

**ST. PETER'S INSTITUTE OF HIGHER EDUCATION
AND RESEARCH**

St. PETER'S UNIVERSITY

(Declared under section 3 of UGC Act 1956)

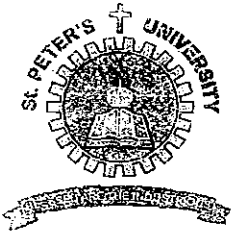
Avadi, Chennai - 600 054.



Academic Council

16th meeting on 06.09.2017

AGENDA



St. PETER'S INSTITUTE OF HIGHER EDUCATION AND RESEARCH

St. Peter's University
(Declared under section 3 of the UGC Act 1956)

Avadi, Chennai - 600 084, Tamil Nadu.

Phone: 044-26558080-84/26558090 Fax: 044-26555430

E-mail: registrar@stpetersuniversity.org

Website: www.stpetersuniversity.org

Dr. M.A. Dorai Rangaswamy
Registrar

SPU/REG/F009/AC-16/2017

19.07.2017

To

All the Members of the Academic Council,
St. Peter's Institute of Higher Education and Research,
St. Peter's University.

Sir/Madam,

Sub: Academic Council - 16th meeting on 06.09.2017 -
Meeting notice - Reg.

The 16th meeting of the Academic Council is scheduled to be held on
06.09.2017 at 11.00 a.m. at the Conference Hall in the University Campus.
All the members are requested to attend the meeting.

The Agenda is enclosed.

Yours faithfully,

Registrar

Copy to:

1. All the Deans/HODs
2. The Secretary, UGC
3. The Finance Officer
4. Estate Officer
5. Office File/Guard File

For information:

1. The Chancellor
2. The Vice Chancellor

ST. PETER'S INSTITUTE OF HIGHER EDUCATION AND RESEARCH
St. PETER'S UNIVERSITY
 Avadi, Chennai - 600 054, Tamil Nadu.

ACADEMIC COUNCIL

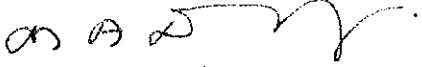
Reconstitution of Academic Council as per UGC (Institutions Deemed to be Universities) Regulations 2016 with effect from 01.08.2017

S.No.	Category	Members
1.	Vice Chancellor (Ex officio)	Chairman
2.	Pro Vice Chancellor (Ex officio)	—
3.	Dean(s) of Faculties (Ex officio)	All the Deans
4.	Heads of the Departments (Ex officio)	All the HoDs
5.	All Professors other than the Heads of the Departments (Ex officio)	All Professors other than HoDs
6.	Two Associate professors from the Departments other than the Heads of the Departments by rotation of seniority (Two years)	1. Ms. Kanimozhi, Architecture 2. Ms. Ashwini Hebsur, Architecture
7.	Two Assistant professors from the Departments by rotation of seniority (Two years)	1. Mr. P. Balaji, Electronics & Instrumentation Engineering 2. Ms. P. Subhashini, Computer Science and Engineering
8.	Three persons from amongst educationists of repute or persons from any other field related to the activities of the University, nominated by the Vice-Chancellor (Two years)	1. Dr. P. Natarajan, Academic Director, Kovai Kalaimagal Group of Institutions, Thondamuthur, Coimbatore . 2. Dr. K.A. Chinnaraju, Director, Coimbatore Institute of Engineering and Technology, Coimbatore. 3. Dr. G. Ranganath, Principal Adhiyamaan College of Engineering, Dr. M.G.R. Nagar, Hosur.
9.	Three persons who are not members of the teaching staff, co-opted by the Academic Council for their specialized knowledge. (Two years)	1. Dr. R. Parvathi, M.B.B.S.(Physician) 2. Mr. S. Ramamurthy (Economist) 3. Mr. S. Balakrishnan, (Industrialist)
10.	The Registrar, who shall be the Secretary of the Academic Council. (Ex officio)	Secretary

Note: The representation of different categories shall be only through rotation and not through election. It may also be ensured that no particular faculty dominates the membership of the Council.

Term of Membership: The term of members other than the ex-officio members shall be two years from 01.08.2017.

Date: 01.08.2017


Registrar

ST. PETER'S INSTITUTE OF HIGHER EDUCATION AND RESEARCH
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Minutes of the 15th Meeting of the Academic Council

Date: 22.03.2017 at 11.00 a.m.

Members Present

1. Dr.S.Ravichandran, Vice Chancellor
2. Dr. D.S. Ramachandra Murthy, Dean
3. Prof. K . Rajamanickam, Dean
4. Dr. Kasthuri kantharaj, Dean
5. Dr. K. Balagurunathan, Dean
6. Prof. G.J. Srinivasan, Dean
7. Dr. L. Mahesh Kumar, Dean
8. Dr. S. Gunasekaran, Dean
9. Dr. K. Valivittan, HoD-Biotechnology
10. Dr. P. Asha, HoD-Civil Engg
11. Dr. S. Pushpa, HoD-CSE
12. Prof. R. Jeyaraman, HoD-EEE
13. Mr. K. Balamurugan, HoD-IT
14. Dr. P.V. Sendhil-HoD/Mech.
15. Mr. Laspha Paul Raj, HoD/ B.Arch
16. Dr. R. Latha, HoD-MCA
17. Dr. R. Gayatri, HoD-MBA
18. Dr.N. Srinivasan, HoD-Mathematics
19. Dr. S. Stella Mary, HoD-Physics
20. Dr. Sayeeda Sultana, HoD-Chemistry
21. D Dr. P.. Periyasamy, HoD-Production
22. Dr. S. Uma Maheshwari HoD- English
23. Dr. A. K. Polson, (English)
24. Prof. B. Shanmugham, (EEE)
25. A. Bharathi, (Aero)
26. P. Subhashini, (CSE)

- 15.1** Considered the minutes of the 14th meeting of the Academic Council held on 06.09.2016.

RESOLVED the minutes of the 14th meeting of the Academic Council held on 06.09.2016 be confirmed. **(Appendix-I)**

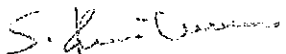
- 15.2** Considered the report on the action taken on the minutes of the 14th meeting of the academic council.

NOTED the action taken on the minutes of the 14th meeting of the academic council. **(Appendix-II)**

RESOLVED that the proposal under credit transfer system that candidates who have completed the duration of the programme in other institutions but have some arrear courses (papers) under credit system may be admitted after scrutiny of candidates individually, to study equivalent/prescribed courses and to acquire required credits in the existing Regulations and syllabi to complete the programme within two years (4 semesters) and without classification of successful candidates, effective from the academic year 2016-17 be approved.

15.6 Considered the UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulation 2016 as communicated by UGC in its letters D.O.F.No.1-100/2016(MOOCs/e-content) dates 27th July 2016 / 27th September 2016 / 30th January 2017 for taking appropriate action for introduction of MOOCs courses through SWAYAM platform of Government of India for the benefit of the students subject to the availability of infrastructure in the University.

RESOLVED that the UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulation 2016 as communicated by UGC in its letters D.O.F.No.1-100/2016(MOOCs/e-content) dates 27th July 2016 / 27th September 2016 / 30th January 2017 for taking appropriate action for introduction of MOOCs courses through SWAYAM platform of Government of India for the benefit of the students subject to the availability of infrastructure in the University be approved in principle.
(Appendix-V)


Vice Chancellor


Registrar

Date: 22.03.2017

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16th Meeting of the Academic Council

Date: 06.09.2017

**Action Taken on the Minutes of the 15th meeting of Academic Council
held on 22.03.2017**

Item	Action taken
15.1	Noted
15.2	Noted
15.3	Informed the HoDs concerned for further action, wherever required.
15.4	Informed the HoD / Architecture to take necessary action.
15.5	Informed the Admission wing and all the HoDs for implementation.
15.6	Informed all the HoDs for further action.

Date: 28.08.2017


Registrar

S.NO	DEPARTMENT NAME
1.	Architecture
2.	Biomedical Engineering
3.	Civil Engineering
4.	Computer Science and Engineering
5.	Electronics and Communication Engineering
6.	Electrical and Electronics Engineering
7.	Mechanical Engineering
8.	Information Technology
9.	Biochemistry
10.	Biotechnology
11.	Business Administration
12.	Chemistry
13.	Computer Science and Application
14.	Commerce
15.	English
16.	Economics
17.	Mathematics
18.	Microbiology
19.	Physics
20.	Tamil
21.	Visual Communication

St. PETER'S UNIVERSITY

St. PETER'S INSTITUTE OF HIGHER EDUCATION AND RESEARCH

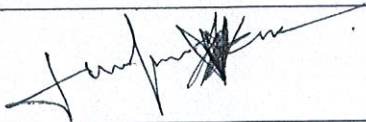
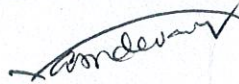
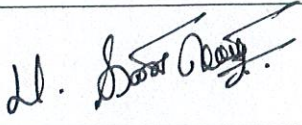

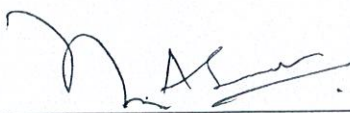

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AVADI, CHENNAI - 600 054.

MINUTES OF THE 9th MEETING OF THE BOARD OF STUDIES IN B.ARCH

Held on 22.08.2017

Members Present

S.No	Name	Designation	Member	Signature
1.	Ar Lashba Paulraj	Design Chair and HOD	Chairman	
2.	Ar Vasudevan T J	Senior Professor	Member	
3.	Ar P.Kanimozhi	Associate Professor	Member	
4.	Ar Ashwini Hebsur	Assistant Professor	Member	
5.	Ar Mushtaq Ahmed	Practicing Architect	External Member	
6.	Ar Sethu	Practicing Architect	External Member	



Date : 22.08.2017

Registrar

St. Peter's Institute of Higher Education and Research
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Chairman

9.1	<p>Considered the minutes of the 8th meeting of Board of Studies in Architecture held on 14.03.2017</p> <p>RESOLVED that the minutes of the 8th meeting of Board of Studies in Architecture held on 14.03.2017 confirmed.</p>
9.2	<p>Reviewed the syllabi of B.Arch programme under the Regulations 2013 with Choice Based Credit System (CBCS)</p> <p>Resolved that the syllabi of B.Arch programme under the Regulations 2013 be continued with Choice Based Credit System (CBCS)</p>
9.3	<p>Reviewed the syllabi of B.Arch programme under the Regulations 2015 with Choice Based Credit System (CBCS)</p> <p>RES Resolved that the syllabi of B.Arch programme under the Regulations 2015 be continued with Choice Based Credit System (CBCS) be continued taking into consideration of the suggestions and remarks given by the members to include the following new Elective courses (Appendix - I)</p> <p>1.Sociology and culture 515ART05</p>
9.4	<p>Reviewed the proposed of Curriculum and Syllabi of Regulation 2017 effective for the students to be admitted from 2017-2018</p> <p>RESOLVED that the Regulations and Syllabi of B.Arch. Programme under the Regulations 2017 for the I and X semester be confirmed as in Annexure-I.</p>
	<p>Reviewed and considered the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders.</p> <p>Resolved that the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders to be approved. (Appendix – II)</p>



Date: 22.08.2017

[Handwritten Signature]
Registrar
 St. Peter's Institute of Higher Education and Research
 (Deemed to be University U/S 3 of the UGC Act, 1956)
 Avadi, Chennai-600 054.

[Handwritten Signature]
Chairman

St. PETER'S INSTITUTE OF HIGHER EDUCATION AND RESEARCH


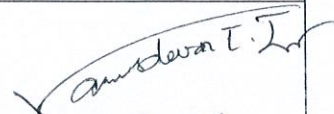
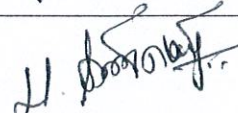
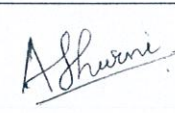
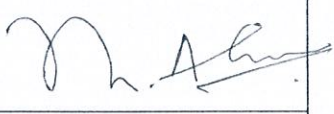

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AVADI, CHENNAI - 600 054.

MINUTES OF THE 10th MEETING OF THE BOARD OF STUDIES IN

B.ARCH

Held on 26.09.2017

Members Present

S.No	Name	Designation	Member	Signature
1.	Ar Lashba Paulraj	Design Chair and HOD	Chairman	
2.	Ar Vasudevan T J	Senior Professor	Member	
3.	Ar P.Kanimozhi	Associate Professor	Member	
4.	Ar Ashwini Hebsur	Assistant Professor	Member	
5.	Ar Mushtaq Ahmed	Practicing Architect	External Member	
6.	Ar Sethu	Practicing Architect	External Member	


Chairman




Registrar


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<p>10.1</p>	<p>Considered the minutes of the 9th meeting of Board of Studies in Architecture held on 22.08.2017 in the light of the minutes of the 16th meeting of the Academic counsel held on 6.9.2017</p> <p>RESOLVED that the minutes of the 9th meeting of Board of Studies in Architecture held on 22.08.2017 in the light of the minutes of the 16th meeting of the Academic counsel held on 6.9.2017 be confirmed and to include the following new elective courses in III semester from the batch of students to be admitted from 2019-20 under the Regulation 2015 to be approved. (Appendix - I)</p> <p>1. 515ART08 SOCIOLOGY AND CULTURE</p>
<p>10.2</p>	<p>Considered the proposed new regulation and syllabi for architecture programme under the regulation 2017 to be effective from the academic year 2017 – 18 with Choice Based Credit System (CBCS).</p> <p>RESOLVED that the proposed new regulation and syllabi for architecture programme under the regulation 2017 to be effective from the academic year 2017 – 18 with Choice Based Credit System (CBCS) be approved</p>

Date: 22.08.2017


Chairman




Registrar
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APPENDIX I

515ART08 SOCIOLOGY AND CULTURE

OBJECTIVES:

Introduce the social dimension of architecture as an aspirational response to cultural and economic realities of a community

Anticipated Learning Outcomes:

UNIT I SOCIOLOGY, ECONOMICS & CULTURES

Sociology and its uses in human settlement studies, socio cultural processes, socio economic parameters in community planning

UNIT II SOCIETY & ARCHITECTURE

Relationship of sociology with architecture impact of house form and culture, socio cultural transformation through ages and impacts on built environment; social identity and architectural relevance. Contribution of society, social structure and culture on the development of vernacular architecture, design approaches with social perspective

UNIT IV URBANIZATION & STRATIFICATION

Urbanization, rural urban continuum, urban growth, impact on society and urban area, social aspects of housing, territoriality and neighborhood, impact of socio economic parameters on built form, slum and squatter settlements.

COURSE OUTCOMES:

Ability to understand basic sociological concepts and learn their applications in space planning and architectural design.

REFERENCES:

- Oliver, P., ed. 1997. Encyclopedia of Vernacular architecture of the World Vol. 1-3, CUP, Cambridge. Rappaport, Amos, 1969. House Form & Culture. Prentice Hall Inc. Brunskill, R.W., 1987.
- Illustrated Handbook on Vernacular Architecture. Pamar, V.S., 1989. Haveli: Wooden Houses & Mansions of Gujarat. Mapin Pub. Ahmedabad. Jain, Kulbhushan 1992. Mud Architecture of the Indian Desert, Aadi Centre, Ahmedabad. Fathy, Hassan 2000. Architecture for the Poor: An Experiment in Rural Egypt. Univ. of Chicago Press. Rudofsky, Bernard, 1964. Architecture without Architects. . Museum of Modern Art, NY.
- Heath, K., 2009. Vernacular Architecture & Regional Design - Cultural Processes & Environmental Responses, Architectural Press, London.
- Bhatia, Gautam, 1981. Laurie Baker: Life, Works & Writings. Viking/ HUDCO, New Delhi. Sachdeva, DR. An Introduction to Sociology. Vidya Bhushan, Kitab Mahal King, Anthony D. 1980. Building and Society, Routledge Kegan & Paul.




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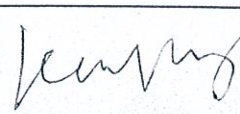
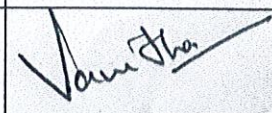
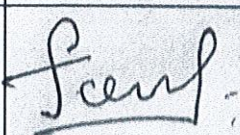
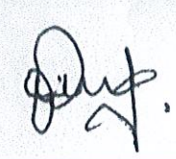
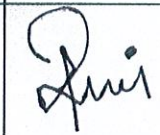
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MINUTES OF THE 16th MEETING OF THE BOARD OF STUDIES IN BIOMEDICAL ENGINEERING

Held on 21.08.2017

Members Present

S.No	Name	Designation	Member	Signature
1.	Dr. K. Kantharaj	Professor & Head	Chairman	
2.	Ms. A. Vanitha	Assistant Professor	Internal Member	
3.	Ms. M. Fazilath	Assistant Professor	Internal Member	
4.	Dr. Valivittan K	Professor	External Member	
5.	Dr. Rani Hemamalini	Professor ECE -SPCET	External Member	


Chairman


Registrar
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- 16.1 Considered the minutes of the 15th meeting of Board of Studies in Biomedical Engineering held on 13.03.2017.

RESOLVED that the minutes of the 16th meeting of Board of Studies in Biomedical Engineering held on 13.03.2017 be confirmed.

- 16.2 Reviewed the Regulation & Syllabi of B.E(Biomedical Engineering) programmes under the Regulations 2013 and 2017 with Choice Based Credit System (CBCS).

RESOLVED that the Syllabi of B.E. (Biomedical Engineering) under the Regulations 2013 to be continued and regulation 2017 with Choice Based Credit System (CBCS) be approved with addition of following new courses .(Appendix - I)

1. 317MAT01-Transforms and Partial differential equations
2. 317BMT02-Biochemistry
3. 317BMT03-Signals and systems
4. 317BMT04-Sensors and measurements
5. 317BMT05-Object oriented programming and data structures
6. 317BMT06-Anatomy and human physiology
7. 317BMP01-Biochemistry and human physiology laboratory
8. 317BMP02-OOPs and data structures laboratory
9. 417BMT01-Probability and random processes
10. 417BMT02-Medical Physics
11. 417BMT03-Basics of electrical Engineering
12. 417BMT04-Analog and digital ICs
13. 417BMT05-Pathology and microbiology
14. 417BMT06- Environmental science and engineering
15. 417BMP01-Circuits and ICs laboratory
16. 417BMP02-Pathology and microbiology laboratory

- 16.3 Considered the new Regulations and Syllabi of I & II semester of B.E. (Biomedical Engineering) on the pattern of AICTE Model Curriculum from the batch of students to be admitted from 2018-19 under the Regulations 2018 with Choice Based Credit System (CBCS).

RESOLVED that the new Regulations and Syllabi of I & II semester of B.E. (Biomedical) on the pattern of AICTE Model Curriculum from the batch of students to be admitted from 2018-19 under the Regulations 2018 with Choice Based Credit System (CBCS) be approved with addition of following subjects in I and II semesters. (Appendix - II)

1. 118CYT01- Chemistry
2. 118CYP01-Chemistry laboratory
3. 118EHT05-English
4. 218PHT01-Physics
5. 218PPT03-Programming for problem solving using C and

Python

6. 218PPP02-Programming for problem solving using C and Python laboratory

- 16.4** Reviewed the Regulation & Syllabi of M.E. (Biomedical Engineering) programmes under the Regulations 2013 with Choice Based Credit System (CBCS)..

RESOLVED that the Regulation & Syllabi of M.E.(Biomedical Engineering) programmes under the Regulations 2013 with Choice Based Credit System (CBCS) be continued taking into consideration of the suggestions and remarks given by the members.

- 16.5** Considered the new Regulations and Syllabi of I & II semesters M.E. (Biomedical Engineering) from the batch of students to be admitted from 2018-19 under the Regulations 2018 with Choice Based Credit System (CBCS).

RESOLVED that the new Regulations and Syllabi of I & II semesters M.E (Biomedical Engineering) from the batch of students to be admitted from 2018-19 under the Regulations 2018 with Choice Based Credit System (CBCS) be approved.(Appendix – IV)

- 16.6** Reviewed the curricula developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes.

RESOLVED that the syllabi of B.E (Biomedical Engineering) programme under the Regulations 2013 & 2017 and M.E. (Biomedical Engineering) under the Regulations 2013 developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes be approved.

- 16.7** Considered to include courses having focus on employability/ entrepreneurship /skill development in the syllabi of B.E (BME) under the Regulations 2013 & 2017 and M.E. (Biomedical Engineering) under the Regulations 2013.

RESOLVED that the courses having focus on employability/ entrepreneurship /skill development year wise in the syllabi of B.E (BME) under the Regulations 2013 & 2017 and M.E. (BME) under the Regulations 2013 & 2018 to be approved.

- 16.8** Considered to include value added courses imparting transferable and life skills offered beyond the curriculum in the syllabi of B.E (Biomedical Engineering) and M.E. (Biomedical Engineering).


Registrar

RESOLVED that the value added courses imparting transferable and life skills offered beyond the curriculum should be introduced.



Registrar

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Date: 21.08.2017



Chairman

III SEMESTER

317MAT01 - TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS

OBJECTIVES:

- To introduce Fourier series analysis which is central to many applications in engineering apart from its use in solving boundary value problems.
- To acquaint the student with Fourier transform techniques used in wide variety of situations.
- To introduce the effective mathematical tools for the solutions of partial differential equations that model several physical processes and to develop Z transform techniques for discrete time systems.

UNIT I PARTIAL DIFFERENTIAL EQUATIONS

Formation of partial differential equations – Singular integrals -- Solutions of standard types of first order partial differential equations - Lagrange's linear equation -- Linear partial differential equations of second and higher order with constant coefficients of both homogeneous and non-homogeneous types.

UNIT II FOURIER SERIES

Dirichlet's conditions – General Fourier series – Odd and even functions – Half range sine series – Half range cosine series – Complex form of Fourier series – Parseval's identity – Harmonic analysis.

UNIT III APPLICATIONS OF PARTIAL DIFFERENTIAL EQUATIONS

Classification of PDE – Method of separation of variables - Solutions of one dimensional wave equation – One dimensional equation of heat conduction – Steady state solution of two dimensional equation of heat conduction (excluding insulated edges).

UNIT IV FOURIER TRANSFORMS

Statement of Fourier integral theorem – Fourier transform pair – Fourier sine and cosine transforms – Properties – Transforms of simple functions – Convolution theorem – Parseval's identity.

UNIT V Z - TRANSFORMS AND DIFFERENCE EQUATIONS

Z- transforms - Elementary properties – Inverse Z - transform (using partial fraction and residues) – Convolution theorem - Formation of difference equations – Solution of difference equations using Z - transform.

OUTCOMES:

- The understanding of the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering.

TEXT BOOKS:

1. Veerarajan. T., "Transforms and Partial Differential Equations", Tata McGraw Hill Education Pvt. Ltd., New Delhi, Second reprint, 2012.
2. Grewal. B.S., "Higher Engineering Mathematics", 42nd Edition, Khanna Publishers, Delhi, 2012.
3. Narayanan.S, Manicavachagom Pillay.T.K and Ramanaiah.G "Advanced Mathematics for Engineering Students" Vol. II & III, S.Viswanathan Publishers Pvt Ltd. 1998.

REFERENCES:

1. Bali.N.P and Manish Goyal, "A Textbook of Engineering Mathematics", 7th Edition, Laxmi Publications Pvt Ltd , 2007.
2. Ramana.B.V., "Higher Engineering Mathematics", Tata McGrawHill Publishing Company Limited, New Delhi, 2008.
3. Glyn James, "Advanced Modern Engineering Mathematics", 3rd Edition, Pearson Education, 2007.
4. Erwin Kreyszig, "Advanced Engineering Mathematics", 8th Edition, Wiley India, 2007.
5. Ray Wylie. C and Barrett.L.C, "Advanced Engineering Mathematics" Tata Mc Graw Hill Education Pvt Ltd, Sixth Edition, New Delhi, 2012.
6. Datta.K.B., "Mathematical Methods of Science and Engineering", Cengage Learning India Pvt Ltd, Delhi, 2013.

317BMT02 - BIO CHEMISTRY

OBJECTIVES: The student should be:

- Introduced to Biochemistry
- Familiarized with the Classification, structure and properties of carbohydrates, Lipids, Protein and Enzyme.

UNIT I INTRODUCTION TO BIOCHEMISTRY

Introduction to Biochemistry, water as a biological solvent, weak acid and bases, pH, buffers, Henderson-Hasselbalch equation, physiological buffers, fitness of the aqueous environment for living organism. Principle of viscosity, surface tension, adsorption, diffusion, osmosis and their applications in biological systems.

UNIT II CARBOHYDRATES

Classification of carbohydrates - mono, di, oligo and polysaccharides. Isomerism, racemisation and mutarotation. Structure, physical and chemical properties of carbohydrates. Metabolic pathways and bioenergetics - Glycolysis, glycogenesis, glycogenolysis and its hormonal regulation. TCA cycle and electron transport chain. Oxidative phosphorylation

UNIT III LIPIDS

Classification of lipids- simple, compound and derived lipids. Nomenclature of fatty acid, physical and chemical properties of fat. Saponification number, Reichert- Meissl number and iodine number. Metabolic pathways: synthesis and degradation of fatty acid (beta oxidation), hormonal regulation of fatty acid metabolism, ketogenesis, structural architecture and significance of biological membrane.

UNIT IV NUCLEIC ACID & PROTEIN

Structure of purines and pyrimidines, nucleoside, nucleotide, DNA act as a genetic material, Chargoff's rule. Watson and Crick model of DNA. Structure of RNA and its type. Classification, structure and properties of proteins, structural organization of proteins, classification and properties of amino acids. Separation of protein: gel filtration, electrophoresis and ultracentrifugation.

UNIT V ENZYME AND ITS KINETICS

Classification of enzymes, apoenzyme, coenzyme, holoenzyme and cofactors. Kinetics of enzymes - Michaelis-Menten equation. Factors affecting enzymatic activity: temperature, pH, substrate concentration and enzyme concentration. Inhibitors of enzyme action: Competitive, non-competitive, irreversible. Enzyme: Mode of action, allosteric and covalent regulation. Clinical significance of enzymes. Measurement of enzyme activity and interpretation of units.

TOTAL: 45 PERIODS

OUTCOMES:

Upon Completion of the Course the students will be able to

- CO1. Explain the fundamentals of biochemistry
- CO2. Classify the carbohydrates and explain it.
- CO3. Describe lipids and elaborate the metabolic pathways
- CO4. Analyze the nucleic acids
- CO5. Explain the function of enzyme

TEXT BOOKS:

1. David.W.Martin, Peter.A.Mayes, Victor.W.Rodwell, "Harper's Review of Biochemistry", LANGE Medical Publications, 1981
2. Keith Wilson & John Walker, "Practical Biochemistry - Principles & Techniques", Oxford University Press, 2009.

REFERENCES:

1. Trevor Palmer, "Understanding Enzymes", Ellis Horwood Ltd. 1991.
2. Pamela.C.Champe & Richard.A.Harvey, "Lippincott Biochemistry Lippincott's Illustrated Reviews", Raven publishers, 1994.



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317BMT03 - SIGNALS AND SYSTEMS

OBJECTIVES:

- To understand the basic properties of signal & systems and the various methods of classification
- To learn Laplace Transform & Fourier transform and their properties
- To know Z transform & DTFT and their properties
- To characterize LTI systems in the Time domain and various Transform domains

UNIT I CLASSIFICATION OF SIGNALS AND SYSTEMS

Continuous time signals (CT signals) - Discrete time signals (DT signals) - Step, Ramp, Pulse, Impulse, Sinusoidal, Exponential, Classification of CT and DT signals - Periodic & Aperiodic signals, Deterministic & Random signals, Energy & Power signals - CT systems and DT systems- Classification of systems – Static & Dynamic, Linear & Nonlinear, Time-variant & Time-invariant, Causal & Noncausal, Stable & Unstable.

UNIT II ANALYSIS OF CONTINUOUS TIME SIGNALS

Fourier series analysis-spectrum of Continuous Time (CT) signals- Fourier and Laplace Transforms in CT Signal Analysis - Properties.

UNIT III LINEAR TIME INVARIANT- CONTINUOUS TIME SYSTEMS

Differential Equation-Block diagram representation-impulse response, convolution integrals-Fourier and Laplace transforms in Analysis of CT systems

UNIT IV ANALYSIS OF DISCRETE TIME SIGNALS

Baseband Sampling - DTFT – Properties of DTFT - Z Transform – Properties of Z Transform

UNIT V LINEAR TIME INVARIANT-DISCRETE TIME SYSTEMS

Difference Equations-Block diagram representation-Impulse response - Convolution sum- Discrete Fourier and Z Transform Analysis of Recursive & Non-Recursive systems

OUTCOMES:

Upon the completion of the course, students will be able to:

- CO1. Analyze the properties of signals & systems
- CO2. Apply Laplace transform, Fourier transform, Z transform and DTFT in signal analysis
- CO3. Analyze continuous time LTI systems using Fourier and Laplace Transforms
- CO4. Analyze discrete time LTI systems using Z transform and DTFT
- CO5. Apply the concepts of Z-Transform,

TEXT BOOK:

1. Allan V.Oppenheim, S.Wilsky and S.H.Nawab, "Signals and Systems", Pearson, 2007.

REFERENCES:

1. B. P. Lathi, "Principles of Linear Systems and Signals", Second Edition, Oxford, 2009.
2. R.E.Zeimer, W.H.Tranter and R.D.Fannin, "Signals & Systems - Continuous and Discrete", Pearson, 2007.
3. John Alan Stuller, "An Introduction to Signals and Systems", Thomson, 2007.
4. M.J.Roberts, "Signals & Systems Analysis using Transform Methods & MATLAB", Tata McGraw Hill, 2007.



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317BMT04 - SENSORS AND MEASUREMENTS

OBJECTIVES:

The student should be made to:

- Understand the purpose of measurement, the methods of measurements, errors associated with measurements.
- Know the principle of transduction, classifications and the characteristics of different transducers and study its Biomedical applications.
- Know the different display and recording devices.

UNIT I SCIENCE OF MEASUREMENT

Measurement System – Instrumentation – Classification and Characteristics of Transducers – Static and Dynamic – Errors in Measurements – Calibration – Primary and secondary standards.

UNIT II DISPLACEMENT, PRESSURE, TEMPERATURE SENSORS

Strain Gauge: Gauge factor, sensing elements, configuration, unbounded strain gage, biomedical applications; strain gauge as displacement & pressure transducers: Capacitive transducer, Inductive transducer, LVDT, Passive types: RTD materials & range, relative resistance vs. temperature characteristics, thermistor characteristics, biomedical applications of Temperature sensors. Active type: Thermocouple – characteristics.

UNIT III PHOTOELECTRIC AND PIEZO ELECTRIC SENSORS

Phototube, scintillation counter, Photo Multiplier Tube (PMT), photovoltaic, Photo conductive cells, photo diodes, phototransistor, comparison of photoelectric transducers, pectro photometric applications of photo electric transducers. Piezoelectric active transducer and biomedical applications as pressure & Ultrasound transducer.

