medical Certificate) and have successfully completed the required number of practical assignments (Sessional work, Practice Teaching, Research-based activities) duly assessed internally and fulfilling all other required conditions in order to be declared eligible for the semester-end examination by the Head of Departments/ Institutions concerned.
5. If the candidates who are sent up for admission to the examination by satisfying all the conditions as laid down in the Sl. No.4 Supra but could not appear or having appeared have failed at the examination, shall be allowed to appear in three consecutive as ex-regular candidates.
6. The medium of instruction and examination in all the courses shall be English in PSS (Odia).
7. Minimum percentage of pass mark in each theory paper shall be 50 and in each practical paper 60 of the total marks of that paper both internal and external assessment.
8. Each candidate has to secure minimum pass mark in each course (Theory and Practical) in sessional work and semester-end examination separately. If a candidate fails to secure the minimum pass mark in sessional work he/ she cannot be eligible to fill up the form to sit in the semester-end final examination.
9. A candidate failing to secure 50% marks in any theory course (s) and 60%marks in any practical course(s) in the semester and examination(s), shall be allowed to appear in the examination in that course(s) as back paper(s) and be given three consecutive chances to pass in the concerned course(s). The internal marks secured by the candidate in that course(s) shall be retained as such.
10. If a candidate discontinues the course in the middle at any stage without completing the study of the full course and fulfilling the stipulated requirements thereof, he/she shall not be allowed to appear at the semester-end university examination(s). In such circumstances, he/she may apply afresh to the concerned institutions/university departments for his/her selection and admission to the course if he/she so desires.
11. No candidate shall be allowed to have interim exit from the course since it is and integrated course leading to B.Ed.-M.Ed.
12. At the final qualifying examination, award of Division shall be considered out of 3600 marks (600 in each semester for six semesters). In award of class, marks obtained by a

1. M.Sc. IN MICROBIOLOGY
IN THE SCHOOL OF LIFE SCIENCES (AUTONOMOUS)

1. ELIGIBILITY CRITERIA:

The candidate should have passed a Bachelor Degree under 10+2+3 pattern of education in Science with any of the subjects i.e. Microbiology, Biochemistry, Biotechnology, Genetics, Molecular Biology, Botany or Zoology or M.B.B.S./B.D.S/B.Sc (Ag)/B.V.Sc from any Institute/ University recognized by the Sambalpur University/ University Grant Commission, New Delhi. Any Science graduate with biology as a subject at 10+2 level are also eligible for the M.Sc. Microbiology Course.

2. SELECTION CRITERIA:

As per general selection criteria of Sambalpur University

Formula for calculating career mark

Category I (Science graduates)

H.S.C.E.	1st Div.-6	2 nd Div.-4.5	3 rd Div./Pass-3
+2	1st Div.-9	2 nd Div.-7	3 rd Div./Pass-5
+3 (Hons)	1st Div.-13	2 nd Div.-10	Distn.-2
+3 (Pass)	7		Distn.-2

Category II (Graduates in Medical and other Professional courses)

H.S.C.E.	1st Div.-6	2 nd Div.-4.5	3 rd Div./Pass-3
+2	1st Div.-9	2 nd Div.-7	3 rd Div./Pass-5

Graduation: (Marks Secured in Percentage)

"Total Marks Secured/Maximum Marks X 100"

75% and above= 15

60% and above but less than 75% = 12

45% and above but less than 60% = 10

All other eligible candidates = 08

3. DURATION OF THE COURSE: 2 YEARS

4. NUMBER OF SEATS: 16 (Sixteen)

5. FEE STRUCTURE:

(a) Course Fee:

Rs. 25,000/- per semester (Besides the course fee, a candidate admitted to the programme shall pay other fees as prescribed in the prospectus at Clause. 12).

(b)Infrastructure Development Fee: **Rs. 5000/- per semester**

6. COURSE STRUCTURE:

Course	Course Title	Credit hours	Marks
SEMESTER- I			
MB-411 (A or B)	(A) Fundamentals of Physical Sciences (B) Fundamentals of Biological Sciences	3 CH	50
MB -412	Biochemistry	3 CH	50
MB -413	Biophysics and Biophysical Chemistry	3 CH	50
MB -414	Bacteriology	3 CH	50
MB -415	Molecular Biology	3 CH	50
MB -416	Instrumentation and Techniques	3 CH	50
MB -417	Practical (Biochemistry and Instrumentation)	2 CH	50
MB -418	Practical (Bacteriology)	2 CH	50
SEMESTER- II			
MB -421	Virology	3 CH	50
MB -422	Cell Biology	3 CH	50
MB -423	Immunology	3 CH	50
MB -424	Genetics	3 CH	50
MB -425	Biostatistics	3 CH	50
MB -426	Microbial Diversity and Extremophile	3 CH	50
MB -427	Practical (Cell Biology and Biostatistics)	2 CH	50
MB -428	Practical (Genetics, Immunology and Virology)	2 CH	50
SEMESTER- III			
MB -531	Microbial Physiology	3 CH	50
MB -532	Microbial Genetics	3 CH	50
MB -533	Food Microbiology	3 CH	50
MB -534	Applied and Industrial Microbiology	3 CH	50
MB -535	Fundamentals of Microbial Infection and Diseases	3 CH	50
MB -536	Mycology and Phycology	3 CH	50
MB -537	Practical Related to MB-531, MB -532 and MB -533	2 CH	50
MB -538	Practical related to MB -534 and MB -535	2 CH	50
MB -539	Industrial Visit and Report Submission / Term paper	2 CH	50
SEMESTER- IV			
MB -541	Environmental Microbiology	3 CH	50
MB -542	Medical and Diagnostic Microbiology	3 CH	50
MB -543	Microbial Technology	3 CH	50
MB -544	Microbial Genomics and Proteomics	3 CH	50
MB -545	Seminar	2 CH	50
MB -546	Project Work and Viva-voce	(6+2) CH	200
Total Course Credit		90 CH	1700

