M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar

**Faculty of Science and Applied Science** 

**Bachelor of Vocational (Food Processing Technology)** 

Semester-VI (In Force from June-2017)

6

#### M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar Faculty of Science and Applied Science Bachelor of Vocational (Food Processing Technology) Semester-VI (In Force from June-2017)

#### FPT-601 FUNCTIONAL FOODS AND NEUTRACEUTICALS

(Syllabus of theoretical portion)(In Force from June-2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 30, Credit = 02 + 00)

#### **Objectives**

- To enable the students
- To understand the basics of nutraceuticals and functional foods.
- To study the significance of nutraceuticals and their role in disease prevention.
- To identify new strategies for marketing of traditionally known nutraceuticals.

## **Unit-1.** Nutraceuticals: Historical, Teleological Aspects and Classification, Flavonoids and Carotenoids as Antioxidants

Introduction – Historical Reviews - Teleology of nutraceuticals -Organization models for nutraceuticals – Classification of Nutraceuticals based on the sources–Animal, Plant and Microbial – Nutraceuticals in specific foods - Mechanism of Action -Chemical nature.

General background on phytochemicals as antioxidants – Flavonoids and Lipoprotein oxidation – Evidence for specific Antioxidant mechanisms of Flavonoids – Anticancer and Cholesterol-lowering effect of citrus flavoniods – Dietary carotenoid and carotenoid absorption – Approaches to measurement of absorption – Metabolism of Carotenoids – Carotenoids as anticancer agents.

# $\begin{array}{c} \mbox{Unit-3. Omega-3 Fatty Acids and CLA} & \mbox{, Lycopene, Garlic, Olive Oil, Nuts,} \\ \mbox{Probiotics and Prebiotics, Herbs as Functional Foods, Stability Testing and} \\ \mbox{Marketing Issues for Nutraceuticals and Functional Foods} \\ \end{array}$

Introduction to Lipoprotein metabolism - PUFA and Cardiac Arrhythmias - Preventative role of n-3 fatty acids in cardiac arrhythmias – Mechanism, of action on n-3 PUFA's -  $\omega$  – 3 fish oils and their role in Glycemic control-  $\omega$  – 3 fatty acids and rheumatoid arthritis - Chemistry and Nomenclature of CLA – Analysis of CLA in food and biological samples – CLA in food products and biological samples – Biological actions and potential health benefits of CLA – Mechanisms of CLA action

Potential adverse effects of CLA. Lycopene overview – lycopene and disease - Garlic – Chemistry – Implication in Health - Olive oil – CHD – Cancer - Nuts – Nutrient components and Composition - Nut Consumption and CHD epidemiological evidence, Human nutritional studies on nut consumption and serum lipid changes, Mechanism of action- Probiotics- criteria – products on market – probiotic products – Microbiology of the gastrointestinal tract - Prebiotics – future for probiotics and Prebiotics

Herbal medicine – Herbs as ingredients in functional foods – actions of herbal and evidence of efficacy - Kinetic modelling of chemical reactions – Accelerated shelf life testing – Cruciferous vegetables and cancer prevention – Dietary fiber and coronary heart disease - Evolution of marketing environment for Functional foods and nutraceuticals - Regulatory background - Introduction to consumer marketing issues for nutraceuticals - Potential product positioning.

- 1. Robert E.C Wildman. Handbook of Nutraceuticals and Functional Foods, Ed., Robert E.C. Wildman, CRC Press LLC. ISBN 0849387345, 2001.
- 2. Srilakshmi, B. Food Science (3rd edition), New Age International (P) Limited Publishers, New Delhi, 2003.