UNIT IV SIGNAL CONDITIONING & SIGNAL ANALYSER

AC and DC Bridges –wheat stone bridge, Kelvin, Maxwell, Hay, Schering – Concepts of filters, Preamplifier – impedance matching circuits – isolation amplifier. Spectrum analyzer.

UNIT V DISPLAY AND RECORDING DEVICES

Digital voltmeter – Multi meter – CRO – block diagram, CRT – vertical & horizontal deflection system, DSO, LCD monitor, PMMC writing systems, servo recorders, photographic recorder, magnetic tape recorder, Inkjet recorder, thermal recorder.

OUTCOMES:

Upon completion of the course, the student should be able to:

- CO1** - Measure various electrical parameters with accuracy, precision, resolution.
- CO2** - Select appropriate passive or active transducers for measurement of physical phenomenon.
- CO3** - Select appropriate light sensors for measurement of physical phenomenon.
- CO4** - Use AC and DC bridges for relevant parameter measurement.
- CO5** - Employ Multimeter, CRO and different types of recorders for appropriate measurement.

TEXT BOOK:

1. A.K.Sawhney, "Electrical & Electronics Measurement and Instrumentation", 10th edition, Dhanpat Rai & Co, New Delhi, 2010.

REFERENCES:

1. Ernest O Doebelin and Dhanesh N Manik, Measurement systems, Application and design, 5th edition, Mc Graw-Hill, 2007.
2. Khandpur R.S, "Handbook of Biomedical Instrumentation", Tata McGraw-Hill, New Delhi, 2003.
3. Leslie Cromwell, "Biomedical Instrumentation and measurement", Prentice hall of India, New Delhi, 2007.
4. John G. Webster, "Medical Instrumentation Application and Design", John Wiley and sons, New York, 2004.
5. L.A Geddas and L.E.Baker, "Principles of Applied Biomedical Instrumentation", John Wiley and Sons, Third Edition, Reprint 2008.
6. Albert D.Helfrick and William D. Cooper. Modern Electronic Instrumentation and Measurement Techniques", Prentice Hall of India, 2007.

317BMT05 - OBJECT ORIENTED PROGRAMMING AND DATA

STRUCTURES OBJECTIVES:

- To comprehend the fundamentals of object oriented programming, particularly in C++.
- To use object oriented programming to implement data structures.
- To introduce linear, non-linear data structures and their applications.

UNIT I DATA ABSTRACTION & OVERLOADING

Overview of C++ – Structures – Class Scope and Accessing Class Members – Reference Variables – Initialization – Constructors – Destructors – Member Functions and Classes – Friend Function – Dynamic Memory Allocation – Static Class Members – Container Classes and Integrators – Proxy Classes – Overloading: Function overloading and Operator Overloading.

UNIT II INHERITANCE & POLYMORPHISM

Base Classes and Derived Classes – Protected Members – Casting Class pointers and Member Functions – Overriding – Public, Protected and Private Inheritance – Constructors and Destructors in derived Classes – Implicit Derived – Class Object To Base – Class Object Conversion – Composition Vs. Inheritance – Virtual functions – This Pointer – Abstract Base Classes and Concrete Classes – Virtual Destructors – Dynamic Binding.

UNIT III LINEAR DATA STRUCTURES

Abstract Data Types (ADTs) – List ADT – array-based implementation – linked list implementation – singly linked lists – Polynomial Manipulation – Stack ADT – Queue ADT – Evaluating arithmetic expressions

UNIT IV NON-LINEAR DATA STRUCTURES

Trees – Binary Trees – Binary tree representation and traversals – Application of trees: Set representation and Union-Find operations – Graph and its representations – Graph Traversals – Representation of Graphs – Breadth-first search – Depth-first search – Connected components.

UNIT V SORTING AND SEARCHING

Sorting algorithms: Insertion sort – Quick sort – Merge sort – Searching: Linear search – Binary Search

OUTCOMES:

Upon completion of the course, students will be able to:

- CO1. Explain the concepts of Object oriented programming.
- CO2. Write simple applications using C++.
- CO3. Discuss the different methods of organizing large amount of data.
- CO4. Explain the non-linear data structures
- CO5. Execute the program for sorting

TEXT BOOKS:

1. Deitel and Deitel, "C++, How To Program", Fifth Edition, Pearson Education, 2005.
2. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C++", Third Edition, Addison-Wesley, 2007.

REFERENCES:

1. Bhushan Trivedi, "Programming with ANSI C++, A Step-By-Step approach", Oxford University Press, 2010.
2. Goodrich, Michael T., Roberto Tamassia, David Mount, "Data Structures and Algorithms in C++", 7th Edition, Wiley. 2004.
3. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein, "Introduction to Algorithms", Second Edition, Mc Graw Hill, 2002.
4. Bjarne Stroustrup, "The C++ Programming Language", 3rd Edition, Pearson Education, 2007.
5. Ellis Horowitz, Sartaj Sahni and Dinesh Mehta, Fundamentals of Data Structures in C++, Galgotia Publications, 2007.

317BMT06 - ANATOMY AND HUMAN PHYSIOLOGY

OBJECTIVES:

The student should be made to:

- Know basic structural and functional elements of human body.
- Learn organs and structures involving in system formation and functions.
- Understand all systems in the human body.

UNIT I BASIC ELEMENTS OF HUMAN BODY

Cell: Structure and organelles - Functions of each component in the cell. Cell membrane –transport across membrane – origin of cell membrane potential – Action potential. **Tissue:** Types – Specialized tissues – functions.

UNIT II SKELETAL AND RESPIRATORY SYSTEM

Skeletal system: Bone types and functions – Joint - Types of Joint - Cartilage and functions. Respiratory System: Components of respiratory system – Respiratory Mechanism. Types of respiration - Oxygen and carbon dioxide transport and acid base regulation

UNIT III CIRCULATORY SYSTEM

Blood composition - functions of blood – functions of RBC. WBC types and their functions. Blood groups – importance of blood groups – identification of blood groups. Blood vessels- Structure of heart – Properties of Cardiac muscle – Conducting system of heart – Cardiac cycle – ECG - Heart sound - Volume and pressure changes and regulation of heart rate –Coronary Circulation. Factors regulating Blood flow.

UNIT IV URINARY AND SPECIAL SENSORY SYSTEM

Urinary system: Structure of Kidney and Nephron. Mechanism of Urine formation and acid base regulation – Urinary reflex – Homeostasis and blood pressure regulation by urinary system. Special senses: Eye and Ear.

UNIT V NERVOUS SYSTEM

Structure of a Neuron – Types of Neuron. Synapses and types. Conduction of action potential in neuron. Brain – Divisions of brain lobes - Cortical localizations and functions - EEG. Spinal cord – Tracts of spinal cord - Reflex mechanism – Types of reflex. Autonomic nervous system and its functions.

OUTCOMES:

Upon the completion of the course, students will be able to:

- CO1. Describe basic structural and functional elements of human body.
- CO2. Explain organs and structures involving in system formation and functions.
- CO3. Identify all systems in the human body.
- CO4. Demonstrate the function of urinary and special sensory system
- CO5. Acquire knowledge on nervous system

TEXT BOOK:

1. Elaine.N. Marieb , "Essential of Human Anatomy and Physiology", Eight Edition, Pearson Education, New Delhi ,2007.

REFERENCES:

1. Gillian Pocock, Christopher D. Richards, The human Body – An introduction for Biomedical and Health Sciences, Oxford University Press, USA, 2009
2. William F.Ganong, "Review of Medical Physiology", 22nd Edition, Mc Graw Hill, New Delhi, 2005
3. Eldra Pearl Solomon, "Introduction to Human Anatomy and Physiology", W.B. Saunders Company, Harcourt Brace Jovanovich, 2003.
4. Guyton & Hall, "Medical Physiology", 12th Edition, Elsevier Saunders, 2010



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PRACTICAL

317BMP01 - BIOCHEMISTRY AND HUMAN PHYSIOLOGY LABORATORY

OBJECTIVES:

To provide practice on:

- Estimation and quantification of biomolecules.
- Separation of macromolecules.

LIST OF EXPERIMENTS:

1. General tests for carbohydrates, proteins and lipids.
2. Preparation of serum and plasma from blood.
3. Estimation of blood glucose.
4. Estimation of creatinine
5. Estimation of urea
6. Estimation of cholesterol
7. Assay of SGOT/SGPT
8. Separation of proteins by SDS electrophoresis
9. Separation of amino acids by thin layer chromatography
10. Separation of DNA by agarose gel electrophoresis
11. ESR , PCV, MCH , MCV ,MCHC , total count of RBCs and hemoglobin estimation

OUTCOMES:


Upon completion of the course, students will be able to:

- CO1. Do estimation and interpret the changes in biomolecules.
CO2. Separate and analyze the importance of macromolecules.

LAB REQUIREMENT FOR A BATCH OF 30 STUDENTS:

Requirement for a batch of 30 students

- Spectrophotometer 1 No
Colorimeter 2 Nos.
pH meter 1 No
Weighing balance 1 No
Refrigerator 1 No
Vortex Shaker 2 Nos.
SDS gel electrophoresis 1 No
TLC, ready TLC plates 1 No
Wintrobe's tube 2 Nos.
Centrifuge Normal 1 No
Centrifuge Cooling 1 No
Microslides 2 packets
Lancet 5 boxes
Microscope 1 No
Neubaur's Chamber 2 Nos.
Heparinized Syringe 1box
Haemoglobinometer 1 No
Capillary tubes 1 box
Ophthalmoscope (direct & Indirect) 1 No
Tuning fork (256Hz to 512Hz) 5 Nos.
Blood grouping kit 1 No


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317BMP02 - OOPS AND DATA STRUCTURES LABORATORY

OBJECTIVES:

The student should be made to:

- Learn C++ programming language.
- Be exposed to the different data structures
- Be familiar with applications using different data structures

LIST OF EXPERIMENTS:

1. Basic Programs for C++ Concepts
2. Array implementation of List Abstract Data Type (ADT)
3. Linked list implementation of List ADT
4. Cursor implementation of List ADT
5. Stack ADT - Array and linked list implementations
6. The next two exercises are to be done by implementing the following source files
i. Program source files for Stack Application 1
ii. Array implementation of Stack ADT
iii. Linked list implementation of Stack ADT
iv. Program source files for Stack Application 2
v. An appropriate header file for the Stack ADT should be included in (i) and (iv)
7. Implement any Stack Application using array implementation of Stack ADT (by implementing files (i) and (ii) given above) and then using linked list
8. Implementation of Stack ADT (by using files (i) and implementing file (iii))
9. Implement another Stack Application using array and linked list implementations of Stack ADT (by implementing files (iv) and using file (ii), and then by using files (iv) and (iii))
11. Queue ADT – Array and linked list implementations
12. Search Tree ADT - Binary Search Tree
13. Implement an interesting application as separate source files and using any of the searchable ADT files developed earlier. Replace the ADT file alone with other appropriate ADT files. Compare the performance.
14. Quick Sort

REFERENCE:

spoken-tutorial.org.

OUTCOMES:

At the end of the course, the student should be able to:

- CO1. Design and implement C++ programs for manipulating stacks, queues, linked lists, trees, and graphs.
- CO2. Apply good programming design methods for program development.
- CO3. Apply the different data structures for implementing solutions to practical problems.

LAB EQUIPMENT FOR A BATCH OF 30 STUDENTS:

Standalone desktops with C++ compiler 30 Nos.

(or)

Server with C++ compiler supporting 30 terminals or more.



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IV SEMESTER

417BMT01 - PROBABILITY AND RANDOM PROCESSES

OBJECTIVES

To provide necessary basic concepts in probability and random processes for applications such as random signals, linear systems etc in communication engineering.

UNIT I RANDOM VARIABLES

Discrete and continuous random variables – Moments – Moment generating functions – Binomial, Poisson, Geometric, Uniform, Exponential, Gamma and Normal distributions.

UNIT II TWO - DIMENSIONAL RANDOM VARIABLES

Joint distributions – Marginal and conditional distributions – Covariance – Correlation and Linear regression – Transformation of random variables.

UNIT III RANDOM PROCESSES

Classification – Stationary process – Markov process - Poisson process – Random telegraph process.

UNIT IV CORRELATION AND SPECTRAL DENSITIES

Auto correlation functions – Cross correlation functions – Properties – Power spectral density – Cross spectral density – Properties.

UNIT V LINEAR SYSTEMS WITH RANDOM INPUTS

Linear time invariant system – System transfer function – Linear systems with random inputs – Auto correlation and Cross correlation functions of input and output.

OUTCOMES:

The students will have an exposure of various distribution functions and help in acquiring skills in handling situations involving more than one variable. Able to analyze the response of random inputs to linear time invariant systems.

TEXT BOOKS:

1. Ibe.O.C., "Fundamentals of Applied Probability and Random Processes", Elsevier, 1st Indian Reprint, 2007.
2. Peebles. P.Z., "Probability, Random Variables and Random Signal Principles", Tata McGraw Hill, 4th Edition, New Delhi, 2002.

REFERENCES:

1. Yates. R.D. and Goodman. D.J., "Probability and Stochastic Processes", Wiley India Pvt. Ltd., Bangalore, 2nd Edition, 2012.
2. Stark. H., and Woods. J.W., "Probability and Random Processes with Applications to Signal Processing", Pearson Education, Asia, 3rd Edition, 2002.
3. Miller. S.L. and Childers. D.G., "Probability and Random Processes with Applications to Signal Processing and Communications", Academic Press, 2004.
4. Hwei Hsu, "Schaum's Outline of Theory and Problems of Probability, Random Variables and Random Processes", Tata McGraw Hill Edition, New Delhi, 2004.
5. Cooper. G.R., McGillem. C.D., "Probabilistic Methods of Signal and System Analysis", Oxford University Press, New Delhi, 3rd Indian Edition, 2012.


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417BMT02 - MEDICAL PHYSICS

OBJECTIVES:

- To Study effects of sound and light in human body
- To study effects of radiation in matter and how isotopes are produced

UNIT I NON IONIZING RADIATION AND ITS MEDICAL APPLICATION Non-ionizing Electromagnetic Radiation: Overview of non-ionizing radiation effects-Low Frequency Effects-Higher frequency effects. Physics of light, Measurement of light and its unit- limits of vision and color vision an overview, Thermography- Application

UNIT II SOUND IN MEDICINE

Physics of sound, Normal sound levels –ultrasound fundamentals – Generation of ultrasound (Ultrasound Transducer) - Interaction of Ultrasound with matter; Cavitations, Reflection, Transmission- Scanning systems – Artefacts- Ultrasound- Doppler-Double Doppler shift-Clinical Applications

UNIT III PRINCIPLES OF RADIOACTIVE NUCLIDES

Radioactive Decay – Spontaneous Emission – Isometric Transition – Gamma ray emission, alpha, beta, Positron decay, electron capture, Sources of Radioisotopes Natural and Artificial radioactivity, Radionuclide used in Medicine and Technology ,Decay series, Production of radionuclides – Cyclotron produced Radionuclide- Reactor produced Radio- nuclide-fission and electron Capture reaction, radionuclide Generator-Techetium generator.

UNIT IV INTERACTION OF RADIATION WITH MATTER

Interaction of charged particles with matter –Specific ionization, Linear energy transfer range, Bremsstrahlung, Annihilation,Interaction of X and Gamma radiation with matter- Photoelectric effect, Compton Scattering , Pair production, Attenuation of Gamma Radiation ,Interaction of neutron with matter and their clinical significance.

UNIT V BASIC RADIATION QUANTITIES

Introduction -exposure- Inverse square law-KERMA-Kerma and absorbed dose –stopping power - relationship between the dosimetric quantities - Bremsstrahlung radiation, Bragg's curve- concept of LD 50- Stochastic and Non-stochastic effects, Different radiation Unit, Roentgen, gray, Sievert.

OUTCOMES:

Upon the completion of the course, students will be able to:

- CO1. Analyze mechanics involved with various physiological systems.
- CO2. Perform derivation of mathematical models related to blood vessels
- CO3. Explain the principles of radioactive nuclides.
- CO4. Apply the knowledge on interaction of radiation with matter
- CO5. Acquire basic knowledge on basic radiation quantities.

TEXT BOOKS:

1. John R Cameran , James G Skofronick "Medical Physics" John-Wiley & Sons. 1978
2. W.J.Meredith and J.B. Massey " Fundamental Physics of Radiology" Varghese Publishing house. 1992

REFERENCES:

1. P.Uma Devi, A.Nagarathnam , B S SatishRao , "Intorduction to Radiation Biology" B.I Chur Chill Livingstone pvt Ltd, 2000
2. S.Webb " The Physics of Medical Imaging", Taylor and Francis, 1988
3. J.P.Woodcock, Ultrasonic,Medical Physics Handbook series 1, Adam Hilger, Bristol, 2002
4. Hylton B.Meire and Pat Farrant "Basic Ultrasound" John Wiley & Sons, 1995



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417BMT03 - BASICS OF ELECTRICAL ENGINEERING

OBJECTIVES:

The student should be made to Understand:

- Magnetic circuits, principle and application of transformers
- Principle of operation of DC motors and AC Machines
- Principle of fractional-kW motors and their applications.

UNIT I INDUCTION THEORY

Magnetic effects of electric current- Magnetic circuits- Magnetic materials and B-H relationship – Electromagnetic induction and force – Hysteresis and eddy current losses

UNIT II TRANSFORMER

Introduction – Single phase transformer construction and principle of operation – EMF equation of transformer-Transformer no-load phasor diagram -- Transformer on-load phasor diagram – Equivalent circuit of transformer – Regulation of transformer –Transformer losses and efficiency-All day efficiency –auto transformers.

UNIT III DC MACHINES

Construction of DC machines – theory of operation of DC generators – characteristics of DC generators-Applications. Operating principle of DC motors – types of DC motors and their characteristics – speed control of DC motors-Applications, Stepper motor and Applications.

UNIT IV INDUCTION MACHINES AND SYNCHRONOUS MACHINES

Principle of operation of three-phase induction motors – Construction –Types – Equivalent circuit – Construction of single-phase induction motors – Types of single phase induction motors – Double revolving field theory – starting methods

Principles of alternator – Construction details – Types – Equation of induced EMF – Voltage regulation. Methods of starting of synchronous motors – Torque equation – V curves – Synchronous motors.

UNIT V FRACTIONAL KILOWATT MOTORS

Single phase induction motor, principle of operation, torque-speed characteristics – Types of single phase motors- Split phase motors; Split Phase Resistance Start Induction motor, Split phase capacitor start induction motor, Permanent –split capacitor induction motor-Single phase Commutator Motors- Repulsion motor, Repulsion start Induction run motor - AC Series Motor.

OUTCOMES:

Upon the completion of the course, students will be able to:

- CO1. Describe principles and applications of transformers.
- CO2. Explain the working of DC Motors, fractional kW motors, AC machines.
- CO3. Apply the construction of DC machines
- CO4. Acquire basic knowledge on induction machines and synchronous machines
- CO5. Demonstrate the working of fractional kilowatt motors.

TEXT BOOKS:

1. D P Kothari and I J Nagrath, "Basic Electrical Engineering", 2nd Edition, TMH, 2002
2. P. C Sen, "Principles of Electric Machines and Power Electronics", 2nd Edition, John - Wiley & Sons, 2001

REFERENCE:

1. R.K. Rajput, "Basic Electrical & Electronics Engineering", Lakshmi Publishers, Reprint 2008

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OBJECTIVES:

- To study the application of analog ICs in the designing circuit.
- To study the applications of these Digital ICs.
- To understand the basic of the Digital systems.
- To study the design of the various functional circuits using these ICs.

UNIT I NUMBER SYSTEMS AND LOGIC GATES

Decimal, Binary, Octal and Hexadecimal Numbers.-Conversion between these number systems.- Complements r's and (r-1)'s complements.- subtraction using complements – Encoding numbers and characters using Binary digits. –Binary coded Decimal –Gray code - Binary to Gray code conversion – ASCII Code. Logic gates – Truth tables – NOT, AND, OR, NOR, NAND, XOR, XNOR - Boolean Laws and theorems – Solving Boolean expressions, Truth Tables and Logic circuits – The Karnaugh Map – half adder, full adder, Multiplexers and Demultiplexers - Decoders and encoders. Coding of Combination Circuits in verilog.

UNIT II REGISTERS AND COUNTERS

Flip Flops – RS, D, T, JK Flip Flops – Characteristic equations, exciting tables – JK Master – Slave flip-flop – Universal shift register. Design of modulo-N counters – counter design using state diagram. sequential circuit design with verilog.

UNIT III OPERATIONAL AMPLIFIERS

The characteristics of Ideal Operation – slew rate, offset voltage, bias current, CMRR, bandwidth - equivalent circuit of an op-Amp – virtual ground concept – Linear applications of op-amp – inverting and noninverting amplifier, summing, subtracting, averaging amplifier - voltage to current converter – current to voltage converter – Differential amplifiers – differentiator and integrator. Nonlinear applications – comparator – Schmitt Triggers – Precision Diode Half wave and full wave rectifiers – Average detectors – peak detector

UNIT IV ACTIVE FILTERS AND SIGNAL GENERATOR

Active filters (first and second order) – Low pass, high pass, band pass filters, band reject filters (notch filters). Oscillators - RC Phase shift and Wein-bridge. Waveform generators - Square, triangular and saw tooth.

UNIT V TIMER, PLL, A/D AND D/A CONVERTERS

555 Timer (internal diagram) and its applications – monostable multivibrator, astable multivibrator. Phase locked Loop (565 - block diagram approach) and its applications - Frequency multiplication, Frequency translation, voltage to frequency and frequency to voltage converters. DAC – Binary weighted DAC and R-2R DAC. ADC – single slope and dual slope ADCs, successive approximation ADC

OUTCOMES:

Upon the completion of the course, students will be able to:

- CO1. Explain the application of analog ICs in the designing circuit.
- CO2. Do applications of Digital ICs.
- CO3. Understand the basic of the Digital systems.
- CO4. Design various functional circuits using these ICs.
- CO5. Explain the working of Timer and converters

TEXT BOOKS:

1. M. Morris Mano , "Digital Logic and Computer design " Prentice Hall 1994.
2. Ramakant A. Gayakwad , "Op-AMP and Linear Ics", Prince Hall, 1994

REFERENCES:

1. Robert B.Northrop, "Analysis and Application of Analog Electronic Circuits to Biomedical Instrumentation", CRC Press, 2004.
2. Sergio Franco, "Design with Operational Amplifiers and analog Integrated circuits", McGraw- Hills, 2003.
3. Millman J and Halkias .C., "Integrated Electronics", TMH, 2007.
4. John. F. Wakerly, "Digital Design Principles and Practices", Fourth Edition, Pearson Education, 2007
5. Charles H. Roth, Jr, "Fundamentals of Logic Design", Fourth Edition, Jaico Books, 2002

417BMT05 - PATHOLOGY AND MICROBIOLOGY

OBJECTIVES:

The student should be made to:

- Gain a knowledge on the structural and functional aspects of living organisms.
- Know the etiology and remedy in treating the pathological diseases.
- Empower the importance of public health.

UNIT I CELL DEGENERATION, REPAIR AND NEOPLASIA

Cell injury and Necrosis, Apoptosis, Intracellular accumulations, Pathological calcification, cellular adaptations of growth and differentiation, Inflammation and Repair including fracture healing, Neoplasia, Classification, Benign and Malignant tumours, carcinogenesis, spread of tumours. Autopsy and biopsy.

UNIT II FLUID AND HEMODYNAMIC DERRANGEMENTS

Edema, normal hemostasis, thrombosis, disseminated intravascular coagulation, embolism, infarction, shock. Hematological disorders-Bleeding disorders, Leukaemias, Lymphomas.

UNIT III MICROSCOPES

Light microscope – bright field, dark field, phase contrast, fluorescence, Electron microscope (TEM & SEM). Preparation of samples for electron microscope. Staining methods – simple, gram staining and AFB staining.

UNIT IV MICROBIAL CULTURES

Morphological features and structural organization of bacteria, growth curve, identification of bacteria, culture media and its types , culture techniques and observation of culture.

UNIT V IMMUNOLOGY

Natural and artificial immunity, opsonization, phagocytosis, inflammation, Immune deficiency syndrome, antibodies and its types, antigen and antibody reactions, immunological techniques: immune diffusion, immuno electrophoresis, RIA and ELISA, monoclonal antibodies. Disease caused by bacteria, fungi, protozoal, virus and helminthes.

OUTCOMES:

Upon the completion of the course, students will be able to:

- CO1. Analyze structural and functional aspects of living organisms.
- CO2. Explain the function of microscope
- CO3. Discuss the importance of public health.
- CO4. Describe methods involved in treating the pathological diseases.
- CO5. Acquire the knowledge on immunology

TEXT BOOKS:

1. Ramzi S Cotran, Vinay Kumar & Stanley L Robbins, "Pathologic Basis of Diseases", 7th edition, WB Saunders Co. 2005 (Units I & II).
2. Prescott, Harley and Klein, "Microbiology", 5th edition, McGraw Hill, 2002 (Units III,IV & V).

REFERENCES:

1. Underwood JCE: General and Systematic Pathology Churchill Livingstone, 3rd edition, 2000.
2. Ananthanarayanan & Panicker, "Microbiology" Orientblackswan, 2005.
3. Dubey RC and Maheswari DK. "A Text Book of Microbiology" Chand & Company Ltd, 2007



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417BMT06 - ENVIRONMENTAL SCIENCE AND ENGINEERING

OBJECTIVES:

- To the study of nature and the facts about environment.
- To find and implement scientific, technological, economic and political solutions to environmental problems.
- To study the interrelationship between living organism and environment.
- To appreciate the importance of environment by assessing its impact on the human world; envision the surrounding environment, its functions and its value.
- To study the dynamic processes and understand the features of the earth's interior and surface.
- To study the integrated themes and biodiversity, natural resources, pollution control and waste management.

UNIT I ENVIRONMENT, ECOSYSTEMS AND BIODIVERSITY

Definition, scope and importance of Risk and hazards; Chemical hazards, Physical hazards, Biological hazards in the environment – concept of an ecosystem – structure and function of an ecosystem – producers, consumers and decomposers-Oxygen cycle and Nitrogen cycle – energy flow in the ecosystem – ecological succession processes – Introduction, types, characteristic features, structure and function of the (a) forest ecosystem (b) grassland ecosystem (c) desert ecosystem (d) aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) – Introduction to biodiversity definition: genetic, species and ecosystem diversity – biogeographical classification of India – value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values – Biodiversity at global, national and local levels – India as a mega-diversity nation – hot-spots of biodiversity – threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts – endangered and endemic species of India – conservation of biodiversity: In-situ and ex-situ conservation of biodiversity. Field study of common plants, insects, birds
Field study of simple ecosystems – pond, river, hill slopes, etc.

UNIT II ENVIRONMENTAL POLLUTION

Definition – causes, effects and control measures of: (a) Air pollution (Atmospheric chemistry- Chemical composition of the atmosphere; Chemical and photochemical reactions in the atmosphere – formation of smog, PAN, acid rain, oxygen and ozone chemistry;- Mitigation procedures- Control of particulate and gaseous emission, Control of SO₂, NO_x, CO and HC) (b) Water pollution : Physical and chemical properties of terrestrial and marine water and their environmental significance; Water quality parameters – physical, chemical and biological; absorption of heavy metals - Water treatment processes. (c) Soil pollution - soil waste management: causes, effects and control measures of municipal solid wastes – (d) Marine pollution (e) Noise pollution (f) Thermal pollution (g) Nuclear hazards–role of an individual in prevention of pollution – pollution case studies – Field study of local polluted site – Urban / Rural / Industrial / Agricultural.

UNIT III NATURAL RESOURCES

Forest resources: Use and over-exploitation, deforestation, case studies- timber extraction, mining, dams and their effects on forests and tribal people – Water resources: Use and overutilization of surface and ground water, dams-benefits and problems – Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies – Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies – Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Energy Conversion processes – Biogas – production and uses, anaerobic digestion; case studies – Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification – role of an individual in conservation of natural resources – Equitable use of resources for sustainable lifestyles. Introduction to Environmental Biochemistry: Proteins – Biochemical degradation of pollutants, Bioconversion of pollutants.
Field study of local area to document environmental assets – river/forest/grassland/hill/mountain.

UNIT IV SOCIAL ISSUES AND THE ENVIRONMENT

From unsustainable to sustainable development – urban problems related to energy – water conservation, rain water harvesting, watershed management – resettlement and rehabilitation of people; its problems and concerns, case studies – role of non-governmental organization environmental ethics: Issues and possible solutions – 12 Principles of green chemistry- nuclear accidents and holocaust, case studies. – wasteland reclamation – consumerism and waste products – environment production act – Air act – Water act – Wildlife protection act – Forest conservation act – The Biomedical Waste (Management and Handling) Rules; 1998 and amendments- scheme of labeling of environmentally friendly products (Ecomark). enforcement machinery involved in environmental legislation- central and state pollution control boards- disaster management: floods, earthquake, cyclone and landslides. Public awareness.

UNIT V HUMAN POPULATION AND THE ENVIRONMENT

Population growth, variation among nations – population explosion – family welfare programme – environment and human health – human rights – value education – HIV / AIDS – women and child welfare –Environmental impact analysis (EIA)- -GIS-remote sensing-role of information technology in environment and human health – Case studies.

OUTCOMES:

Environmental Pollution or problems cannot be solved by mere laws. Public participation is an important aspect which serves the environmental Protection. One will obtain knowledge on the following after completing the course.


- CO1. Public awareness of environment at infant stage.
- CO2. Ignorance and incomplete knowledge has lead to misconceptions.
- CO3. Development and improvement in standard of living has lead to serious environmental disasters.
- CO4. Demonstrate the social issues and the environment
- CO5. Knowledge on human population and the environment

TEXT BOOKS :

1. Gilbert M.Masters, 'Introduction to Environmental Engineering and Science', 2nd edition, Pearson Education (2004).
2. Benny Joseph, 'Environmental Science and Engineering', Tata Mc Graw-Hill, New Delhi, 2006.

REFERENCES:

1. R.K. Trivedi, "Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standard", Vol. I and II, Enviro Media.
2. Cunningham, W.P. Cooper, T.H. Gorhani, 'Environmental Encyclopedia', Jaico Publ., House, Mumbai, 2001.
3. Dharmendra S. Sengar, 'Environmental law', Prentice hall of India PVT LTD, New Delhi, 2007.
4. Rajagopalan, R, 'Environmental Studies-From Crisis to Cure', Oxford University Press (2005)


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PRACTICAL

417BMP01 - CIRCUITS AND IC'S LABORATORY

OBJECTIVES:

The student should be made to:

- Design digital logic and circuits
- Learn the function of different ICs
- Understand the applications of operation amplifier.
- Learn the working of multivibrators
- Design circuits for generating waveforms using ICs.