M-522	Ordinary Differential Equations	4 Credits
M-523	Algebra-II	4 Credits
M-524	Differential Geometry	4 Credits
M-525	Mathematical Methods	4 Credits
M-526	Programming Laboratory-II (MATLAB)	2 Credits
	TOTAL	22 Credits
	Semester-III	
M-531	Functional Analysis	4 Credits
M-532	Partial Differential Equations	4 Credits
M-533	Number Theory & foundation of Cryptography	4 Credits
M-53E*	Elective-1	4 Credits
M-53E*	Elective-2	4 Credits
M-534	Programming Laboratory-III (MATLAB)	2 Credits
	TOTAL	22 Credits
	Semester-IV	
M-541	Optimization Technique	4 Credits
M-542	Probability and modelling	4 Credits
M-54E*	Elective-3	4 Credits
M-54E*	Elective-4	4 Credits
M-54E*	Elective-5	4 Credits
M-543	Project/dissertation (With Viva voce)	4 Credits
	TOTAL	24 Credits
	GRAND TOTAL	90 Credits

*The electives number will be chosen from the list given in the schedule A. The electives are chosen in such a way that they are not repeated .

LIST OF ELECTIVES

SCHEDULE = A

(Each Elective is of 4 Credits)

The Department will offer Electives in Semester-III and Semester-IV from the following list avoiding repetitions.

1. ANALYTICAL NUMBER THEORY
2. ALGEBRAIC TOPOLOGY
3. ADVANCED COMPLEX ANALYSIS
4. ADVANCED LINEAR ALGEBRA
5. APPLIED STATISTICAL METHODS

6. ALGEBRAIC GEOMETRY
7. COMBINATORICS
8. COMPUTER AIDED GEOMETRIC DESIGN
9. CRYPTOGRAPHY
10. DATA STRUCTURE
11. DATA BASE MANAGEMENT
12. DATA ANALYTICS-I
13. DATA ANALYTICS=II
14. DISCRETE DYNAMICAL SYSTEMS
15. FOURIER ANALYSIS
16. GRAPH THEORY
17. MECHANICS
18. MATHEMATICAL MODELLING
19. METHODS IN SCINTIFIC COMPUTING
20. NON LINEAR PARTIAL DIFFERENTIAL EQUATION
21. OPERATOR THEORY
22. OPTIMISATION TECHNIQUES-II
23. QUEUEING THEORY
24. STOCHASTIC MODELLING
25. THEORY OF COMPUTATIONS
26. WAVELET ANALYSIS
27. GEOMETRIC FUNCTION THEORY

However if necessary and as per the availability of expertise the teacher council can frame a it and it new course and offer will be ratified in the next academic committee

The course in Analytic Number Theory from the List of Elective was revised in view of the introduction of Number Theory core course in Semester III. The syllabus of Algebra I and Algebra II ,Ordinary differential equations,Optimisation Techniques, Partial differential equation,Probability and modeling were thoroughly revised.New syllabus for Python programming, Number theory and foundation of cryptography was also discussed and passed. Teacher council was authorized to frame the newly introduced computer courses in consultation with SUIIT faculty members.

Agenda4 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

-sd/-

Prof.J.Patel

-sd/-

Prof.G.K.Panda

-sd/-

Prof.P.K.Ray

-sd/-

Dr.Mrs.S.Sahoo

-sd/-

Dr.N.R.Satapathy

-sd/-


Dr.P.Gochhayat

-sd/-

Dr.Mrs.B.L.Panigrahi

-sd/-

Dr.A.K.Tripathy


Head 24/9/22
ept of Mathematics
Head
Dept. of Mathematics
Sambalpur University
Jyoti Vihar-768019

2019-21
ALGEBRA-I

Objective: The concept of groups, rings, fields, vector spaces and modules are essential building blocks of Modern algebra and are an integral part of any post graduate course. The objective of the present course is to develop skills and to acquire knowledge on groups, rings and modules. Students are encouraged to solve many problems here as this is necessary for any course they take later. This course not only play a fundamental role in mathematics but also has applications to other areas of science and engineering.

Expected Outcomes: Students will observe how so many theories can be developed from just a few simple axioms that define group, ring and module. They will understand the importance of algebraic properties with regard to working within various areas like number systems, matrices, class of functions etc. Knowledge on group theory and ring theory can help students to know other basic concepts of Modern algebra like field theory in the next semester. Knowledge on module will open door to study commutative algebra and homological algebra which have a wide application in algebraic geometry and algebraic topology.

Unit-I

Review of Group Theory. Permutation group, Alternating group, Dihedral group, Caylay's Theorem, Homomorphisms of cyclic groups, automorphisms of cyclic groups, Inner automorphisms, Direct product of groups, Internal Direct product, Finitely generated abelian group (without proof), Commutator group.

Unit-II

Simple group, Series of groups, nilpotent group, Solvable group, group action, conjugacy class, class equation, semidirect product of groups, p-groups, Sylow theorems, Applications of Sylow theorems, Free abelian group, Free groups.

Unit-III

Euclidean rings, Gaussian integers, Polynomial rings, Principal ideal domain, Unique factorization domain.

Unit-IV

Modules: Module, Submodule, Direct sums, Free modules, Quotient modules, Homomorphisms, Simple modules. Modules with Chain condition: Artinian Modules, Noetherian modules.

1. I.N. Herstein, Topics in Algebra , John Wiley and Sons; 2nd Revised edition, 1975.
2. J. B. Fraleigh, A first Course in Algebra, Pearson, 7th Ed., 2013.
3. J. Gallian, Contemporary Abstract algebra, Brooks/Cole Pub Co; 8 edition. 2012.
4. David S. Dummit, Richard M. Foote, Abstract Algebra, 3ed Paperback, Wiely, 2011.
5. C. Musili, Introduction to Rings and Modules, Narosa, 1994.

J. ray
26/2/19

AWZ
26/02/2019

Nihar
26/2/19

SR
26/2/19

Shree
26/2/19

P. S. Panigrahi
26/2/2019

SAMBALPUR



UNIVERSITY

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Fax: 0663-2430158

Prof. Sanjat Kumar Sahu,
REGISTRAR

JYOTI VIHAR
Sambalpur (Odisha) PIN-768 019

1.1.2
& 1.2.2

No. 3897 / Acd.-I

Dated 24/06/19

From:- The Registrar

To

*All Members of the Academic Council ,
Sambalpur University.*

Sub:- Proceedings of meeting of the Academic Council held on 09.05.2019 .

