


**UNIVERSITY OF KALYANI**

**COMPLETE SYLLABI FOR  
B.Sc. (MAJOR) COURSES IN  
COMPUTER APPLICATIONS**

**WITH EFFECT FROM THE SESSION  
2007 – 2008**

**According to the New Examination Pattern  
Part – I, Part- II & Part- III**


  
23/11/2007  
Secretary, Faculty Councils (U.G.)  
University of Kalyani  
Kalyani, Nadia

# University of Kalyani

## Syllabus B.Sc. Major Course in Computer Applications

### Contents

<b>Distribution of Marks and Question Pattern</b>			
<b><u>Part - I</u></b>			
<b>Paper – I</b>	Section I	Fundamentals of Computer & Programming.	(Page- 4)
	Section II	Programing in C Language	(Page- 5)
	Section III	Computer System Design	(Page- 6)
<b>Paper – II</b>	Practical		(Page- 7)
<b><u>Part - II</u></b>			
<b>Paper – III</b>	Section – I	Data structure	(Page- 9)
	Section – II	(a) Operation Research	(Page- 9)
		(b) Operating System	(Page- 9)
	Section – III	(a) Numerical Algorithms	(Page- 10)
(b) Microprocessor		(Page- 10)	
<b>Paper – IV</b>	Practical		(Page- 10)
<b><u>Part - III</u></b>			
<b>Paper – V</b>	Section – I	a) Networking	(Page- 12)
		b) UNIX/LINUX OS	(Page-12)
	Section – II	a) Java	(Page- 13)
		b) Web Technology	(Page- 13)
	Section – III	a) Visual programming	(Page- 14)
		b) DBMS	(Page- 14)
		c) P.C. Maintenance	(Page- 14)
	d) Peripheral devices	(Page- 14)	
<b>Paper – VI</b>	Practical		(Page- 15)
<b>Paper –VII</b>	On-job-training		
<b>Paper-VIII</b>	Entrepreneurship development		(Page- 15)

  
28/11/2007  
Secretary, Faculty Councils (U.G.)  
University of Kalyani  
Kalyani, Nadia

**STRUCTURE OF THE COURSE****PART-I****Paper-I: Theory**

100 Marks

Section I	Fundamentals of Computer & Programming	34 periods
Section II	Programming in C Language	36 periods
Section III	Computer System Design	30 periods

**Paper-II : Practical – 100 marks**

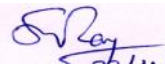
DOS and Windows	10 marks
Office Packages	20 marks
BASIC Programming	20 marks
Programming in C	50 marks

**PART-II****Paper-III : Theory – 100 marks**

Section-I	Data structure	25 marks
Section-II	a) Operation Research	10 marks
	b) Operating System	25 marks
Section-III	a) Numerical Algorithms	15 marks
	b) Microprocessor	25 marks

**Paper-IV : Practical - 100 marks**

• DTP	...	20 marks
• Computing	...	20 marks
• Data Structure	...	40 marks
• OR problem	...	20 marks

  
 28/11/2007  
 Secretary, Faculty Councils (U.G.)  
 University of Kalyani  
 Kalyani, Nadia

**PART-III**

**Paper-IV : Theory – 100 marks**

Section-I	a) Networking	16 marks
	b) UNIX/LINUX OS	18 marks
Section-II	a) Java	22 marks
	b) Web Technology	15 marks
Section-III	a) Visual Programming.	16 marks
	b) DBMS	8 marks
	c) P.C. Maintenance	5 marks
	d) Peripheral devices	

**Paper VI : Practical - 100 marks**

▪ UN IX / LINUX	20 marks
▪ HTML / DHTML	10 marks
▪ Java	30 marks
▪ Visual Basic	20 marks
▪ SQL / PLSQL	10 marks
▪ PC Maintenance	10 marks

**Paper VII on Job Training – 100 marks**

**Paper VIII Common paper - 100 marks**

Under the area of Office Management and Secretarial Practice Dept.