LIST OF EXPERIMENTS:

1. Study of logic gates, Half adder and Full adder
2. Encoder and BCD to 7 segment decoder
3. Multiplexer and demultiplexer using digital ICs
4. Universal shift register using flip flops
5. Design of mod-N counter
6. Inverting, non-inverting amplifier and comparator
7. Integrator and Differentiator
8. Active filter – first order and second order LPF and HPF
9. Current to Voltage convertor and Voltage to Current Convertor
10. Comparator, Peak detector and Average detector
11. Instrumentation amplifier using IC741
12. Wein bridge oscillator
13. Multivibrator using IC555 Timer
14. Timer
15. Phase Lock Loop
- 16 A/D and D/A convertor

OUTCOMES:

Upon the completion of the course, students will be able to:

- | | |
|------|--|
| CO1. | Design Circuits using logic gates |
| CO2. | Build Circuits for different application using opamp |
| CO3. | Differentiate between oscillator and wave form generator |
| CO4. | Convert Signals from Analog to Digital Vice versa |

LAB EQUIPMENTS FOR A BATCH OF 30 STUDENTS:

1. Digital Trainer Kit - 15 Nos.
(with 5 V, Variable and fixed frequency Clock, Bread Board, Four Seven Segment displays, LEDs for output display, Logic 1 and 0 Input switches)
- 2 . Logic ICs - 50Nos each
(7400, 7402, 7404, 7408, 7410, 7420, 7432, 7447, 7448, 7474, 7476, 7483, , 7485, 7486, 7490, 7495, 74151, 741 Common Anode and cathode 7-segment displays, LEDs)
3. NE555 – 50 nos
4. PLL - 50 nos
- 5 A/D and D/A convertors – 50 nos
6. Resistors - 50 nos
- 7 capacitors - 50 nos
8. IC Power supply (5 V fixed) - 15 Nos
9. Bread Boards - 15 Nos


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417BMP02 - PATHOLOGY AND MICROBIOLOGY LABORATORY

OBJECTIVES:

The student should be made to:

- Use Compound microscope
- Practice on chemical examinations, Cryoprocessing, Histopathological examinations etc

LIST OF EXPERIMENTS:

1. Urine physical and chemical examination (protein, reducing substances, ketones, bilirubin and blood)
2. Study of parts of compound microscope
3. Histopathological slides of benign and malignant tumours.
4. Manual paraffin tissue processing and section cutting (demonstration)
5. Cryo processing of tissue and cryosectioning (demonstration)
6. Basic staining – Hematoxylin and eosin staining.
7. Special stains – cresyl fast Blue (CFV)- Trichrome – oil red O – PAS
8. Simple stain.
9. Gram stain.
10. AFB stain.
11. Slides of malarial parasites, micro filaria and leishmania donovani.
12. Haematology slides of anemia and leukemia. Study of bone marrow charts.
13. Bleeding time and clotting time.

OUTCOMES:

Upon the completion of the course, students will be able to:

- CO1. Student can perform practical experiments on tissue processing, cryoprocessing, staining processes etc.

LAB EQUIPMENTS FOR 30 STUDENTS:

- Wax dispenser 1 No
- Slide warming 1 No
- Microtome 1 No
- Microscope
- Microphotographic unit 1 No
- Slides 1 box
- Coverslip 1 box
- Distillation Unit 1 No
- Water bath normal 1 No
- Incubator 1 No
- Autoclave 1 No
- Oven 1 No



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SYLLABUS

I Semester

118CYT01 - CHEMISTRY

OBJECTIVES:

- To make the students conversant with Atomic and Molecular structure, Spectroscopic techniques and applications. .
- To develop an understanding of the concepts of Intermolecular forces and potential energy surfaces
- To understand the use of free energy in chemical equilibria.
- To have thorough knowledge on periodic properties.
- To understand the basic concepts of Stereochemistry, Organic reactions and synthesis of a drug molecule

Module I ATOMIC AND MOLECULAR STRUCTURE

Schrodinger equation. Particle in a box. Forms of the hydrogen atom wave functions and the plots of these functions to explore their spatial variations. Molecular orbitals of diatomic molecules and plots of the multicenter orbitals. Equations for atomic and molecular orbitals. Energy level diagrams of diatomic. Pi-molecular orbitals of butadiene and benzene and aromaticity. Crystal field theory and the energy level diagrams for transition metal ions and their magnetic properties. Band structure of solids and the role of doping on bandstructures.

Module II SPECTROSCOPIC TECHNIQUES AND APPLICATIONS

Principles of spectroscopy and selection rules. Electronic spectroscopy and their applications for conjugated molecules and nanoparticles. Fluorescence and its applications in medicine. Vibrational and rotational spectroscopy of diatomic molecules. Applications. Nuclear magnetic resonance and magnetic resonance imaging, surface characterisation techniques. Diffraction and scattering.

Module III INTERMOLECULAR FORCES AND POTENTIAL ENERGY SURFACES

Ionic, dipolar and Van der Waals interactions. Equations of state of real gases and critical phenomena. Potential energy surfaces of H_3 , H_2F and HCN and trajectories on these surfaces.

Module IV USE OF FREE ENERGY IN CHEMICAL EQUILIBRIA

Thermodynamic functions: energy, entropy and free energy. Estimations of entropy and free energies. Free energy and emf. Cell potentials, the Nernst equation and applications. Acid base, oxidation reduction and solubility equilibria. Water chemistry. Corrosion. Use of free energy considerations in metallurgy through Ellingham diagrams.

Module V PERIODIC PROPERTIES

Effective nuclear charge, penetration of orbitals, variations of s, p, d and f orbital energies of atoms in the periodic table, electronic configurations, atomic and ionic sizes, ionization energies, electron affinity and electronegativity, polarizability, oxidation states, coordination numbers and geometries, hard soft acids and bases, molecular geometries

Module VI STEREOCHEMISTRY

Representations of 3 dimensional structures, structural isomers and stereoisomers, configurations and symmetry and chirality, enantiomers, diastereomers, optical activity, absolute configurations and conformational analysis. Isomerism in transitional metal compounds

Module VII ORGANIC REACTIONS AND SYNTHESIS OF A DRUG MOLECULE

Introduction to reactions involving substitution, addition, elimination, oxidation, reduction, cyclization and ring openings. Synthesis of a commonly used drug molecule.

Text Books

1. University chemistry, by B. H. Mahan
2. Chemistry: Principles and Applications, by M. J. Sienko and R. A. Plane
3. Fundamentals of Molecular Spectroscopy, by C. N. Banwell
4. Engineering Chemistry (NPTEL Web-book), by B. L. Tembe, Kamaluddin and M.S. Krishnan
5. Physical Chemistry, by P. W. Atkins
6. Organic Chemistry: Structure and Function by K. P. C. Vollhardt and N. E. Schore, 5th Edition <http://bcs.whfreeman.com/vollhardtschore5e/default.asp>

Course Outcomes

The concepts developed in this course will aid in quantification of several concepts in chemistry that have been introduced at the 10+2 levels in schools. Technology is being increasingly based on the electronic, atomic and molecular level modifications.

Quantum theory is more than 100 years old and to understand phenomena at nanometer levels, one has to base the description of all chemical processes at molecular levels. The course will enable the student to:

- Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
- Rationalise bulk properties and processes using thermodynamic considerations.
- Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques
- Rationalise periodic properties such as ionization potential, oxidation states and electronegativity.
- List major chemical reactions that are used in the synthesis of molecules.


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118CYP01 - CHEMISTRY (Practical)

Any 10-12 experiments from the following:

- Determination of surface tension and viscosity
- Thin layer chromatography
- Ion exchange column for removal of hardness of water
- Determination of chloride content of water
- Colligative properties using freezing point depression
- Determination of the rate constant of a reaction
- Determination of cell constant and conductance of solutions
- Potentiometry - determination of redox potentials and emfs
- Synthesis of a polymer/Determination of molecular weight of polymer
- Saponification/acid value of an oil
- Chemical analysis of a salt
- Lattice structures and packing of spheres
- Models of potential energy surfaces
- Chemical oscillations- Iodine clock reaction
- Determination of the partition coefficient of a substance between two immiscible liquids
- Adsorption of acetic acid by charcoal
- Use of the capillary viscosimeters to demonstrate the isoelectric point as the pH of minimum viscosity for gelatin sols and/or coagulation of the white part of egg.
- Conductometric titration of strong acid and strong base
- Determination of strength of acids in a mixture using conductivity meter.
- Determination of Total, Permanent and Temporary hardness of water by EDTA method

Laboratory Outcomes

- The chemistry laboratory course will consist of experiments illustrating the principles of chemistry relevant to the study of science and engineering. The students will learn to:
- Estimate rate constants of reactions from concentration of reactants/products as a function of time
- Measure molecular/system properties such as surface tension, viscosity, conductance of solutions, redox potentials, chloride content of water, etc
- Synthesize a small drug molecule and analyse a salt sample

TEXT BOOKS:

- Vogel's text book of quantitative and qualitative chemical analysis


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- 1. Vocabulary Building**
 - 1.1 The concept of WordFormation
 - 1.2 Root words from foreign languages and their use inEnglish
 - 1.3 Acquaintance with prefixes and suffixes from foreign languages in English to form derivatives.
 - 1.4 Synonyms, antonyms, and standardabbreviations.

- 2. Basic WritingSkills**
 - 2.1 Sentence Structures
 - 2.2 Use of phrases and clauses insentences
 - 2.3 Importance of properpunctuation
 - 2.4 Creating coherence
 - 2.5 Organizing principles of paragraphs indocuments
 - 2.6 Techniques for writingprecisely

- 3. Identifying Common Errors inWriting**
 - 3.1 Subject-verbagreement
 - 3.2 Noun-pronounagreement
 - 3.3 Misplacedmodifiers
 - 3.4 Articles
 - 3.5 Prepositions
 - 3.6 Redundancies
 - 3.7 Clichés

- 4. Nature and Style of sensibleWriting**
 - 4.1 Describing
 - 4.2 Defining
 - 4.3 Classifying
 - 4.4 Providing examples orevidence
 - 4.5 Writing introduction andconclusion

- 5. WritingPractices**
 - 5.1 Comprehension
 - 5.2 PrécisWriting
 - 5.3 EssayWriting

- 6. OralCommunication**

(This unit involves interactive practice sessions in Language Lab)

 - Listening Comprehension
 - Pronunciation, Intonation, Stress andRhythm
 - Common Everyday Situations: Conversations andDialogues
 - Communication atWorkplace
 - Interviews
 - FormalPresentations

Suggested Readings:

- (i) *Practical English Usage*. Michael Swan. OUP.1995.
- (ii) *Remedial English Grammar*. F.T. Wood. Macmillan.2007 (iii) *On Writing Well*. William Zinsser. Harper Resource Book.2001
- (iv) *Study Writing*. Liz Hamp-Lyons and Ben Heasley. Cambridge University Press.2006.
- (v) *Communication Skills*. Sanjay Kumar and PushpLata. Oxford University Press.2011.
- (vi) *ExercisesinSpokenEnglish*. Parts.I-III.CIEFL,Hyderabad.OxfordUniversityPress

Course Outcomes

The student will acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.


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II SEMESTER

218PHT01 - PHYSICS

(Circuit Branches)

(B.E. Electronics and Communication Engineering / B.E. Electrical and Electronics Engineering / B.E. Computer Science Engineering / B.E. Bio Medical Engineering / B. Tech. Information Technology)

Module 1: Wave nature of particles and the Schrodinger equation: Introduction to Quantum mechanics, Wave nature of Particles, Time-dependent and time-independent Schrodinger equation for wavefunction, Born interpretation, probability current, Expectation values, Free-particle wavefunction and wave-packets, Uncertainty principle.

Module 2: Introduction to solids: Free electron theory of metals, Fermi level, density of states, Application to white dwarfs and neutron stars, Bloch's theorem for particles in a periodic potential, Kronig-Penney model and origin of energy bands Numerical solution for energy in one-dimensional periodic lattice by mixing planewaves.

Module 3: Magnetostatics: Bio-Savart law, Divergence and curl of static magnetic field; vector potential and calculating it for a given magnetic field using Stokes' theorem; the equation for the vector potential and its solution for given current densities.

Module 4: Electrostatics in a linear dielectric medium: Electrostatic field and potential of a dipole. Bound charges due to electric polarization; Electric displacement; boundary conditions on displacement; Solving simple electrostatics problems in presence of dielectrics – Point charge at the centre of a dielectric sphere, charge in front of a dielectric slab, dielectric slab and dielectric sphere in uniform electric field.

Module 5: Wave optics: Huygens' principle, superposition of waves and interference of light by wave front splitting and amplitude splitting; Young's double slit experiment, Newton's rings, Michelson interferometer, Mach-Zehnder interferometer. Farunhofer diffraction from a single slit and a circular aperture, the Rayleigh criterion for limit of resolution and its application to vision; Diffraction gratings and their resolving power.

Module 6: Lasers : Einstein's theory of matter radiation interaction and A and B coefficients; amplification of light by population inversion, different types of lasers: gas lasers (He-Ne, CO₂), solid-state lasers (ruby, Neodymium), dye lasers; Properties of laser beams: mono-chromaticity, coherence, directionality and brightness, laser speckles, applications of lasers in science, engineering and medicines.

Suggested Text Books

- (i) David Griffiths, Introduction to Electrodynamics
- (ii) D. J. Griffiths, Quantummechanics
- (iii) Eisberg and Resnick, Introduction to QuantumPhysics

Suggested Reference Books

- (i) Ian G. Main, Oscillations and waves in physics
- (ii) H.J. Pain, The physics of vibrations and waves (iii) E. Hecht, Optics
- (iii) A. Ghatak, Optics
- (iv) O. Svelto, Principles of Lasers
- (v) Halliday and Resnick, Physics
- (vi) W. Saslow, Electricity, magnetism and light
- (vii) D. J. Griffiths, Quantummechanics



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218PPT03 - PROGRAMMING FOR PROBLEM SOLVING USING C AND PYTHON

Course Objective:

1. Introduction of Algorithms and Programming Concepts
2. Writing Arithmetic Expressions and operator precedence in C and Python
3. Understand array data structures and strings
4. Sorting and Searching Algorithms and introduction to complexity
5. Understand Functions and Recursion
6. Understand Structures and Pointers

Unit 1 Introduction to Programming

Introduction to components of a computer system (disks, memory, processor, where a program is stored and executed, operating system, compilers etc.)

Idea of Algorithm: steps to solve logical and numerical problems.

Representation of Algorithm: Flowchart/Pseudocode with examples.

From algorithms to programs; source code, variables (with data types) variables and memory locations, Syntax and Logical Errors in compilation, object and executable code-

Unit 2 Arithmetic expressions and precedence

Conditional Branching and Loops (using C and Python)

Writing and evaluation of conditionals and consequent branching

Iteration and loops

Unit 3 Arrays and strings

Arrays (1-D, 2-D), Character arrays and Strings (using C)

List, Tuple, Dictionary, Strings(using Python)

Unit 4 Basic Algorithms

Searching, Basic Sorting Algorithms (Bubble, Insertion and Selection), Finding roots of equations, notion of order of complexity through example programs

Unit 5 Function (using C and Python) and Recursion

Functions (including using built in libraries), Parameter passing in functions, call by value, Passing arrays to functions: idea of call by reference- Recursion, as a different way of solving problems. Example programs, such as Finding Factorial, Fibonacci series, Ackerman function etc. Quick sort or Merge sort.

Unit 6 Structure and Pointers

Structures, Defining structures and Array of Structures, Idea of pointers, Defining pointers, Use of Pointers in self-referential structures, notion of linked list

Suggested Text Books

- (i) Byron Gottfried, Schaum's Outline of Programming with C, McGraw-Hill
- (ii) E. Balaguruswamy, Programming in ANSI C, Tata McGraw-Hill
- (iii) Guido van Rossum and Fred L. Drake Jr, "An Introduction to Python"- Revised and updated for Python 3.2, Network Theory Ltd., 2011.
- (iv) Mark Lutz, "Programming Python", O Reilly, 4th Edition, 2010, ISBN 9780596158118
- (v) Magnus Lie Hetland, "Beginning Python: From Novice to Professional", 2nd Edition, 2009, ISBN:9781590599822


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Suggested Reference Books

- (i) Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice Hall of India
- (ii) John V Guttag, "Introduction to Computation and Programming Using Python", Revised and expanded Edition, MIT Press , 2013
- (iii) Robert Sedgewick, Kevin Wayne, Robert Dondero, "Introduction to Programming in Python: An Inter-disciplinary Approach", Pearson India Education Services Pvt. Ltd., 2016.
- (iv) Timothy A. Budd, "Exploring Python", Mc-Graw Hill Education (India) Private Ltd., 2015.

The course will enable the students

CO1: To formulate simple algorithms for arithmetic and logical problems.

To translate the algorithms to programs (in C and Python language).

To test and execute the programs and correct syntax and logical errors.

CO2: To implement conditional branching, iteration and recursion.

To decompose a problem into functions and synthesize a complete program using divide and conquer approach.

CO3: To use arrays, pointers and structures to formulate algorithms and programs.

CO4: To apply programming to solve matrix addition and multiplication problems and searching and sorting problems.

CO5: To apply programming to solve simple numerical method problems, namely root finding of function, differentiation of function and simple integration.



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**MINUTES OF THE 16th MEETING OF THE BOARD OF STUDIES IN
CIVIL ENGINEERING**

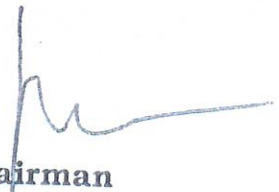
Held on 18.08.2017

Members Present

S.No	Name	Designation	Member	Signature
1.	Dr.V.B.M.SAYANA	Professor & Head Department of Civil Engineering, SPIHER	Chairman	
2.	Dr.P.ASHA	Professor Department of Civil Engineering, SPIHER	Internal Member	
3.	Dr.H.PRASAD RAJU	Associate Professor, Department of Civil Engineering, SPIHER	Internal Member	
4.	Mr.K.KARTHIK	Assistant Professor, Department of Civil Engineering, SPIHER	Internal Member	
5.	Dr.P.PARTHEEBAN	Dean Academics S.P.C.E.T	External Member (Academics)	
6.	Dr.S.JUSTIN	Chief Engineering Manager L&T ECC Division External	External Member (Industry)	
7.	Mr.S.SRIRAM	CEO, VIVARDHANA	External Member. (Industry)	




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Chairman
V.B.M. SAYANA, M.E., Ph.D.,
Professor & Head
Department of Civil Engg.,
St. Peter's Institute of Higher Education and Research
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16.1 Considered the minutes of the 15th meeting of Board of Studies in CIVIL ENGINEERING held on 11.03.2017.

RESOLVED that the minutes of the 15th meeting of Board of Studies in CIVIL ENGINEERING held on 11.03.2017 be confirmed

16.2 Reviewed the Regulation and Syllabi of B.E (CIVIL ENGINEERING) programmes under the Regulations 2013 with Choice Based Credit System (CBCS).


RESOLVED that the Regulation and Syllabi of B.E (CIVIL ENGINEERING) programmes under the Regulations 2013 with Choice Based Credit System (CBCS) to be continued.

16.3 Considered the new Regulation and Syllabi of B.E (CIVIL ENGINEERING under the Regulations 2018 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation and Syllabi of B.E. (CIVIL ENGINEERINGs) under the Regulations 2018 with Choice Based Credit System (CBCS) be implemented for the batch of students admitted from 2018-19.

16.4 Reviewed the Regulation and Syllabi of M.E. (STRUCTURAL ENGINEERINGs) under the Regulations 2013 with Choice Based Credit System (CBCS).




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RESOLVED that the Regulation and Syllabi of M.E. (STRUCTURAL ENGINEERINGs) under the Regulations 2013 with Choice Based Credit System (CBCS) be continued.

- 16.5 Considered the new Regulation and Syllabi of M.E (STRUCTURAL ENGINEERING under the Regulations 2018 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation and Syllabi of M.E. (STRUCTURAL ENGINEERINGs) under the Regulations 2018 with Choice Based Credit System (CBCS) be implemented for the batch of students admitted from 2018-19.

- 16.6 Reviewed the curricula developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes.

RESOLVED that the syllabi of B.E (CIVIL) programme under the Regulations 2018 & 2013 and M.E. (STRUCTURAL ENGINEERINGs) under the Regulations 2018 & 2013 developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes be approved.

- 16.7 Considered to include courses having focus on employability/



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entrepreneurship /skill development in the syllabi of B.E (CIVIL) under the Regulations 2018 & 2013 and M.E. (STRUCTURAL ENGINEERINGs) under the Regulations 2018 & 2013

RESOLVED that the courses having focus on employability/ entrepreneurship /skill development year wise in the syllabi of B.E (ECE) under the Regulations 2018 & 2013 and M.E. (STRUCTURAL ENGINEERINGs) under the Regulations 2018 & 2013 to be approved.

- 16.8 Considered to include value added courses imparting transferable and life skills offered beyond the curriculum in the syllabi of B.E (CIVIL ENGINEERING) and M.E. (STRUCTURAL ENGINEERINGs).

RESOLVED that the value added courses imparting transferable and life skills offered beyond the curriculum such as course on “Advanced Antenna Design & Simulation” be approved for the upcoming semester (2018-19 – Even semester).

- 16.9 Reviewed and considered the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders.

Resolved that the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders to be approved.

Date: 18.08.2017




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Chairman

V.B.M. SAYANA, M.E., Ph.D.
Professor & Head
Department of Civil Engg.
St. Peter's Institute of Higher Education and Research
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MINUTES OF THE 16th MEETING OF THE BOARD OF STUDIES IN COMPUTER SCIENCE AND ENGINEERING

Held on 21.08.2017

Members Present

S.No	Name	Designation	Member	Signature
1.	Dr.S.Pushpa	Professor& Head	Chairperson	
2.	Ms. P. Subhashini	Assistant Professor	Internal Member	
3.	Mr. R. Mohanraj	Assistant Professor	Internal Member	
4.	Mr. K. Suresh Babu	Assistant Professor	Internal Member	
5.	Mr. M.C. Babu	Assistant Professor	Internal Member	
6.	Dr. T. Sakthivel	Director, Firstsoft Technologies	External Member	
7.	Dr. K. Thirunadana Sikamani	Prof & Head, Dept of CSE SPCT	External Member	




Registrar


Chairman

- 16.1 Considered the minutes of the 15th meeting of Board of Studies in Computer Science and Engineering held on 13.03.2017.

RESOLVED that the minutes of the 15th meeting of Board of Studies in Computer Science and Engineering held on 13.03.2017 be confirmed

- 16.2 Reviewed the Regulation & Syllabi of B.E. Computer Science and Engineering programme under the Regulations 2013 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation & Syllabi of B.E. Computer Science and Engineering under the Regulations 2013 with Choice Based Credit System (CBCS) be continued.

- 16.3 Reviewed the Syllabi and course structure of M.E.(Computer Science and Engineering) programmes under the Regulations 2013 with Choice Based Credit System (CBCS).

RESOLVED that the Syllabi and course structure of M.E. (Computer Science and Engineering) programmes under the Regulations 2013 with Choice Based Credit System (CBCS) be continued.

- 16.4 Reviewed the curricula developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes.

RESOLVED that the syllabi of B.E (CSE) programme under the Regulations 2013 and M.E. (CSE) under the Regulations 2013 developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes be approved.

- 16.5 Considered to include courses having focus on employability/ entrepreneurship /skill development in the syllabi of B.E (CSE) under the Regulations 2013 and M.E. (CSE) under the Regulations 2013.

RESOLVED that the courses having focus on employability/ entrepreneurship /skill development year wise in the syllabi of B.E (CSE) under the Regulations 2013 and M.E. (CSE) under the Regulations 2013 to be approved.

- 16.6 Considered to include value added courses imparting transferable and life skills offered beyond the curriculum in the syllabi of B.E (Computer Science and Engineering) and M.E. (Computer Science and Engineering).

RESOLVED that the value added courses imparting transferable and



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life skills offered beyond the curriculum such as course on "Software Testing Tools" be approved for the upcoming semester (2017-18 Even semester).

- 16.1** Reviewed and considered the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders.

Resolved that the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders to be approved. (Appendix – I)

Date: 21.08.2017


Chairman




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Appendix – I

**B.E (Computer Science and Engineering)
Regulation -2013
CHOICE BASED CREDIT SYSTEM**

VII SEMESTER

Code No.	Course Title	L	T	P	C
Theory					
713CST01	Cryptography and Network Security	3	0	0	3
713CST02	Graph Theory and Applications	3	0	0	3
713CST03	Grid and Cloud Computing	3	0	0	3
713CST04	Resource Management Techniques	3	0	0	3
	Elective II :	3	0	0	3
	Elective III:	3	0	0	3
Practical					
713CSP01	Security Laboratory	0	0	3	2
713CSP02	Grid and Cloud Computing Laboratory	0	0	3	2
	Total	18	0	6	22

VIII SEMESTER

Code No.	Course Title	L	T	P	C
Theory					
813CST01	Multi-Core Architectures and Programming	3	0	0	3
	Elective IV :	3	0	0	3
	Elective V:	3	0	0	3
Project					
813CSP01	Project Work	0	0	12	6
	Viva Voce				
	Total	9	0	12	15



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Appendix – II

**B.E (Computer Science and Engineering)
Regulation -2018
CHOICE BASED CREDIT SYSTEM**

I SEMESTER

CodeNo.	CourseTitle	L	T	P	C	Marks		
						CA	EA	Total
118CYT01	Chemistry	3	1	0	4	25	75	100
118MAT02	Mathematics-I	3	1	0	4	25	75	100
118BET03	Basic Electrical Engineering	3	1	0	4	25	75	100
118EGT04	Engineering Graphics & Design	1	3	0	1	25	75	100
118EHT05	English	3	0	0	3	25	75	100
118CYP01	Chemistry Lab	0	0	4	2	25	75	100
118BEP02	Basic Electrical Engineering Lab	0	0	2	1	25	75	100
118EGP03	Engineering Graphics & Design Lab	0	0	4	2	25	75	100
Total		13	6	10	21	200	600	800

II SEMESTER

CodeNo.	CourseTitle	L	T	P	C	Marks		
						CA	EA	Total
218PHT01	Physics	3	1	0	4	25	75	100
218MAT02	Mathematics-II	3	1	0	4	25	75	100
218PPT03	Programming for Problem Solving Using C and Python	3	0	0	3	25	75	100
218WMT04	Manufacturing Process	1	0	0	1	25	75	100
218PHP01	Physics Lab	0	0	4	2	25	75	100
218PPP02	Programming for Problem Solving Using C and Python Lab	0	0	4	2	25	75	100
218WMP03	Manufacturing Process Lab	0	0	2	2	25	75	100
Total		10	2	10	18	175	525	700

Overall percentage change for B.E (Computer Science and Engineering): 45.77 %



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Appendix – III

**M.E (COMPUTER SCIENCE AND ENGINEERING)
Regulation -2018
CHOICE BASED CREDIT SYSTEM**

I Semester

Code No.	Course Title	L	T	P	Credit	CA	EA	Total
Theory								
118CSPT01	Applied Probability and Statistics	3	1	0	4	25	75	100
118CSPT02	Advanced Data Structures and Algorithms	3	1	0	4	25	75	100
118CSPT03	Advanced Computer Architecture	3	1	0	4	25	75	100
118CSPT04	Operating System Internals	3	1	0	4	25	75	100
118CSPT05	Advanced Software Engineering	3	0	0	3	25	75	100
118CSPT06	Machine Learning Techniques	3	0	0	3	25	75	100
Practical								
118CSPP01	Data Structures Laboratory	0	0	4	2	25	75	100
118CSPP02	Machine Learning Laboratory	0	0	4	2	25	75	100
	Total	18	4	8	26	200	600	800

II Semester

Code No.	Course Title	L	T	P	Credit	CA	EA	Total
Theory								
218CSPT01	Network Design and Technologies	3	1	0	4	25	75	100
218CSPT02	Security Practices	3	1	0	4	25	75	100
218CSPT03	Internet of Things	3	1	0	4	25	75	100
218CSPT04	Big Data Analytics	3	1	0	4	25	75	100
218CSPT08	Elective I: Web Engineering	3	0	0	4	25	75	100
218CSPT13	Elective II: Information Retrieval Techniques	3	0	0	4	25	75	100
Practical								
218CSPP01	Data Analytics Laboratory	0	0	2	2	25	75	100
218CSPP02	Term Paper Writing and Seminar	0	0	4	2	25	75	100
	Total	18	4	6	28	200	600	800

Overall percentage change for M.E (Computer Science and Engineering): 75.47%



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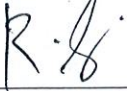


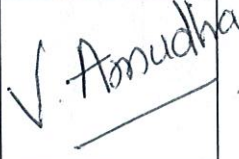

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MINUTES OF THE 16th MEETING OF THE BOARD OF STUDIES IN ELECTRONICS AND COMMUNICATION ENGINEERING

Held on 21.08.2017

Members Present

S.No	Name	Designation	Member	Signature
1.	Dr. G.P. Ramesh	Professor & Head	Chairman	
2.	Prof. M.V.V.N. Prasad Rao	Associate Professor	Member	
3.	Ms. R. Gomathi	Assistant Professor	Member	
4.	Mrs. Sarada Ponnada	Assistant Professor	Member	
5.	Mrs. T. Anne Ramya	Assistant Professor	Member	
6.	Dr. V. Amudha	Professor/ ECE - SPCET	Academic Expert Member	
7.	Mr. M. Malaiyappan	Director Pantech Prolab Solutions	Industry Expert Member	




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Chairman
HEAD

Department of ECE

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- 16.1 Considered the minutes of the 15th meeting of Board of Studies in Electronics and Communication Engineering held on 13.03.2017.

RESOLVED that the minutes of the 15th meeting of Board of Studies in Electronics and Communication Engineering held on 13.03.2017 be confirmed

- 16.2 Reviewed the Regulation & Syllabi of B.E. Electronics and Communication Engineering programme under the Regulations 2013 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation & Syllabi of B.E. Electronics and Communication Engineering programme under the Regulations 2013 with Choice Based Credit System (CBCS) be continued taking into consideration of the suggestions and remarks given by the members to include the following new Elective courses. (Appendix - I)

1. Ad hoc and Sensors Networks- 813ECT04
2. Internet of Things- 813ECT13

- 16.3 Reviewed the Regulation & Syllabi of B.E (Electronics and Communication Engineering) programmes under the Regulations 2015 with Choice Based Credit System (CBCS).

RESOLVED that the Syllabi of B.E. (Electronics and Communication Engineering) under the Regulations 2015 with Choice Based Credit System (CBCS) to be continued.

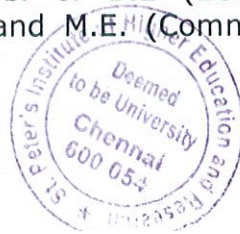
- 16.1 Reviewed the Syllabi and course structure of M.E.(Communication Systems) programmes under the Regulations 2013 with Choice Based Credit System (CBCS).

RESOLVED that the Syllabi and course structure of M.E. (Communication Systems) programmes under the Regulations 2013 with Choice Based Credit System (CBCS) be continued taking into consideration of the suggestions and remarks given by the members to include following new elective courses. (Appendix - II)

1. VLSI for Wireless Communication – 213CEPT07
2. Radar Signal Processing - 213CEPT11
3. Wavelet Transforms and Applications - 213CEPT13

- 16.2 Reviewed the curricula developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes.