M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar Faculty of Science and Applied Science Bachelor of Vocational (Food Processing Technology) Semester-VI (In Force from June-2017)

#### FPT-601 FUNCTIONAL FOODS AND NEUTRACEUTICALS-Practical

(Syllabus of practical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 45, Credit = 00 + 02)

#### **Objectives**

- To enable the students
- To understand the basics of nutraceuticals and functional foods.
- To study the significance of nutraceuticals and their role in disease prevention.
- To identify new strategies for marketing of traditionally known nutraceuticals.
- (1) Nutraceuticals Historical Reviews
- (2) Specification of Food
- (3) Omega
- (4) Lycopene, Garlic, Olive Oils Nuts,
- (5) Probiotics and Prebiotics
- (6) Stability Testing

M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar

**Faculty of Science and Applied Science** 

**Bachelor of Vocational (Food Processing Technology)** 

Semester-VI (In Force from June-2017)

M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar Faculty of Science and Applied Science Bachelor of Vocational (Food Processing Technology) Semester-VI (In Force from June-2017)

#### FPT-602 TECHNOLOGY OF BEVERAGES

(Syllabus of theoretical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 30, Credit = 02 +00)

• To enable the students to get an up to date knowledge about fermented foods and beverages.

#### Unit-1. Introduction & Classification of Beverages, Carbonated Beverages

Introduction and classification of beverages, Mineral water-water source and deionization of mineral water, Water treatment process: Filtration, Adsorption, ion exchange, Chemical oxidation, Biological process, Remineralisation and microbiological treatments. Microbiology of bottled water. Carbonated soft drinks-Ingredients and preservatives used in carbonation. Syrup room operation and equipments involved.

#### Unit-2. Tea & Coffee

Steps involved in processing of tea. Types of tea: Black tea, Green tea and Oolong tea. Manufacture of coffee, Types of coffee: Vaccum coffee, drip coffee, percolator coffee, steeped coffee, espresso coffee, iced coffee and Instant coffee. Decaffeination of coffee and types of decaffeination: Roselius process, Swiss water process, direct and indirect method, triglyceride method, carbondioxide method.

- 1. Manay, N.S, Shadaksharaswamy, M., Foods- Facts and Principles, New Age International Publishers, New Delhi, 2004.
- 2. Nicholas Dege. Technology of Bottled water. Blackwell publishing Ltd, UK..2011
- 3. Potter, N. N, Hotchkiss, J. H. Food Science. CBS Publishers, New Delhi. 2000.
- 4. Srilakshmi, B. Food Science. New Age International Publishers, New Delhi, 2003

5. Varnam A. H and Sutherland P.J., Beverages: Technology, Chemistry and Microbiology, Aspen Publications, 1999

M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar Faculty of Science and Applied Science Bachelor of Vocational (Food Processing Technology) Semester-VI (In Force from June-2017)

#### FPT-602 TECHNOLOGY OF BEVERAGES-Practical

#### **Objectives**

- To enable the students to get an up to date knowledge about fermented foods and beverages.
- (1) Classification of All Type Beverages
- (2) Alcoholic Beverages
- (3) Carbonated Beverages
- (4) Black Tea, Geeen Tea
- (5) Percolator Coffee
- (6) Espresso Coffee
- (7) Iced Coffee
- (8) Instant Coffee

M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar

**Faculty of Science and Applied Science** 

**Bachelor of Vocational (Food Processing Technology)** 

Semester-VI (In Force from June-2017)

M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar Faculty of Science and Applied Science Bachelor of Vocational (Food Processing Technology) Semester-VI (In Force from June-2017)

#### FPT-603 DRYING TECHNOLOGY

(Syllabus of theoretical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 30, Credit = 02 + 00)

#### **Objectives**

- To be familiar with different methods of drying.
- To understand the technology behind drying

#### Unit-1. Introduction, Packing,

Food dehydration, dehydration principles, selection of methods based on characteristics of foods to be produced, heat and mass transfer, difference between drying and dehydration. Packaging materials for dried foods, storage, transportation.

