

## **DEPARTMENT OF BIOCHEMISTRY**

### **VISION**

To be recognized as a quality centre for excellence in Biochemistry for rural women that provides an atmosphere to acquire skills in identifying the link between biological and human resources and transform it to enhance the quality of life.

### **MISSION**

- To nurture ample knowledge in concepts and principles of biochemistry to rural women
- To identify local and global issues that need intervention by a biochemist and develop intelligent strategies and biochemical approaches in problem solving situations
- To provide opportunities to get hands on experience in research oriented education in Biochemistry, Molecular Biology and Biotechnology, apprenticeship in industries and service agencies and entrepreneurship in Biochemistry-related areas

### **PROGRAMME EDUCATIONAL OBJECTIVES**

- To transform and empower women graduates to meet global challenges through holistic education in terms of recent Teaching-Learning methodologies
- To groom the graduates towards excellence through building communication skills, handling leadership challenges and negotiating career pathways
- To heighten the conscious of the graduates on socio-economic concern and to inculcate moral and ethical values to chisel them as better human being
- To enhance the academic and personal transferable skills and also to gain experience in the methodology of research and development in Biochemistry using modern equipments
- To develop a mix of expertise and practical skills in research, teaching, industry, hospitals, clinical laboratories, medical transcription and medical coding fields

## PROGRAMME OUTCOMES

The Programme aids the graduates to

PO 1	emerge with competency in the subject of biochemistry and apply knowledge to cater the needs of society / employer / institution / entrepreneur / enterprise.
PO 2	imbibe analytical/critical/logical/innovative thinking skills in the field of biochemistry.
PO 3	acquire distinct traits and ethics with high professionalism to gain a broader insight into the domain concerned for nation building.
PO 4	impart quality life sciences education to women students and to develop young women as outstanding scholars/teachers/entrepreneur/responsible persons especially in the field of biochemistry and to understand the basics of life with their organization, mechanism of action, diseases and syndromes and their significance.
PO 5	develop capability to function as efficient leader and to encourage the teamwork for managing the projects effectively and economically.

**VELLALAR COLLEGE FOR WOMEN (AUTONOMOUS), ERODE - 12.**

**BACHELOR OF SCIENCE IN BIOCHEMISTRY**

**( Applicable to students admitted during the academic year 2018- 2019 Batch & onwards**

**Course Content and Scheme of Examinations (CBCS & OBE Pattern)**

Part	Study Component	Subject Code	Title of the Paper	Inst.Hr s./ Week	Exam. Dur. Hrs.	Max. Marks			Credits	Total Credits
						CIA	ESE	Total		
I	Language I	18TAMU303 / 18HINU303	Tamil /Hindi	6	3	25	75	100	3	17
II	Language II	18ENLU303	English	6	3	25	75	100	3	
III	Core	18BCUC303	Enzyme and Enzyme Technology	4	3	25	75	100	3	
		18BCUCP03	Core Biochemistry Practical III	3	-	-	-	-	-	
	Allied II	18MCUA301	Basic Mathematics	6	3	20	55	75	3	
IV	Skill Based Subject I			3	3	25	75	100	3	
	Basic Tamil			2	-	100	-	100	2	
	Advanced Tamil			3	25	75				
	Non – Major Elective I			3	-	100				
<b>Semester IV</b>										
I	Language I	18TAMU404/ 18HINU404	Tamil /Hindi	6	3	25	75	100	3	26
II	Language II	18ENLU404	English	6	3	25	75	100	3	
III	Core	18BCUC404	Intermediary Metabolism	3	3	25	75	100	4	
		18BCUCP03	Core Biochemistry Practical III	3	6	40	75	100	4	
	Allied II	18BCUA402	MS office 2010	5	3	20	55	75	3	
		18BCUAP02	Allied practical II - MS Office 2010	2	3	20	30	50	4	
IV	Skill Based Subject II	18BCUS402	Multiskill development paper	3	1	40	60 (online)	100	3	
	Basic Tamil			2	-	100	-	100	2	
	Advanced Tamil			3	25	75				
	Non – Major Elective II			3	-	100				