RESOLVED that the syllabi of B.E (ECE) programme under the Regulations 2013 & 2015 and M.E.(Communication Systems) under



the Regulations 2013 developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes be approved.

- 16.3** Considered to include courses having focus on employability/ entrepreneurship /skill development in the syllabi of B.E (ECE) under the Regulations 2013 & 2015 and M.E. (Communication Systems) under the Regulations 2013.

RESOLVED that the courses having focus on employability/ entrepreneurship /skill development year wise in the syllabi of B.E (ECE) under the Regulations 2013 & 2015 and M.E. (Communication Systems) under the Regulations 2013 to be approved.

- 16.4** Considered to include value added courses imparting transferable and life skills offered beyond the curriculum in the syllabi of B.E (Electronics and Communication Engineering) and M.E. (Communication Systems).

RESOLVED that the value added courses imparting transferable and life skills offered beyond the curriculum such as course on "Embedded Linux Porting" be approved for the upcoming semester (2017-18 Even semester).

- 16.5** Reviewed and considered the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders.

Resolved that the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders to be approved. (Appendix - III)

Date: 21.08.2017



Chairman

HEAD
Department of ECE
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Appendix – I

B.E (Electronics and Communication Engineering) Regulation -2013 CHOICE BASED CREDIT SYSTEM

813ECT04 - AD HOC AND SENSOR NETWORKS

OBJECTIVES:

The student should be made to:

- Understand the design issues in ad hoc and sensor networks.
- Learn the different types of MAC protocols.
- Be familiar with different types of adhoc routing protocols.
- Be expose to the TCP issues in adhoc networks.
- Learn the architecture and protocols of wireless sensor networks.

UNIT I INTRODUCTION

Fundamentals of Wireless Communication Technology – The Electromagnetic Spectrum – Radio propagation Mechanisms – Characteristics of the Wireless Channel -mobile ad hoc networks (MANETs) and wireless sensor networks (WSNs) :concepts and architectures. Applications of Ad Hoc and Sensor networks. Design Challenges in Ad hoc and Sensor Networks.

UNIT II MAC PROTOCOLS FOR AD HOC WIRELESS NETWORKS

Issues in designing a MAC Protocol- Classification of MAC Protocols- Contention based protocols- Contention based protocols with Reservation Mechanisms- Contention based protocols with Scheduling Mechanisms – Multi channel MAC-IEEE 802.11

UNIT III ROUTING PROTOCOLS AND TRANSPORT LAYER IN AD HOC WIRELESS NETWORKS

Issues in designing a routing and Transport Layer protocol for Ad hoc networks- proactive routing, reactive routing (on-demand), hybrid routing- Classification of Transport Layer solutions-TCP over Ad hoc wireless Networks.

UNIT IV WIRELESS SENSOR NETWORKS (WSNS) AND MAC PROTOCOLS MAC PROTOCOLS

Single node architecture: hardware and software components of a sensor node - WSN Network architecture: typical network architectures-data relaying and aggregation strategies -MAC layer protocols: self-organizing, Hybrid TDMA/FDMA and CSMA based MAC-IEEE 802.15.4.

UNIT V WSN ROUTING, LOCALIZATION & QOS

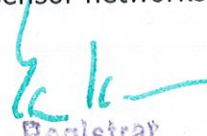
Issues in WSN routing – OLSR- Localization – Indoor and Sensor Network Localization- absolute and relative localization, triangulation-QOS in WSN-Energy Efficient Design-Synchronization-Transport Layer issues.

OUTCOMES:

Upon completion of the course, the student should be able to:

- Explain the concepts, network architectures and applications of ad hoc and wireless sensor networks
- Analyze the protocol design issues of ad hoc and sensor networks
- Design routing protocols for ad hoc and wireless sensor networks with respect to some protocol design issues
- Evaluate the QoS related performance measurements of ad hoc and sensor networks




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813ECT13 – INTERNET OF THINGS

OBJECTIVES:

- Identify and design the new models for market strategic interaction.
- Analyze various protocols for IOT
- Building state of the art architecture in IOT
- Analyze and design different models for network dynamics
- Analyze applications of IoT in real time scenario

UNIT I FUNDAMENTALS OF IOT

Introduction- Characteristics- Physical design - Protocols – Logical design – Enabling technologies – IoT Levels – Domain Specific IOTs – IoT vs M2M. , M2M towards IoT-the global context, A use case example, Differing Characteristics

UNIT II IOT DESIGN METHODOLOGY

IoT systems management- IoT Design Methodology – Specifications Integration and Application Development. IoT-An Architectural Overview- Building an architecture, Main design principles and needed capabilities, An IoT architecture outline, standards considerations.

UNIT III IOT REFERENCE ARCHITECTURE

Introduction, Functional View, Information View, Deployment and Operational View, Other Relevant architectural views. Real-World Design Constraints- Introduction, Technical Design constraints-hardware is popular again, Data representation and visualization, Interaction and remote control. Case study: phase one-commercial building automation today, Case study: phase two- commercial building automation in the future

UNIT IV IOT PROTOCOLS

IOT Protocols Standards – Effort – M2M and WSN Protocols – SCADA and RFID Protocols – Issues with IoT Standardization – Unified Data Standards – IEEE 802.15.4 – BACNet Protocol, Mod Bus, Zig bee Architecture – Network Layer – APS Layer, Security.

UNIT V IOT APPLICATIONS

The role of the IOT for increased autonomy and agility in collaborative production environments – Resource management in the IOT. Clustering, synchronization and software agents. Applications - Smart grid – Electrical vehicle charging.

OUTCOMES:

Upon Completion of the course, the students will be able to

- Analyze various protocols for IoT
- Develop web services to access/control IoT devices.
- Deploy an IoT application and connect to the cloud
- Analyze applications of IoT in real time scenario .

Textbook:

- Jan Holler, Vlasios Tsiatsis, Catherine Mulligan, Stefan Avesand, Stamatis Karnouskos, David Boyle, "From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence", 1st Edition, Academic Press, 2014.




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Appendix – II
M.E (Communication Systems)
Regulation 2013

CHOICE BASED CREDIT SYSTEM

213CEPT07 - VLSI FOR WIRELESS COMMUNICATION

OBJECTIVES:

- To study the design concepts of low noise amplifiers.
- To study the various types of mixers designed for wireless communication.
- To study and design PLL and VCO.
- To understand the concepts of CDMA in wireless communication.

UNIT I COMPONENTS AND DEVICES

Integrated inductors, resistors, MOSFET and BJT AMPLIFIER DESIGN: Low Noise Amplifier Design - Wideband LNA - Design Narrowband LNA - Impedance Matching - Automatic Gain Control Amplifiers – Power Amplifiers

UNIT II MIXERS

Balancing Mixer - Qualitative Description of the Gilbert Mixer - Conversion Gain – Distortion – Low Frequency Case: Analysis of Gilbert Mixer – Distortion - High-Frequency Case – Noise – A Complete Active Mixer. Switching Mixer - Distortion in Unbalanced Switching Mixer – Conversion Gain in Unbalanced Switching Mixer - Noise in Unbalanced Switching Mixer - A Practical Unbalanced Switching Mixer. Sampling Mixer - Conversion Gain in Single Ended Sampling Mixer - Distortion in Single Ended Sampling Mixer - Intrinsic Noise in Single Ended Sampling Mixer - Extrinsic Noise in Single Ended Sampling Mixer.

UNIT III FREQUENCY SYNTHESIZERS

Phase Locked Loops - Voltage Controlled Oscillators - Phase Detector – Analog Phase Detectors – Digital Phase Detectors - Frequency Dividers - LC Oscillators - Ring Oscillators - Phase Noise - A Complete Synthesizer Design Example (DECT Application).

UNIT IV SUB SYSTEMS

Data converters in communications, adaptive Filters, equalizers and transceivers


UNIT V IMPLEMENTATIONS

VLSI architecture for Multitier Wireless System - Hardware Design Issues for a Next generation CDMA System .

REFERENCES:

1. B.Razavi, "RF Microelectronics" , Prentice-Hall ,1998.
2. Bosco H Leung "VLSI for Wireless Communication", Pearson Education, 2002.
3. Thomas H.Lee, "The Design of CMOS Radio –Frequency Integrated Circuits', Cambridge University Press ,2003.
4. Emad N Farag and Mohamed I Elmasry, "Mixed Signal VLSI Wireless Design - Circuits and Systems", Kluwer Academic Publishers, 2000.
5. Behzad Razavi, "Design of Analog CMOS Integrated Circuits" McGraw-Hill, 1999.
6. J. Crols and M. Steyaert, "CMOS Wireless Transceiver Design," Boston, Kluwer Academic Pub., 1997.




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213CEPT11 - RADAR SIGNAL PROCESSING

COURSE OBJECTIVES:

- To understand the Radar Signal acquisition and sampling in multiple domains
- To provide clear instruction in radar DSP basics
- To equip the skills needed in both design and analysis of common radar algorithms
- To understand the basics of synthetic aperture imaging and adaptive array processing
- To illustrate how theoretical results are derived and applied in practice

UNIT I INTRODUCTION TO RADAR SYSTEMS

History and application of radar, basic radar function, elements of pulsed radar, review of signal processing concepts and operations, A preview of basic radar signal processing, radar system components, advanced radar signal processing

UNIT II SIGNAL MODELS

Components of a radar signal, amplitude models, types of clutters, noise model and signal-to noise ratio, jamming, frequency models: the doppler shift, spatial models, spectral model

UNIT III SAMPLING AND QUANTIZATION OF PULSED RADAR SIGNALS

Domains and criteria for sampling radar signals, Sampling in the fast time dimension, Sampling in slow time: selecting the pulse repetition interval, sampling the doppler spectrum, Sampling in the spatial and angle dimension, Quantization, I/Q Imbalance and Digital I/Q

UNIT IV RADAR WAVEFORMS

Introduction, The waveform matched filter, Matched filtering of moving targets, The ambiguity function, The pulse burst waveform, frequency-modulated pulse compression waveforms, Range sidelobe control for FM waveforms, the stepped frequency waveform, Phase-modulated pulse compression waveforms, COSTAS Frequency Codes.

UNIT V DOPPLER PROCESSING

Alternate forms of the Doppler spectrum, Moving target indication (MTI), Pulse Doppler processing, dwell-to-dwell stagger, Pulse pair processing, additional Doppler processing issues, clutter mapping and the moving target detector, MTI for moving platforms: adaptive displaced phase center antenna processing

REFERENCE BOOKS:

1. Fundamentals of Radar Signal Processing, Mark A. Richards McGraw-Hill, New York, 2005
2. Principles of Radar and Sonar Signal Processing, Francois Le Chevalier, Artech House
3. Radar systems, Peak Detection and Tracking, Michael O Kolawole ,2010,Elsevier
4. Introduction To Radar Systems 3/E, Skolnik, McGraw Hill.
5. Radar Principles, Peyton Z. Peebles, 2009 Wiley India
6. Radar Design Principles-Signal Processing and the environment, Fred E. Na




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213CEPT13 - WAVELET TRANSFORMS AND APPLICATIONS

COURSE OBJECTIVES:

- To study the basics of signal representation and Fourier theory
- To understand Multi Resolution Analysis and Wavelet concepts
- To study the wavelet transform in both continuous and discrete domain
- To understand the design of wavelets using Lifting scheme
- To understand the applications of Wavelet transform

UNIT I FUNDAMENTALS

Vector Spaces – Properties– Dot Product – Basis – Dimension, Orthogonality and Orthonormality – Relationship Between Vectors and Signals – Signal Spaces – Concept of Convergence – Hilbert Spaces for Energy Signals- Fourier Theory: Fourier series expansion, Fourier transform, Short time Fourier transform, Time-frequency analysis.

UNIT II MULTI RESOLUTION ANALYSIS

Definition of Multi Resolution Analysis (MRA) – Haar Basis – Construction of General Orthonormal MRA – Wavelet Basis for MRA – Continuous Time MRA Interpretation for the DTWT – Discrete Time MRA – Basis Functions for the DTWT – PRQMF Filter Banks.

UNIT III CONTINUOUS WAVELET TRANSFORMS

Wavelet Transform – Definition and Properties – Concept of Scale and its Relation with Frequency – Continuous Wavelet Transform (CWT) – Scaling Function and Wavelet Functions (Daubechies Coiflet, Mexican Hat, Sinc, Gaussian, Bi Orthogonal)– Tiling of Time – Scale Plane for CWT.

UNIT IV DISCRETE WAVELET TRANSFORM

Filter Bank and Sub Band Coding Principles – Wavelet Filters – Inverse DWT Computation by Filter Banks – Basic Properties of Filter Coefficients – Choice of Wavelet Function Coefficients – Derivations of Daubechies Wavelets – Mallat's Algorithm for DWT – Multi Band Wavelet Transforms Lifting Scheme- Wavelet Transform Using Polyphase Matrix Factorization – Geometrical Foundations of Lifting Scheme – Lifting Scheme in Z –Domain.

UNIT V APPLICATIONS

Wavelet methods for signal processing- Image Compression Techniques: EZW–SPHIT Coding – Image Denoising Techniques: Noise Estimation – Shrinkage Rules – Shrinkage Functions Edge Detection and Object Isolation, Image Fusion, and Object Detection.

COURSE OUTCOMES

- Upon Completion of the course,
- Use Fourier tools to analyse signals
- Gain knowledge about MRA and representation using wavelet bases
- Acquire knowledge about various wavelet transforms and design wavelet transform
- Apply wavelet transform for various signal & image processing applications

TEXT BOOKS:

1. Rao R M and A S Bopardikar, –Wavelet Transforms Introduction to theory and Applications, Pearson Education, Asia, 2000.
2. L.Prasad & S.S.Iyengar, Wavelet Analysis with Applications to Image Processing, CRC Press, 1997.

REFERENCE BOOKS:

1. J. C. Goswami and A. K. Chan, "Fundamentals of wavelets: Theory, Algorithms and Applications" WileyInterscience Publication, John Wiley & Sons Inc., 1999.
2. M. Vetterli, J. Kovacevic, "Wavelets and subband coding" Prentice Hall Inc, 1995.
3. Stephen G. Mallat, "A wavelet tour of signal processing" 2 nd Edition Academic Press, 2000.
4. Soman K P and Ramachandran K I, –Insight into Wavelets From Theory to practice, Prentice Hall, 2004.




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Appendix – III

ACTION TAKEN REPORT ON STAKEHOLDERS FEEDBACK


DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

2016-2017

Stakeholder	Feedback	Recommendation	Action taken
Student	Students suggested that they should be imparted training on facing Job Interviews specifically for Campus Recruitment Drive	To conduct Mock Interview Sessions.	Mock Interview Sessions were conducted by almost all the departments in coordination with HR Department
Teacher	Research activities must be strengthened by conducting research conventions and conferences	To Enhanced research activities	Enhanced research activities by conducting Research Convention
Alumni	Exposure to latest developments and advances should be known to the students	To interact with experts.	Nearly 10 international speakers and experts were invited to share their knowledge to our faculty and students This helped them to interact with the resource persons and were motivated to do higher studies and take up jobs which has challenging future ahead.
Parents	Apart from regular teaching, Social awareness and human values to be imparted to students.	Awareness program	Organised several social awareness programs
Employer	Students need to be aware of industry exposure	Interaction with resource person	Invited resource persons from industries were made to address the students

Date: 21.08.2017




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HEAD
Department of ECE
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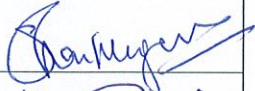



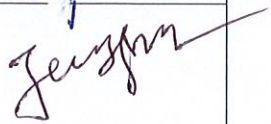
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MINUTES OF THE 16th MEETING OF THE BOARD OF STUDIES IN

ELECTRICAL AND ELECTRONICS ENGINEERING (EEE)

Held on 21.08.2017

Members Present

S.No	Name	Designation	Member	Signature
1.	R. Jayaraman	Professor & Head	Chairman	
2.	B. Shanmugam	Professor	Internal Member	
3.	Dr. K. Balaji	Asso. Professor	Internal Member	
4.	Mrs. M. Vasugi	Assistant Professor	Internal Member	
5.	Mr. G. Raju	Professor	External Member	
6.	Dr. J. Jasper Gnana Chandran	Professor	External Member	



Chairman



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16.1 Considered the minutes of the 15th meeting of Board of Studies in Electrical and Electronics Engineering held on 13.03.2017.

RESOLVED that the minutes of the 15th meeting of Board of Studies in Electrical and Electronics Engineering held on 13.03.2017 be confirmed

16.2 Reviewed the Regulation & Syllabi of B.E. Electrical and Electronics Engineering programme under the Regulations 2013.

RESOLVED that the Regulation & Syllabi of B.E. Electrical and Electronics Engineering programme under the Regulations 2013 to be continued taking into consideration of the suggestions and remarks given by the members to include the following new Elective courses. (Appendix - I) 813EET11 – Energy Management and Auditing.

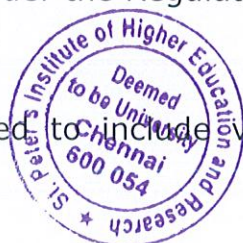
16.3 Reviewed the Regulation & Syllabi of M.E (Power Electronics and Drive) programme under the Regulations 2013.

RESOLVED that the Regulation & Syllabi of M.E (Power Electronics and Drive) programme under the Regulations 2013.

16.4 Considered to include courses having focus on employability/ entrepreneurship /skill development in the syllabi of B.E (EEE) under the Regulations 2013 and M.E. (Power Electronics and Drive) under the Regulations 2013.

RESOLVED that the courses having focus on employability/ entrepreneurship /skill development year wise in the syllabi of B.E (EEE) under the Regulations 2013 and M.E. (Power Electronics and Drive) under the Regulations 2013 to be approved.

16.5 Considered to include value added courses imparting transferable




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and life skills offered beyond the curriculum in the syllabi of B.E (Electrical and Electronics Engineering) and M.E. (Power Electronics and Drive).

RESOLVED that the value added courses imparting transferable and life skills offered beyond the curriculum such as course on "VACEE038 - PCB DESIGNING" be approved for the upcoming semester (2018-19).

16.6 Reviewed and considered the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders.

Resolved that the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders to be approved. (Appendix - III)

Date: 21.08.2017


Chairman




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MINUTES OF THE 16th MEETING OF THE BOARD OF STUDIES IN
MECHANICAL ENGINEERING

Held on 18/8/2017

Members Present

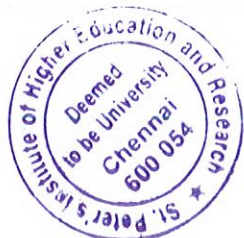
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|-------------------------|------------------------|
| 1. Dr. L. Mahesh Kumar | Chairperson |
| 2. Dr. P. V. Senthil | Member |
| 3. Dr. P. Periyasamy | Member |
| 4. Mrs. K. Sunitha | Member |
| 5. Mr. M. Jayaprasad | Member |
| 6. Dr. k. Purushothaman | Academic Expert Member |
| 7. Mr. M. Sivakumar | Industry Expert Member |

16.1 Considered the minutes of the 15th meeting of Board of Studies in Mechanical Engineering held on 10/3/2017.

RESOLVED that the minutes of the 15th meeting of Board of Studies in Mechanical Engineering held on 10/3/2017 be confirmed.

16.2 Reviewed the Regulation & Syllabi of B.E. Mechanical Engineering programme under the Regulations 2013 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation & Syllabi of B.E. Mechanical Engineering programme under the Regulations 2013 with Choice Based Credit System (CBCS) be continued taking into consideration of the suggestions and remarks given by the members to include the



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following new Elective courses. (Appendix - I)

1. Design for Manufacturing – 613MET13
2. Precision Manufacturing - 813MET14
3. Characterization of Materials –813MET15

16.3 Reviewed the Syllabi of B.E. (Mechanical Engineering) under the Regulations 2013 effected from the batch admitted in 2013 -14.

RESOLVED that the Syllabi of B.E. (Mechanical Engineering) under the Regulations 2013 effected from the batch admitted in 2013 -14 be continued with additions in Unit I and II of Strength of Materials- 313MET02 in III semester and Unit V of Manufacturing Technology– II- 413MET03 in IV semester and Unit IV of Automobile Engineering- 613MET03 in VI semester. (Appendix II)

16.4 Reviewed the Syllabi and course structure of M.E.(Advanced Manufacturing Technology) programmes under the Regulations 2013 with Choice Based Credit System (CBCS).

RESOLVED that the Syllabi and course structure of M.E. (Advanced Manufacturing Technology) programmes under the Regulations 2013 with Choice Based Credit System (CBCS) be continued taking into consideration of the suggestions and remarks given by the members to include following new elective courses. (Appendix - III)

1. MEMS and Nanotechnology – 213AMPE15
2. Robot Design and Programming - 213AMPE16

16.5 Reviewed the curricula developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes.

RESOLVED that the syllabi of B.E (Mechanical Engineering) programme under the Regulations 2013 and M.E. (Advanced Manufacturing Technology) under the Regulations 2013 developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes be approved.

16.6 Considered to include courses having focus on employability/ entrepreneurship /skill development in the syllabi of B.E (Mechanical Engineering) under the Regulations 2013 and M.E. (Advanced Manufacturing Technology) under the Regulations 2013.



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RESOLVED that the courses having focus on employability/ entrepreneurship /skill development year wise in the syllabi of B.E (Mechanical Engineering) under the Regulations 2013 & 2015 and M.E. (Advanced Manufacturing Technology) under the Regulations 2013 to be approved.

16.7 Considered to include value added courses imparting transferable and life skills offered beyond the curriculum in the syllabi of B.E (Mechanical Engineering) and M.E. (Advanced Manufacturing Technology).

RESOLVED that the value added courses imparting transferable and life skills offered beyond the curriculum such as course on "Fire Engineering and Explosion Control" be approved for the upcoming semester (2017-18 Even semester).

Date: 18/8/2017


Chairman



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Appendix I
B.E. (MECHANICAL ENGINEERING)
REGULATION 2013
CHOICE BASED CREDIT SYSTEM

DESIGN FOR MANUFACTURING

OBJECTIVES:

Selecting economic process and general design principles for manufacturability in the development and design of products for various engineering applications. applying design consideration principles of forming, machining, welding and assembly

UNIT 1:INTRODUCTION TO DFMA

History of DFMA, Steps for applying DFMA during product design, Advantages of applying DFMA during product design, Reasons for not implementing DFMA, Introduction to Manufacturing Process: Classification of manufacturing process, Basic manufacturing processes, Mechanical properties of material: Tensile properties, Engineering stress-strain, True stress strain, Compression properties, Shear properties, Introduction to materials and material selection: Classification of engineering materials, Material selection for product design

UNIT 2: SAND CASTING

Introduction to sand casting, Typical characteristics of a sand cast part, Design recommendation for sand casting, Investment casting: Introduction, Steps in investment casting, Design consideration of Investment casting, Typical characteristics and applications, Die casting: Introduction to die casting, Advantages of the die casting process, Disadvantages of the die casting process, Applications, Suitable material consideration, General design consideration, Specific design recommendation, Injection moulding: Introduction to injection moulding, Typical characteristics of injection moulded parts, Effect of shrinkage, Suitable materials, Design recommendations, Design for powder metal processing: Introduction to powder metal processing, Typical characteristics and applications, Limitations, Design recommendations.

UNIT 3: DESIGN FOR MACHINING

Introduction to machining, Recommended materials for machinability, Design recommendations, Design for tuning operation: Process description, Typical characteristics and applications, Suitable materials, Design recommendations, Design for machining round holes: Introduction, Suitable materials, Design recommendations, Recommended tolerances, Parts produced by milling: Process description, Characteristics and applications of parts produced on milling machines, Design recommendations for milling, Dimensional factors and tolerances, Parts produced by planning, shaping and slotting: Process description, Design recommendation planning, Design for broached parts: Process description, Typical characteristics of broached parts, Suitable materials for broaching, Design recommendations.

UNIT 4: METAL EXTRUSION

Extrusion Process, Suitable material for extrusion, Design recommendation for metal extrusion, Metal stamping: Process, Characteristics and application of metal stamping, Suitable materials for stamping, Design Recommendations for metal stamping, Fine blanked parts: Fine blanking process, Material suitable for fine blanked parts, Design recommendations for piece parts, Rolled formed section: Process, Design recommendations, rolled section, Impact of cold extrusion: Process, Design



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recommendations for backward extrusion, Forward extrusion: Process, Design recommendations for forward extrusion, Design for Forging: Forging processes, Forging nomenclature, Suitable materials for forging, Design recommendations, Metal injection molded parts: Process, Materials suitable, Design recommendations for metal injection molded parts.

UNIT 5: DESIGN FOR WELDING PROCESS

Different types of welding processes, Design for welding: Design for recommendation for welding process, Design for solder and brazed as assembly: Process, Typical characteristics, Suitable materials, Detail Design recommendations, Design for adhesively bonded assemblies: Introduction, Typical characteristics, Suitable materials, Design recommendations for adhesive joint

COURSE OUTCOMES:

Upon the completion of this course the students will be able to

- Apply economic process selection principles and general design principles for manufacturability in the development and design of products for various engineering applications. Also, apply design consideration principles of casting in the design of cast products.
- Demonstrate principles of forming in the design of extruded, stamped, and forged products.
- Relate principles of machining in the design of turned, drilled, milled, planed, shaped, slotted, and ground products.
- Identify principles of welding in the design of welded products.
- Integrate the principles of assembly in the design of assembled products.

References:

1. J. Lesko,(1999) Industrial Design, Materials and Manufacture Guide, John Willy and Sons, Inc
2. George E. Dieter and Linda C.Schmidt (2009),Engineering Design, Fourth edition, McGraw-Hill companies, New York, USA
3. Geoffrey Boothroyd,Peter Dewhurst and Winston Knight (2002) Product Design for Manufacture and Assembly,Second Edition, CRC press, Taylor & Francis, Florida, USA
4. O. Molloy,S. Tilley and E.A. Warman (1998) Design for Manufacturing and assembly, First Edition, Chapman &Hall, London, UK.
5. D.E. Whitney,(2004) MechanicalAssemblies: Their Design, Manufacture, and Role in Product Development, Oxford University Press, New York
6. A.K. Chitale and R.C. Gupta,(1999) Product design and Manufacturing,Prentice Hall of India, New Delhi.
7. James G.Bralla (1998) Design for Manufacturability Handbook,Second Edition, McGraw-Hill companies, New York, USA
8. Geoffrey Boothroyd (2005) AssemblyAutomation and Product Design,Second Edition, CRC press, Taylor & Francis, Florida, USA
9. G. Q. Huang (1996) Design for X, Concurrent Engineering Imperatives, First Edition, Chapman &Hall, London, UK




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PRECISION MANUFACTURING

OBJECTIVE:

- To provide and enhance the technical knowledge in precision engineering, its components and applications.

UNIT I : PRECISION ENGINEERING

Introduction – Precision, Accuracy & Smoothness – Need – Development of overall machining precision – Classes of achievable machining Accuracy – Precision machining – High precision Machining – Ultra precision Machining – application of precision machining – Materials for tools and machine elements – carbides – ceramic, CBN & diamond – Tool and work material compatibility.

UNIT II: PRECISION MACHINE ELEMENT

Introduction – Guide ways – Drive systems – Spindle drive – preferred numbers – Rolling elements – hydrodynamic & hydrostatic bearings – Hybrid fluid bearings – Aero static and aero dynamic bearings – Hybrid gas bearings – materials for bearings.

UNIT III : ERROR CONTROL

Error – Sources – Static stiffness – Variation of the cutting force – total compliance – Different machining methods – Thermal effects – heat source – heat dissipation – Stabilization – decreasing thermal effects – forced vibration on accuracy – clamping & setting errors – Control – errors due to locations – principle of constant location surfaces.

UNIT IV: PRECISION MANUFACTURING

Micro machining processes – diamond machining – micro engraving – Micro replication techniques – forming – casting – injection moulding – micro embossing – Energy assisted processes – 80 – LBM, EBM, FIB, Micro electro discharge machining – photolithography – LIGA process – Silicon micro machining – Wet and dry etching – thin film deposition.

UNIT V: MEMS

Introduction – MEMS – characteristics – principle – Design – Application: automobile, defence, health care, Industrial, aerospace etc.,

COURSE OUTCOME:

- Operate high precision machineries with ease.
- Research and explore new areas of cutting tools.

TEXT BOOKS:

1. Venkatesh V.C. and Izman S., "Precision Engineering", Tata McGraw Hill, 2007.
2. Murthy R.L., "Precision Engineering", New Age International, 2009

REFERENCE BOOKS:

1. Nakazawa H., "Principles of Precision Engineering", Oxford University Press, 1994.
2. Institute of Physics Publishing, Bristol and Philadelphia, Bristol, BSI 6BE U.K



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CHARACTERIZATION OF MATERIALS

OBJECTIVE:

- To provide fundamental knowledge on Metallography, X-Ray diffraction, Electron diffraction, Scanning electron Microscope, Chemical and Thermal analysis.

UNIT 1: METALLOGRAPHIC TECHNIQUES

Macro examination -applications, metallurgical microscope - principle, construction and working, metallographic specimen preparation, optic properties - magnification, numerical aperture, resolving power, depth of focus, depth of field, different light sources lenses aberrations and their remedial measures, various illumination techniques-bright field , dark field, phase-contrast polarized light illuminations, interference microscopy, high temperature microscopy; quantitative metallography – Image analysis

UNIT 2: X -RAY DIFFRACTION TECHNIQUES

Crystallography basics, reciprocal lattice, X-ray generation, absorption edges, characteristic spectrum, Bragg's law, Diffraction methods – Laue, rotating crystal and powder methods. Stereographic projection. Intensity of diffracted beams –structure factor calculations and other factors. Diffractometer- brief description only . Cameras -General feature and optics, proportional, Scintillating and Geiger counters.

UNIT 3: ANALYSIS OF X-RAY DIFFRACTION

Line broadening, particle size, crystallite size, Precise parameter measurement, Phase identification, phase quantification, Phase diagram determination X-ray diffraction application in the determination of crystal structure, lattice parameter, residual stress – quantitative phase estimation, ASTM catalogue of Materials identification.

UNIT 4: ELECTRON MICROSCOPY

Construction and operation of Transmission electron microscope – Diffraction effects and image formation, specimen preparation techniques, Selected Area Electron Diffraction, electron- specimen interactions, Construction, modes of operation and application of Scanning electron microscope, Electron probe micro analysis, basics of Field ion microscopy (FIB), Scanning Tunneling Microscope (STM) and Atomic Force Microscope (AFM).