Sir/ Madam ,

I am directed to forward here with the proceedings of the meeting of the Academic Council held on 09.05.2019 at 09.30:A.M. in the Seminar Hall of the Physics Department, Jyoti Vihar. If no modification to the proceedings is suggested by any member present in the meeting with in ten days from the date of the dispatch of the letter the proceedings shall be deemed to be correct.

Sanjat Kumar Sahu
Registrar 24/6/19

Memo No. 3898 /Acd.-I

Dated the 24/06/19

Copy along with copy of the proceeding forwarded to:-

1. *Commissioner- cum Secretary to the Hon'ble Chancellor, Raj Bhawan , Bhubaneswar .*
2. *The Chairman, P.G. Council/ All Heads of the P.G. Departments, Sambalpur University/ The Principal, L.R. Law College , Sambalpur / The Director SUIIT, Jyoti Vihar .*
3. *All Officers, including Section Officers, Sambalpur University.*
4. *The Director, DDCE, / The - Coordinator , Private Examination Cell, Sambalpur University.*
5. The Public Information Officer, Sambalpur University, Jyoti Vihar with request for the needful in ensuring uploading of the said proceedings in the official web-site of the University as Voluntary Declaration as per the provisions in Section 4 (b) of the RTI Act- 2005.
6. The System -in- Charge, *e – Governance Cell*, Sambalpur University for uploading it in the of the official web-site of the university in the link [www. suniv.ac.in](http://www.suniv.ac.in) >> **Academic >> Academic Council Materials >> 2019.**
7. *25 (Twenty Five) spare copies to Academic- I Section.*

Sanjat Kumar Sahu
Registrar 24/6/19

Prof.P. K. Behera, HOD, P.G.Department of Chemistry Sambalpur University seconded the motion.

RESOLVED that the syllabus and regulation be approved. Further the modifications in the syllabus from the academic session from the academic session 2018-19 be approved.

18. The Chairman, P.G.Council, Sambalpur University on behalf of the Vice-Chancellor moved the Academic Council to consider and finalize norms for deciding seniority of faculty for appointment of Chairman for different B.O.S. as statutory norms.

Prof.D.P. Ojha,P.G.Department of Physics , Sambalpur University seconded the motion.

RESOLVED that the Syndicate be authorised to decide the norms and an extended guideline for selection / election of Chairman for different boards of studies.

19. The Chairman, P.G.Council, Sambalpur University on behalf of the Vice-Chancellor moved the Academic Council to consider and approve revised syllabus for M.Sc. Physics due to start from 2019-20.

The HOD, P.G.Department of Chemistry, Sambalpur University seconded the motion.

RESOLVED that the revised syllabus be approved.

(D) Business brought forward by the Faculties:

NIL

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

1) **Prof A.K.Dash, Chairman, P.G. Council**, on behalf of the Boards of Studies moved the Academic Council to consider and approve the recommendations of various Boards of Studies for the academic session 2018-19 in approving changes / revision of syllabi etc. as stated below: -

- i) Anthropology
- ii) Ayurveda

School of Physics (Autonomous), Sambalpur University
M.Sc. Physics (General Stream) Course Structure

I Semester

Course No	Course Title	Credit
PHY - 411	Classical and Relativistic Mechanics	4 CH
PHY - 412	Quantum Mechanics (I)	4 CH
PHY - 413	Mathematical Methods for Physics	4 CH
PHY - 414	Computer Programming	2 CH
PHY - 415	Numerical Methods	2 CH
PHY – 416	Computer Practical (I)	4 CH
PHY – 417	Optics Practical	2 CH
Total of I Semester		22 CH

II Semester

Course No	Course Title	Credit
PHY – 421	Electrodynamics	4 CH
PHY – 422	Quantum Mechanics (II)	4 CH
PHY – 423	Statistical Mechanics	4 CH
PHY – 424	Basic Electronics	4 CH
PHY – 425	Computer Practical (II)	4 CH
PHY – 426	Electricity and Magnetism Practical	2 CH
Total of II Semester		22 CH

III Semester

Course No	Course Title	Credit
PHY – 511	Solid State Physics	4 CH
PHY – 512	X-ray and Spectroscopy	2 CH
PHY – 513	Relativistic Electrodynamics	2 CH
PHY – 514	Special Paper (I)	4 CH
PHY – 515	Classical Fields	2 CH
PHY – 516	Modern Physics Practical (I)	4 CH
PHY – 517	Special Paper Practical (I)	4 CH
PHY – 518	Seminar	2 CH
Total of III Semester		24 CH

IV Semester

Course No	Course Title	Credit
PHY – 521	Nuclear Physics	4 CH
PHY – 522	Particle Physics	4 CH
PHY – 523	Special Paper (II)	4 CH
PHY – 524	Modern Physics Practical (II)	4 CH
PHY – 525	Special Paper Practical (II)	4 CH
PHY – 526	Seminar	2 CH
Total of IV Semester		22 CH

Grand Total Semester I to IV – 90 CH

Note:

- (1) The courses for I and II semesters will be common to General Stream (GS) and Nuclear Stream (NS). The Nuclear Stream courses will remain suspended till the faculty position improves and the students for the course will read General Stream in III and IV semester.
- (2) The student has to submit a write up of his 4th Semester seminar presentation to the Teacher in charge seminar for record.
- (3) There are provisions for running 5 special papers listed below out of which the student will choose one. However, the School will run some selective special papers depending on availability of faculty members.
- (4) Some new special papers may be introduced in future when the faculty position improves.

List of Special Papers:

1. Nuclear Physics
2. Electronics
3. High Energy Physics
4. Condensed Matter Physics
5. Computer Application in Physics

New Special Papers:

1. Quantum Information and Computation
2. Nano Science
3. Meta Materials



SAMBALPUR UNIVERSITY
INSTITUTE OF INFORMATION TECHNOLOGY
JYOTI VIHAR, BURLA

Draft Syllabus for

Department of Electronics (M. Sc.)