## Unit-2. Mechanism of drying, Driers used in food industry, Processing of some Dehydrated foods

Drying curve, constant rate period, falling rate period, dry and wet bulb temperature, factors affecting dehydration, Physical and chemical changes during drying, Effect of food properties on dehydration, cell structure, case hardening, control of changes Drying methods, equipments, sun drying, air convection driers, kiln drier, cabinet drier, tunnel drier, fluidized bed drier, spray drier, drum drier, vacuum drier, freeze drier, advantages and disadvantages of different methods. Processing of milk powder, raisins, osmotic dehydrated foods, intermediate moisture food, dehydrofreezing

- 1. Manay, N.S, Shadaksharaswamy, M., Foods- Facts and Principles, New Age International Publishers, New Delhi, 2004.
- 2. Potter, N. N, Hotchkiss, J. H. Food Science. CBS Publishers, New Delhi. 2000.
- 3. Singh, R.P. Introduction to Food Engineering 3rd edition. Academic Press, London. 2004

M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar Faculty of Science and Applied Science Bachelor of Vocational (Food Processing Technology) Semester-VI (In Force from June-2017)

#### **FPT-603 DRYING TECHNOLOGY(Practical)**

(Syllabus of practical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 45, Credit = 00 + 02)

#### **Objectives**

- To be familiar with different methods of drying.
- To understand the technology behind drying
- 1. Visit of Dairies and Food Industries
- 2. Processing from dehydrade foods

M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar

**Faculty of Science and Applied Science** 

**Bachelor of Vocational (Food Processing Technology)** 

Semester-VI (In Force from June-2017)

M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar Faculty of Science and Applied Science Bachelor of Vocational (Food Processing Technology) Semester-VI (In Force from June-2017)

#### **FPT-604 SENSORY EVALUATION**

(Syllabus of theoretical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 30, Credit = 02 + 00)

#### **Objectives**

• To understand different aspects of sensory science and its application.

#### **Unit-1. Introduction** , Testing conditions

Sensory evaluation: Definition & Importance of sensory evaluation; Practical requirements for conducting sensory tests, limitations of sensory evaluation.

General testing conditions - Testing area, testing set up, lighting, testing schedule, Preparation of samples, sample coding, evaluation card preparation.

#### Unit-2. Sensory assessment, Sensory Tests, Data analysis

Taste—Taste sensation on the tongue, Recognition test for the four basic tastes, Water quality for sample preparations, Standard compounds used for preparing basic tastes, Taste modifiers, Perception of sweet taste. Odour and Smell – Anatomy of nose, Smelling techniques, Vonskramlk, Test, Theories of olfaction Texture—Definition, Classification of textural characteristics, glossary of textural terms, Definition for mechanical properties, Texture measurement Colour vision and appearance measurement-Structure of eye, Visual perception and colour of foods. Flavour and aroma - aroma perception, Definition of flavour, Flavour profile methods, Flavour compounds Temperature sensation, pain sensation, touch sensation, kinesthetic sensations, and sound sensations.

Threshold test, Difference test, Ranking test, Hedonic test, Acceptance and Preference test, scoring test, Sensitivity test Application of sensory analysis in food industry, trained panel members. Importance of data analysis, tests of significance, null hypothesis, mean, median, variance, standard deviation, t-test, chi-square test.

- 1. Jellinek, G., Sensory Evaluation of Food-Theory and Practice. Elis Horwood Ltd., England, 1985.
- 2. Lawless H.T, Sensory Evaluation of Food, Food Science Text series, Springer Science, 2010
- 3. Srilakshmi, B., Food Science., New Age International (P) Limited., New Delhi, 2001

#### M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar Faculty of Science and Applied Science Bachelor of Vocational (Food Processing Technology) Semester-VI (In Force from June-2017)

#### FPT-604 SENSORY EVALUATION(Practical)

(Syllabus of practical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 45, Credit = 00 + 02)