UNIT 5: SURFACE ANALYSIS

Surface chemical composition- Mass spectroscopy and X-ray emission spectroscopy (Principle and limitations) - Energy Dispersive Spectroscopy- Wave Dispersive Spectroscopy- Quadrupole mass spectrometer. Electron spectroscopy for chemical analysis (ESCA), Ultraviolet Photo Electron Spectroscopy (UPS), X ray Photoelectron Spectroscopy (XPS), Auger Electron Spectroscopy (AES), Electron Energy Analysers, Secondary ion mass spectrometry - Applications. Unit meshes of five types of surface nets - diffraction from diperiodic structures using electron, Low Energy Electron Diffraction (LEED), Reflection High Energy Electron Diffraction (RHEED).



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COURSE OUTCOMES:

Upon the completion of this course the students will be able to:

- To have comprehensive knowledge of the Characterization of materials for studying the structure of materials and to Interpret their properties.
- To learn How to characterize materials and the various techniques used in characterization of materials and will be able to apply them.

TEXTBOOKS:

1. Cullity, B. D., " Elements of X-ray diffraction", Addison-Wesley Company Inc., New York, 3rd Edition, 2000
2. Phillips V A, "Modern Metallographic Techniques and their Applications", Wiley Eastern, 1971.

REFERENCES:

1. Brandon D. G, "Modern Techniques in Metallography", VonNostrand Inc. NJ, USA, 1986.
2. Thomas G., "Transmission electron microscopy of metals", John Wiley, 1996.
3. Weinberg, F., "Tools and Techniques in Physical Metallurgy", Volume I & II, Marcel and Decker, 1970.
4. Whan R E (Ed), ASM Handbook, Volume 10, Materials Characterisation ", Ninth edition, ASM international, USA, 1986.
5. Haines, P.J., " Principles of Thermal Analysis and Calorimetry", Royal Society of Chemistry (RSC), Cambridge, 2002.



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Appendix II
B.E. (MECHANICAL ENGINEERING)
REGULATION 2013
CHOICE BASED CREDIT SYSTEM

Following are the changes and amendments in syllabus content of B.E. Mechanical Engineering Regulation-2013.

1. Strength of Materials- 313MET02 in III semester the following changes are made:
 - The energy principle unit is replaced by stress and strain topic. (Unit I)
 - The intermediate beams unit is replaced by shear force and bending moment 413MET03 (Unit II)
2. Manufacturing Technology- II-413MET03 in IV semester change is made:
 - Introduction to Additive Manufacturing (3D Printing Technologies) has been included under advanced machining process (Unit V)
 - Introduction to Powder Metallurgy- process involved- equipment advantages of powder metallurgy products have been included under advanced machining process (Unit V)
3. Automobile Engineering-613MET03 in VI semester the following changes are made:
 - Automobile shop Equipment and Safety Considerations are included (Unit IV)
 - Overview of Automotive Materials and recent automotive Regulation and Standardization are included (Unit IV)



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Appendix III

M.E. (Advanced Manufacturing Technology) REGULATION 2013 CHOICE BASED CREDIT SYSTEM

MEMS AND NANOTECHNOLOGY

OBJECTIVES :

- To inspire the students to expect to the trends in manufacturing of micro components and measuring systems to nano scale.

UNIT I OVER VIEW OF MEMS AND MICROSYSTEMS

Definition – historical development – properties, design and fabrication micro-system, microelectronics, working principle ,applications and advantages of micro system. Substrates and wafers, silicon as substrate material, mechanical properties of Si, Silicon Compounds - silicon piezo resistors, Galium arsenide, quartz, polymers for MEMS, conductive polymers.

UNIT II FABRICATION PROCESSES AND MICRO SYSTEM PACKAGING

Photolithography, photo resist applications, light sources, ion implantation, diffusion–Oxidation - thermal oxidation, silicon dioxide, chemical vapour deposition, sputtering - deposition by epitaxy – etching – bulk and surface machining – LIGA process – LASER, Electron beam ,Ion beam processes
– Mask less lithography. Micro system packaging –packaging design– levels of micro system packaging -die level, device level and system level – interfaces in packaging – packaging technologies- Assembly of Microsystems

UNIT III MICRO DEVICES

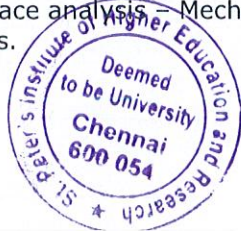
Sensors – classification – signal conversion ideal characterization of sensors micro actuators, mechanical sensors – measurands - displacement sensors, pressure sensor, flow sensors, Accelerometer , chemical and bio sensor - sensitivity, reliability and response of micro-sensor - micro actuators – applications.

UNIT IV SCIENCE AND SYNTHESIS OF NANO MATERIALS

Classification of nano structures – Effects of nano scale dimensions on various properties – structural, thermal, chemical, magnetic, optical and electronic properties fluid dynamics –Effect of nano scale dimensions on mechanical properties - vibration, bending, fracture
Nanoparticles, Sol-Gel Synthesis, Inert Gas Condensation, High energy Ball Milling, Plasma Synthesis, Electro deposition and other techniques. Synthesis of Carbon nanotubes – Solid carbon source based production techniques – Gaseous carbon source based production techniques – Diamond like carbon coating. Top down and bottom up processes.

UNIT V CHARACTERIZATION OF NANO MATERIALS

Nano-processing systems – Nano measuring systems – characterization – analytical imaging techniques – microscopy techniques, electron microscopy scanning electron microscopy, confocal LASER scanning microscopy - transmission electron microscopy, transmission electron microscopy, scanning tunneling microscopy, atomic force microscopy, diffraction techniques – spectroscopy techniques – Raman spectroscopy, 3D surface analysis – Mechanical, Magnetic and thermal properties – Nano positioning systems.



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OUTCOMES:

At the end of this course the students are expected

- To expose the evolution of micro electromechanical systems, to the various fabrication techniques and to make students to be aware of micro actuators. Also to impart knowledge to nano materials and various nano measurements techniques.

REFERENCES:

1. Charles P Poole, Frank J Owens, Introduction to Nano technology, John Wiley and Sons, 2003
2. Julian W. Hardner Micro Sensors, Principles and Applications, CRC Press 1993.
3. Mark Madou , Fundamentals of Microfabrication, CRC Press, New York, 1997.
4. Mohamed Gad-el-Hak, MEMS Handbook, CRC press, 2006, ISBN : 8493-9138-5
5. Norio Taniguchi, Nano Technology, Oxford University Press, New York, 2003
6. Sami Franssila, Introduction to Micro fabrication, John Wiley & sons Ltd, 2004. ISBN:470-85106-6
7. Tai – Ran Hsu, MEMS and Microsystems Design and Manufacture, Tata-McGraw Hill, New Delhi, 2002.
8. Waqar Ahmed and Mark J. Jackson, Emerging Nanotechnologies for Manufacturing, Elsevier Inc.,2013,ISBN : 978-93-82291-39-8

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ROBOT DESIGN AND PROGRAMMING

OBJECTIVES :

- To impart knowledge in the area of Robot designing and programming in Robotic languages.

UNIT I INTRODUCTION

Definition, Need Application, Types of robots – Classifications – Configuration, work volume, control loops, controls and intelligence, specifications of robot, degrees of freedoms, end effectors – types, selection applications.

UNIT III ROBOT KINEMATICS

Introduction – Matrix representation Homogeneous transformation, forward and inverse – Kinematic equations, Denavit – Hartenbers representations – Inverse Kinematic relations. Fundamental problems with D-H representation, differential motion and velocity of frames – Jacobian, Differential Changes between frames:

UNIT III ROBOT DYNAMICS AND TRAJECTORY PLANNING

Lagrangeon mechanics, dynamic equations for sing, double and multiple DOF robots – static force analysis of robots, Trajectory planning – joint space, Cartesian space description and trajectory planning – third order, fifth order - Polynomial trajectory planning

UNIT IV ROBOT PROGRAMMING & AI TECHNIQUES

Types of Programming – Teach Pendant programming – Basic concepts in AI techniques – Concept of knowledge representations – Expert system and its components.

UNIT V ROBOT SENSORS AND ACTUATORS

Design of Robots – characteristics of actuating systems, comparison, microprocessors control of electric motors, magnetostrictive actuators, shape memory type metals, sensors, position, velocity, force, temperature, pressure sensors – Contact and non contact sensors, infrared sensors, RCC, vision sensors.

OUTCOMES:

At the end of this course the students are expected

- To introduce the kinematic arrangement of robots and its applications in the area of manufacturing sectors
- To expose to build a robot for any type of application

REFERENCES

1. Gordon Mair, 'Industrial Robotics', Prentice Hall (U.K.) 1988
2. Groover.M.P. Industrial Robotics, McGraw – Hill International edition, 1996.
3. Saeed.B.Niku, 'Introduction to Robotics, Analysis, system, Applications', Pearson educations, 2002
4. Wesley E Snyder R, 'Industrial Robots, Computer Interfacing and Control', Prentice Hall International Edition, 1988.



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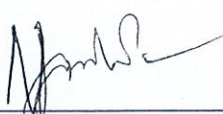
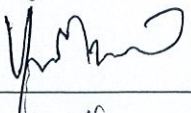



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MINUTES OF THE ^{2nd} MEETING OF THE BOARD OF STUDIES IN

BIOCHEMISTRY

Held on 25.09.2017

Members Present

S.No	Name	Designation	Member	Signature
1.	Dr GANESAN N	Professor & Head	Chairman	
2.	Mr. Vijay Anand	Professor & Head	Internal Member	
3.	Ms. BV. Febiyola	Assistant Professor	Internal Member	
4.	Dr. D. Saravanan	Assistant Professor Department of Biochemistry D.G. Vaishnav College, Chennai 106	External Member	
5.	Dr. S. J. Selvaraj	Scientist E Meenakshi Ammal Dental College, MAHER	External Member	




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Chairman

Head of the Department
Biochemistry

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2.1 Considered the minutes of the 2nd meeting of Board of Studies in BIOCHEMISTRY held on 06.02.2017.

RESOLVED that the minutes of the 2nd meeting of Board of Studies in BIOCHEMISTRY held on 06.02.2017 be confirmed

2.2 Reviewed the Regulation & Syllabi of B.Sc. BIOCHEMISTRY programme under the Regulations 2016 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation & Syllabi of B.Sc. BIOCHEMISTRY programme under the Regulations 2016 with Choice Based Credit System (CBCS) be continued.

2.3 Reviewed the Regulation & Syllabi of M.Sc. BIOCHEMISTRY programme under the Regulations 2016 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation & Syllabi of M.Sc. BIOCHEMISTRY programme under the Regulations 2016 with Choice Based Credit System (CBCS) be continued.

2.4 Considered to include courses having focus on employability/ entrepreneurship /skill development in the syllabi of B.Sc. (BIOCHEMISTRY) under the Regulations 2016 and M.Sc. (BIOCHEMISTRY) under the Regulations 2016

RESOLVED that the courses having focus on employability/ entrepreneurship /skill development year wise in the syllabi of B.Sc. (BIOCHEMISTRY) under the Regulations 2016 and M.Sc. (BIOCHEMISTRY) under the Regulations 2016 to be approved.

Date: 25.09.2017




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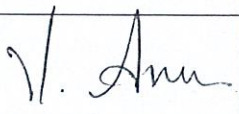


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MINUTES OF THE 3rd MEETING OF THE BOARD OF STUDIES IN

BIOTECHNOLOGY

Held on 25.09.2017

Members Present

S.No	Name	Designation	Member	Signature
1.	Dr. S. Chandra	Professor & Head	Chairman	
2.	Mr. Vijay Anand	Assistant Professor	Internal Member	
3.	Dr. D. Saravanan	Assistant Professor Department of Biochemistry D.G.Vaishnav College, Chennai 106	External Member	
4.	Dr. S. J. Selvaraj	Scientist E Meenakshi Ammal Dental College, MAHER	External Member	




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Chairman

Head of the Department
Biotechnology
St. Peter's Institute of Higher Education & Research
Avadi, Chennai - 600 054.

3.1 Considered the minutes of the 2nd meeting of Board of Studies in Biotechnology held on 06.02.2017.

RESOLVED that the minutes of the 2nd meeting of Board of Studies in Biotechnology held on 06.02.2017 be confirmed

3.2 Reviewed the Regulation & Syllabi of B.Sc. Biotechnology programme under the Regulations 2016 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation & Syllabi of B.Sc. Biotechnology programme under the Regulations 2016 with Choice Based Credit System (CBCS) be continued.

3.3 Reviewed the Regulation & Syllabi of M.Sc. Biotechnology programme under the Regulations 2016 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation & Syllabi of M.Sc. Biotechnology programme under the Regulations 2016 with Choice Based Credit System (CBCS) be continued.

3.4 Considered to include courses having focus on employability/ entrepreneurship /skill development in the syllabi of B.Sc. (Biotechnology) under the Regulations 2016 and M.Sc. (Biotechnology) under the Regulations 2016

RESOLVED that the courses having focus on employability/ entrepreneurship /skill development year wise in the syllabi of B.Sc. (Biotechnology) under the Regulations 2016 and M.Sc. (Biotechnology) under the Regulations 2016 to be approved.

Date: 25.09.2017


Chairman

Head of the Department
Biotechnology
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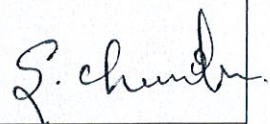
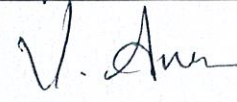
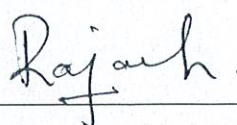

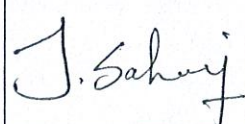
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MINUTES OF THE 4th MEETING OF THE BOARD OF STUDIES IN

BIOTECHNOLOGY

Held on 12.02.2018

Members Present

S.No	Name	Designation	Member	Signature
1.	Dr. S. Chandra	Professor & Head	Chairman	
2.	Mr. Vijay Anand	Assistant Professor	Internal Member	
3.	Mr. R. Rajesh	Assistant Professor	Internal Member	
4.	Dr. D. Saravanan	Assistant Professor Department of Biochemistry D.G.Vaishnav College, Chennai 106	External Member	
5.	Dr. S. J. Selvaraj	Scientist E Meenakshi Ammal Dental College, MAHER	External Member	




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Chairman

Head of the Department
Biotechnology
St. Peter's Institute of Higher Education & Research
Avadi, Chennai - 600 054.

Chennai - 600 054

4.1 Considered the minutes of the 3rd meeting of Board of Studies in Biotechnology held on 25.09.2017.

RESOLVED that the minutes of the 3rd meeting of Board of Studies in Biotechnology held on 25.09.2017 be confirmed

4.2 Reviewed the Regulation & Syllabi III & IV of B.Sc. Biotechnology programme under the Regulations 2016 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation & Syllabi of III & IV of B.Sc. Biotechnology programme under the Regulations 2016 with Choice Based Credit System (CBCS) be continued (Appendix I)

4.3 Reviewed the Regulation & Syllabi of III & IV of M.Sc. Biotechnology programme under the Regulations 2016 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation & Syllabi of III & IV of M.Sc. Biotechnology programme under the Regulations 2016 with Choice Based Credit System (CBCS) be continued. (Appendix-II)

4.4 Considered to include value added courses imparting transferable and life skills offered beyond the curriculum in the syllabi of B.Sc. (Biotechnology) and M.Sc. (Biotechnology).

RESOLVED that the value added courses imparting transferable and life skills offered beyond the curriculum such as course on "Environmental Toxicology" be approved for the upcoming semester (2018-19 - Odd semester).

Date: 12.02.2018



Chairman

Head of the Department
Biotechnology

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Appendix – I

St. Peter's Institute of Higher Education and Research
B.Sc. Biotechnology

III Semester

Code No.	Course Title	Credit	Marks		
			CA	EA	Total
316UTMT01 / UTET01 / UHIT01 / 316UFRT01	Part – I Language -III (Tamil -III / Telugu -III / Hindi -III / French -III)	3	25	75	100
316UEHT02	Part – II English -III	3	25	75	100
316UBTT03	Part - III Genetics	5	25	75	100
316UBTP01	Core Sub: Genetics and Biochemistry (Practical)	6	40	60	100
316UBTT04	Allied : Paper -I – Biochemistry	4	25	75	100
316UCCT03	Soft Skills (Common to all UG Branches)	2	50	50	100
Total		23	190	410	600

IV Semester

Code No.	Course Title	Credit	Marks		
			CA	EA	Total
416UTMT01 / UTET01 / UHIT01 / 416UFRT01	Part – I Language-IV (Tamil -IV / Telugu -IV / Hindi -IV / French -IV)	3	25	75	100
416UEHT02	Part – II English -IV	3	25	75	100
416UBTT03	Part - III Plant Biotechnology	4	25	75	100
416UBTP01	Core Sub: Plant Biotechnology (Practical)	4	40	60	100
416UBTT04	Allied Paper-II - Biophysics and Biostatistics	5	25	75	100
416UEST01	Part IV : Environmental Studies	2	25	75	100
416UCCT04	Soft Skills (Common to all UG Branches)	2	50	50	100
Total		23	215	485	700

Overall percentage of syllabus revision for B.Sc. -51.7% for the academic year 2018-19



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Appendix – II

St. Peter's Institute of Higher Education and Research
M.Sc. Biotechnology

III SEMESTER

Code No.	Course Title		Credit	Marks		
				CA	EA	Total
Theory						
316PBTT01	Core Sub:	Bioinformatics	4	25	75	100
316PBTT02		Immunology	4	25	75	100
316PBTT03		Bioprocess Technology	4	25	75	100
	Elective – V:		3	25	75	100
	Extra disciplinary elective - Any Elective offered by other Depts		3	25	75	100
Practical						
316PBTP01			6	40	60	100
Total			24	165	435	600

IV SEMESTER

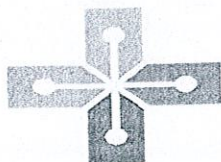
Code No.	Course Title		Credit	Marks		
				CA	EA	Total
Theory						
416PBTT01	Core Paper: Research Methodology		5	25	75	100
	Elective – VI:		3	25	75	100
	Core Paper – Dissertation		10	60	240 (40-work book, 150 Dissertation + 50- Viva)	300
Total			18	160		

Overall percentage of syllabus revision for M.Sc. – 40.% for the academic year 2018-19



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E-mail:registrar@spiher.ac.in
Website:www.spiher.ac.in

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NEW COURSES FOR THE ACADEMIC YEAR 2018-2019

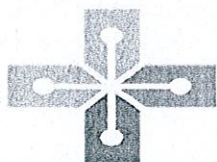
B.Sc. - BIOTECHNOLOGY

S.No	Programme Code	Programme Name	Course Code	Name of the Course
1	BOU	B.Sc. - Biotechnology	316UEHT01	ENGLISH -III
2	BOU	B.Sc. - Biotechnology	316UBTT03	GENETICS
3	BOU	B.Sc. - Biotechnology	316UBTP01	GENETICS AND BIOCHEMISTRY LAB
4	BOU	B.Sc. - Biotechnology	316UBTT04	BIOCHEMISTRY
5	BOU	B.Sc. - Biotechnology	416UBTT03	PLANT BIOTECHNOLOGY
6	BOU	B.Sc. - Biotechnology	416UBTP01	PLANT BIOTECHNOLOGY LAB
7	BOU	B.Sc. - Biotechnology	416UBTT04	BIOPHYSICS AND BIOSATISTICS
8	BOU	B.Sc. - Biotechnology	416UEST01	ENVIRONMENTAL SCIENCE
9	BOU	B.Sc. - Biotechnology	316UHIT01J	HINDI - III
10	BOU	B.Sc. - Biotechnology	316UBTT05	PUBLIC HEALTH MANAGEMENT




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Website:www.spiher.ac.in

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NEW COURSES FOR THE ACADEMIC YEAR 2018-2019

M.Sc. – BIOTECHNOLOGY

S.No	Programme Code	Programme Name	Course Code	Name of the Course
1	BOP	M.Sc. - Biotechnology	316PBTT01	BIOINFORMATICS
2	BOP	M.Sc. - Biotechnology	316PBTT02	IMMUNOLOGY
3	BOP	M.Sc. - Biotechnology	316PBTT03	BIOPROCESS TECHNOLOGY
4	BOP	M.Sc. - Biotechnology	316PBTT05	MOLECULAR DEVELOPMENTAL BIOLOGY
5	BOP	M.Sc. - Biotechnology	316PBTP01	BIOINFORMATICS LAB
6	BOP	M.Sc. - Biotechnology	416PBTT01	RESEARCH METHODOLOGY
7	BOP	M.Sc. - Biotechnology	416PBTT02	STEM CELL BIOLOGY
8	BOP	M.Sc. - Biotechnology	416PBTP01	DISSERTATION



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MINUTES OF THE 16th MEETING OF THE BOARD OF STUDIES IN COMPUTER SCIENCE & APPLICATIONS

Held on ~~10~~ 08.2017

Members Present

S.No	Name	Designation	Member	Signature
1.	Dr. R.Latha	Professor & Head	Chairman	
2.	Mrs.S.Brindha	Assistant Professor	Member	
3.	Mr. N.Venkatesan	Assistant Professor	Member	
4.	Dr.B.Shanthini	Professor, IT Department, SPCT	Academic Expert Member	
5.	Mr.E.Sai Dinesh Babu	Operations Manager, Amazon Development Centre India Pvt. Ltd, Chennai	Industry Expert Member	




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Chairman

16.1	<p>Considered the minutes of the 15th meeting of Board of Studies in Computer Applications and Computer Science held on 04.03.2017.</p> <p>RESOLVED that the minutes of the 15th meeting of Board of Studies in Computer Applications held on 04.03.2017 be confirmed</p>
16.2	<p>Considered the provision for the students of B.CA and B.Sc(CS) to have private study for the Non – Tamil and Non –English languages.</p> <p>RESOLVED that the the provision for the students of B.CA and B.Sc(CS), to have private study for the Non – Tamil and Non –English languages be approved.</p>
16.3	<p>Reviewed the Regulation & Syllabi of B.C.A and B.Sc(CS) programme under the Regulations 2016 with Choice Based Credit System (CBCS).</p> <p>RESOLVED that the Syllabi of B.C.A B.C.A and B.Sc(CS) programme under the Regulations 2016 with Choice Based Credit System (CBCS) to be continued.</p>
16.4	<p>Reviewed the Syllabi and course structure of M.Sc(CS) programmes under the Regulations 2016 with Choice Based Credit System (CBCS).</p> <p>RESOLVED that the Syllabi and course structure of M.Sc(CS) programmes under the Regulations 2016 with Choice Based Credit System (CBCS) be continued taking into consideration of the suggestions and remarks given by the members to include following new courses. (Appendix - I)</p>
16.5	<p>Reviewed the curricula developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes.</p> <p>RESOLVED that the syllabi of B.C.A programme under the Regulations 2016,B.Sc(CS) progmmme Under the Regulations 2016 and M.Sc(CS) programme under the Regulations 2016 developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes be approved.</p>
16.6	<p>Considered to include courses having focus on employability/ entrepreneurship /skill development in the syllabi of B.C.A under the Regulations 2016, B.Sc(CS) under the Regulations 2016, M.Sc(CS) under the Regulations 2016.</p> <p>RESOLVED that the courses having focus on employability/ entrepreneurship /skill development year wise in the syllabi of B.C.A, B.Sc(CS),M.Sc(CS) under the Regulations 2016 to be approved.</p>



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16.7	<p>Considered to include value added courses imparting transferable and life skills offered beyond the curriculum in the syllabi of BC.A,B.Sc(CS), M.Sc(CS).</p> <p>RESOLVED that the value added courses imparting transferable and life skills offered beyond the curriculum such as course on "Office Automation" be approved for the upcoming semester (2017-18 Odd semester).</p>
16.8	<p>Reviewed and considered the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders.</p> <p>Resolved that the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders to be approved. (Appendix - III)</p>

Date: 22.08.2017


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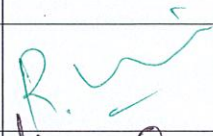
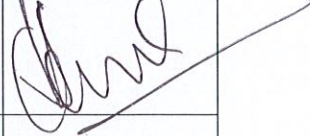
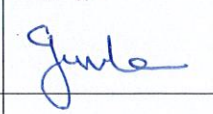
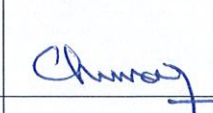
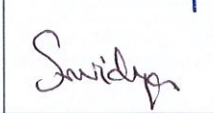
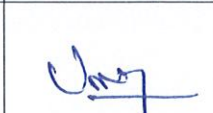
AVADI, CHENNAI - 600 054.

MINUTES OF THE 16th MEETING OF THE BOARD OF STUDIES IN

DEPARTMENT OF MANAGEMENT STUDIES

Held on 22.08.2017

Members Present

S.No	Name	Designation	Member	Signature
1.	Dr.R.Gayathri	Professor & Head	Chairman	
2.	Dr.S.Panerselvam	Assistant Professor	Internal Member	
3.	Ms.G.Pramila	Assistant Professor	Internal Member	
4.	Dr.Chinnaraju	Director, CIMAT	External Member	
5.	Ms.Srividya Srinivasan	Head, Doyen Systems Pvt. Ltd., Guindy	External Member	
6.	Dr.P.Umarani	Professor, MGR Educational & Research Institute	External Member	




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Chairman

HEAD OF DEPARTMENT
School of Commerce &
Management Studies
SPIHER, Chennai

16.1	<p>Considered the minutes of the 15th meeting of Board of Studies in Department of Management Studies held on 14.03.2017.</p> <p>RESOLVED that the minutes of the 15th meeting of Board of Studies in Department of Management Studies held on 14.03.2017 be confirmed</p>
16.2	<p>Reviewed the Regulation & Syllabi of Department of Management Studies MBA programme under the Regulations 2017 with Choice Based Credit System (CBCS).</p> <p>RESOLVED that the Regulation & Syllabi of Department of Management Studies MBA programme under the Regulations 2017 with Choice Based Credit System (CBCS) be continued.</p>
16.3	<p>Reviewed the Regulation & Syllabi of Department of Management Studies BBA programmes under the Regulations 2016 with Choice Based Credit System (CBCS).</p> <p>RESOLVED that the Syllabi of Department of Management Studies under the Regulations 2016 with Choice Based Credit System (CBCS) to be continued.</p>
16.4	<p>Consider the one more elective group, Syllabi and course structure of Department of Management Studies MBA programmes under the Regulations 2017 with Choice Based Credit System (CBCS).</p> <p>RESOLVED that the one more elective group Syllabi and course structure of Department of Management Studies MBA programmes under the Regulations 2017 with Choice Based Credit System (CBCS) be continued taking into consideration of the suggestions and remarks given by the members to include following new elective courses. (Appendix - I)</p> <p style="text-align: center;">Shipping and Logistics Management</p> <ol style="list-style-type: none"> a. Containerization and Allied Business b. Exim Management c. Fundamentals of Shipping d. Port and Terminal Management e. Liner Trade & Freight Forwarding
16.5	<p>Reviewed the curricula developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific</p>



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	<p>outcomes and course outcomes of all the programmes.</p> <p>RESOLVED that the syllabi of Department of Management Studies MBA programme under the Regulations 2017 and BBA under the Regulations 2016 developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes be approved.</p>
16.6	<p>Considered to include courses having focus on employability/ entrepreneurship /skill development in the syllabi of Department of Management Studies MBA under the Regulations 2017 and BBA. under the Regulations 2016.</p> <p>RESOLVED that the courses having focus on employability/ entrepreneurship /skill development year wise in the syllabi of MBA Department of Management Studies under the Regulations 2017 and BBA under the Regulations 2016 to be approved.</p>
16.7	<p>Reviewed and considered the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders.</p> <p>Resolved that the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders to be approved. (Appendix - II)</p>

Date: 22.08.2017



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HEAD OF DEPARTMENT
School of Commerce &
Management Studies
SPIHER, Chennai

Appendix – I

SHIPPING AND LOGISTICS MANAGEMENT

AMBT2955- CONTAINERIZATION AND ALLIED BUSINESS

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
AMBT2955	CONTAINERIZATION AND ALLIED BUSINESS	3	0	0	3	3

COURSE OBJECTIVE:

- To provide an overview of the various elements of containerization and allied businesses
- To realize the potential of containerization and allied businesses

UNIT - I BASIC CONCEPT OF CONTAINERIZATION

Introduction to Liner Shipping industry - Unitization concept and methods - Malcolm Mclean and the birth of containerization - Generations of container ships and their specification - Container types, their specifications and cargoes carried in them. **(9 Hours)**

UNIT - II FREIGHTING AND SIZE OF CONTAINER

Container shipping business - FCL and LCL sea freight products - Freightling of FCL and LCL cargo Slot utilization strategies - Estimation of optimum container fleet size - Multiport LCL consolidation **(9 Hours)**

UNIT - III CHARACTERISTICS AND PHYSICAL OPERATIONS

Container terminal business- World's leading container terminals and location characteristics - container terminal infrastructure - container terminal productivity - container terminal profitability - Inland container terminals - Container Freight Stations **(9 Hours)**

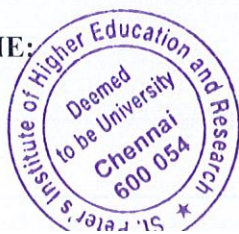
UNIT - IV CONTAINER TYPES AND BUSINESS

Container manufacturing trends - Container leasing business - Types of container leasing and their terms - maintenance and repair of containers - tracking of container movements - Container interchange. **(9 Hours)**

UNIT - V MULTIMODAL TRANSPORT

Alternate uses of containers -marketing of used containers -carriage of shipper own containers - multimodal transport options for containers -Insurance for containers -strategies for managing container imbalance. **(9 Hours)**

COURSE OUTCOME:



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- CO1** The students will learn the practices and ways to promote containerization and allied businesses
- CO2** The learners will have a complete idea about the different concepts, trends and strategies used for containerization and allied businesses
- CO3** Knowledge on World's leading container terminals and location characteristics.
- CO4** Discussion on Types of container leasing and their terms
- CO5** Understanding of Multimodal transport

REFERENCES:

1. Marc Levinson, The Box: How the Shipping Container Made the World Smaller and the World Economy Bigger, Princeton University Press, 2008.
2. Dr. K. V. Hariharan, Containerisation, Multimodal Transport & Infrastructure Development In India, Sixth Edition, Shroff Publishers and Distributors, 2015.
3. Lee, C.-Y., Meng, Q. (Eds.), Handbook of Ocean Container Transport Logistics Making Global Supply Chains Effective, Springer, 2015

AMBT2956- EXIM MANAGEMENT

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
AMBT2956	EXIM MANAGEMENT	3	0	0	3	3

COURSE OBJECTIVE:

- To enlighten the students about the major functions in export and import processes.
- To provide the expertise for solving issues related to requirements in exim management.