<b>Bachelor of Science in Biochemistry</b>		
<b>2018- 2019 Batch onwards</b>		
<b>SKILL BASED SUBJECTS (CAFETERIA SYSTEM)</b>		
<b>S.No.</b>	<b>Subject Code</b>	<b>Title of the Paper</b>
1	18BCUS301	Subject I : Health and fitness
<b>BASIC TAMIL/ ADVANCED TAMIL/ NON- MAJOR ELECTIVES</b>		
<b>S.No.</b>	<b>Subject Code</b>	<b>Title of the Paper</b>
1	18TAMLU301	Basic Tamil*
	18TAMLU402	
2	18ADTU301	Advanced Tamil**
	18ADTU402	
3	18BCUN301	Elective I : Health and Hygiene
	18BCUN402	Elective II : Health and Healing
* For Students whose Part I in Secondary Education is not Tamil		
** For Students whose Part I in Higher Secondary Education is not Tamil		
<b>SELF LEARNING PAPERS (Optional)</b>		
<b>S.No.</b>	<b>Subject Code</b>	<b>Title of the Paper</b>
1	13AUGSL05	General Awareness (online)
2	13BCUSL04	Counseling Psychology

MOOCs Non-ranking Compusory Credit Course will be introduced in Part V for UG from the Academic Year 2019-20 and Onwards.

**Question Paper Pattern (For UG) 2018-19 Batch Onwards**  
**Applicable from the Academic Year 2019-20 and Onwards**

**Bloom's Taxonomy Based Assessment Pattern**

**Components of CIA Marks**

<b>Tests (I &amp; II)</b>	<b>Assignment / Seminar / Subject Viva</b>	<b>Model Examination</b>	<b>Total</b>
<b>10</b>	<b>5</b>	<b>10</b>	<b>25</b>

**CIA**

<b>Bloom's Category</b>	<b>Section</b>	<b>Choice</b>	<b>Marks</b>	<b>Total</b>
K1	A	Compulsory (MCQ-2, Fill ups-2)	4 x 1 = 4	30
K2	B	Either / Or	2 x 5 = 10	
K2, K3	C	Open Choice (2 out of 3)	2 x 8 = 16	

**Model and End Semester Examination**

<b>Bloom's Category</b>	<b>Section</b>	<b>Choice</b>	<b>Marks</b>	<b>Total</b>
K1	A	Compulsory (MCQ-5, Fill Ups-5)	10 x 1 = 10	75
K2	B	Either / Or	5 x 5 = 25	
K2, K3	C	Open Choice (5 out of 8)	5 x 8 = 40	

### SEMESTER III

CODE	COURSE TITLE						
18BCUC303	ENZYMES AND ENZYME TECHNOLOGY						
	Category	CIA	ESE	L	T	P	Credit
	CORE	25	75	58	2	-	3

#### Preamble

An introduction to enzyme structure , function , properties and functions . The course will enable the students to understand the techniques of isolation and purification of enzymes, kinetics of the enzymes and use of enzymes in medicine and industry.

#### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Familiarize about introduction to enzymes, enzyme units, ribosomal, lysosomal enzymes, coenzymes, immobilized enzymes, biosensors.	K1 & K2
CO2	Understand the classification of enzymes, Factors affecting enzyme action, structure of coenzymes, allosteric enzymes, applications of immobilized enzymes & artificial enzymes.	K1 & K2
CO3	Analyse the theories proposed for active site, multi enzyme complex, enzyme inhibition, functions of coenzyme, enzymes in medical diagnosis.	K2 & K3
CO4	Explore the extraction and purification of enzymes, enzyme kinetics, mechanism of action of lysozyme, methods of immobilized enzyme, biosensor techniques.	K1,K2 & K3
CO5	Elucidate the structure and kinetics of enzymes, functions of coenzyme, enzyme technology and enzyme biosensor.	K3

#### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	L	L
CO2	S	S	M	M	L
CO3	S	S	M	M	M
CO4	S	S	S	S	S
CO5	S	S	S	S	S

S- Strong; M-Medium; L-Low

## Syllabus

### UNIT I

12 Hrs.

Introduction to enzymes, International classification of enzymes, enzyme units.  
Enzyme Structure :- Primary, Secondary, Tertiary & Quaternary structure of enzymes.  
Active sites, theories proposed –lock and key, Induced fit model.  
Specificity of enzymes. Extraction and purification of enzymes.

### UNIT II

12 Hrs.

Enzyme Kinetics- Michaelis-Menton equation – derivation, transformation of MM equation – LB plot. Factors influencing the rate of enzyme activity.  
Enzyme inhibition-competitive, non-competitive and un-competitive. Multi enzyme complex, Pyruvate dehydrogenase, Ribozymes and Isozymes.