**University of Kalyani**

**Complete Syllabus for B.Sc. (Major) Course in  
Computer Applications**

(w.e.f the session 2007-2008)

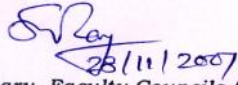
**According to the New Examination Pattern  
Part-I, Part-II & Part-III**

**Part-I**

**Paper-I : Theory**

- Section I      Fundamental of Computer &  
                         Programming**
- Section II     Programming C Language**
- Section III    Computer System Design**

**Paper-II : Practical**

  
Secretary, Faculty Councils (U.G.)  
University of Kalyani  
Kalyani, Nadia

## PART- I

### PAPER-I

Full Marks -100

#### SECTION-I

##### 1.1 Foundations of Computer Science :

- **Sets and propositions :** Combination of sets, finite and infinite sets mathematical induction, principle of inclusion and exclusion multisets, propositions (5 periods).
- **Permutations, combinations and discrete probabilities :** Rules of sum and product, permutations; combinations; Generation of permutations and combinations discrete probability (4 periods).
- **Relations and Functions :** Binary relation, Equivalence relations and partitions (2 periods)
- **Graph Theory:** Introduction to graph theory, graphs – simple graph, pseudograph, vertex degrees, complete graph, complement of a graph, in degree, out-degree. Bipartite graphs, isomorphism connected graphs, distance in graph, & cut-vertices and cut-edges incidence and adjacency matrices (3 periods).
- **Number systems :** Decimal and binary number systems, positional number and Roman number, decimal, binary octal, Hexadecimal number system, conversion from one number system to other, BCD numbers, ASCII code.
- **Gates and Boolean Algebra :** Inverter OR, AND, NOR, NAND, XOR, XNOR gates, Demorgan's theorems, Boolean algebra – basic Boolean algebra laws, Boolean expressions POS and SOP forms. (6 periods)

##### 1.2 Programming in BASIC

- **Introduction to computer language:** Flow charts, Definitions of high level, low level languages, compiler, interpreter, definition of flow charts, flow charting, branching, looping, connecting. Application of flow chart for different problem solving (3 periods).
- Algorithm with examples : Definition of algorithm, characteristics, writing of algorithm for different problem (3 periods).

- Programming in BASIC : Getting BASIC into the computer, listing, editing, saving, running the program, character set, constant variable, statements, operators, expressions-relational, logical, library functions. Print control, jumping, Branching, looping subscripted variables (Functions, files excluded) (8 periods) Total : 34 classes

## SECTION-II :

### 2.1 Programming in C Language.

- **Overview** : Structure of C program, editing, compiling, running, debugging C program, sample C program (one class)
- **Constant, variable Data types** : Character set, tokens, key words, identifiers, constant, variables, Data types, declaration of variables (one class)
- **Operators and expressions** : different operators (arithmetic, relational, increment, decrements, conditions, bitwise) expressions precedence of arithmetic operator, type, conversion (one class)
- **I/O operators** : Reading/writing character, formatted input/output (one class)
- **Decision making and branching** : If statements, if ladder, search statement, The ?: operator, go to statement (Two classes).
- **Decision making and looping** : While, DO, for statement, loop controls. (Three classes).
- **Arrays** : One dimensional array, two dimensional array (two classes).
- **Character handling** : Input/output of strings, comparisons, concatenation of strings, substrings (one class).
- **User defined functions** : Form of c functions, integer/non-integer functions, Function with array (three classes).
- **Structure and union** : Simple structure programs as illustrations (two class).
- **Pointer** : Declaring, initializing, accessing pointers, pointer and array (pointer with structure function, excluded) pointing to pointer( Four Classes).
- **File Management**: Defining, opening, closing accessing, I/O operators on files (Random access and command like arrangement excluded) (Two classes).

- **Dynamic Memory allocation and linked list :**

DMA, concept of link list with programming concepts. (Two classes).