UNIT - I FUNDAMENTALS OF IMPORT AND EXPORT

Role of Import and Export Trade in an Economy - Institutional Framework for Foreign Trade in India - Role of Director General of Foreign Trade and Commerce - Objectives of EXIM Policy - Global trade flows - Contract of International Sale of Goods - INCOTERMS 2010 **(9 Hours)**

UNIT - II OVERVIEW OF EXPORT AND IMPORT

Marketing for Exports - Negotiation and finalization of Export contract - Export Documentation Procedures - Cargo Insurance - Export Promotion Councils and incentive schemes- Role of Logistics in Exports- Export Houses / Trading Houses **(9 Hours)**



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UNIT - III DOCUMENTATION FRAMEWORK

Import for industrial use / trading - Import Documentation and Customs clearance procedures - Types of Imports - Import Licenses - Cargo Insurance - Role of Logistics in Import(9 Hours)

UNIT - IV CREDIT AND PAYMENTS Payment methods in Foreign Trade - Documentary Credit / Letter of Credit–UCP 600 with respect to Shipping Documents and L/C Negotiation – Export / import financing strategies - Managing payment risks. (9 Hours)

UNIT - V CUSTOMS CLEARANCE AND AGENCIES

Roles of Service providers in EXIM transactions – Global Traders – Commodity Brokers - Custom House Agents – Transport Operators – Freight Forwarders – Warehousing and 3PL service providers – Liners /Ship Agencies – Container Freight Stations - Port – Inspection Agencies/ surveyors – Quarantine Agencies – Pest Control Agencies – Chamber of Commerce.

9 Hours)

COURSE OUTCOME:

CO1 The students would be aware about the formalities of export and import industry

CO2 The students will be able to comprehend the importance of exim management.

CO3 The student will be well versed on the documentation framework

CO4 Knowledge on various payment methods in foreign trade

CO5 Understanding the roles of customs clearance and agencies

REFERENCES:

1. Justin Pauland Rajiv Aserkar, Export Import Management, Second Edition, Oxford University Press, 2013.
2. Usha Kiran Rai, Export - Import and Logistics Management, Second Edition, PHI Learning, 2010.
3. Director General of Foreign Trade, Foreign Trade Policy and Handbook of Procedures, 2015.




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AMBT2957- Fundamentals of Shipping

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
AMBT2957	Fundamentals of Shipping	3	0	0	3	3

COURSE OBJECTIVE:

- To provide the knowledge about fundamentals of shipping management
- to equip the students with the knowledge of shipping, ship building and repair

UNIT - I INTERDICTION OF SHIPPING

Role of Shipping in International trade-Types of ships and cargoes carried by them - International Organizations serving the shipping industry (IMO, BIMCO, ICS, IACS, IAPH)- Ship Registration and Classification. **(9 Hours)**

UNIT - II LINER SHIPPING OPERATIONS

Liner shipping business - Types of Liner services - Container shipping lines and their services - Break bulk, Ro-Ro and project cargo services - Liner freight rates - Liner cargo documentation - Liner agency functions **(9 Hours)**

UNIT - III DRY BULK BUSINESS

Dry Bulk shipping business- World's leading dry bulkports and cargoes handled by them - Types of Dry bulk ships and the Dry Bulk industry structure - Dry bulk market indices - Types of Chartering - Port agency functions. **(9 Hours)**

UNIT - IV TANKER OPERATIONS AND BUSINESS

Liquid Bulk shipping business - World's leading wet bulk ports and cargoes handled by them- Types of tankers and gas carriers - Tanker freighting system (worldscale) -Factors affecting Tanker markets-Marine pollution conventions. **(9 Hours)**

UNIT - V SHIP BUILDING AND REPAIR

Service providers to shipping industry -Ship management companies -Ports, inland terminals and Container Freight Stations- Ship building and repair yards -Financing the Shipping industry - Marineinsurance providers. **(9 Hours)**




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COURSE OUTCOME:

CO1 The students would be acquainted with the basics of shipping management

CO2 The students will learn the skills needed for shipping industry

CO3 The student will be well versed on the documentation framework

CO4 Knowledge on various payment methods in foreign trade

CO5 Understanding the roles of customs clearance and agencies

REFERENCES:

1. Michael Robarts, Branch's Elements of Shipping, Ninth Edition, Routledge, 2014.
2. Peter Brodie, Commercial Shipping Handbook, Third Edition, Informa Law from Routledge, 2014.
3. Review of Maritime Transport, UNCTAD, 2014.

AMBT2958- PORT AND TERMINAL MANAGEMENT

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
AMBT2958	PORT AND TERMINAL MANAGEMENT	3	0	0	3	3

COURSE OBJECTIVE:

- To provide the knowledge about fundamentals of shipping management
- to equip the students with the knowledge of shipping, ship building and repair

UNIT - I INTRODUCTION OF SHIPPING

Role of Shipping in International trade-Types of ships and cargoes carried by them - International Organizations serving the shipping industry (IMO, BIMCO, ICS, IACS, IAPH)- Ship Registration and Classification. (9 Hours)

UNIT - II LINER SHIPPING OPERATIONS

Liner shipping business - Types of Liner services - Container shipping lines and their services - Break bulk, Ro-Ro and project cargo services - Liner freight rates - Liner cargo documentation - Liner agency functions (9 Hours)




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UNIT - III DRY BULK BUSINESS

Dry Bulk shipping business- World's leading dry bulkports and cargoes handled by them - Types of Dry bulk ships and the Dry Bulk industry structure - Dry bulk market indices - Types of Chartering - Port agency functions. **(9 Hours)**

UNIT - IV TANKER OPERATIONS AND BUSINESS

Liquid Bulk shipping business - World's leading wet bulk ports and cargoes handled by them- Types of tankers and gas carriers - Tanker freighting system (worldscale) -Factors affecting Tanker markets-Marine pollution conventions. **(9 Hours)**

UNIT - V SHIP BUILDING AND REPAIR

Service providers to shipping industry -Ship management companies -Ports, inland terminals and Container Freight Stations- Ship building and repair yards -Financing the Shipping industry - Marine insurance providers -Design features of facilities in ports for handling various cargoes - Organization structure in Ports - Delivery of port services and the relationship between various departments - Marine Department – Traffic Department – other departments. **(9 Hours)**

COURSE OUTCOME:

CO1 The students would be acquainted with the basics of shipping management

CO2 The students will learn the skills needed for shipping industry

CO3 The student will be well versed on the documentation framework

CO4 Knowledge on various payment methods in foreign trade

CO5 Understanding the roles of customs clearance and agencies

REFERENCES:

1. Michael Robarts, Branch's Elements of Shipping, Ninth Edition, Routledge, 2014.
2. Peter Brodie, Commercial Shipping Handbook, Third Edition, Informa Law from Routledge, 2014.
3. Review of Maritime Transport, UNCTAD, 2014.




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AMBT29589LINER TRADE & FREIGHT FORWARDING

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
AMBT2959	LINER TRADE & FREIGHT FORWARDING	3	0	0	3	3

COURSE OBJECTIVE:

To Acquire basic knowledge about Development of Liner Service, Liner versus Tramp Service

To study the Cargo handling, Stowage Unitization and Containerization, Vessel loading and discharging process.

To understand a general overview of Dangerous Goods (IMO),

To learn the liner trade routes, major liner ports and liner operations,

To Know about the developments in Freight Forwarding and NVOCC operations and their impact on Liner Trade.

UNIT I BACKGROUND AND DEVELOPMENT LINER TRADE

9

History of Liners, Liner trades and Tramp trades -Their evolution and development, The Development of Unitization and Containerization , Concepts of Liner trade, Liner operations, Vessel loading and discharging , Liner trade routes, Major Liner ports, Liner service options, Liner Trade – ship types - Tonnages, pseudo tonnages, Cargo measurements & capacities, Container ships, Types of container ships, Ro-Ro Barge carrying vessels, Refrigerated cargo ship, Conventional (Break bulk) vessels, Future vessel developments, Economy of scale, Shipboard handling equipment.




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UNIT II CARGOES, LINER CARGOES

9

Dangerous Goods- IMO special goods , Cargo handling and other methods of lifting cargo, Port handling equipment , Port terminals, Cargo stowage- stowage factors, unitization/ multi-modalism/Containers, Container dimensions, Types of container and other container terminologies, Container inventory, Owning/Leasing, Meeting the demand for containers, Tracking the container fleet, Container control, FCLS, LCLS & ICDS, Container Freight Stations, Role of Ship's Officers & Ship's Agent, Liner Shipping operations - Accounting/ Budgeting/ Freight collection, Port disbursements.

UNIT III FREIGHT FORWARDING, NVOCCs

9

Evolution and Development of Freight Forwarding, Features of Freight Forwarding, Different modes of International freight - Advantages and disadvantages, Sea Freight and Air Freight Forwarding and International Freight Forwarding Networks. Insurance and Protection & Indemnity Clubs, Conferences, consortia, Alliances & Independent- Conference system, Monopoly investigations, Development of the conference system, Conference and Competition law, FMC, Mergers/ Takeovers / Container Consortia, Alliance around the world.

UNIT IV LAW OF CARRIAGE OF GOODS & DOCUMENT 9

Carriage of Goods by Sea Act, Use of Bill of Lading in Liner trade, Rules of Carriage of Goods, Hague-Visby Rules 1968, Hamburg Rules 1978, Rotterdam Rules 2009 and Multimodal Transportation of Goods Act 1992 (India), Bill of Lading documentary credits, Bill of Lading clauses, Printed clauses – Functions of Bill of Lading, Other forms of Bill of Lading, House Bill of Lading, Master Bill of Lading, Combined Transport and other Liner documents. Inland Transportation, CONCOR and other Container Rail Operators.




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UNIT V

THE EXCHANGE OF GOODS TRANSFER & LAW

9

Transfer of funds from country, Methods of payments in International trade, International contracts of sale, Documentary Credit, INCOTERMS, Legal aspects of the liner trades, The carrier insurance and the Carrier's liability for the cargo, Liabilities of the Agent, Legal aspects of the Bill of Lading, Cargo claims, General Average (GA), Security, ISPS code, Law of Agency, Conflict of Interest, Agent in the Port, Marketing and Sales function, General agency accounting, Principal's duties/ remuneration/ duration.





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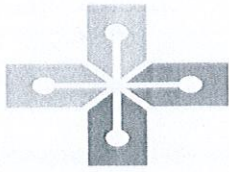
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Appendix – II

Programme	Stakeholder	Feedback	Recommendation	Action taken
MBA & BBA	Student	Students suggested the need for job oriented courses, training for facing interviews during campus selection. They also requested to provide career guidance and expert talks by industrialists and develop their competency and how they map with the situation.	To offer multilingual program which given creativity and some connectivity towards the interview performance both in subject and practical.	Carrier guidance programs were given and counselling cell supported the development of soft skills and communication ability and how to defeat the interview skill and meet the corporate expectation.
	Teacher	Teaching methods and teaching aids must be improved and learning management system has to be properly introduced	Suggested for advance learning and introduce new aid for betterment understanding of students teacher interactions	Learning Management Systems about to introduced by our management side for better clarity and benefits out of our methods which we adopt
	Alumni	More emphasis should be on the applications of the opted field of study. Focus more on inter-disciplinary activities of many courses which creates skill, entrepreneurship as well employment to meet the future technology and to settle in life.	Suggested for Inter-disciplinary projects which creates job opportunity.	Inter departmental research initiatives was encouraged both students as well faculty to go for next level in LMS.




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NEW COURSES FOR THE ACADEMIC YEAR 2017-2018

MASTER OF BUSINESS ADMINISTRATION

S.No	Programme Code	Programme Name	Course Code	Name of the Course
1	BAP	Master of Business Administration	117MBT01	ECONOMIC ANALYSIS FOR BUSINESS
2	BAP	Master of Business Administration	117MBT02	PRINCIPLES OF MANAGEMENT
3	BAP	Master of Business Administration	117MBT03	ACCOUNTING FOR MANAGEMENT
4	BAP	Master of Business Administration	117MBT04	LEGAL ASPECTS OF BUSINESS
5	BAP	Master of Business Administration	117MBT05	ORGANIZATIONAL BEHAVIOR
6	BAP	Master of Business Administration	117MBT06	STATISTICS FOR MANAGEMENT
7	BAP	Master of Business Administration	117MBT07	TOTAL QUALITY MANAGEMENT
8	BAP	Master of Business Administration	117MBP01	SPOKEN AND WRITTEN COMMUNICATION
9	BAP	Master of Business Administration	217MBT01	APPLIED OPERATIONS RESEARCH
10	BAP	Master of Business Administration	217MBT02	BUSINESS RESEARCH METHODS
11	BAP	Master of Business Administration	217MBT03	FINANCIAL MANAGEMENT
12	BAP	Master of Business Administration	217MBT04	HUMAN RESOURCE MANAGEMENT
13	BAP	Master of Business Administration	217MBT05	INFORMATION MANAGEMENT
14	BAP	Master of Business Administration	217MBT06	OPERATIONS MANAGEMENT
15	BAP	Master of Business Administration	217MBT07	MARKETING MANAGEMENT
16	BAP	Master of Business Administration	217MBP01	DATA ANALYSIS AND BUSINESS MODELING
17	BAP	Master of Business Administration	317MBT03	BRAND MANAGEMENT
18	BAP	Master of Business Administration	317MBT04	CONSUMER BEHAVIOUR
19	BAP	Master of Business Administration	317MBT05	CUSTOMER RELATIONSHIP MANAGEMENT
20	BAP	Master of Business Administration	317MBT06	INTEGRATED MARKETING COMMUNICATION

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21	BAP	Master of Business Administration	317MBT07	RETAIL MARKETING
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AMBT1903- ACCOUNTING FOR MANAGEMENT

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
AMBT1903	ACCOUNTING FOR MANAGEMENT	3	0	0	3	3

Objectives:

- Acquire a reasonable knowledge in accounts
- Analysis and evaluate financial statements
- To acquire decision making knowledge and concept of accounting

UNIT 1: Financial Accounting

Introduction to Financial, Cost and Management Accounting- Generally accepted accounting principles, Conventions and Concepts-Balance sheet and related concepts- Profit and Loss account and related concepts - Introduction to inflation accounting- Introduction to human resources accounting(9 Hours)

UNIT 2: Company Accounts

Meaning of Company -Maintenance of Books of Account-Statutory Books-Profit or Loss Prior to incorporation- Final Accounts of Company- Alteration of share capital- Preferential allotment, Employees stock option- Buyback of securities. (9 Hours)

UNIT 3. Analysis Of Financial Statements

Analysis of financial statements – Financial ratio analysis, cash flow (as per Accounting Standard 3) and funds flow statement analysis. (9 Hours)

UNIT 4: Cost Accounting

Cost Accounts - Classification of manufacturing costs - Accounting for manufacturing costs. Cost Accounting Systems: Job order costing - Process costing- Activity Based Costing- Costing and the value chain- Target costing- Marginal costing including decision making- Budgetary Control & Variance Analysis - Standard cost system(9 Hours)




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UNIT 5: Accounting In Computerised Environment

Significance of Computerised Accounting System- Codification and Grouping of Accounts-Maintaining the hierarchy of ledgers- Prepackaged Accounting software. (9 Hours)

Course Outcomes:

CO1 Explain the basic concept of financial accounting, cost accounting and management accounting.

CO2 Apply the tools from accounting and cost accounting this would facilitate the decision making i.e. Budgeting, Make or Buy decision.

CO3 Apply the concepts of inventory costs, EOQ and inventory control in arriving at decisions related to inventory.

CO 4 Understanding the basics of cost accounting.

CO 5 Explain the usage of computers in Accounting

REFERENCES :

1. M.Y.Khan & P.K.Jain, Management Accounting, Tata McGraw Hill, 2011.
2. R.Narayanaswamy, Financial Accounting – A managerial perspective, PHI Learning, New Delhi, 2011.
3. Jan Williams, Financial and Managerial Accounting – The basis for business Decisions, 15th edition, Tata McGraw Hill Publishers, 2010.
4. Horngren, Surdem, Stratton, Burgstahler, Schatzberg, Introduction to Management Accounting, PHI Learning, 2011.
5. Stice & Stice, Financial Accounting Reporting and Analysis, 8th edition, Cengage, 2010.
6. Singhvi Bodhanwala, Management Accounting -Text and cases, PHI Learning, 2009.
7. Ashish K. Battacharya, Introduction to Financial Statement Analysis, Elsevier, 2009.
8. Sawyers, Jackson, Jenkins, Arora, Managerial Accounting, 2nd edition, Cengage, 2011
9. Godwin, Alderman, Sanyal , Financial Accounting, 2nd edition, Cengage, 2011
10. Narashiman.M.S, Financial statement analysis, Cengage, 2016.



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AMBT1904- LEGAL ASPECTS OF BUSINESS

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
AMBT1904	LEGAL ASPECTS OF BUSINESS	3	0	0	3	3

Objectives:

- To create the knowledge of Legal perspective and its practices to improve the business.
- To gain knowledge in transfer of properties in curtailed and undertrained goods
- To acquire skills in preparing different negotiable instruments

UNIT 1: COMMERCIAL LAW

THE INDIAN CONTRACT ACT 1872

Definition of contract, essentials elements and types of a contract, Formation of a contract, performance of contracts, breach of contract and its remedies, Quasi contracts - Contract Of Agency: Nature of agency, Creation and types of agents, Authority and liability of Agent and principal: Rights and duties of principal and agents, termination of agency.

THE SALE OF GOODS ACT 1930

Nature of Sales contract, Documents of title, risk of loss, Guarantees and Warranties, performance of sales contracts, conditional sales and rights of an unpaid seller - Negotiable Instruments Act 1881: Nature and requisites of negotiable instruments. Types of negotiable instruments, liability of parties, holder in due course, special rules for Cheque and drafts, discharge of negotiable instruments- GST

UNIT 2: COMPANY LAW 2013

Major principles – Nature and types of companies, Formation, Memorandum and Articles of Association, Prospectus, Power, duties and liabilities of Directors, winding up of companies, Corporate Governance.

UNIT 3: INDUSTRIAL LAW

An Overview of Factories Act - Payment of Wages Act - Payment of Bonus Act - Industrial Disputes Act.



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UNIT 4: INCOME TAX ACT AND SALES TAX ACT

Corporate Tax Planning, Overview of central Sales Tax Act 1956 – Definitions, Scope, Incidence of CST, Practical issues of CST, Value Added Tax – Concepts, Scope, Methods of VAT Calculation, Practical Implications of VAT.

UNIT 5: CONSUMER PROTECTION ACT AND INTRODUCTION OF CYBER LAWS 9

Consumer Protection Act – Consumer rights, Procedures for Consumer grievances redressal, Types of consumer Redressal Machineries and Forums- Competition Act 2002 - Cyber crimes, IT Act 2000 and 2002, Cyber Laws, Introduction of IPR – Copy rights, Trade marks, Patent Act.

Course Outcomes:

CO1 Legal insight will be established in the business practices according to the situation of Changing environment.

CO2 Differentiate between an Agreement and Contract and explain Obligations and Rights & Duties of parties involved in Contract

CO3 Explain the importance Contract in Business Environment and Rights of Parties in case of Discharge of Contract

CO4 Explain the importance Creation of Agency, roles and responsibilities of Agent and rights of Principal and Agent, in case of discharge of Agency

CO5: Educate the students on Consumer protection and their rights.

REFERENCES :

1. Kapoor, N. D.; Elements of Mercantile Law, 30th edition, Sultan Chand & Sons, NewDelhi,2015
2. P. K. Goel, Business Law for Managers, Biztantatara Publishers, India, 2008.
3. Akhileshwar Pathack, Legal Aspects of Business, 4th Edition, Tata McGraw Hill, 2009.
4. P. P. S. Gogna, Mercantile Law, S. Chand & Co. Ltd., India, 11th Edition, 2015
5. Maheshwari, S.N. and S.K. Maheshwari; A Manual of Business Law, 6th Edition, Himalaya Publishing House, 2015.




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AMBT1905- STATISTICS FOR MANAGEMENT

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
	STATISTICS FOR MANAGEMENT	3	0	0	3	3

OBJECTIVES:

- To learn the applications of statistics in business decision making
- To make familiar with statistical tools which are relatively used
- Ability to predict trend values by using list square methods in regression.

UNIT 1: INTRODUCTION

Basic definitions and rules for probability, conditional probability independence of events, Baye's theorem, and random variables, Probability distributions: Binomial, Poisson, Uniform and Normal distributions. (9 Hours)

UNIT 2: SAMPLING DISTRIBUTION AND ESTIMATION

Introduction to sampling distributions, sampling distribution of mean and proportion, application of central limit theorem, sampling techniques. Estimation: Point and Interval estimates for population parameters of large sample and small samples, determining the sample size. (9 Hours)

UNIT 3: TESTING OF HYPOTHESIS - PARAMETIRC TESTS

Hypothesis testing: one sample and two sample tests for means and proportions of large samples (z-test), one sample and two sample tests for means of small samples (t-test), F-test for two sample standard deviations. ANOVA one and two way. (9 Hours)


UNIT 4: NON-PARAMETRIC TESTS

Chi-square test for single sample standard deviation. Chi-square tests for independence of attributes and goodness of fit. Sign test for paired data. Rank sum test. Kolmogorov-Smirnov – test for goodness of fit, comparing two populations. Mann – Whitney U test and Kruskal Wallis test. One sample run test. (9 Hours)

UNIT 5: CORRELATION AND REGRESSION

Correlation – Coefficient of Determination – Rank Correlation – Regression – Estimation of Regression line – Method of Least Squares – Standard Error of estimate. (9 Hours)




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COURSE OUTCOMES

CO1 Imparting the ability to collect present, analyze and interpret data.

CO2 Classify the methods of studying Correlation Analysis.

CO3 Describe the types of Correlation Rank, Correlation, Co-efficient Correlation.

CO4 Classify the measurement of trends.

CO 5 Usage of Non – parametric test

REFERENCES:

1. Richard I. Levin, David S. Rubin, Sanjay Rastogi Masood Husain Siddiqui, Statistics for Management, Pearson Education, 7th Edition, 2016.
2. Prem.S.Mann, Introductory Statistics, 7th Edition, Wiley India, 2016.
3. Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani, An Introduction to Statistical Learning with Applications in R, Springer, 2016.
4. Aczel A.D. and Sounderpandian J., "Complete Business Statistics", 6th edition, Tata McGraw Hill Publishing Company Ltd., New Delhi, 2012.
5. Anderson D.R., Sweeney D.J. and Williams T.A., Statistics for business and economics, 11th edition, Thomson (South – Western) Asia, Singapore, 2012.
6. N. D. Vohra, Business Statistics, Tata McGraw Hill, 2012.
7. Ken Black, Applied Business Statistics, 7th Edition, Wiley India Edition, 2012.

AMBT1905- TOTAL QUALITY MANAGEMENT

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
AMBT1905	TOTAL QUALITY MANAGEMENT	3	0	0	3	3

OBJECTIVES:

- To learn the quality philosophies and tools in the managerial perspective
- To acquire quality philosophies and to facilitate continuous improvement and ensure customer delight.
- To describe managing and decision making skills with quality



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UNIT 1: INTRODUCTION

Quality – vision, mission and policy statements. Customer Focus – customer perception of quality, Translating needs into requirements, customer retention. Dimensions of product and service quality. Cost of quality. (9 Hours)

UNIT 2: PRINCIPLES AND PHILOSOPHIES OF QUALITY MANAGEMENT

Overview of the contributions of Deming, Juran Crosby, Masaaki Imai, Feigenbaum, Ishikawa, Taguchi techniques – introduction, loss function, parameter and tolerance design, signal to noise ratio. Concepts of Quality circle, Japanese 5S principles and 8D methodology. (9 Hours)

UNIT 3: STATISTICAL PROCESS CONTROL

Meaning and significance of statistical process control (SPC) – construction of control charts for variables and attributed. Process capability – meaning, significance and measurement – Six sigma - concepts of process capability. Reliability concepts – definitions, reliability in series and parallel, product life characteristics curve. Total productive maintenance (TMP), Terotechnology. Business process Improvement (BPI) – principles, applications, reengineering process, benefits and limitations. (9 Hours)

UNIT 4: TOOLS AND TECHNIQUES FOR QUALITY MANAGEMENT

Quality functions development (QFD) – Benefits, Voice of customer, information organization, House of quality (HOQ), building a HOQ, QFD process. Failure mode effect analysis (FMEA) – requirements of reliability, failure rate, FMEA stages, design, process and documentation. Seven Tools (old & new). Bench marking and POKA YOKE. (9 Hours)

UNIT 5: QUALITY SYSTEMS ORGANIZING AND IMPLEMENTATION

Introduction to IS/ISO 9004:2000 – quality management systems – guidelines for performance improvements. Quality Audits. TQM culture, Leadership – quality council, employee involvement, motivation, empowerment, recognition and reward - TQM framework, benefits, awareness and obstacles. (9 Hours)

COURSE OUTCOMES:

CO1 Discuss quality and various contributors to Quality

CO2 Apply in-depth various QC tools.

CO3 Explain frameworks of Global Quality Awards.

CO4 Discuss Strategic Quality management and its components.

CO5 Apply Statistical Quality Control like process capability, Six Sigma quality, Process control, p charts and c charts, Process control for variables, X bar R chart

REFERENCES :

1. Dale H.Besterfield, Carol Besterfield – Michna, Glen H. Besterfield, Mary Besterfield –

Sacre, Hermant – Urdhwareshe, Rashmi Urdhwareshe, Total Quality Management,

Revised Third edition,

Pearson Education, 2011




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II Semester

- APPLIED OPERATIONS RESEARCH

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
	APPLIED OPERATIONS RESEARCH	3	0	0	3	3

OBJECTIVE:

- To learn the concepts of operations research applied in business decision making.
- To introduce the students to use quantitative methods and techniques for effective decision making
- To facilitate the use modal formulation and applications that are used in solving business decision problems

UNIT 1: INTRODUCTION TO LINEAR PROGRAMMING (LP)

Introduction to applications of operations research in functional areas of management. Linear Programming-formulation, solution by graphical and simplex methods (Primal - Penalty, Two Phase), Special cases. Dual simplex method. Principles of Duality. Sensitivity Analysis. **(9 Hours)**

UNIT 2: LINEAR PROGRAMMING EXTENSIONS

Transportation Models (Minimising and Maximising Problems) – Balanced and unbalanced Problems – Initial Basic feasible solution by N-W Corner Rule, Least cost and Vogel's approximation methods. Check for optimality. Solution by MODI / Stepping Stone method. Case of Degeneracy. Transshipment Models. Assignment Models (Minimising and Maximising Problems) – Balanced and Unbalanced Problems. Solution by Hungarian and Branch and Bound Algorithms. Travelling Salesman problem. Crew Assignment Models. **(9 Hours)**

UNIT 3: INTEGER PROGRAMMING AND GAME THEORY

Solution to pure and mixed integer programming problem by Branch and Bound and cutting plane algorithms. Game Theory-Two person Zero sum games-Saddle point, Dominance Rule, Convex Linear Combination (Averages), methods of matrices, graphical and LP solutions. **(9 Hours)**



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UNIT 4: INVENTORY MODELS, SIMULATION AND DECISION THEORY

Inventory Models – EOQ and EBQ Models (With and without shortages), Quantity Discount Models. Decision making under risk – Decision trees – Decision making under uncertainty. Monte-carlo simulation. **(9 Hours)**

UNIT 5: QUEUING THEORY AND REPLACEMENT MODELS

Queuing Theory - single and Multi-channel models – infinite number of customers and infinite calling source. Replacement Models-Individuals replacement Models (With and without time value of money) – Group Replacement Models. **(9 Hours)**

COURSE OUTCOME:

CO1 Identify and develop operational research models from the verbal description of the real system.

CO2 Understand the mathematical tools that are needed to solve optimization problems.

CO3 Use mathematical software to solve the proposed models.

CO4 Develop a report that describes the model and the solving technique, analyze the results and propose recommendations in language understandable to the decision-making processes in Management Engineering.

CO5 analyze the results and propose recommendations in language understandable to the decision-making processes in Management Engineering.

REFERENCES :

1. Paneerselvam R., Operations Research, Prentice Hall of India, Fourth Print, 2008.
2. N. D Vohra, Quantitative Techniques in Management, Tata Mcgraw Hill, 2010.
3. Hamdy A Taha, Introduction to Operations Research, Prentice Hall India, Ninth Edition, 2010.
4. Anderson , Sweeney Williams Solutions Manual to Accompany An Introduction to Management Science Quantitative Approaches To Decision, Cengage , 12th edition , 2012
5. G. Srinivasan, Operations Research – Principles and Applications, II edition , PHI, 2010.
6. Bernard W.Taylor , Introduction to Management Science , 12 th edition, 2012




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AMBT2907- BUSINESS RESEARCH METHODS

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
AMBT2907	BUSINESS RESEARCH METHODS	3	0	0	3	3

OBJECTIVE:

- To familiarize the students to the principles of scientific methodology in business enquiry; to develop analytical skills of business research; to develop the skills for scientific communications.
- TO Elaborate the Scientific Method of Research, Steps in Research Process, Concept of Scientific Enquiry and Elements of a Research Proposal.
- To introduce the statistical tools of data analysis.

UNIT 1: INTRODUCTION

Business Research – Definition and Significance – the research process – Types of Research – Exploratory and causal Research – Theoretical and empirical Research – Cross –Sectional and time – series Research – Research questions / Problems – Research objectives – Research hypotheses – characteristics – Research in an evolutionary perspective – the role of theory in research. **(9 Hours)**

UNIT 2: RESEARCH DESIGN AND MEASUREMENT

Research design – Definition – types of research design – exploratory and causal research design – Descriptive and experimental design – different types of experimental design – Validity of findings – internal and external validity – Variables in Research – Measurement and scaling – Different scales – Construction of instrument – Validity and Reliability of instrument. **(9 Hours)**

UNIT 3: DATA COLLECTION

Types of data – Primary Vs Secondary data – Methods of primary data collection – Survey Vs Observation – Experiments – Construction of questionnaire and instrument – Validation of questionnaire – Sampling plan – Sample size – determinants optimal sample size – sampling techniques – Probability Vs Non–probability sampling methods. **(9 Hours)**

UNIT 4: DATA PREPARATION AND ANALYSIS

Data Preparation – editing – Coding –Data entry – Validity of data – Qualitative Vs Quantitative data analyses – Bivariate and Multivariate statistical techniques – Factor analysis – Discriminant analysis – cluster analysis – multiple regression and



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correlation – multidimensional scaling – Conjoint Analysis - Application of statistical software for data analysis. **(9 Hours)**

UNIT 5: REPORT DESIGN, WRITING AND ETHICS IN BUSINESS RESEARCH

Research report – Different types – Contents of report – need of executive summary – chapterization – contents of chapter – report writing – the role of audience – readability – comprehension – tone – final proof – report format – title of the report – ethics in research – ethical behaviour of research – subjectivity and objectivity in research. **(9 Hours)**

COURSE OUTCOME:

CO1 Students would become acquainted with the scientific methodology in business domain. They would also become analytically skillful. They would become familiar with the nuances of scientific communications.

CO2 Students would be able to Explain Business Research, Business Intelligence, Research applications in functional areas of Business and Emerging trends in Business research.

CO3 Students would be able to Explain Qualities of a good Hypothesis and Concept of Hypothesis Testing.

CO4 Students would be able to elaborate the concept & need of sampling and types of sampling.