### UNIT III

12 Hrs.

Co- enzymes - definition, structure and functions of thiamine pyrophosphate, NAD, NADP, FMN, FAD and CoA, Mechanism of action of Chymotrypsin and Lysozyme.  
Cofactors – Mn, Mg, Zn and Fe  
Allosteric enzymes – Aspartate transcarbamylase.

### UNIT IV

12 Hrs.

Enzyme Technology - immobilized enzymes, immobilization methods-Physical, Chemical, Encapsulation and Entrapment  
Applications of Immobilized enzymes:- Textile, Pharmaceutical, Leather & Food and Beverage industries.

### UNIT V

12 Hrs.

Enzyme biosensors:- colorimetric, potentiometric, optical and immuno sensors (principles and techniques only).  
Artificial enzymes, recent advances and future prospects of enzyme engineering.  
Enzymes in medical diagnosis – Lactate dehydrogenase, Creatinine phosphokinase, Aspartate transaminase, Alanine transaminase and Acid phosphatase.

## Text Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Ashokan.P	Enzymes	Chinna Publications, Vellore.	2 <sup>nd</sup> edition, 2006
2.	Tripathi.G	Enzyme Biotechnology	Technoscience Pblications, Jaipur	1st edition, 1999

## Reference Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Alan Wiseman	Hand book of Enzyme Biotechnology	Ellis Horwood and John Wiley & Sons, Chichester	2 <sup>nd</sup> edition, 1985
2.	Martin Chaplin and Christopher Bucke	Enzyme Technology	Cambridge University Press, New York	1 <sup>st</sup> edition, 1990

3.	Malcolm Dixon and Edwin .C. Webb	Enzymes	Academic Press, New York	2 <sup>nd</sup> edition, 1980
4.	Sridhar	Enzyme Biotechnology	A.S.Saini for Dominant Publishers, New Delhi	1 <sup>st</sup> edition, 2005.
5.	Trevor Palmer	Understanding Enzymes	Ellis Horwood limited, New Delhi	3 <sup>rd</sup> edition, 1991.

### Web Resources

1. <https://study.com/academy/lesson/what-are-enzymes-definition-lesson-quiz.html>
2. [www.biology-pages.info](http://www.biology-pages.info)>Enzymekinetics
3. <https://biologydictionary.net>>coenzyme
4. [www.biologydiscussion.com](http://www.biologydiscussion.com)>enzymes
5. <https://www.omicsonline.org>>enzyme

### Pedagogy

Lecture, PPT, Assignment, Models, Seminar.



### SEMESTER III & IV

CODE	COURSE TITLE
18BCUCP03	CORE BIOCHEMISTRY PRACTICAL – III

Category	CIA	ESE	L	T	P	Credit
CORE	40	60	-	-	90	4

#### Preamble

The practical course develops skills in the knowledge about buffers and enzymes. Practical also used to analyse the factors affecting the enzyme activity.

#### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Learn and understand the concepts of buffer, separation techniques of biomolecules.	K1
CO2	Demonstrate marker enzyme by kit method	K2& K3
CO3	Optimize the enzyme activity in terms of pH , substrate, temperature, and enzyme concentration.	K2& K3

#### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	M	M
CO2	S	S	S	S	S
CO3	S	S	S	S	S

S- Strong; M-Medium; L-Low

## Syllabus

### I. ENZYME KINETICS

1. Preparation of Buffer solution – Phosphate and citrate buffer.
2. Determination of pH of buffer solution using pH meter.

#### A. TITRIMETRY

1. Effect of pH on the activity of Catalase.
2. Effect of substrate concentration on the activity of Catalase.
3. Effect of temperature on the activity of Catalase.
4. Effect of enzyme concentration on the activity of Catalase.

### B. COLORIMETRY/ SPECTROPHOTOMETRY

1. Effect of pH on the activity of Acid phosphatase.
2. Effect of substrate concentration on the activity of Acid phosphatase.
3. Effect of temperature on the activity of Acid phosphatase.
4. Effect of enzyme concentration on the activity of Acid phosphatase.
5. Effect of pH on the activity of Salivary amylase.
6. Effect of substrate concentration on the activity of Salivary amylase.
7. Effect of temperature on the activity of Salivary amylase.
8. Effect of enzyme concentration on the activity of Salivary amylase.