- Definition, classification of data structure, description of data structure – Array, lists, stacks, queues (Two classes).
- **Arrays:** initializing, accessing, implementing one and two dimensional arrays, pointer and arrays. (three classes).
- **Stack:** Stack implementation, operations on stack, infix to postfix on conversion and vice versa evaluate postfix expression (Two classes).
- **Queue:** Queue implementation, operators on queue, insertion, deletion, modification in queue, circular queue (Two classes).
- **Linked list:** Representation of link list insertion, deletion of nodes, circular link list, doubly link list implementation (Two classes).

### SECTION-III :

#### 3.1 Computer System Design :

- **Combinational circuit :** Encoder, decoder, multiplexer, parity generator, algebraic simplifications, concept of truth table.
- **Karnaugh maps :** pairs, quads and octets, minimization using kar nough map. Representation of minimum circuit using NAND-NAND, NOR-NOR. (6 periods).
- **Flip-Flops :** RS, D, JK, T flip-flops, level clocking and edge triggering, master slave flip-flop, timing diagrams (6 periods).
- **Registers :** Buffer, shift, controlled shift, Timing diagrams.
- **Counters :** Ripple, synchronous, ring, counter, binary counter (four periods)
- **ROM :** ROM as linear two dimensional array, EPROM basis (Two periods).
- **RAM :** Cell in static/dynamic RAM, cell array (one/two dimensional) RAM, Address decoding of RAM (two periods).
- **Data representation :** Sign magnitude, 1's complement, 2's complement, Fixed point, floating point representation. Addition/subtraction in 2's complement method (four periods).




- **CPU and Control unit** : Adder (Half, Full) Binary adder/subtractor, 2's complement adder subtractor, logic micro operations, shift micro-operator, Arithmetic & logic unit (6 periods) **(Total 30 periods)**

**PAPER- II (Practical)**

**Full Marks -100**

- Operating system : DOS and WINDOWS (10 marks)
- Office package (20 marks)
- Programming in BASIC (20 marks)
- Programming in C (50 marks)

  
23/11/2007  
Secretary, Faculty Councils (U.G.)  
University of Kalyani  
Kalyani, Nadia

**University of Kalyani**

**Complete Syllabus for B.Sc. (Major) Course in  
Computer Applications**

(w.e.f the session 2007-2008)

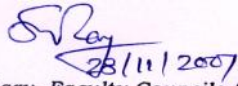
**According to the New Examination Pattern  
Part-I, Part-II & Part-III**

**Part-II**

**Paper-III : Theory**

- |                    |                                |
|--------------------|--------------------------------|
| <b>Section-I</b>   | <b>Data structure</b>          |
| <b>Section-II</b>  | <b>a) Operation Research</b>   |
|                    | <b>b) Operating System</b>     |
| <b>Section-III</b> | <b>a) Numerical Algorithms</b> |
|                    | <b>b) Microprocessor</b>       |

**Paper-IV : Practical**



Secretary, Faculty Councils (U.G.)  
University of Kalyani  
Kalyani, Nadia

## **PART-II**

### **PAPER- III**

**Full Marks-100**

#### **SECTION-I :**

##### **Data Structure**

(25 lectures)

##### **A) Linear data structure :**

Arrays, list, stack, queue, dequeue linked list -single, double circular recursion

(12 lectures)

##### **B) Nonlinear :**

Binary Tree-Traversal thread

(3 lectures)

Hashing-Hashing function, Collision resolution

(4 lectures)

##### **C) Sorting & Searching :**

Sorting, Bubble sort, Selection Sort, quick sort ,Searching Linear & binary searching

(6 lectures)

#### **SECTION -II :**

##### **Operation Research**

(10 lectures)

Solving linear programming using graphical method, simplex method, transportation and assignment problem PERT/CPM

##### **Operating System**

(25 lectures)

Introduction to operating system : system function

Different types of operating system-Batch, multi programmed, time shared multitasking, real time

(5 lectures)

Process : Concept of process, process scheduling, priority FCFS, SJF, RR (8 lectures)

Deadlock : prevention, avoidance, detection, recovery (5 lectures)