#### **Objectives**

- To understand different aspects of various sensory parameters and its application in food quality analysis.
- The following tests will be done.
  - 1. Triangle test
  - 2. Single sample test
  - 3. Paired comparison test
  - 4. Duo- trio test
  - 5. Hedonic rating test
  - 6. Numerical scoring test
  - 7. Ranking test
  - 8. Overall acceptability
  - 9. Flavor profile
  - 10. Descriptive test

M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar

**Faculty of Science and Applied Science** 

**Bachelor of Vocational (Food Processing Technology)** 

Semester-VI (In Force from June-2017)

#### M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar Faculty of Science and Applied Science Bachelor of Vocational (Food Processing Technology) Semester-VI (In Force from June-2017)

#### FPT-605 NUTRATION HEALTH COMMUNICATION

(Syllabus of Practical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 90, Credit = 00 + 04)

#### **Objectives**

• To understand different aspects of sensory science and its application.

## Unit I: Concepts and Theories of Communication in Nutrition - Health , The Components and Processes of NHC

- Definitions of concepts
- Formal non-formal communication, Participatory communication Theories of NHC
- History, need and relevance of NHC in India
- Concept of Behavior Change Communication (BCC) from imparting information to focusing on changing practices.
- Components of BCC: Sender, Message, Channel, Receiver
- Various types of communication interpersonal, mass media, visual, verbal! non-verbal. Features of successful BCC
- · Market Research and Social Marketing

#### Unit II: Programs and Experiences of NHC global and Indian perspective

- Nutrition Health Communication in Government Programs and NGOs
- NHC in developed and developing nations: some examples
  - Evolution of NHC in India: traditional folk media to modern methods of communication.
  - Traditional folk media in Gujarat and its influence on NHC.
  - Communication for urban and rural environment; for target specific audience.
  - Evolution of NHC/ IEC in Government nutrition health programs shift in focus from knowledge gain to change in practices.
  - Overview of NHC/IEC in government programs (Activities, strengths and limitations) -

- a. NHC in ICDS
- b. Nutritional counseling in micronutrient deficiency control programs: control of IDA, IDD, VAD.
- Strengths and limitations of NHC imparted in NGO programs

#### Text Book:

- Field guide to designing communication strategy, WHO publication-2007.
- Behaviour change consortium summary(1999-2003) wwwl.od.nih.gov.behaviourchange
- Communication strategy to conserve/improve Public Health., John Hopkins University-

Centre for Communication programmes.

- Michael Favin and Marcia Griffiths 1999, Nutrition tool kit-09-Communication for Behaviour change in Nutrition projects. Human Development Network-The World Bank-1999
- Harvard Institute of International Development (198 1) Nutrition Education in Developing Countries, New York: Oelgeschlager Gunn and Hain Publishers Inc.
- Hubley J (1993) Communicating Health. London: Teaching Aids at Low Cost, London, UK.
- Academy for Educational Development (1988). Communication for Child Survival,

AED.USA.

 Facts for Life (1990). A Communication Challenge. UNICEF / WHO / UNESCO / UNFPA, UK.

M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar Faculty of Science and Applied Science Bachelor of Vocational (Food Processing Technology) Semester-VI (In Force from June-2017)

#### FPT-605 NUTRATION HEALTH COMMUNICATION(Practical)

(Syllabus of Practical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 90, Credit = 00 + 04)

#### **Objectives**

- To understand different aspects of sensory science and its application.
  - 1. Visit to an ongoing NHC program in ICDS: one rural, one urban. (eg: *matru mandal* meeting or *mahila mandal* meeting or nutrition week celebration.
    - Visit to a health centre (ANC clinic run by Government health department and observe quality of counseling imparted to pregnant women (especially awareness of anemia, importance of IFA). [All the above will be assessed by the students for the plus and minus points from the NHC perspective].
  - 2. Visit to Mamta Day (one rural one urban) and observe quality of counseling being given to pregnant and lactating women, mothers of preschool children, use of Mamta card and other aspects.
    - To visit an NGO either rural or urban and observe one NHC program implemented for women, school children or adolescence (For all the above observation appropriate observation check lists will be made and used)
  - 3. Improving the NHC-To conduct brief interviews with service providers in all the above programs and to compare the observations, discuss the strength and weakness of the NHC activities carried out.