CO5 Students would be able to Elaborate Linear Regression Analysis, Test of Significance and Structure of Research report writing.

REFERENCES :

1. Donald R. Cooper, Pamela S. Schindler and J K Sharma, Business Research methods, 11th Edition, Tata Mc Graw Hill, New Delhi, 2012.
2. Alan Bryman and Emma Bell, Business Research methods, 3rd Edition, Oxford University Press, New Delhi, 2011.
3. Uma Sekaran and Roger Bougie, Research methods for Business, 5th Edition, Wiley India, New Delhi, 2012.
4. William G Zikmund, Barry J Babin, Jon C.Carr, Atanu Adhikari, Mitch Griffin, Business Research methods, A South Asian Perspective, 8th Edition, Cengage Learning, New Delhi, 2012.




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AMBT2908- FINANCIAL MANAGEMENT

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
AMBT2908	FINANCIAL MANAGEMENT	3	0	0	3	3

OBJECTIVES:

- To understand the operational nuances of a Finance Manager
- To comprehend the technique of making decisions related to finance function
- To acquaint the students with the theory and techniques of financial management, and developing their abilities in respect of investment and capital budgeting, financial planning, capital structure decisions, dividend policy and working capital management.

UNIT 1: FOUNDATIONS OF FINANCE:

Introduction to finance- Financial Management – Nature, scope and functions of Finance, organization of financial functions, objectives of Financial management, Major financial decisions – Time value of money – features and valuation of shares and bonds – Concept of risk and return – single asset and of a portfolio. **(9 Hours)**

UNIT 2: INVESTMENT DECISIONS:

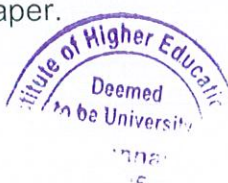
Capital Budgeting: Principles and techniques - Nature of capital budgeting- Identifying relevant cash flows - Evaluation Techniques: Payback, Accounting rate of return, Net Present Value, Internal Rate of Return, Profitability Index - Comparison of DCF techniques Concept and measurement of cost of capital - Specific cost and overall cost of capital. **(9 Hours)**

UNIT 3: FINANCING AND DIVIDEND DECISION:

Leverages - Operating and Financial leverage – measurement of leverages – degree of Operating & Financial leverage – Combined leverage, EBIT – EPS Analysis- Indifference point. Capital structure – Theories – Net Income Approach, Net Operating Income Approach, MM Approach – Determinants of Capital structure. Dividend decision- Issues in dividend decisions, Importance, Relevance & Irrelevance theories –Walter"s – Model, Gordon"s model and MM model. – Factors determining dividend policy – Types of dividend policies – forms of dividend **(9 Hours)**

UNIT 4: WORKING CAPITAL MANAGEMENT:

Principles of working capital: Concepts, Needs, Determinants, issues and estimation of working capital - Accounts Receivables Management and factoring - Inventory management - Cash management - Working capital finance : Trade credit, Bank finance and Commercial paper. **(9 Hours)**



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UNIT 5: LONG TERM SOURCES OF FINANCE:

Indian capital and stock market, New issues market Long term finance: Shares, debentures and term loans, lease, hire purchase, venture capital financing, Private Equity.
(9 Hours)


COURSE OUTCOME:

- CO1** Understand the different financing decision and estimate the value of different financial instruments (including stocks and bonds)
- CO2** Decide the source of finance for an organization and formulate the optimum Capital Structure
- CO3** Develop analytical skills this would facilitate the decision making in business situations
- CO4** Describe and assess how companies manage the components of working capital to minimize the cost of carrying current assets and the cost of short-term borrowing
- CO5** Explain the Factors affecting the capital structure and significant role of Cost of Capital

REFERENCES :

1. M.Y. Khan and P.K.Jain Financial management, Text, Problems and cases Tata McGraw Hill, 6th edition, 2011.
2. M. Pandey Financial Management, Vikas Publishing House Pvt. Ltd., 10th edition, 2012.
3. Aswat Damodaran, Corporate Finance Theory and practice, John Wiley & Sons, 2011.
4. James C. Vanhorne –Fundamentals of Financial Management– PHI Learning, 11th Edition, 2012.
5. Prasanna Chandra, Financial Management, 9th edition, Tata McGraw Hill, 2012.
6. G.Sudersena Reddy, Financial Management- Principles & Practices, Himalaya Publishing House, 2nd Edition, 2010
7. Srivatsava, Mishra, Financial Management, Oxford University Press, 2011
8. Parasuraman.N.R, Financial Management, Cengage, 2014.
9. William R.Lasher, Financial Management, 7th Edition, Cengage, 2014 .
10. Brigham and Ehrhardt, Financial Management, 14th edition, Cengage, 2015




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AMBT2909- MANAGEMENT OF HUMAN RESOURCE

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
AMBT2909	MANAGEMENT OF HUMAN RESOURCE	3	0	0	3	3

OBJECTIVE:

- To provide knowledge about management issues related to staffing, training, performance, compensation, human factors consideration and compliance with human resource requirements.
- To Explain Nature of HRM, Scope, Functions and Objectives, HRM Policies and practices.
- To understand the role of HRM in an organization

UNIT 1: HUMAN RESOURCE MANAGEMENT : CONTEXT, CONCEPT AND BOUNDARIES

Evolution of human resource management – The importance of the human factor – Challenges – Role of human resource manager – Structuring human resource management - Human resource policies – Changing social context and emerging issues– Human resource accounting and audit. **(9 Hours)**

UNIT 2: GETTING HUMAN RESOURCE

Job Analysis and Job design - Importance of Human Resource Planning – Forecasting human resource requirement – matching supply and demand . Attracting the talent : Recruitment - Selection – outsourcing Socialization, Mobility and Separation. **(9 Hours)**

UNIT 3: TRAINING AND EXECUTIVE DEVELOPMENT

Types of training methods –purpose- benefits- resistance. Executive development programmes – Common practices - – Development of mentor- Mentoring and performance coaching- Self development – Knowledge management. **(9 Hours)**

UNIT 4 : COMPENSATION AND REWARD MANAGEMENT

Compensation plan – Reward – Motivation – Application of theories of motivation – Career management–Laws covering wages, welfare and benefits. **(9 Hours)**

UNIT 5: PERFORMANCE EVALUATION AND CONTROL PROCESS

Method of performance evaluation – Feedback – Industry practices. Promotion, Demotion, Transfer and Separation – Implication of job change. The control process –



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Importance – Methods – Requirement of effective control systems grievances – Causes
 – Implications – Redressal methods. **(9 Hours)**

COURSE OUTCOME:

- CO1** Design Human Resource Planning and Make Career Planning
- CO2** Undertake Training and Development programs at different levels
- CO3** Measure Employee Appraisal & provide Compensation
- CO4** Analyze Performance feedback & follow Performance Appraisal Methods and link compensation with performance
- CO5** Maintain harmonious Industrial Relations & solve Disputes

REFERENCES :

1. Dessler Human Resource Management, Pearson Education Limited, 14th Edition, 2015.
2. Decenzo and Robbins, Fundamentals of Human Resource Management, Wiley, 11th Edition, 2013.
3. Luis R.Gomez-Mejia, David B.Balkin, Robert L Cardy. Managing Human Resource. PHI Learning. 2012
4. Bernadin , Human Resource Management ,Tata Mcgraw Hill ,8th edition 2012.
5. Wayne Cascio, Managing Human Resource, McGraw Hill, 2007.
6. Ivancevich, Human Resource Management, McGraw Hill 2012.
7. Uday Kumar Haldar, Juthika Sarkar. Human Resource management. Oxford. 2012

- MANAGEMENT INFORMATION SYSTEM

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
	MANAGEMENT INFORMATION SYSTEM	3	0	0	3	3

Course Objectives:

The aim of this course is:

1. To describe the role of information technology and decision support systems in business and record the current issues with those of the firm to solve business problems.
2. To introduce the fundamental principles of computer-based information systems analysis and design and develop an understanding of the principles and techniques used.
3. To enable students understand the various knowledge representation methods and different expert system structures as strategic weapons to counter the threats to business and make business more competitive.



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4. To enable the students to use information to assess the impact of the Internet and Internet technology on electronic commerce and electronic business and understand the specific threats and vulnerabilities of computer systems.

5. To provide the theoretical models used in database management systems to answer business questions.

Unit 1- Management information system in a digital firm:

MIS concept - Definition –Role of the MIS - Impact of the MIS-MIS and the user - Management as a control system - MIS a support to management - Development process of the MIS.

Unit 2- System analysis and design:

System - Need for system analysis - System analysis of the existing system - System analysis of a new requirements - System Development Model - Structured System Analysis and Design - Object Oriented Analysis.

Unit 3- Information system applications:

MIS applications, DSS – GDSS - DSS applications in E enterprise - Knowledge Management System and Knowledge Based Expert System - Enterprise Model System and E-Business, E- Commerce, E-communication, Business Process Reengineering.

Unit 4- Technology of information system:

Data process- Transaction and application process, Information system process, Unified communication and network, Security challenges in E-enterprises, Security threats and vulnerability-Controlling security threat and vulnerability.

Unit 5- Data base management system

Objectives of data base approach- Characters of database Management systems- Data processing system- Components of DBMS packages - Data base administration- Data models - Data warehouse.

Case Study: Compulsory.

Course Outcomes:

Upon completion of this course, students will be able to:

CO1. Relate the basic concepts and technologies used in the field of management information systems

CO 2. Compare the processes of developing and implementing information systems.

CO 3. Outline the role of the ethical, social, and security issues of information systems.




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CO 4. Translate the role of information systems in organizations, the strategic management processes, with the implications for the management.

CO5. Apply the understanding of how various information systems like DBMS work together to accomplish the information objectives of an organization.

Reference Books

1. Jawadekar, W.S., "Management Information Systems", Tata McGraw Hill Private Limited, New Delhi, 2009.
2. Kenneth C. Laudon and Jane P. Laudon: "Management Information Systems" 9/e, Pearson Education, New Delhi.
3. Alex Leon and Mathew Leon: "Data Base Management Systems", Vikas Publishing House, New Delhi.
4. Goyal, D.P.: "Management Information System", MACMILLAN India Limited, New Delhi, 2008.
5. Mahadeo Jaiswal, Monika Mital: "Management Information System", Oxford University Press, New Delhi, 2008.
6. Murthy C.S.V.: "Management Information System", Himalaya Publications, New Delhi, 2008.
7. Panneerselvam R.: "Database Management System", PHI Private Limited, New Delhi, 2008.
8. Philip J, Pratt, Joseph J. Adamski: "Database Management Systems", Cengage Learning, New Delhi, 2009.
9. Richard T. Watson: "Data Management ", WILEY INDIA Limited, New Delhi, 2008.
10. Rob and Cornell: "Data Base Management Systems" Cengage Learning, New Delhi.

AMBT2910- OPERATIONS MANAGEMENT

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
AMBT2910	OPERATIONS MANAGEMENT	4	0	0	4	4

OBJECTIVE:




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- To provide a broad introduction to the field of operations management and explain the concepts, strategies, tools and techniques for managing the transformation process that can lead to competitive advantage.
- To develop an understanding of the strategic importance of Operations & SCM and how it can provide a competitive advantage in the marketplace
- To develop knowledge of the issues related to designing and managing Operations & SCM and the techniques to do so

UNIT 1: INTRODUCTION TO OPERATIONS MANAGEMENT

Operations Management – Nature, Importance, historical development, transformation processes, differences between services and goods, a system perspective, functions, challenges, current priorities, recent trends; Operations Strategy – Strategic fit , framework; Supply Chain Management **(12 Hours)**

UNIT 2: FORECASTING, CAPACITY AND FACILITY DESIGN

Demand Forecasting – Need, Types, Objectives and Steps. Overview of Qualitative and Quantitative methods. Capacity Planning – Long range, Types, Developing capacity alternatives. Overview of sales and operations planning. Overview of MRP, MRP II and ERP.

Facility Location – Theories, Steps in Selection, Location Models. Facility Layout – Principles, Types, Planning tools and techniques. **(12 Hours)**

UNIT 3: DESIGN OF PRODUCT, PROCESS AND WORK SYSTEMS

Product Design – Influencing factors, Approaches, Legal, Ethical and Environmental issues. Process – Planning, Selection, Strategy, Major Decisions. Work Study – Objectives, Procedure. Method Study and Motion Study. Work Measurement and Productivity – Measuring Productivity and Methods to improve productivity. **(12Hours)**

UNIT 4: MATERIALS MANAGEMENT

Materials Management – Objectives, Planning, Budgeting and Control. Purchasing – Objectives, Functions, Policies, Vendor rating and Value Analysis. Stores Management – Nature, Layout, Classification and Coding. Inventory – Objectives, Costs and control techniques. Overview of JIT. **(12 Hours)**

UNIT 5: SCHEDULING AND PROJECT MANAGEMENT

Project Management – Scheduling Techniques, PERT, CPM; Scheduling - work centers – nature, importance; Priority rules and techniques, shop floor control; Flow shop scheduling – Johnson's Algorithm – Gantt charts; personnel scheduling in services. **(12 Hours)**

COURSE OUTCOME:

CO1 Explain the importance, scope and functions of Operations Management in Present Scenario

CO2 Demonstrate the Production Planning and Control and its functions for effective and efficient operations management

CO3 Explain demand forecasting, production planning tools & production control tools

CO4 Prepare the CRP, DRP, and MRP-II for the given situation and explain importance of it in productivity of organization

CO5 Explain and identify the importance of role of each supply chain partner in delivering maximum satisfaction to customers

REFERENCES :



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1. Richard B. Chase, Ravi Shankar, F. Robert Jacobs, Nicholas J. Aquilano, Operations and Supply Management, Tata McGraw Hill, 12th Edition, 2010.
2. Norman Gaither and Gregory Frazier, Operations Management, South Western Cengage, 2002.
3. William J Stevenson, Operations Management, Tata McGraw Hill, 11th Edition, 2015.
4. Russel and Taylor, Operations Management, Wiley, 8th Edition, 2015.
5. Kanishka Bedi, Production and Operations Management, Oxford University, 3rd Edition, 2013.
6. Chary S. N, Production and Operations Management, Tata McGraw Hill, 5th Edition, 2013.
7. Aswathappa K and Shridhara Bhat K, Production and Operations Management, Himalaya Publishing House, Revised Second Edition, 2008.
8. Mahadevan B, Operations Management Theory and practice, Pearson Education, 3rd Edition, 2015
9. Pannerselvam R, Production and Operations Management, Prentice Hall India, Second Edition, 2008.

AMBT2911- MARKETING MANAGEMENT

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
AMBT2911	MARKETING MANAGEMENT	3	0	0	3	3

OBJECTIVES:

- Developing an understanding of ideas and nuances of modern marketing
- Describe the process to formulate and manage the B2B marketing strategy including all key components.
- Explain the techniques to conduct market analysis practices including market segmentation and targeting.
- Compare and contrast different perspectives that characterize the study of consumer behavior.
- Explain the role of IMC in the overall marketing program.

UNIT I INTRODUCTION: Marketing AND ITS APPLICATIONS

Marketing – Definitions - Conceptual frame work – Marketing environment : Internal and External - Marketing interface with other functional areas – Production, Finance, Human Relations Management, Information System. Marketing in global environment – Prospects and Challenges. **(9 Hours)**

UNIT II MARKETING PLANNING AND ORGANIZATION

Marketing strategy formulations – Key Drivers of Marketing Strategies - Strategies for Industrial Marketing – Consumer Marketing – Services marketing – Market



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mix – market segmentation - Analysis of consumer and industrial markets – Strategic Marketing Mix components. **(9 Hours)**

UNIT III PRODUCT MANAGEMENT

Product planning and development – Product life cycle – New product Development and Management – Market Segmentation – Targeting and Positioning – Channel Management – Advertising and sales promotions – Pricing Objectives, Policies and methods- Branding and packaging decisions. **(9 Hours)**

UNIT IV BUYER BEHAVIOUR

Understanding industrial and individual buyer behavior - Influencing factors – Buyer Behaviour Models – Online buyer behaviour - Building and measuring customer satisfaction – Customer relationships management – Customer acquisition, Retaining, Defection. **(9 Hours)**

UNIT V MARKETING RESEARCH & TRENDS IN MARKETING

Marketing Information System – Research Process – Concepts and applications : Product – Advertising – Promotion – Consumer Behaviour – Retail research – Customer driven organizations - Cause related marketing - Ethics in marketing – Online marketing trends. **(9 Hours)**

COURSE OUTCOMES:

- CO1** Knowledge of analytical skills in solving marketing related problems
- CO2** Awareness of marketing management process
- CO3** Differentiate Between marketing VS Selling
- CO4** Explain the role consumer behavior and demonstrate the Consumer Buying Process.
- CO5** Design Segmentation, Target Marketing & Positioning

REFERENCES :

1. Philip Kotler and Kevin Lane Keller, Marketing Management, PHI 14th Edition, 2012
2. KS Chandrasekar, "Marketing management-Text and Cases", Tata McGraw Hill, First edition, 2010
3. Lamb, hair, Sharma, Mc Daniel– Marketing – An Innovative approach to learning and teaching-A south Asian perspective, Cengage Learning — 2012
4. Paul Baines, Chris Fill and Kelly Page, Marketing, Oxford University Press, 2nd Edition, 2011
- Micheal R.Czinkota & Masaaki Kotabe, Marketing Management, Cengage, 2000.



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PRACTICAL

AMBP2912- DATA ANALYSIS AND BUSINESS MODELING

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
AMBP2912	DATA ANALYSIS AND BUSINESS MODELING	0	0	2	2	2

OBJECTIVE :

- To have hands-on experience on decision modeling.
- To obtain, clean/process and transform data

[Business models studied in theory to be practiced using Spreadsheet / Analysis Software]

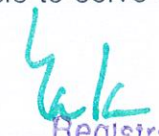
S.No.	Exp. No.	Details of experiments	Duration
Name			
1	1	Descriptive Statistics	4
2	2	Hypothesis - Parametric	4
3	3	Hypothesis – Non-parametric	4
4	4	Correlation & Regression	4
5	5	Forecasting	4
6	-	Extended experiment – 1	4
7	6	Portfolio Selection	4
8	7	Risk Analysis & Sensitivity Analysis	4
9	8	Revenue Management	4
10	-	Extended experiment – 2	4
11	9	Transportation & Assignment	4
12	10	Networking Models	4
13	11	Queuing Theory	4
14	12	Inventory Models	4
15	-	Extended experiments – 3	4

- Spreadsheet Software and
- Data Analysis Tools

COURSE OUTCOME:

- CO1** Knowledge of spreadsheets and data analysis software for business modeling
- CO2** Analyze and interpret data using an ethically responsible approach.
- CO3** Use appropriate models of analysis, assess the quality of input, derive insight from results, and investigate potential issues
- CO4** Formulate and use appropriate models of data analysis to solve hidden solutions to business-related challenges
- CO5** Usage of new statistical tools models in analysis




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AMBT3919- RETAIL MARKETING

SUBJECT CODE	SUBJECT TITLE	L	T	P	TOTAL LTP	C
AMBT3919	RETAIL MARKETING	3	0	0	3	3

OBJECTIVE:

- To provide insights into all functional areas of retailing.
- To give an account of essential principles of retailing.
- To give a perspective of the Indian retailing scenario

UNIT I INTRODUCTION

An overview of Global Retailing – Challenges and opportunities – Retail trends in India – Socio economic and technological Influences on retail management – Government of India policy implications on retails. (9 Hours)

UNIT II RETAIL FORMATS

Organized and unorganized formats – Different organized retail formats – Characteristics of each format – Emerging trends in retail formats – MNC's role in organized retail formats. (9 Hours)

UNIT III RETAILING DECISIONS

Choice of retail locations - internal and external atmospherics – Positioning of retail shops – Building retail store Image - Retail service quality management – Retail Supply Chain Management – Retail Pricing Decisions. Mercandising and category management – buying. (9 Hours)

UNIT IV RETAIL SHOP MANAGEMENT

Visual Merchandise Management – Space Management – Retail Inventory Management – Retail accounting and audits - Retail store brands – Retail advertising and promotions – Retail Management Information Systems - Online retail – Emerging trends . (9 Hours)


UNIT V RETAIL SHOPPER BEHAVIOUR

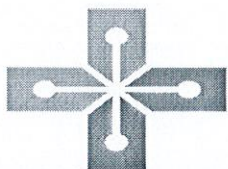
Understanding of Retail shopper behavior – Shopper Profile Analysis – Shopping Decision Process - Factors influencing retail shopper behavior – Complaints Management - Retail sales force Management – Challenges in Retailing in India. (9 Hours)

OUTCOME:

- CO1 To manage the retail chains and understand the retail customer's behavior
- CO2 Explain Retailing Environment
- CO3 Illustrate Retail Location & Site Selection
- CO4 Explain Retail Communication Mix
- CO5 Understanding the Retail shopper behavior




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NEW COURSES FOR THE ACADEMIC YEAR 2017-2018

BACHELOR OF BUSINESS ADMINISTRATION

S.No	Programme Code	Programme Name	Course Code	Name of the Course
1	CMU	Bachelor of Business Administration	116UBBT03	FINANCIAL ACCOUNTING
2	BAU	Bachelor of Business Administration	116UBBT04	PRINCIPLES OF MANAGEMENT
3	BAU	Bachelor of Business Administration	116UBBT05	ALLIED I: MANAGERIAL ECONOMICS
4	BAU	Bachelor of Business Administration	116UBB506	BASICS OF COMPUTER
5	BAU	Bachelor of Business Administration	216UBBT03	BUSINESS COMMUNICATION
6	BAU	Bachelor of Business Administration	216UBBT04	MANAGEMENT ACCOUNTING
7	BAU	Bachelor of Business Administration	216UBBT05	ALLIED II: INTERNATIONAL TRADE
8	BAU	Bachelor of Business Administration	216UBBT09	CONSUMER PROTECTION & CONSUMER RIGHTS




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216UBBT04	Management Accounting	L	T	P	C
		5	0	0	5

216UBBT04 Management Accounting

Course Objectives:

- To enable the students to gain insights into the various concepts related to management accounting
- To familiarize the students with the accounting statement analysis and ratio analysis by using accounting data and other related information for decision making, planning and control
- To acquaint students with the budgetary preparation and cash flow and fund flow for business planning

UNIT I

Management accounting –Meaning, nature, scope and functions, need, importance and limitations –Management Accounting vs. Cost Accounting. Management Accounting vs. Financial Accounting.

UNIT II

Analysis and Interpretation of financial statements –Nature, Course Objectives, essentials and tools. methods –Comparative Statements, Common Size statement and Trend analysis.

UNIT III

Ratio Analysis –Interpretation, benefits and limitations. Classification of ratios-Liquidity, Profitability, turnover, capital structure and Leverage.

UNIT IV

Funds flow and Cash flow analysis. Budgets and budgetary control –Meaning, Course Objectives, merits and demerits.



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UNIT V

Marginal costing (excluding decision making) Absorption costing and marginal costing –CVP analysis.

Recommended Texts

1. SN Maheswari, Management Accounting -Sultan Chand & Sons.
2. RSN Pillai & Bagavati, Management Accounting -S Chand & Co Ltd -New Delhi.
3. Horngren Sunderu Stratton, Introduction to Management Accounting -Pearson Education.
4. T. S. Reddy and Hari Prasad Reddy.
5. Management Accounting, Maegham Publication.

Course Outcomes:

After completion of the course, student will be able to:

- CO1** Demonstrate the importance and uses of management accounting in business
- CO2** Analyse the financial statement by using comparative and common size tools to understand the changes in financial position of an organisation
- CO3** Calculate various ratios to analyze the financial position of an organisation in terms of liquidity, profitability and solvency.
- CO4** Prepare budget for the organization and cash flow and fund flow statement to determine the liquidity position.
- CO5** Find out the product, project, divisional and organizational performance by using managerial accounting information.




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216UBBT09	Consumer Protection and Consumer Rights	L	T	P	C
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216UBBT09 Consumer Protection and Consumer Rights

Course Objectives:

- To introduce the students to the existing law and practice relating to consumer protection and consumer rights
- To inculcate the knowledge towards consumer rights and its legal proceedings to the students
- To understand the advantages and limitations of the consumer movement and the rights of the consumer
- To understand business malpractices and legislative regulations to protect consumers

UNIT - I

Introduction of consumer protection act 1986-other amendments-salient features

UNIT - II

Definitions of the terms- : consumer - appropriate laboratory - complainant - consumer dispute -complaint-restrictive trade practice.

UNIT - III

The various consumer rights:-right to safety, Right to information, Right to choose, - right to be heard -Right against exploitation -Right to consumer education

UNIT - IV

Consumer protection councils:-Central - State.

UNIT - V

Consumer disputes redressal agencies:-Direct forum-state commission-national commission



[Signature]
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REFERENCE BOOKS:

1. Lectures On Torts And Consumer Protection Laws By Dr.Regga Surya Rao--Asia Law House. Hyderabad.
2. Consumer Protection Laws --By Prof.Rakesh Khanna—Central Law Agency.

Course Outcomes:

- CO1** - Students will have a comprehensive understanding about the existing law on consumer protection in India.
- CO2** -Students will be conversant with major international instruments on consumer protection.
- CO3** - Students will be aware of the basic procedures for handling consumer dispute.
- CO4** - Students will be able to appreciate the emerging questions and policy issues in consumer law for future research.
- CO5** – Students will be able to understand consumer disputes and commissions to solve it.




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**MINUTES OF THE 4th MEETING OF THE BOARD OF STUDIES IN
CHEMISTRY**

Held on 24th August 2017

Members Present

- | | |
|--|-----------------|
| (1) Dr. Sayeeda Sultana, Professor & Head | Chairperson |
| (2) Dr. S. Ramabadrn, Assistant Professor | Internal Member |
| (3) Dr.N.Indra Gandhi, Associate Professor
Department of Chemistry, Presidency College
Chennai | External Member |
| (4) Dr.Anitha, Associate Professor
Department of Chemistry, Queen Mary's College
Chennai | External Member |

4.1	Considered the minutes of the 3 rd meeting of Board of Studies in Chemistry held on 05.03.2017 RESOLVED that the minutes of the 3 rd meeting of Board of Studies in Chemistry held on 05.03.2017 be confirmed.
4.2	Reviewed Syllabi of Engineering Chemistry prescribed for Engineering and Technology programmes under the Regulations 2013, 2015 and 2017. RESOLVED that the Syllabi of Engineering Chemistry prescribed for Engineering and Technology programmes under the Regulations 2013 2015 and 2017 be continued.
4.3	Reviewed the Regulation & Syllabi of B.Sc Chemistry programme under the Regulations 2016. RESOLVED that the Regulation & Syllabi of B.Sc Chemistry programme under the Regulations 2016 be continued.
4.4	Reviewed the Regulation & Syllabi of M.Sc Chemistry programme under the Regulations 2016. RESOLVED that the Regulation & Syllabi of M.Sc Chemistry programme under the Regulations 2016 be continued.
4.5	Reviewed the Regulation & Syllabi of M.Phil Chemistry programme under the Regulations 2016. RESOLVED that the Regulation & Syllabi of M.Phil Chemistry programme under the Regulations 2016 be continued.