(Two Years Course) 2019-21

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M.Sc. ELECTRONICS

Semester – I		
Code	Course Title	Credits
EL511	Mathematics Foundation for Electronics	4
EL512	Signals & Systems	4
EL513	C Programming and Data Structure	4
EL514	Network and Circuit Theory	4
EL515	Electronics Devices and Circuits	4
EL516	C Programming and Data Structure Lab.	2
EL517	Electronics Devices and Circuits Lab	2
Total Credit:		24

Semester – II		
Code	Course Title	Credits
EL521	Digital Circuits and Systems	4
EL522	Analog and Digital Communication Techniques	4
EL523	Electromagnetic Field Theory and Antenna	4
EL524	Computer Organization and Architecture	4
EL525	Professional Elective – I	4
EL526	Digital Circuit Lab	2
EL527	Communication Lab	2
Total Credit:		24

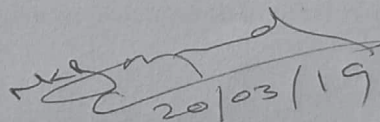
Semester – III		
Code	Course Title	Credits
EL531	VLSI Design	4
EL532	Biomedical Instrumentation	4
EL533	Microprocessor and Microcontroller	4
EL534	Instrumentation and Control System	4
EL535	Professional Elective-II	4
EL536	VLSI Design Lab	2
EL537	Microprocessor and Microcontroller Lab	2
Total Credit:		24

Semester – IV		
Code	Course Title	Credits
EL541	Laser and Opto-Electronics	4
EL542	Professional Elective-III	3
EL543	Professional Elective-IV	4
EL544	Opto- Electronics Lab	2
EL545	Major Project	10
Total Credit:		23

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LIST OF PROFESSIONAL ELECTIVES

Code	Course Title
	Basics of IC Design
	Artificial Intelligence and Deep Learning
	Numerical Methods And Computational Techniques
	Digital design with VHDL
	VLSI and CAD
	Digital Image Processing
	Computer Vision & Image Processing
	Robotics
	Modern Instrumentation and Measurement
	Wired and Wireless Communication
	Wireless Sensor Networks
	Advanced Communication Techniques
	Virtual Instrumentation, Sensors and Transducers
	Mobile Communication
	Mobile Computing
	Soft Computing
	Microwave and Antenna Theory
	Optical Communication


20/03/19

Proceedings of Board of Studies meeting held on 20/3/2019 at 2.00 P.M. in SUIIT to finalize the course structure and syllabi of B. Tech(Electronics and Communication Engineering), M.Tech(Communication Systems Engineering), M.Tech(Embedded System Design) for the session 2019-23(for B.Tech programme),2019-21(for M.Tech Programmes).

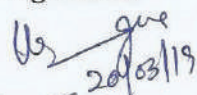
Members Present:

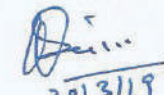
1. Dr. Uma Ranjan Jena, Professor, Dept. of E&TC, VSSUT, Burla
2. Dr. Kabiraj Sethi, Associate Professor, Dept. of E&TC, VSSUT, Burla
3. Er. Madhusmita Sahoo, AGM, Hindalco
4. Mrs. Shibani Kar, Head I/C & Assistant Professor, Dept. of ECE, SUIIT
5. Mrs. Suchismita Pattanaik, Assistant Professor, Dept. of ECE, SUIIT
6. Mr. Premananda Mishra, Assistant Professor, Dept. of ECE, SUIIT
7. Ms. Swaroopa Patjoshi, Assistant Professor, Dept. of ECE, SUIIT
8. Mr. Bajra Panjar Mishra, Assistant Professor, Dept. of ECE, SUIIT

Minutes of meeting are as follows:

1. Members reviewed the course structure and syllabi of B. Tech ECE for the session 2019-23 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 System Design for the session 2019-21 and suggested some changes which are incorporated in the structure attached herewith.

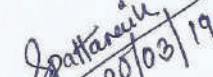
Members Signatures

1. 
Dr. Uma Ranjan Jena

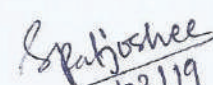
2. 
Dr. Kabiraj Sethi

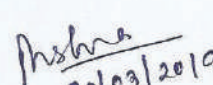
3. 
Er. Madhusmita Sahoo

4. 
Mrs. Shibani Kar

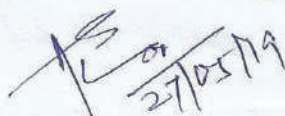
5. 
Mrs. Suchismita Pattanaik

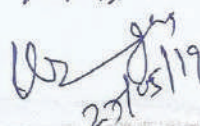
6. 
Mr. Premananda Mishra

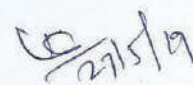
7. 
Ms. Swaroopa Patjoshi

8. 
Mr. Bajra Panjar Mishra

Academic Council (27/5/19)


27/05/19


27/05/19


27/5/19


27/5/19



SAMBALPUR UNIVERSITY
INSTITUTE OF INFORMATION TECHNOLOGY
JYOTI VIHAR, BURLA

Department of Electronics and Communication Engineering

Course Structure and Syllabus

(Approved by Board of Studies, March 20/3/2019)

Department of Electronics and Communication Engineering

Bachelor of Technology

in

Electronics and Communication Engineering

(Four Years Course)

(from the session 2019-23)

S. Pradhan
20/03/19

S. Pradhan
20/03/19

A. K. Mishra
20/03/19

S. K. Mishra
20/03/19

A. K. Mishra
20/03/19

A. K. Mishra
20/03/19

Department of Electronics & Communication Engineering-I
Curriculum of B. Tech (Electronics & Communication Engineering)
2019-2023

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	0	0	3	BS&H
3.	CSC113	Programming in C _r	3	0	0	3	CSE
4.	EEC114	Basic Electrical Engineering	3	0	0	3	EEE
5.	HSC115	Communicative English	3	0	0	3	BS&H
6.	EEL116	Basic Electrical Engineering Lab	0	0	3	1.5	EEE
7.	CSL117	Programming in C Lab	0	0	4	2	CSE
8.	PHL118	Physics Lab	0	0	3	1.5	BS&H
TOTAL			16	0	10	21	