Memory Management : Logical & physical address space, swapping, paging, segmentation (7 lectures)

**SECTION -III :**

<b>Numerical Algorithms</b>	(15 lectures)
A) Solutions of nonlinear equation Bisection, Newton Raphson, Secant method	(5 lectures)
B) Solution of linear equation Iterative methods	(2 lecture) (2 lectures)
C) Integration & differentiation Trapezoidal, Simpson's 1/3, Runge Kutta, Taylor's series	(6 lecture)
<b>Microprocessor</b>	(25 lectures)
Introduction to microprocessor, Basic Structure and programming, clock cycles, interrupt, bus standard	(7 lectures)
Standard Microprocessors (8085) Discussion on the development of microprocessors (upto the latest one)	(8 lectures)
Programming in microprocessor-addressing data-movement, arithmetic and logic instruction	(10 lectures)
<b><u>PAPER- IV (PRACTICAL)</u></b>	<b>Full Marks - 100</b>
<b>DTP</b>	(20 classes)
Page maker, Corel draw, Photoshop, Flash	
<b>Computing Lab</b>	(20 classes)
Pointer, structure, array, union, file handling	
<b>Data structure and Numerical Computation lab</b>	(60 classes)
Problems from Data structure and numerical algorithms, basic operation research problems using "C"	

**University of Kalyani**

**Complete Syllabus for B.Sc. (Major) Course in  
Computer Applications**

(w.e.f the session 2007-2008)


**According to the New Examination Pattern  
Part-I, Part-II & Part-III**

**Part-III**

**Paper-IV : Theory**

- |                    |                        |
|--------------------|------------------------|
| <b>Section-I</b>   | a) Networking          |
|                    | b) UNIX/LINUX OS       |
| <b>Section-II</b>  | a) Java                |
|                    | b) Web Technology      |
| <b>Section-III</b> | a) Visual Programming. |
|                    | b) DBMS                |
|                    | c) P.C. Maintenance    |
|                    | d) Peripheral devices  |

**Paper VI : Practical**

  
28/11/2007  
Secretary, Faculty Councils (U.G.)  
University of Kalyani  
Kalyani, Nadia

**PART-III****PAPER- V****Full Marks -100****SECTION-I****1.1 Net work :**

- **Fundamental** : Advantages of networks, structure of network, point-to-point and Multidrop circuits, topologies, switching technologies, bandwidth, frequency, analog and digital networks (Two periods).
- **LAN** : Ethernet, cabling, IEEE LAN (IEEE 802.3), -CSMA/CD, Repeater hub, Bridge, switch – unmanaged, managed, Gigabit Ethernet, virtual LAN, multisite LAN – connectivity – ISDN, wireless LAN. (Four periods)
- **Internet protocol** : IP data gram, IP address classes of network, routing algorithm, static and adaptive, DHCP, IPV6/IPV4 (Three periods).
- **Transport protocol** : TCP/IP protocol suit; wireless TCP (Two period)
- **Internet Application** : DNS, FTP, TELNET services, H-323 in internet telephony (one period).
- **Cellular radio network** : Functional architecture of GSM and GPRS (Two periods).
- **Security** : Data encryption, Basic techniques, Block cipher, steam cipher, Public key, private key, IDEA and RSA (no other things as specified) (Two period) **(Total 16 periods).**

**1.2 LINUX / UNIX :**

Concept and structure of UNIX/LINUX, kernel structure, process concepts, services for process, scheduling, memory, virtual memory, UNIX / LINUX shell file system directory and then commands, user interfaces, environment of unix process, inter process communication stream, pipe etc. (8 periods).