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4.6	Considered to include value added courses imparting transferable and life skills offered beyond the curriculum in the syllabi M.Sc (Chemistry). RESOLVED that the value added courses imparting transferable and life skills offered beyond the curriculum such as course on “Phytochemistry and Biological Activities in Medicinal Plants” be approved for the upcoming semester (2017-18–EVEN semester)
4.7	Reviewed and considered the curriculum feedback analysis and action taken report collected from stake holders. NOTED the curriculum feedback analysis and action taken report collected from stake holders be included in the appropriate place in the syllabi. (Appendix - I)

Date: 24.08.2017

Sayeeda Sultana

Chairperson
Dr. SAYEEDA SULTANA

PROFESSOR AND HEAD
DEPARTMENT OF CHEMISTRY

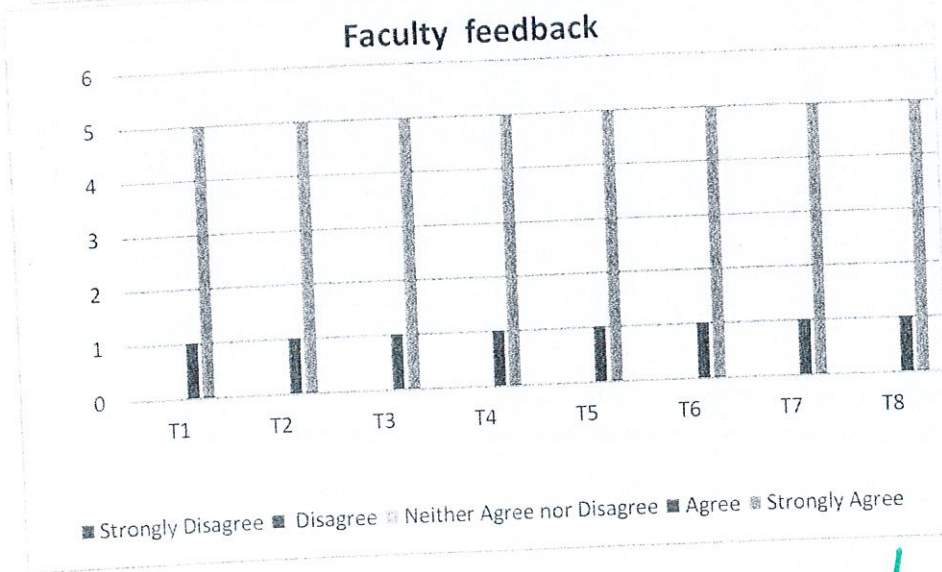
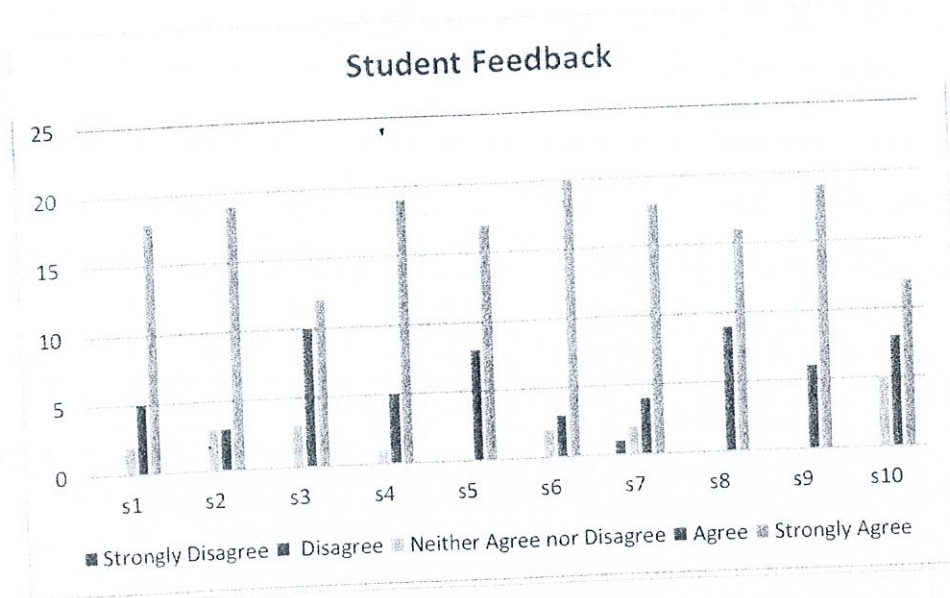
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Y.K.
Registrar

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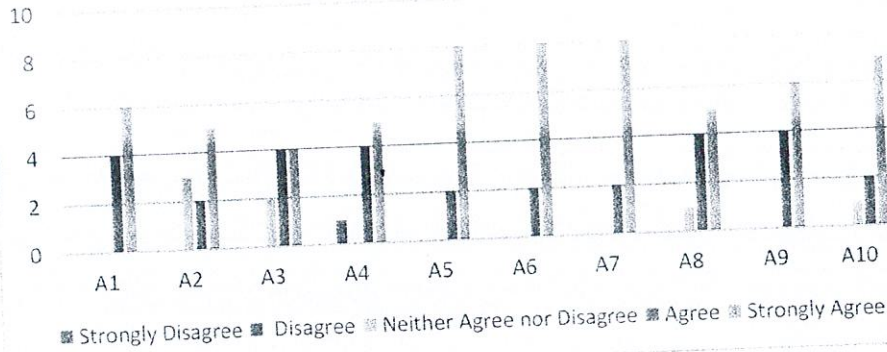
FEEDBACK ANALYSIS (2016-17)



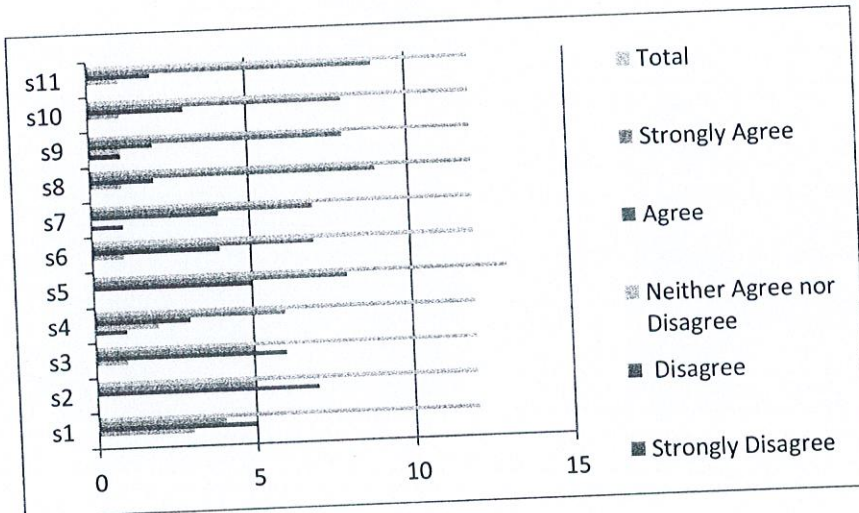
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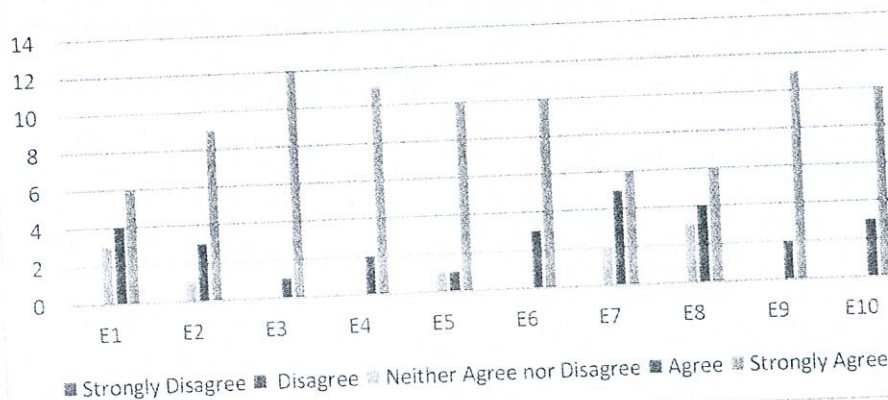
Alumni Feedback



Parent Feedback



EMPLOYER FEEDBACK



Date: 24.08.2017



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[Signature]
Chairperson
24/8/2017
Dr. SAYEEDA SULTANA
PROFESSOR AND HEAD
DEPARTMENT OF CHEMISTRY
St. Peter's Institute of Higher Education and Research
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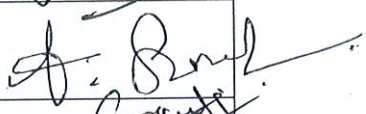

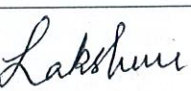
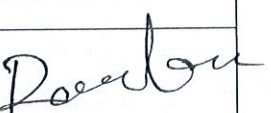
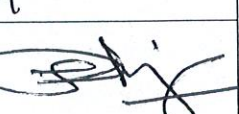
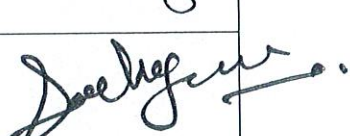
St. PETER'S UNIVERSITY

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AVADI, CHENNAI – 600 054.

MINUTES OF THE 4th MEETING OF THE BOARD OF STUDIES IN DEPARTMENT OF COMMERCE


Held on 21-08-2017

Members Present

S.No	Name	Designation	Member	Signature
1	Dr.S. Panneer Selvam	Professor & Head	Chairman	
2	Dr. A. Senthilnathan	Associate Professor	Member	
3	Mr.S.Saraswathi	Assistant Professor	Member	
4	P.M.Lakshmi	Assistant Professor	Member	
5	Dr.T.Ramachandran	Professor, SRM University, Kattankulathur.	Academic Expert Member	
6	Dr.B.Sankaran	Professor, SP CET	Academic Expert Member	
7	Mr.G.Sathyaseelan,	Vice-President, Ashok Leyland, Ennore	Industrial Expert	


Chairman




Registrar
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Dr.S.PANNEERSELVAM
M.Com, M.B.A., M.Phil., Ph.D
HOD / Commerce
St. Peter's Institute of Higher Education & Research
St. Peter's University, Chennai-600 054.

- 4.1 Considered the minutes of the 3rd meeting of Board of Studies in B.Com.(Commerce), B. Com (Corporate Secretary ship) held on 13.03.2017.

RESOLVED that the minutes of the 3rd meeting of Board of Studies in B.Com.(Commerce), B.Com (Corporate Secretary ship) held on 13.03.2017 to be confirmed

- 4.2 Reviewed the Regulation & Syllabi of IV th Semester of B.Com.(Commerce) and Semester II Semester of B.Com (Corporate Secretary ship) under the Regulations 2016 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation & Syllabi IV th Semester of B.Com.(Commerce) and II Semester of B.Com (Corporate Secretary ship) under the Regulations 2016 with Choice Based Credit System (CBCS) be continued taking into consideration of the suggestions and remarks given by the members to include the following new Elective courses.

- 4.3 Reviewed the Regulation & Syllabi of B.Com.(Commerce) and B. Com (Corporate Secretary hip) programmes under the Regulations 2016 with Choice Based Credit System (CBCS).

RESOLVED that the Syllabi of B.Com.(Commerce) and B.Com (Corporate Secretary ship) under the Regulations 2016 with Choice Based Credit System (CBCS) to be continued.


- 4.4 Reviewed the Syllabi and course structure of 2nd semester of M.Com under the Regulations 2016 and M.Phil Project specialization to discuss with Choice Based Credit System (CBCS).

RESOLVED that the Syllabi and course structure of 2nd M.Com programmes and M.Phil., Project specialization under the Regulations 2016 with Choice Based Credit System (CBCS) be continued taking into consideration of the suggestions and remarks given by the members to include following new elective courses.

- 4.5 Reviewed the curricula developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes.

RESOLVED that the syllabi of B.Com.(Commerce), B.Com (Corporate Secretary ship) programme under the Regulations 2016 and M.Com under the Regulations 2016 developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes be approved.




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RESOLVED that the courses having focus on employability/ entrepreneurship /skill development year wise in the syllabi of B.Com.(Commerce), B.Com (Corporate Secretary ship) under the Regulations 2016 and M.Com under the Regulations 2016 to be approved.

- 4.6 Considered to include value added courses imparting transferable and life skills offered beyond the curriculum in the syllabi of B.Com.(Commerce), B.Com (Corporate Secretary ship) and M.Com

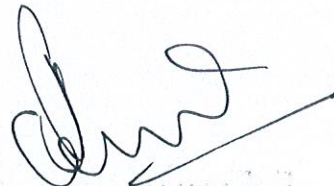
RESOLVED that the value added courses imparting transferable and life skills offered beyond the curriculum such as course on “Managerial Skills and Introduction to Business Analysis” be approved for the upcoming semester (2017-18 Even semester).

- 4.7 Reviewed and considered the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders.

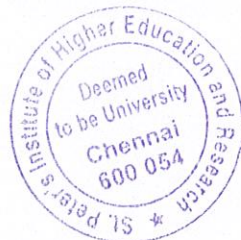
Resolved that the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders to be approved. (Appendix – I)

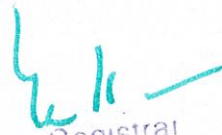
Date: 21.08.2017

Chairman



Dr.S.PANNEERSELVAM
M.Com, MBA., M.Phil, Ph.D
HOD / Commerce
St. Peter's Institute of Higher Education & Research
St.Petre's University, Chennai-600 054.




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 AVADI, CHENNAI – 600 054.

**MINUTES OF THE 2nd MEETING OF THE BOARD OF STUDIES IN
 ECONOMICS**
 Held on 24.08.2017

Members Present

- (1) Mrs. R. Anuradha, Asst. Professor & Head - Chairperson
- (2) Dr. M. Sudhakar, Assistant Professor - Internal Member
- (3) Dr. G. Yoganantham, Professor - External Member
 Dept. of Economics, Thiruvalluvar University, Vellore.
- (4) Mr. Peter Sahayaraj, - External Member
 Director, Jayam Academic, Chennai

(Handwritten signatures of Mrs. R. Anuradha, Dr. M. Sudhakar, Dr. G. Yoganantham, and Mr. Peter Sahayaraj)

2.1	Considered the minutes of the 1 st meeting of Board of Studies in Economics held on 6 th March 2017. RESOLVED that the minutes of the 1 st meeting of Board of Studies in Economics held on 6 th March 2017 be confirmed.
2.2	Reviewed Syllabi of Economics prescribed for Commerce and Management studies programmes under the Regulations 2016. RESOLVED that the Syllabi of Economics prescribed for Commerce and Management studies programmes under the Regulations 2016 be continued.
2.3	Reviewed the Regulation & Syllabi of B. A. Economics programme under the Regulations 2016. RESOLVED that the Regulations & Syllabi of B. A. Economics programme under the Regulations 2016 be continued.
2.4	Reviewed and considered the curriculum feedback analysis and action taken report collected from stakeholders. NOTED the curriculum feedback analysis and action taken report collected from stakeholders be included in the appropriate place in the syllabi (Appendix 1).

Date: 24.08.2017
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Registrar

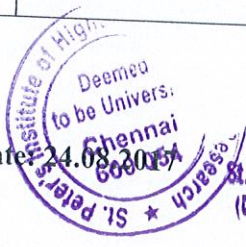
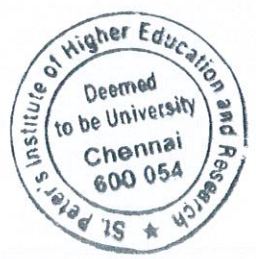
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Chairperson

Department of Economics
 St. Peter's Institute of Higher Education and Research
 Avadi, Chennai - 600 054, Tamil Nadu
 Ph : 044 - 2655 8080
 website : www.stpetersuniversity.org

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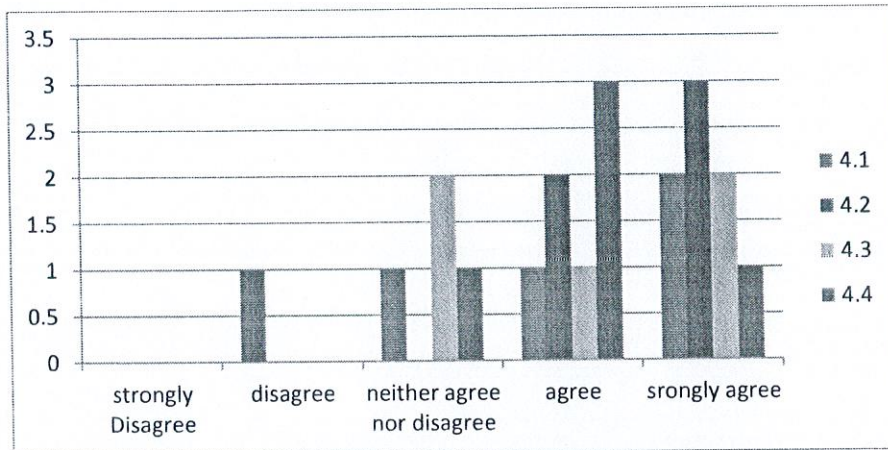
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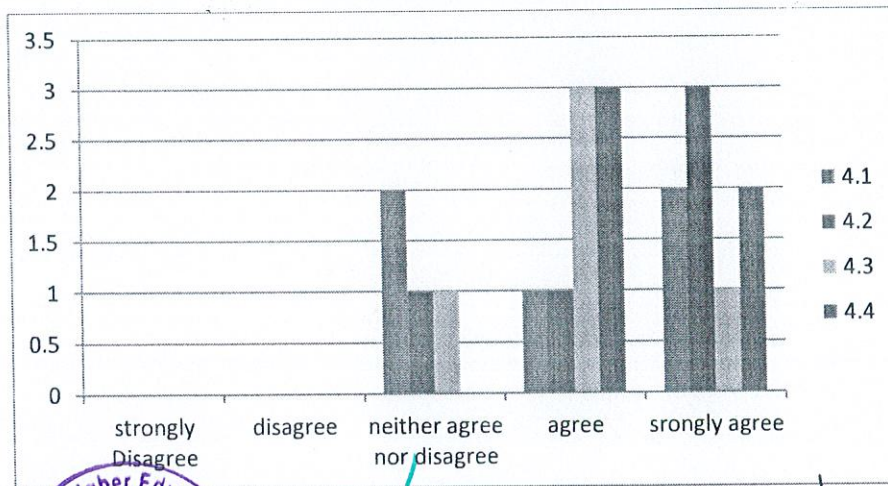
(Appendix 1)

FEEDBACK ANALYSIS (2016-17)

STUDENTS FEEDBACK



TEACHERS FEEDBACK



Date: 24/08/2017

Registrar

Chairperson

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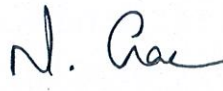


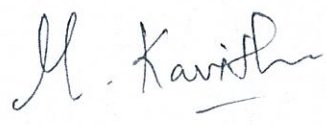

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MINUTES OF THE 3th MEETING OF THE BOARD OF STUDIES IN

MICROBIOLOGY

Held on 25.09.2017

Members Present

S. No	Name	Designation	Member	Signature
1	Dr GANESAN N	Professor & Head	Chairman	
2	Dr. K. Geetha	Assistant Professor	Internal Member	
3	Dr. E. Edwin	Assistant Professor	Internal Member	
4	M.Kavitha	Assistant Professor Department of Biochemistry D.G.Vaishnav College, Chennai 106	External Member	
5	V.Malathi	Assistant Professor Department of Biochemistry Ethiraj College for Women	External Member	


Chairman

Professor and Head
Department of Microbiology
St. Peter's Institute of Higher Education & Research
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Avadi Chennai-600


Registrar
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3.1 Considered the minutes of the 2th meeting of Board of Studies in Microbiology held on 06.02.2017.

RESOLVED that the minutes of the 2th meeting of Board of Studies in Microbiology held on 06.02.2017 be confirmed

3.2 Reviewed the Regulation and Syllabi of B.Sc. (Microbiology) under the Regulations 2016 with Choice Based Credit System (CBCS).

RESOLVED that the Syllabi of I to **II** semester of B.Sc. (Microbiology) under the Regulations 2016 with Choice Based Credit System (CBCS) from the batch of students to be admitted from 2018-19 to be continued

3.3 Reviewed the Regulation and Syllabi of M.Sc. (Microbiology) under the Regulations 2016 with Choice Based Credit System (CBCS).

RESOLVED that the Syllabi of I to II semester of M.Sc. (Microbiology) under the Regulations 2016 with Choice Based Credit System (CBCS) from the batch of students to be admitted from 2018-19 to be continued

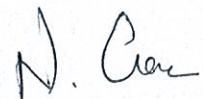
3.4 Considered to include courses having focus on employability/ entrepreneurship /skill development in the syllabi of B.Sc (Microbiology) under the Regulations 2016 and M.Sc (Microbiology) under the Regulations 2016.


Registrar



RESOLVED that the courses having focus on employability/ entrepreneurship /skill development year wise in the syllabi of B.Sc (Microbiology) under the Regulations 2016 & M.Sc (Microbiology) under the Regulations 2016 to be approved.

Date: 25.09.2017



Chairman

Professor and Head
Department of Microbiology
St. Peter's Institute of Higher Education & Research
(Deemed to be University U/S 3 of the UGC Act, 1956)
Avadi, Chennai-600



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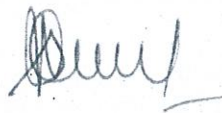
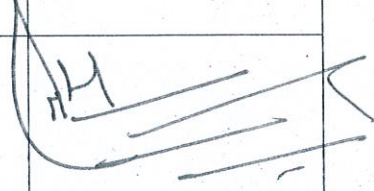
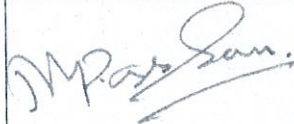
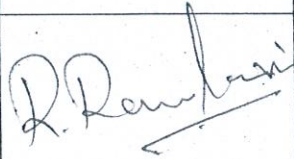
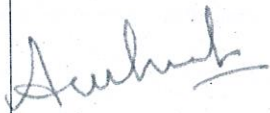
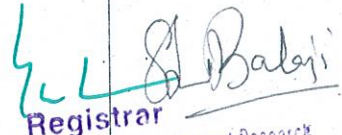
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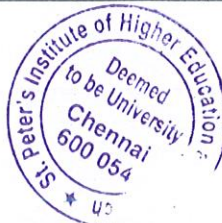
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**MINUTES OF THE 4th MEETING OF THE BOARD OF STUDIES IN
PHYSICS**

Held on 24th August, 2017

Members Present

S. No	Name of the Member	Designation	Member	Signature
1.	Dr. S. Stella Mary	Professor & Head Department of Physics SPIHER	Chairperson	
2.	Dr. S. Gunasekaran	Professor Department of Physics SPIHER	Member	
3.	Dr. M. Pasabharan	Professor Department of Physics SPIHER	Member	
4.	Mrs. R. Ramalakshmi	Assistant Professor Department of Physics SPIHER	Member	
5.	Dr G. Anbalagan	Professor Department of Nuclear Physics University of Madras, Guindy Chennai	Academic Expert Member	
6.	Mr. S. L. Balaji	Mr. S. L. Balaji Mobtron Enterprizes, Kilpauk Chennai	Industry Expert Member	 Registrar



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Chairperson

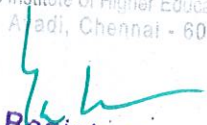
Dr. S. STELLA MARY, M.Sc., M.Phil., Ph.D.,
Professor & Head, (Research Supervisor)
Department of Physics
St. Peter's Institute of Higher Education and Research
Avadi, Chennai - 600 054.

4.1	Considered the minutes of the 3 rd meeting of Board of Studies in Physics held on 15,03,2017. RESOLVED that the minutes of the 3 rd meeting of Board of Studies in Physics held on 15.03.2017 be confirmed.
4.2	Reviewed Syllabi of Engineering Physics prescribed for Engineering and Technology programmes under the Regulations 2013, 2015 and 2017. RESOLVED that the Syllabi of Engineering Physics prescribed for Engineering and Technology programmes under the Regulations 2013 2015 and 2017 be continued.
4.3	Reviewed the Regulation & Syllabi of I & II Semester of B.Sc Physics programme under the Regulations 2016. RESOLVED that the Regulation & Syllabi of I & II Semester of B.Sc Physics programme under the Regulations 2016 be continued with the addition of new courses.
4.4	Reviewed the Syllabi of Allied Physics I and II prescribed for B,Sc Computer Science, Mathematics and Chemistry programme under the Regulations 2016. RESOLVED that the Syllabi of Allied Physics I and II prescribed for B,Sc Computer Science, Mathematics and Chemistry programme under the Regulations 2016. be continued.
4.5	Reviewed the Regulation & Syllabi of M.Sc Physics programme under the Regulations 2016. RESOLVED that the Regulation & Syllabi of M.Sc Physics programme under the Regulations 2016 be continued.
4.6	Reviewed and considered the curriculum feedback analysis and action taken report collected from stake holders NOTED the curriculum feedback analysis and action taken report collected from stake holders be included in the appropriate place in the syllabi. (Appendix I)

Date: 15.03.2017

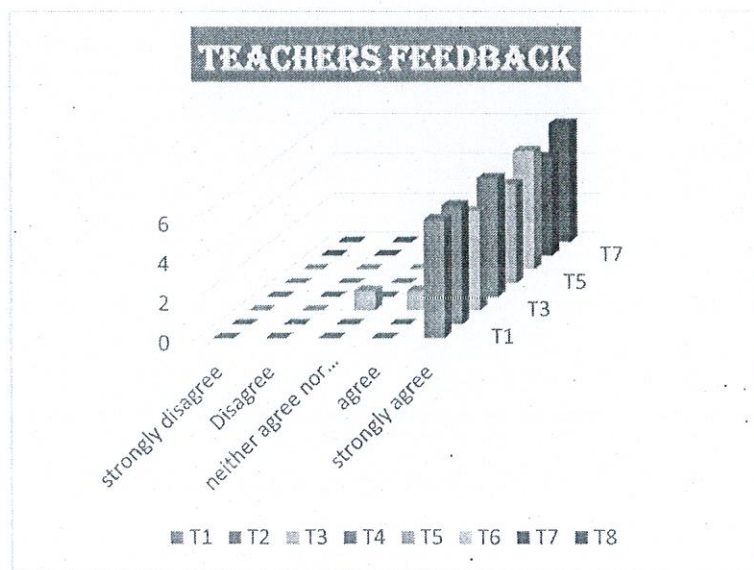
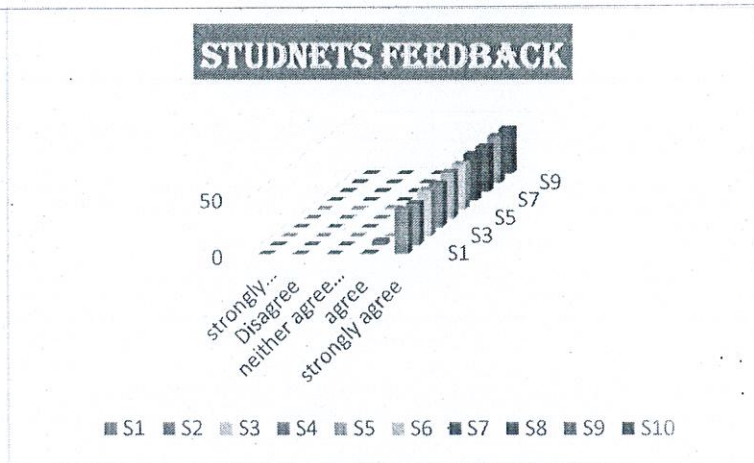

Chairperson




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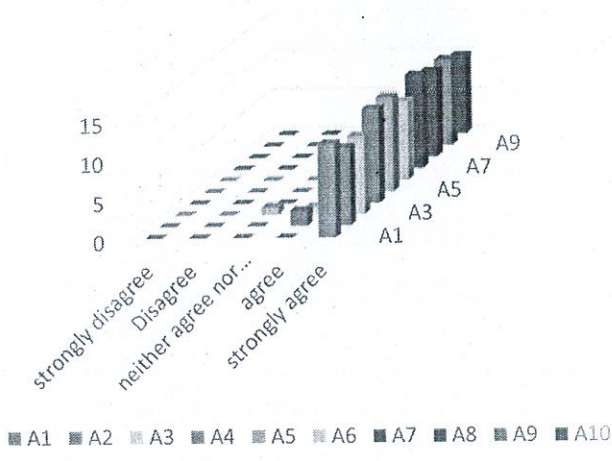
(Appendix I)

Feedback Analysis (2016-17)

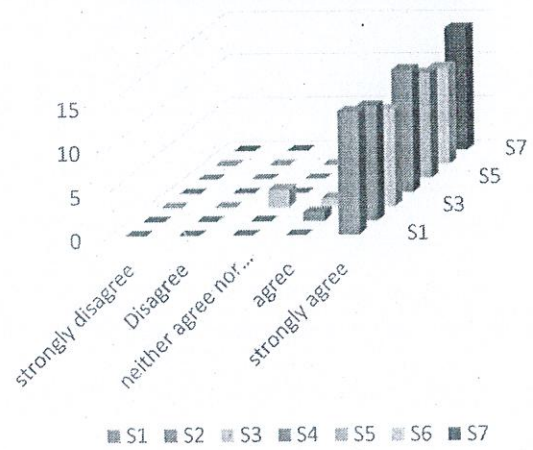



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ALUMNI FEEDBACK



PARENTS FEEDBACK




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Appendix II

III Semester

Code No.	Course Title	Credit	Marks			
			CA	EA	Total	
316UTMT01 / UTET01 / UHIT01	Part – I Language -III (Tamil / Telugu / Hindi)	3	25	75	100	
316UEHT02	Part – II English -III	3	25	75	100	
316UPHT03	Part – III Core Sub:	Optics	5	25	75	100
		Major practical -II	Practical Examination at the end of the IV Semester			
316UPHT04	Allied Paper : Allied Chemistry – I	5	25	75	100	
316UPHP02	Allied Practical : Chemistry – I	2	40	60	100	
316UCCT03	Soft Skills (Common to all UG Branches)	3	50	50	100	
Total		21	230	470	700	

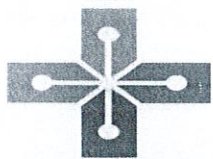
IV Semester

Code No.	Course Title	Credit	Marks			
			CA	EA	Total	
416UTMT01 / UTET01 / UHIT01	Part – I Language-IV (Tamil / Telugu / Hindi)	3	25	75	100	
416UEHT02	Part – II English -IV	3	25	75	100	
416UPHT03	Part – III Core Sub:	Atomic Physics	5	25	75	100
416UPHP01		Major practical II	4	40	60	100
416UPHT04	Allied Paper: Allied Chemistry - II	5	25	75	100	
	Allied Practical: Chemistry - II	2	40	60	100	
416UEST01	Part IV : Environmental Science	2	25	75	100	
416UCCT04	Soft Skills (Common to all UG Branches)	3	50	50	100	
Total		23	255	545	800	




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E-mail:registrar@spiher.ac.in
Website:www.spiher.ac.in

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NEW COURSES FOR THE ACADEMIC YEAR 2018-2019

B.Sc. - PHYSICS

S.No	Programme Code	Programme Name	Course Code	Name of the Course
1	PHU	B.Sc. - Physics	316UPHT03	OPTICS
2	PHU	B.Sc. - Physics	316UPHP01	MAJOR PRACTICAL III
3	PHU	B.Sc. - Physics	316UPHT04	ALLIED CHEMISTRY I
4	PHU	B.Sc. - Physics	316UPHP04	ALLIED CHEMISTRY PRACTICAL I
5	PHU	B.Sc. - Physics	316UCCT01	SOFT SKILLS
6	PHU	B.Sc. - Physics	416UPHT03	ATOMIC PHYSICS
7	PHU	B.Sc. - Physics	416UPHP01	MAJOR PRACTICAL IV
8	PHU	B.Sc. - Physics	416UPHT04	ALLIED CHEMISTRY II
9	PHU	B.Sc. - Physics	416UPHP04	ALLIED CHEMISTRY PRACTICAL II
10	PHU	B.Sc. - Physics	518UPHT05	COMMUNICATION PHYSICS



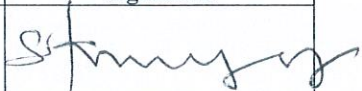

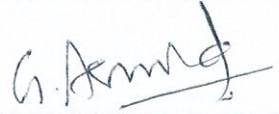

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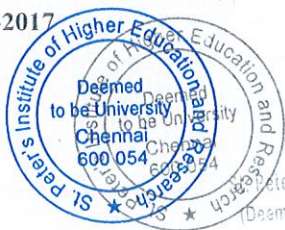
MINUTES OF THE 2nd MEETING OF THE BOARD OF STUDIES IN
VISUAL COMMUNICATION
Held on 24-08-2017

Members Present

S.No	Name	Designation	Member	Signature
1.	Mr.S. Kanthaswami	Assistant Professor & Head	Chairman	
2.	Mr. M.P. Prabhu	Assistant Professor, Department of Visual communication, Hindustan College of Arts and Science, Chennai	External Member	
3.	Mr.G.Aravind	Assistant Professor, Department of Visual communication, DG Vaishnav College, Chennai.	External Member	

2.1	Considered the minutes of the 1 st meeting of Board of Studies in Visual Communication held on 6 th February 2017 RESOLVED that the minutes of the 1 st meeting of Board of Studies in Visual Communication held on 6 th February 2017 be confirmed.
2.2	Reviewed the Regulations & Syllabi of B.Sc Visual Communication programme under the Regulations 2016 with Choice Based Credit System (CBCS). RESOLVED that the Regulations & Syllabi of B.Sc Visual Communication programme under the Regulations 2016 with Choice Based Credit System (CBCS) be continued.
2.3	Reviewed and considered the curriculum feedback analysis and action taken report based on the suggestions given by the stakeholders. RESOLVED that curriculum feedback analysis and action taken report based on the suggestions given by the stakeholders to be approved. (Appendix-I)
2.4	Considered to include courses having focus on local needs / employability / entrepreneurship /skill development in the syllabi of B.Sc Visual Communication under the Regulations 2016 RESOLVED to include courses having focus on employability / entrepreneurship /skill development in the syllabi of B.Sc Visual Communication under the Regulations 2016.

Date: 24-08-2017



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Appendix-I

Programme	Stakeholders	Feedback	Recommendation	Action taken
VCU	Student	Students suggested the need for job oriented courses, training for facing interviews during campus selection. They also requested to provide career guidance and expert talks by industrialists.	To offer multilingual program for advancing in technical domain.	Carrier guidance programs were given and counselling cell supported the development of soft skills and communication ability.
	Teacher	Teaching methods and teaching aids must be improved	Suggested advance learning	ICT methods and smart boards were Used for effective teaching.

Date: 24-08-2017



[Handwritten Signature]
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[Handwritten Signature]
 Chairman
 HOD
 Dept. of Visual Communication
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