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	0	0	3	ECE
3.	CSC124	Data Structures using C	3	0	0	3	CSE
4.	HSC125	Environmental Studies	3	0	0	Non Credit	BS&H
5.	ECL126	Basic Electronics Lab	0	0	3	1.5	ECE
6.	EDC127	Engineering Graphics Lab	0	0	3	1.5	BS&H
7.	CSL128	Data Structures using C Lab	0	0	4	2	CSE
TOTAL			17	0	10	19	

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Department of Electronics & Communication Engineering-I
Curriculum of B. Tech (Electronics & Communication Engineering)
2019-2023

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	0	0	3	ECE
3.	EEC233	Network Analysis and Synthesis	3	0	0	3	EEE
4.	ECC234	Digital Circuit and System	3	0	0	3	ECE
5.	ECC235	Electronic Measurement & Instrumentation	3	0	0	3	ECE
6.	ECC236	Signal and System	3	0	0	3	ECE
7.	ECL237	Digital Circuit Lab	0	0	3	1.5	ECE
8.	ECL238	Analog Electronics Lab	0	0	3	1.5	ECE
TOTAL			19	0	6	22	

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	0	0	3	ECE
3.		Open Elective-I	3	0	0	3	BS&H
4.	ECC244	Analog Communication Systems	3	0	0	3	ECE
5.	ECC245	Advance Electronic Circuit	3	0	0	3	ECE
6.	ECC246	Digital Signal Processing	3	0	0	3	ECE
7.	ECL247	Analog Communication Lab	0	0	3	1.5	ECE
8.	ECL248	Microprocessor and Microcontroller Lab	0	0	3	1.5	ECE
TOTAL			19	0	6	22	

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Department of Electronics & Communication Engineering-I
Curriculum of B. Tech (Electronics & Communication Engineering)
2019-2023

Semester- V

S.No	Course Codes	Course Titles	L	T	P	Credits	Subject Category
1.	ECC351	Digital Communication	3	0	0	3	ECE
2.	ECC352	Electromagnetic Theory	3	0	0	3	ECE
3.		OE-II	3	0	0	3	BS&H
4.		OE-III	3	0	0	3	OE
5.		PE-I	3	0	0	3	PE
6.	ECL356	Digital Communication Lab	0	0	3	1.5	ECE
7.	ECL357	Digital Signal Processing Lab	0	0	3	1.5	ECE
		TOTAL	15	0	6	18	

VI Semester

S.No	Course Codes	Course Titles	L	T	P	Credits	Subject Category
1.	EEC351	Control System Engineering-I	3	0	0	3	EEE
2.	ECC362	Embedded Systems	3	0	0	3	ECE
3.	ECC363	VLSI Engineering	3	0	0	3	ECE
4.		OE-IV	3	0	0	3	OE
5.		PE-II	3	0	0	3	PE
6.	ECL366	Embedded Systems Lab	0	0	3	1.5	ECE
7.	ECL367	VLSI Lab	0	0	3	1.5	ECE
		TOTAL	15	0	6	18	

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29/3/19

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Sh. Anurag
20/3/19

Sh. Anurag
20/3/19

Sh. Anu
20/03/19

Department of Electronics & Communication Engineering-I
Curriculum of B. Tech (Electronics & Communication Engineering)
2019-2023

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	ES&H
6.	ECL476	Optical Communication Lab	0	0	3	1.5	ECE
7.	ECP477	Minor Project	0	0	7	3.5	ECE
8.	ECC472	SEMINAR	0	0	2	1	ECE
		TOTAL	15	0	12	21	

VIII Semester

S.No	Course Codes	Course Titles	L	T	P	Credits	Subject Category
1.	ECP481	Major Project	0	0	16	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	ES&H
5.	ECV485	Comprehensive Viva	0	0	0	2	ECE
		TOTAL	9	0	16	19	

I	II	III	IV	V	VI	VII	VIII
21	19	22	22	18	18	21	19

Total Credit(1st to 8th semester)	160
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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

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 S. Srinivasan 20/3/19
 S. Srinivasan 20/03/19

Department of Electronics & Communication Engineering-I
Curriculum of B. Tech (Electronics & Communication Engineering)
2019-2023

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

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S. Patil / 20/03/19
S. Patil / 20/03/19
Netra / 20/03/19

Department of Electronics & Communication Engineering-I
Curriculum of B. Tech (Electronics & Communication Engineering)
2019-2023

20.		Life and Psychology	3
21.		Ecology and Environment	3
22.	HSC483	Entrepreneurial Management	3
23.		Society and Social Issues	3

Dr. S. S. S.
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SAMBALPUR UNIVERSITY
INSTITUTE OF INFORMATION TECHNOLOGY
JYOTI VIHAR, BURLA

Department of Electronics and Communication Engineering

Course Structure and Syllabus

(Approved by Board of Studies, March 20/3/2019)

Master of Technology

in

Communication Systems Engineering

(Two Years Course)

(from the session 2019-21)

S. Patra
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M.Tech Communication Systems Engineering Syllabus

(2019-21)

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	

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M.Tech Communication Systems Engineering Syllabus

(2019-21)

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
		TOTAL	24	

S. Kishore
20/03/19

S. S. S.
20/03/19

S. S. S.
20/03/19

M. S. S.
20/03/19

S. S. S.
20/03/19

S. S. S.
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M.Tech Communication Systems Engineering Syllabus

(2019-21)

SEMESTER-III

S. No	Course Codes	Subject	Credits	Subject Category
1.		Program Elective-VII	4	PE
2.		Program Elective-VIII	4	PE
3.	CSY631	Masters Research Project(Phase-I)	12	ECE
		TOTAL	20	

Semester-IV

S. No	Course Code	Subject	Credits	Subject Category
1.	CSY641	Masters Research Project (Phase-II)	20	ECE
2.	CSY642	Comprehensive Viva	2	ECE
		TOTAL	22	

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M.Tech Communication Systems Engineering Syllabus

(2019-21)