### II. KIT EXPERIMENTS

1. SGOT
2. SGPT
3. ALP

### III. GROUP EXPERIMENTS

1. Circular paper chromatography – (Amino acids)
2. TLC - (Lipids)
3. Phytochemical analysis of plant extract.

## Reference Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Prof.Dr.Hans Bisswange	Practical Enzymology	Wiley & Sons	2 <sup>nd</sup> Revised edition, 2012
2.	Carl A.Burtis David E.Burtis	Tietz fundamentals of clinical chemistry and molecular diagnostics	Saunders publishers, USA	4 <sup>th</sup> edition, 1995

## SEMESTER IV

CODE	COURSE TITLE
18BCUC404	INTERMEDIARY METABOLISM

Category	CIA	ESE	L	T	P	Credit
CORE	25	75	44	1	-	4

### Preamble

The course provides knowledge about the principle and concept of metabolism. Provides much information related to carbohydrate, fat and protein metabolism that takes place in our body. It provides information about the pathways, energetics and regulation of metabolism.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Comprehend the significance, metabolism of Carbohydrates, Lipids, Proteins & Purines.	K1 & K2
CO2	Learn the enzymes & reactions involved in metabolism of Carbohydrates, Lipids, Proteins & Purines.	K1 & K2
CO3	Study various pathways of anabolism and catabolism of Carbohydrates, Lipids, Proteins & Purines.	K2 & K3
CO4	Analyse the energetics of metabolic pathway, inter-relationship between the Carbohydrates, Lipids, Proteins & Purines, Electron transport chain and Oxidative phosphorylation.	K1, K2 & K3
CO5	Explicate the concept of metabolism and significance of pathways in metabolism.	K3

### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	M	S	S	S
CO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

## Syllabus

### UNIT I

9 Hrs.

Metabolism of carbohydrates.

Glycolysis – pathway and energetics, oxidation of pyruvate to acetyl Co-A, TCA cycle – pathway and energetics, anaplerosis, gluconeogenesis, glycogenesis, glycogenolysis, HMP shunt.

Metabolism of fructose and galactose.

### UNIT II

9 Hrs.

Metabolism of lipids.

Oxidation of fatty acids -  $\beta$  – oxidation of odd, even, saturated and unsaturated FAs,  $\alpha$  - oxidation and  $\omega$  –oxidation.

Biosynthesis of saturated fatty acids

Biosynthesis and degradation of lecithin, cephaline, inositol, phosphatidyl serine and glycolipids.

Biosynthesis and degradation of cholesterol.

### UNIT III

9 Hrs.

Metabolism of proteins:-

Catabolism of amino acids- oxidative and non - oxidative deamination, transamination, decarboxylation and urea cycle.

Fate of carbon skeleton of amino acids – Glucogenic and ketogenic amino acids.

Catabolism of glycine, phenylalanine and tyrosine.

### UNIT IV

9 Hrs.

Interrelationship between carbohydrate, protein and lipid metabolism.

Electron Transport Chain – Organization, transport of electrons, energy capture and respiratory control.

Oxidative phosphorylation - mechanism of oxidative phosphorylation, Chemiosmotic theory, uncouplers and inhibitors of oxidative phosphorylation.

### UNIT V

9 Hrs.

Metabolism of purines - biosynthesis of purine nucleotides and *salvage pathway*.

Regulation and degradation of purine nucleotides.

Metabolism of pyrimidines - biosynthesis of pyrimidine nucleotides and *salvage pathway*.

Regulation and degradation of pyrimidine nucleotides.

## Text Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Murray.R.K., Granner.D., Mayes.P.A., Rodwell.V.W	Harper's Illustrated Biochemistry	Mc Graw Hill Companies, Boston	26 <sup>th</sup> edition. 2003.
2.	Sathyanarayana.U	Biochemistry	Books and Allied(P) Ltd, Calcutta	1 <sup>st</sup> edition, 1999

## Reference Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Garrett and Grisham	Biochemistry	Saunders College Publisher, New York	2 <sup>nd</sup> edition, 1995.
2.	Lehninger L.S. <i>et.al.,</i>	Principles of Biochemistry	CBS Publishers, New Delhi	3 <sup>rd</sup> edition, 1998.
3.	Mathews, Freeland and Miesfled	Biochemistry	John Wiley and Sons, UK,	1 <sup>st</sup> edition, 1996.