Based on the above observations and interviews

- a. To design and plan NHC sessions on a specific nutrition topic for any vulnerable group: children, adolescents, women taking into account all components of NHC.
- a. Submit the visual, the script of the session: Hindi / Gujarati, the communication strategy and evaluation plan.
- b. To implement one NHC session in the field and evaluate it as per guidelines provided.

### M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar Faculty of Science and Applied Science Bachelor of Vocational (Food Processing Technology) Semester-I

(In Force from June-2017)

#### **FPT-103: Food Chemistry**

(Syllabus of theoretical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 30, Credit = 02 + 00)

#### **Objectives**

- To acquaint various functional chemical constituents of food.
- To build a relationship between the dynamic forces of food and the dynamic forces of digestion and growth.

#### Unit 1 Introduction to food chemistry and carbohydrates (15 hrs)

Introduction to chemistry of foods composition and factors affecting foods, Chemistry of water, Water activity, Moisture determination, Definition, classification and function of carbohydrates, Properties of simple and complex carbohydrates (glucose, sucrose, maltose, lactose, starch, cellulose and pectic substances), Enzymes and its use in foods, Gel formation and starch degradation, Dextriniation, Browning reactions – Enzymatic & Non-enzymatic browning

#### Unit 2 Vitamins, minerals and proteins (15 hrs)

#### **Vitamins**

Classification – Fat soluble and water soluble, Structure, Sources, Functions, Causes for losses of vitamins in foods, Bioavailability

#### **Minerals**

Classification, Sources, Functions of minerals in foods

#### **Proteins**

Classification, Physical and chemical properties of proteins and amino acids, Confirmation, Functional properties, Hydrolysis of proteins, Changes of proteins during processing

- 1. Campbell, M K S O-Biochemistry 5<sup>th</sup> edition-international student, 2006
- 2. Damodaran, S., Parkin , K. L., Fennema, O. R., Fennema's Food Chemistry- 4<sup>th</sup> edition, CRC press Taylor and Francis Group, New York 2008.
- 3. Fennema, O R. -Food Chemistry 3<sup>rd</sup> edition, Marcel Dekker Inc, New York., 1996.

- Meyer, L H-Food Chemistry. CBS publishers & distributors, New Delhi. 2002
   Srilakshmi, B. Food Science (3<sup>rd</sup> edition), New Age International (P) Limited Publishers, New Delhi, 2003.

#### M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar Faculty of Science and Applied Science Bachelor of Vocational (Food Processing Technology) Semester-I

(In Force from June-2017)

#### **FPT-103: Food Chemistry (Practical)**

(Syllabus of practical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 45, Credit = 00 + 02)

#### **Objectives**

- To test the presence of carbohydrates and proteins in food samples.
- To estimate the nutrients in different food samples.

#### 1. Standardization of Solutions

- ✓ Standardization of Fehling's solution.
- ✓ Standardization of Sodium hydroxide with standard oxalic acid.

#### 2. Estimation of Sugar Solutions

- ✓ Estimation of Glucose by Lane and Eynon's method.
- ✓ Estimation of Sucrose by Lane and Eynon's method.
- ✓ Estimation of Aldose by Willstalter's Iodometric titration
- ✓ Estimation of starch.

#### 3. Estimation of Protein

- ✓ Kjeldhal method.
- ✓ Biuret method
- ✓ Lowry's method

#### 4. Estimation of Vitamin.

✓ Estimation of vitamin C

#### 5. **Qualitative Test**

- ✓ Qualitative tests for carbohydrates
- ✓ Qualitative tests for proteins.