I	II	III	IV	TOTAL
24	24	20	22	90

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)

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M.Tech Communication Systems Engineering Syllabus

(2019-21)

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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SAMBALPUR UNIVERSITY
INSTITUTE OF INFORMATION TECHNOLOGY
JYOTI VIHAR, BURLA

Department of Electronics and Communication Engineering

Course Structure and Syllabus

(Approved by Board of Studies, March 20/3/2019)

Master of Technology

in

Embedded Systems Design

(Two Years Course)

2019-21

(from the session 2019-21)

Dr. Jyoti
20/3/19

Dr. Jyoti
20/3/19

Dr. Jyoti
20/3/19

Dr. Jyoti
20/3/19

Dr. Jyoti
20/3/19

Dr. Jyoti
20/3/19

M. Tech in Embedded System Design Syllabus
(2019-21)
Semester-I

Code	Subject	Credits
ESD611	Digital VLSI DESIGN	4
ESD612	FPGA Based System 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	Analog VLSI Design	4
ESD622	Advanced Digital Signal processing	4
	Program Elective-IV	4
	Program Elective-V	4
	Program Elective-VI	4
ESD623	Embedded Systems Lab	2
	Elective Lab-II	2
	TOTAL	24

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M. Tech in Embedded System Design Syllabus
(2019-21)

Semester-III

Code	Subject	Credits
ESD631	Masters Research Project(Phase-I)	12
	Program Elective-VII	4
	Program Elective-VIII	4
	TOTAL	20

Semester-IV

Code	Subject	Credits
ESD641	Masters Research Project(Phase-II)	20
ESD642	Comprehensive Viva	2
	TOTAL	22

I	II	III	IV	Total
24	24	20	22	90

Total Credits= 90

List of Electives

1. Electronic circuit and system design (ESD6E01)
2. Microcontroller Systems Design(ESD6E02)
3. Embedded C & C++ Programming Languages(ESD6E03)
4. Embedded Operating Systems & Real time OS(ESD6E04)
5. Embedded Design Cycle(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)

Santosh
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Sudhakar
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guy
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Aditya
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Aditya
20/03/19

M. Tech in Embedded System Design Syllabus
(2019-21)

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)

Analog VLSI Design

MODULE-I (12 hours)

MOS Device and Modeling: The MOS Transistor, Passive Components- Capacitors and Resistors, Integrated Circuit Layout, CMOS Device Modeling- Simple MOS Large Signal Model, Other MOS Large Signal Model Parameters, Small Signal Model of the MOS Transistor, Computer Simulator Models, Subthreshold MOS Model.

MODULE-II (12 hours)

Analog CMOS Sub Circuits: MOS Switch, MOS Diode/Active Resistor, MOS Current Sinks and Sources, Current Mirrors- Current Mirror with Beta Helper, Cascode Current Mirror and Wilson Current Mirror, Voltage and Current References, Bandgap Reference, CMOS Amplifiers: Inverters, Differential Amplifiers, Cascode Amplifiers, Current Amplifiers, Output Amplifiers.

MODULE-III (10 hours)

CMOS Operational Amplifiers: Design of Op-Amps, Compensation of OP-Amps, Design of a Two-Stage OP-Amp, Power Supply Rejection Ratio of Two Stage Op-Amp.

MODULE-IV 10 hours

Comparators: Characterization of a Comparator, Two Stage Open Loop Comparators, Discrete Time Comparators. Other Open Loop Comparators, Improving the Performance of Open Loop Comparators.

Text Books

1. Philip.E. Allen and Douglas.R. Holberg, CMOS Analog Circuit Design, Oxford University Press, Indian 3rd Edition, 2012.
2. Paul.R. Gray, Paul.J. Hurst, S.H. Lewis and R.G.Meyer, Analysis and Design of Analog Integrated Circuits, Wiley India, Fifth Edition, 2010

Reference Books

1. R.J. Baker, H. W. Li, D. E. Boyce, CMOS Circuit Design, Layout, and Simulation, PHI, 2002
2. D.A. Johns and K. Martin, Analog Integrated Circuit Design; Wiley Student Edition, 2013
3. B. Razavi; Design of Analog CMOS Integrated Circuits, Tata McGraw-Hill, 2002

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Sprattarain
20/03/19

Spatjoshnee
20/03/19

Shahin
20/3/19

Shree
20/3/19

PROCEEDING OF THE BOARD OF STUDIES MEETING OF DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING & APPLICATIONS HELD ON DATE- 20/03/2019

Members Present

- 1) Dr. Sudarson Jena Head & Assoc. Prof. Dept. CSE&A, SUIIT, Burla -- Chairman
2) Prof. (Dr.) Sarojananda Mishra, Prof. Dept. CSE, IGIT, Saranga (Outside Expert)
3) Mr. Pradyumna Kumar Ratha, Asst. Prof. Dept. CSE&A, SUIIT, Burla
4) Mr. Kalyan Das, Asst. Prof. Dept. CSE&A, SUIIT, Burla
5) Mrs. Sushree Subhprada Pradhan, Asst. Prof. Dept. CSE&A, SUIIT, Burla
6) Dr. (Mrs.) Madhumita Panda, Asst. Prof. Dept. CSE&A, SUIIT, Burla
7) Mr. Sibarama Panigrahi, Asst. Prof. Dept. CSE&A, SUIIT, Burla
8) Mr. Debashreet Das, Asst. Prof. Dept. CSE&A, SUIIT, Burla
9) Mr. Amiya Bhusan Bagjadab, Asst. Prof. Dept. CSE&A, SUIIT, Burla
10) Mr. Debabrata Dansena, Asst. Prof. Dept. CSE&A, SUIIT, Burla
11) Mr. Sujit Kumar Biswal, Asst. Prof. Dept. CSE&A, SUIIT, Burla
12) Ms. Sanju Parida, Asst. Prof. Dept. CSE&A, SUIIT, Burla

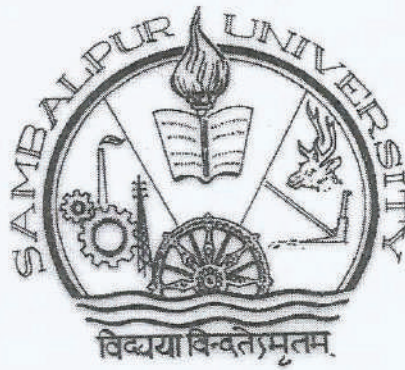
The Board of Study meeting of Department of CSE&A, SUIIT was held on 20/03/2019 and discussed a revised course structure for different running programmes like B. Tech CSE, MCA, M. Sc. CS, M. Tech CSE, M. Phil CS and Pre-Ph. D, course work in CSE. The revised structures approved by all the members of meeting are follows.