## Web Resources

1. <https://en.m.wikipedia.org>weki>carbohydrate>
2. [www.youarticlelibrary.com>preoteinmetabolism](http://www.youarticlelibrary.com>preoteinmetabolism)
3. <https://www.sciencedirect.com>lipidmetabolism>
4. [www.scribd.com>document>Interconversionof carbohydrate, protein and fat](http://www.scribd.com>document>Interconversionof carbohydrate, protein and fat)
5. <https://gmch.gov.in>Biochemistry>purineandpyrimidinemetabolism>

## Pedagogy

Lecture, PPT, Assignment, Seminar

## SEMESTER IV

CODE	COURSE TITLE
18BCUA404	ALLIED – II : MS OFFICE 2010

Category	CIA	ESE	L	T	P	Credit
ALLIED	20	55	56	4	-	3

### Preamble

To impart the students with knowledge on various MS Office applications such as word, Excel, power point presentations and basic knowledge on internet basics.

### Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Acquire basic skills on MS Word to create proper documents.	K1 & K2
CO2	Customize the file management procedures using MS Word	K3
CO3	Develop Excel spreadsheets for general office use	K2 & K3
CO4	Develop effective presentations to communicate to the target audience	K2 & K3
CO5	Acquire knowledge on internet basics	K3

### Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1	M	M	M	M	M
CO2	S	M	M	M	M
CO3	S	S	M	M	M
CO4	S	M	M	M	M
CO5	S	S	M	M	M

S- Strong; M-Medium; L-Low

## Syllabus

### UNIT – I

12Hrs

MS Word 2010 : Starting Word, Opening a saved Word document , The Word 2010 Window Entering text , Preview, Save, Print and Closing a document. Creating a folder and exiting Word. Editing a Document : Navigation, insert, delete, editing a data. Undo, redo, drag and drop to move text, Copy, cut and paste, Clear formatting.

Formatting A Document: Format and align text, Line and paragraph spacing, *Add bulleted and numbered lists*, Add borders and shading.

### UNIT II

12 Hrs

Editing and Proofing Tools: Document views, Spell and grammar check, Find and replace text.

Layout of a Document : Adjust page margins, Change page orientation, Create headers and footers.

Inserting Elements to Word Documents : Insert a page break, page numbers, special characters (symbols), picture from a file, Resize and reposition a picture.

Working with Tables: Insert a table, Convert a table to text, Resize parts of a table, Align, Format, *Insert and delete columns and rows*, Borders and shading.

Creating Mail Merge.

### UNIT III

12 Hrs

MS Excel 2010 : Introduction to MS Excel 2010, Workbook creation • Entering, Editing & Formatting data, Adding cell borders and shading, working with ranges, managing and printing workbooks, Perform simple calculations, *Chart creation*.

### UNIT IV

12Hrs

MS PowerPoint 2010 : Introduction, Slide Creation, Editing & Formatting slides, Insert Graphics (Tables, Charts, Shapes, Clip-Art), Work with Videos, Movie-Clips, Animations, *Transitions and sounds*, Photo Album creation.

### UNIT V

12 Hrs

Internet Basics: Introduction to Internet • WWW • Browsers • Web site • E-Mail : Creation of E-Mail-id – Compose and send a Mail – *Replay and Forward* – attachment – download the attached document – cc & bcc - upload your resume with any one job portal • Search Engine

Basics of Ethical Hacking.

## Text Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Joseph Manzo	How to Use Microsoft® Excel	The Saylor Foundation	1 <sup>st</sup> Edition 2017
2.	Stephen Moffat	Microsoft Word 2010 Advanced	BookBoon	1 <sup>st</sup> Edition 2018
3.	Torben Lage Frandsen	Microsoft Office Powerpoint 2010	BookBoon	2 <sup>nd</sup> Edition 2017

## Reference Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Joyce Cox, Joan Lambert	OFFICE PROFESSIONAL 2010	MICROSOFT	1 <sup>ST</sup> Edition 2016

## Web Resources

- 1 <https://microsoft-office-2010.en.softonic.com/>
2. <https://products.office.com/en-in/excel>
3. <https://products.office.com/en-in/powerpoint>
4. <https://fcit.usf.edu/internet/chap1/chap1.htm>
5. <https://www.free-computer-tutorials.net/internet-basics.html>

## Pedagogy

Lecture, PPT, Assignment, Seminar



## SEMESTER IV

CODE	COURSE TITLE
18BCUAP02	ALLIED PRACTICALS- II : MS OFFICE 2010

Category	CIA	ESE	L	T	P	Credit
ALLIED	20	30	-	-	30	4

### Preamble

The practical course expands and to impart the students with knowledge on various MS Office applications such as word, Excel, power point presentations and basic knowledge on internet basics.