- 1. Nielsen, S.S. Introduction to the chemical analysis of foods. Jones and Bartlett Publishers, Boston, London. 2003
- **2.** Sadasivam,S. Manickam, A. Biochemical Methods, 2<sup>nd</sup> edition. New Age International (P) Limited, New Delhi. 2001

GUJARAT VIDYAPEETH: AHMEDABAD
M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar
Faculty of Science and Applied Science
Bachelor of Vocational (Food Processing Technology)
Semester-VI
(In Force from June-2017)

M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar Faculty of Science and Applied Science Bachelor of Vocational (Food Processing Technology) Semester-VI (In Force from June-2017)

#### ENG-601: English

(Syllabus of theoretical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 30, Credit = 02 + 00)

**Adopted from Microbiology Department** 

### M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar Faculty of Science and Applied Science Bachelor of Vocational (Food Processing Technology) Semester-VI

(In Force from June-2017)

#### **EC-601:ComputerVI**

(Syllabus of theoretical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40 Marks)
(Total Teaching Hours = 30, Credit = 02 + 00)

#### **HTML**

- 1 સમજૂતી વેબ પેજ, વેબ સાઈટ, પોર્ટલ
- 2 વેબ ડિઝાઈન HTML કાર્યક્રમનો પરિચય
- 3 ટેગ્સ અને તેની અગત્યની લાક્ષણીક્તાઓ
- 4 HTML ડોક્યુમેન્ટનું માળખું હેડ અને બોડી ટેગ, HTML ડોક્યુમેન્ટમાં હેડીંગ, પેરેગ્રાફ, લાઈન બ્રેક,
- હોરીઝોન્ટ રૂલ,
- 5 ફ્રોન્ટ સ્ટાઈલ: બોલ્ડ, ઈટાલીક, અંડરલાઈન
- 6 લિસ્ટના પુકારો ઓર્ડર અને અન ઓર્ડર
- 7 લીંકીંગ ડોક્યુમેન્ટ: એક્ટર્નલ લીંક અને ઈન્ટર્નલ લીંક
- 8 ગ્રાફ્રીક્સ અને ઈમેજ, મલ્ટીમિડીયા સાઉન્ડ અને વિડીયો
- 9 ટેબલ: કેપ્શન, ટેબલ રો, ટેબલ ડેટા, ટેબલ ફેડીંગ, બોર્ડર, સેલ સ્પેસિંગ અને રો સ્પાન, કોલ સ્પાન,

એલાઈનમેન્ટ

10 ફોર્મ અને ફ્રેમ નો પરિચય

#### M.D. Gramseva Sankul, Sadra, Dist: Gandhinagar Faculty of Science and Applied Science Bachelor of Vocational (Food Processing Technology) Semester-VI (In Force from June-2017)

#### **EC-101: ComputerVI (Practical)**

(Syllabus of practical portion) (In force from June, 2017)
Total Mark: 100 = External Evaluation: 60 Marks +
Internal Evaluation: 40Marks)
(Total Teaching Hours = 45, Credit = 00 + 02)

Use of computer in Business – બિઝનેશમાં કમ્પ્યૂટરનો ઉપયોગ

- 1 Importance of Information માહિતીનું મહત્વ
- 2 Benefits of Computerised Information System, કમ્પ્યૂટરાઈઝ્ડ ઈન્ફોર્મેશન સિસ્ટમના લાભો
- 3 System Concept and characteristics. સિસ્ટમ કન્સેપ્ટ અને લક્ષણો.
- 4 Reasons for Initiating Information Systems Project (5Cs)

ઈન્ફોર્મેશન સિસ્ટમ પ્રોજેક્ટ શરૂ કરવા માટેના કારણો (5C°)

- 5 Multimedia (મલ્ટીમિડીયા) નો પરિચય
- 6 ડેસ્કટોપ પબ્લીસીંગ પરિચય

નોંધ ઓપરેટીંગ સિસ્ટમ તરીકે ubuntu-12.04

અને ઓફીસઓટોમેશન ટ્રલ્સ તરીકે LibreOffice\_4.2.1 - Base