Signature of Members:

Handwritten signatures and dates for each member listed in the previous block, including Prof. (Dr.) Sarojananda Mishra, Dr. Sudarson Jena, Mr. Pradyumna Kumar Ratha, Mr. Kalyan Das, Mrs. Sushree Subhprada Pradhan, Dr. (Mrs.) Madhumita Panda, Mr. Sibarama Panigrahi, Mr. Debashreet Das, Mr. Amiya Bhusan Bagjadab, Mr. Debabrata Dansena, Mr. Sujit Kumar Biswal, Ms. Sanju Parida, and several other dates like 27/05/19.


Syllabus Structure

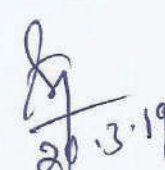
B. Tech. (Computer Science & Engineering)




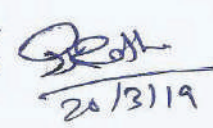
(Effective from the academic Session 2019-2020)


Department of Computer Science & Engineering and Applications
 Sambalpur University Institute of Information Technology (SUIIT)
 Sambalpur University, Jyoti Vihar-768019, Burla



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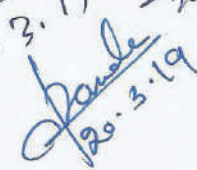

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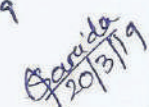

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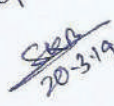

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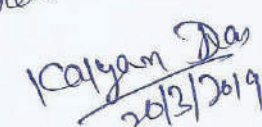

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Surinnes Pradhan

 20/3/2019

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	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	1.5	
7	CSL117	Programming in C Lab.	FC(CS)	0	3	0	2	
8	PHL118	Physics Lab.	FC(BS)	0	3	0	1.5	
Total Credit:							21	

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	3	
4	CSC 124	Data Structure 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	1.5	
7	EDC 127	Engineering Graphics Lab.	FC(BE)	0	3	0	1.5	
8	CSL 128	Data Structure using C Lab.	FC(CS)	0	3	0	2	
Total Credit:							19	

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 Circuit 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	1.5	
7	ECL 237	Digital Circuit Lab.	FC(BE)	0	3	0	1.5	
Total Credit:							20	

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	Microprocessor & Microcontroller	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.	FC(BE)	0	3	0	1.5	
8	CSL 247	Microprocessor & Microcontroller Lab.	PC(CE)	0	3	0	1.5	
Total Credit:							20	

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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)	4	0	0	4	
3	CSC 353	Database Management Systems	PC(CE)	3	0	1	3	
4	CSC 354	Computer Networks	PC(CE)	3	0	0	3	
5	HSC 355	Engineering Economics	OE (OE)	3	0	1	3	
		Program Elective-I					3	
6	CSL 356	Database Management System Lab.	PC(CE)	0	3	0	1.5	
7	CSL 357	Computer Network Lab	PC(CE)	0	3	0	1.5	
Total Credit:							22	

Semester – VI								
S.No.	Course Code	Course Title	Category	L	P	T	Credits	Remarks
1	CSC 361	Web Technology	PC(CE)	4	0	0	3	
2	CSC 362	Software Engineering	PC(CE)	3	0	1	3	
3	CSC 363	Programme Elective-II	PC (CE)	3	0	1	3	
4	XXX XXX	Programme Elective-III	PE (CE)	4	0	0	3	
5	XXX XXX	Open Elective-I	IE (IE)	4	0	0	3	
6	CSL 364	Web Technology Lab.	PC(CE)	0	3	0	1.5	
7	CSL 365	Software Engineering Lab.	PC(CE)	0	3	0	1.5	
Total Credit:							18	

Semester – VII								
S.No.	Course Code	Course Title	Category	L	P	T	Credits	Remarks
1	CSC 471	Data Warehousing and Data Mining	PC(CE)	4	0	0	4	
2	CSC 472	Compiler Design	PC(CE)	4	0	0	3	
3	XXX XXX	Programme Elective-IV	PE (CE)	3	0	0	3	
4	XXX XXX	Programme 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)	3	0	0	4	
7	CSS 474	Seminar	TS(PW)				1	
Total Credit:							21	

Semester – VIII								
S.No.	Course Code	Course Title	Category	L	P	T	Credits	Remarks
1	XXX XX	Program 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	8	
5	CSV 483	Comprehensive Viva-voce	PP (CV)	0	0	0	2	
Total Credit:							19	

SEMESTER WISE CREDIT DISTRIBUTION									
Year	Credit(40)		Credit(40)		Credit(40)		Credit(40)		TOTAL
Semester	I	II	III	IV	V	VI	VII	VIII	
Total Credit	21	19	20	20	22	18	21	19	160

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 Kalyan Da 20/3/2019
 S.K.R. 20.3.19
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 20/3/19
 Sushma S. Pachrao

Syllabus Structure

M.Sc.(Computer Science)



(Effective from the academic Session 2019-2020)

Department of Computer Science & Engineering and Applications
Sambalpur University Institute of Information Technology (SUIIT)
Sambalpur University, Jyoti Vihar-768019, Burla

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Sushree S. Pradhan
Kalyan Das
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Syllabus Structure M.Sc.(Computer Science)