### Course Outcomes

On the successful completion of the course, students will be able

CO Number	CO Statement	Knowledge Level
CO1	Acquire basic skills on shortcuts and keyboard techniques to enhance productivity .customize the file management procedures using MS Word.	K1
CO2	Develop spreadsheets for general office use, effective presentations.	K2
CO3	Apply internet to access various activity in our day today life.	K3

### Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	M	S
CO2	S	S	S	S	S
CO3	S	S	S	S	S

S- Strong; M-Medium; L-Low

## Syllabus

### I. MS-WORD

1. Using MS word, perform the following program Change the font size to 20.
  - Change the font type.
  - Align the text to left, right, justify and center.
  - Underline the text
  - Table manipulation.
2. Illustrate the Mail merge concept to apply for a suitable job for at least 5 companies.
3. By using Equation Editor , type a context containing mathematical symbols, equations and formula.

### II. MS-EXCEL

4. Worksheet preparation for electricity bill payment
5. Draw graphs to illustrate class performance.

### III. MS – POWER POINT

6. Prepare an organization chart for a college environment in Power point.
7. Prepare a Power point presentation with all the slide transition facilities.

### IV. INTERNET BASICS

8. Create an email-id.
9. Online Reservation of Railway Ticket.
10. To verify a university/college details by opening their websites.

## Reference Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Joyce Cox, Joan Lambert	OFFICE PROFESSIONAL 2010	MICROSOFT	1 <sup>ST</sup> Edition 2016

CODE	COURSE TITLE
18BCUS301	<b>SKILL BASED SUBJECT - I HEALTH AND FITNESS</b>

Category	CIA	ESE	L	T	P	Credit
SBS	25	75	40	5	-	3

**SUBJECT DESCRIPTION:** This course discusses the concepts, philosophies, Nutrition, Mental being, Environment aspects, Maternal and child care in terms of health and fitness.

**OBJECTIVES:** On successful completion of the course the students will acquire knowledge about

- The concepts of health and disease.
- Ayurvedic view of nutrition
- Nutrition and Health.
- Maternal and child health care.

## **UNIT I**

**9 Hrs**

Improving health of the individual:

Personal health.

Food: Balanced diet and Ayurvedic view of nutrition.

Physical fitness: Exercise, Aerobics and yoga.

Stress management- Sleep and relaxation.

## **UNIT – II**

**9 Hrs**

Nutrition and Health – Definition of Food and Nutrition. Nutrients – Sources and functions of Proteins, fats, carbohydrates, vitamins and minerals.

Nutritional Profile of principle foods – Cereals, Millets, Vegetables, Fruits, Milk, and Milk products, Fish, meat, alcoholic beverages, egg and soft drink.

## **UNIT – III**

**9 Hrs**

Environment and Health – Basic health requirements in the environment.

Water – Sources and uses of water. Water pollution and its related diseases. Purification of water.

Air – Composition. Air pollution – Sources and need for proper ventilation.

## **UNIT – IV**

**9 Hrs**

Maternal and child Health-Mother and child-Intra natal and Post natal care.

Complications of post partum period, restoration of mother to optimum health.

Breast feeding; Family planning methods –definition, Natural methods (BBT, Cervical and mucous methods). Artificial methods – Hormonal contraceptives, gonadal steroids, oral pills and Depot formulations.

#### UNIT – V

9 Hrs

Mental Health – Types and causes of mental illness – Preventive aspects;

Alcoholism, Drug dependence – Commonly abused drugs.

Health in Old age – Aging, caring for older people, care of bedridden.

#### Text Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Ahmed. M. N	<i>Hygiene and health</i>	Anmol publications, New Delhi	15 <sup>th</sup> edi., 2005
2.	Ashtekar. S	<i>Health and Healing –A Manual of Primary health care</i>	Orient Longmans	1 <sup>st</sup> Edition 2001
3.	Park. K	<i>Social and preventive medicine</i>	Bhanot publishers, Japalpur	18 <sup>th</sup> edition, 2005

#### Reference Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Patil. R.S.,	<i>Practical Community Health</i>	Vora medical publishers, New Delhi	1 <sup>st</sup> edi 1995.
2.	Prabhakara. G. N	<i>Preventive and social medicine</i>	Jaypee Publications., New Delhi	1 <sup>st</sup> edi, 2003.
3.	Sridhar Rao. B	<i>Community Health Nursing</i>	A.I.T.B.S. Publishers, New Delhi	1 <sup>st</sup> edi 2006, Revised reprint

CODE	COURSE TITLE
18BCUN301	NON – MAJOR ELECTIVE PAPER – I HEALTH AND HYGIENE

Category	CIA	ESE	L	T	P	Credit
NME	-	100	26	4	-	2

**SUBJECT DESCRIPTION:** This course discusses the concepts, philosophies, Nutrition, Mental being, Environment aspects, Maternal and child care in terms of health and hygiene.