Semester – I						
Code	Course Title	Category	L	P	T	Credits
CS 511	Discrete Mathematics	Foundation	4	0	0	4
CS 512	Programming in C	Foundation	4	0	0	4
CS 513	Computer System Architecture	Core	4	0	0	4
CS 514	Database Management System	Core	3	0	1	4
CS 515	Data Communications and Computer Networks	Core	4	0	0	4
CS 516	Programming in C Lab.	Core	0	3	0	2
CS 517	Database Management System Lab.	Core	0	3	0	2
Total Credit:						24
Semester – II						
Code	Course Title	Category	L	P	T	Credits
CS 521	Object Oriented Programming	Foundation	4	0	0	4
CS 522	Theory of Computation	Core	4	0	0	4
CS 523	Software Engineering	Core	4	0	0	4
CS 524	Data Structure	Core	3	0	1	4
CS 525	Operating system	Core	4	0	0	4
CS 526	Object Oriented Programming Lab.	Core	0	3	0	2
CS 527	Data Structure Lab.	Core	0	3	0	2
CS 528	Software Engineering Lab.					2
Total Credit:						26
Semester – III						
Code	Course Title	Category	L	P	T	Credits
CS 531	Compiler Design	Core	3	0	1	4
CS 532	Design and analysis of Algorithm	Core	4	0	0	4
CS 533	Computer Graphics	Core	4	0	0	4
CS 534	Web Technology	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	Optimization Techniques				
	CS 53E4	Management Information System				
CS 535	Web Technology Lab.	Core	0	3	0	2
CS 536	Open Source Lab.	Core	0	3	0	2
Total Credit:						24
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	Simulation Modeling				
	CS 54E4	Introduction to Big Data Analytics				
	CS 54E5	Cyber Security				
CS 543	Project	Project Work	-	-	-	8
CS 544	Seminar	Tech. Seminar	-	-	-	2
Total Credit:						22

SEMESTER WISE CREDIT DISTRIBUTION					TOTAL
Semester	I	II	III	IV	
Total Credit	24	26	24	22	96

Ratha
20/3/19

Sushtree S. Pradhan
20/3/19

Saka
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Janak
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Kalyan Day
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Parvita
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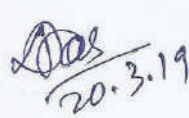

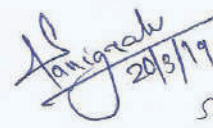
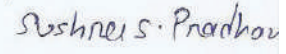
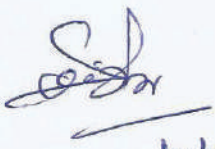
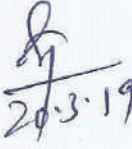
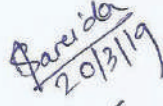


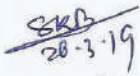
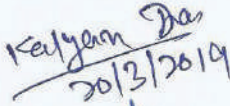
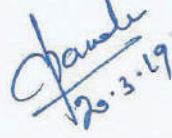
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Syllabus Structure Master in Computer Application (MCA)



(Effective from the academic Session 2019-2020)

Department of Computer Science & Engineering and Applications
Sambalpur University Institute of Information Technology (SUIIT)
Sambalpur University, Jyoti Vihar-768019, Burla

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 Sushree S. Pradhan
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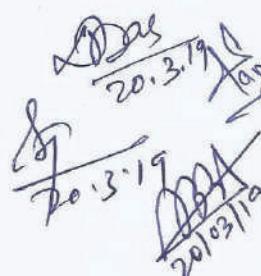


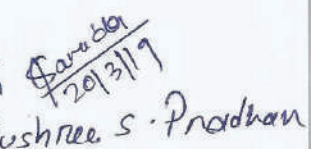
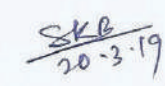
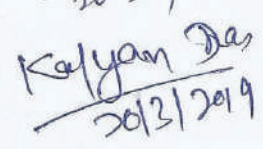

Syllabus Structure

M. Tech. (Computer Science & Engineering)



(Effective from the academic Session 2019-2020)

Department of Computer Science & Engineering and Applications
 Sambalpur University Institute of Information Technology (SUIIT)
 Sambalpur University, Jyoti Vihar-768019, Burla

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Syllabus Structure

M. Phil. (Computer Science)



(Effective from the academic Session 2019-2020)

Department of Computer Science & Engineering and Applications
Sambalpur University Institute of Information Technology (SUIIT)
Sambalpur University, Jyoti Vihar-768019, Burla

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Sushree S. Pradhan
20-3-19
Kalyan Das
20/3/2019

Syllabus Structure

Pre-Ph. D Course work in Computer Science & Engineering



(Effective from the academic Session 2019-2020)

Department of Computer Science & Engineering and Applications
 Sambalpur University Institute of Information Technology (SUIIT)
 Sambalpur University, Jyoti Vihar-768019, Burla

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 Sushree S. Pradha
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 Kajyam Da
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 Chand
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SAMBALPUR UNIVERSITY
INSTITUTE OF INFORMATION TECHNOLOGY
JYOTI VIHAR, BURLA

Draft Syllabus for
COURSE CURRICULUM FOR Ph.D. COURSE WORK
IN
ELECTRONICS ENGINEERING / ELECTRONICS

S. Nayak
 27/5/19

K. S. Nayak
 20/03/19

Dr. J. S. Nayak
 27/05/19

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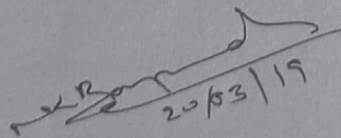
**Course Curriculum for Course work of
Ph.D. in Electronics Engineering / Electronics**

The Ph. D. course Work will have 20 CH of course work as described below:

CODE	COURSE NAME	CREDIT
EL611	Advanced Trends in Electronics	4CH
EL612Exx	Elective Paper I	4CH
EL613	Research Methodology	4CH
EL614	Advanced Electronics Lab.	4CH
EL615	Review of Research Papers Review Report - 2 Credits, Seminar - 2 Credits	4CH
Total		20CH

List of Electives:

Subject Code (xx)	Name of Subject
01	Advance Communication Theory
02	RF and Microwave System
03	Advance Digital Signal Processing
04	Optical Communication
05	Digital Mobile System
06	Optical Network
07	Advance Optical Communication
08	Mobile Satellite Communication
09	Wireless Network and Mobile Computing
10	Digital Image Processing


20/03/19