**OBJECTIVES:** On successful completion of the course the students will acquire knowledge about

- The concepts of health and disease.
- Nutritional profile of principle foods.
- Environmental health and mental health.
- Dental health and Dental care.
- Maternal and child health care.

**UNIT I 6 Hrs**

Introduction , General health, Signs of good health, Personal Hygiene, Hygiene specificities, Handling common Illnesses, Choosing a doctor.

**UNIT II 6 Hrs**

Nutrition and Health – Definition of Food and Nutrition. Nutrients – Sources and functions of Proteins, fats, carbohydrates, vitamins and minerals. Balanced Diet.

Nutritional Profile of principle foods – Cereals, Millets, Vegetables, Fruits, Milk, and Milk products, Fish, meat, alcoholic beverages, egg and soft drink.

**UNIT III 6 Hrs**

Maternal and child Health-Mother and child-Intra natal and Post natal care.

Complications of post portal period, restoration of mother to optimum health.

Breast feeding; Family planning methods –definition, Natural methods (BBT, Cervical and mucous methods). Artificial methods – Hormonal contraceptives, gonodal steroids, oral pills and Depot formulations.

**UNIT IV****6 Hrs**

Dental Health – Tooth development, Developmental tooth anomalies , Promotion of Oral health, Viral infections, Oral ulcerations, Dental caries – Diagnostic methods, Non- surgical management and prevention.

**UNIT V****6 Hrs**

Mental Health – Types and causes of mental illness – Preventive aspects;

Alcoholism, Drug dependence – Commonly abused drugs.

Health in Old age – Aging, caring for older people, care of bedridden.

**Text Books**

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	<b>Ahmed. M. N</b>	<i>Hygiene and health</i>	Anmol publications, New Delhi	15 <sup>th</sup> edi., 2005
2.	<b>Ashtekar. S</b>	<i>Health and Healing –A Manual of Primary health care</i>	Orient Longmans	1 <sup>st</sup> Edition 2001
3.	<b>Park. K</b>	<i>Social and preventive medicine</i>	Bhanot publishers, Japalpur	18 <sup>th</sup> edition, 2005

**Reference Books**

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	<b>Patil. R.S.,</b>	<i>Practical Community Health</i>	Vora medical publishers, New Delhi	1 <sup>st</sup> edi 1995.
2.	<b>Prabhakara. G. N</b>	<i>Preventive and social medicine</i>	Jaypee Publications., New Delhi	1 <sup>st</sup> edi, 2003.
3.	<b>Sridhar Rao. B</b>	<i>Community Health Nursing</i>	A.I.T.B.S. Publishers, New Delhi	1 <sup>st</sup> edi 2006, Revised reprint

<b>CODE</b>	<b>COURSE TITLE</b>					
<b>18BCUS402</b>	<b>SKILL BASED SUBJECT II MULTISKILL DEVELOPMENT PAPER</b>					

<b>Category</b>	<b>CIA</b>	<b>ESE</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credit</b>
SBS	40	60	40	5	-	<b>3</b>

**Aim:** To equip the students with knowledge on all topics as desirable from the point of view of brilliant success in the competitive examinations.

**Objective:** To familiarize the students with various types of tests that are employed by the diverse examining bodies.

### **UNIT I**

**9 Hrs.**

**Communication:** Question tag – Gerund and Infinitives – Spotting the errors – Vocabulary – Synonyms – Antonyms - Prepositions – Articles – One word substitution – Sentence completion.

### **UNIT II**

**9 Hrs.**

**Numerical Aptitude :** Problems on numbers - Problems on Ages – Percentage - Profit and loss - Ratio & Proportion - Time & Work - Time & Distance - *Simple Interest* - Compound Interest.

### **UNIT III**

**9 Hrs.**

**Critical Reasoning :** Logical Inference Questions and Syllogism.

**Analytical Reasoning :** Arrangement problems – Family / Blood Relation Qualms – Sense of Directions – Age Doubts.

**Verbal Reasoning :** Verbal Analogy (Letter series and number series only) – Coding and Decoding.

### **UNIT IV**

**9 Hrs.**

#### **Preparing CV/ Resume:**

Introduction-Meaning-difference among Bio-data, CV and resume –The terms-The purpose of CV writing- Types of resumes –Interesting facts about resume-CV writing tips-CV/Resume preparation-the dos-CV/Resume preparation-the don`ts-Resume checkup- Design of a CV-entry level resume-The content of the resume-Electronic resume tips-References –Power words-Common resume blunders-key skills that can be mentioned in the resume-Cover letters- cover letters tips.

### **UNIT V**

**9 Hrs.**

**Interview skills:** Introduction-Types of questions asked-Reasons for selecting and rejecting a candidate-Interview tips.

**Body language:** Types and developing confidence with correct body language.

**Etiquette and manners:** Introduction-Classification-Corporate grooming manners.

**Group discussion:** Introduction-characters tested in GD –Skills required in GD-Essential elements of GD.

### Text Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	<b>Alex.K</b>	<i>Soft Skills-Know Yourself and Know the World</i>	S.Chand Company Ltd.,	2011
2.	<b>Prasad</b>	How to prepare for Group Discussions and Interview	Tata McGraw Hill, New Delhi	2014
3.	<b>Hari Mohan Prasad &amp; Uma Rani Sinha</b>	Objective English for Competitive	Tata McGraw Hill Education	<b>2011.</b>
4	<b>R.S. Aggarwal</b>	<i>Quantitative Aptitude</i>	S.Chand	2010
5	<b>R.S. Agarwal</b>	A Modern Approach to Verbal Reasoning	S.Chand Company Limited	2012

### Reference Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	<b>M. S. Rao</b>	<i>Soft Skills Enhancing Employability-</i>	IK International Publishing	2010
2.	<b>Edgar Thorpe</b>	<i>Test of Reasoning for Competitive Examinations –4<sup>th</sup></i>	McGraw-Hill Publishing	
3.	<b>Wallace Hr and Masters LA</b>	Personality Development	Cengage learning India Pvt .ltd	



CODE	COURSE TITLE
18BCUN402	NON – MAJOR ELECTIVE PAPER – II HEALTH AND HEALING

SEMESTER – IV						
Category	CIA	ESE	L	T	P	Credit
NME	-	100	26	4	-	2

**SUBJECT DESCRIPTION:** This course emphasizes the students to understand that health is necessary to deal with their health related problems.

**OBJECTIVES:** On successful completion of the course the students will acquire knowledge about

- Personal health and Basic diagnosis
- Illness of commonly affected and less commonly affected system
- Emergency care and special care

## UNIT I 6 Hrs

Improving health of the individual: Personal health.

Food: Balanced diet and Ayurvedic view of nutrition.

Physical fitness: Exercise, Aerobics and *yoga*.

*Stress management*- Sleep and relaxation.

## UNIT II 6 Hrs

Symptoms and illness:

Basic diagnosis: Essential steps in diagnosis.

Fever: Types, Measurement and treatment. Dengue fever.

Pain: Types and *treatment*.

Headache: Migraine and *treatment*.

## UNIT III 6 Hrs

Illness of commonly affected system:

Eye: Eye care, testing vision, sore eye, visual defects in children and adults.

Skin: Scabies, Allergy, Skin sores, Boils.

Digestive system: Nausea and vomiting, Constipation, Peptic ulcer, Appendicitis, *Measures for avoiding digestive problems*.

## UNIT IV 6 Hrs

Illness of less commonly affected system:

Heart: Myocardial Infarction, Hypertension.

Urinary system: Urinary tract infection.

Nervous system: Paralysis, *Rabies*, Brain tumors.

Reproductive system: *Fertility awareness*, Pregnancy - General check up, Care, common complaints, medicines to avoid.

## UNIT V

6 Hrs

Emergency care and special care:

Accidents and first aid: Drowning, Burns and scalds, Road accidents, Snake bite.

Special care: Hair, Teeth, Eyes, *Seasonal health care*.

**Note: *Italics* denote Self Study Topics**

.Text Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	<b>Aarathi.S. and Swati.T.,</b>	<i>Nutrition in nutshell – a must for everyone</i>	Agrotech publishing academy	2008
2.	<b>Ashtekar. S.,</b>	<i>Health and Healing – A Manual of Primary health care</i>	Orient Longmans	2001
3.	<b>Saritha.S.,</b>	<i>3mother and child health care – A handbook</i>	Shree Niwas Publications	2009.
4	<b>Park. K</b>	<i>Social and preventive medicine</i>	Bhanot publishers	18 <sup>th</sup> edition, 2005
5	<b>Patil. R.S.,</b>	<i>Practical Community Health</i>	Vora medical publishers	1 <sup>st</sup> edi 1995

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