Net working using UNIX/ LINUX 2 period) UNIX / LINUX shell programming. Use of shell scripts for various application : shell programming (8 periods). **(Total 34 classes).**

**SECTION – II :**

**2.1 Java :**

- **Basic concept of object oriented programming** : Object and class, data abstraction and encapsulation, inheritance, polymorphism, dynamic binding, benefits of OOP, application of OOP (Five classes).
- **Basic of Java** : Simple Java program, writing, editing compiling java program, byte code of Java, Java token, keywords, identifications, literals, operators, Java statements, Java virtual machine (two classes).
- **Constant variables and date types** :
- **Operators and expressions, Managing I/O in Java**
- **Decision Making and Branching**
- **Decision Making and Looping**
- **Class object and Methods**
- **Arrays, strings and vectors, one dimensional two dimensional**
- **Interfaces : Multiple inheritances**
- **Packages, Multithread programming**
- **Managing Errors and exceptions**
- **Java Applet Programming**
- **Graphic Programming** (15 classes)

**2.2 Web Technology :**

- **Basic Concepts** : Concepts of Internet, Internet Access – Dialup, Direct connection, www, web browses, searching the web, search Engines, Internet chat, client, server architecture, E-mail, website (Five classes).
- **Web Pages and HTML** : Understanding HTML and Design basics, creating HTML document, HTML tools, Tags, heading, body text, list style, rules (Horizontal vertical) linking document, style sheet, Forms, tabl es, creating frames (Seven classes).
- **DHTML** : Basics of Java scripts, including Multi media (Three classes)

**(Total 37 classes)**

**SECTION-III :****3.1 Visual Programming with Visual Basic :**

- **Introduction to visual programming** (two classes)
- **Tools and Techniques for visual basic programming** (five classes)
- **Design of forms, Tools for windows using VB** (eight classes)
- **Accessing data from data base using VB (only programming)** (two classes)

**3.2 Data base Management System :**

- **Basic Concepts, Data base System**
  - **Concept and architecture**
  - **Data Models, schemes and Instances, Relational Model Concept**
  - **SQL and its commands**
- } 8 classes

**3.3 PC Maintenance :**

Familiarity with circuit boards and components : Mother board, different types of cards, micro processor, memory, RAM, ROM, Cache, VRAM, ports – COM, USB, INFRARED, IDE, Connectors, expansion slots and inter-connections, Bus, Power Supply – SMPS, UPS, Mounting and Cooling, Key board, VDU, DMP, Hard disk, Connectivity interfacing concept, fault repair techniques.

**Software installations** - OS, compilers, tools, patches, virus detection and prevention, Networking card installation, IP address, proxy Dial up connectivity installation.

(5 classes)

**3.4 Peripheral devices and Interfaces :**

Secondary storages, Hard disk, cartridge, CD ROM, CD Writer, RAID system, Pen drive, Printers, DMP, LASER Printer, DeskJet Printer , Plotter.

**Scanner** : Different types of scanners.

**Interfacing of different devices** : IRQ system, sharing of IRQ, IRQ conflicts and resolution. Management of Interfacing of I/O devices (6 periods)



**PAPER-VI (Practical )****Full Marks– 100**

- |     |  |              |
|-----|--|--------------|
| 6.1 | UNIX/LINUX shell programming : To solve various problem using shell programming. | (20 periods) |
| 6.2 | HTML DHTML script programming Web based Design using HTML/DHTML                  | (10 periods) |
| 6.3 | Java : Problem solving using Java  | (40 periods) |
| 6.4 | Visual Basic : Problem solving using visual Basic                                | (20 periods) |
| 6.5 | SQL/PLSQL Programming  | (10 periods) |

**Paper VII : On job Training**

The on job Training to be carried out externally. The report of the on job training has to be ratified by the external authority where the on job training is to be carried out.

**PAPER-VIII****Full Marks - 100****ENTREPRENEURSHIP DEVELOPMENT**

[ Common paper for Three-Year B.A./B.Sc./B.Com.(Major) Degree Course subjects.]  
Six Questions to be answered taking three from each group.

**Group A****50 Marks****No. of periods.****1. ENTREPRENEURSHIP BUILDING :**

- |    |  |   |
|----|--|---|
| a) | Meaning-Importance-Psychological Sociological Factors and Distinctive Competence.Entrepreneurship Process. Identification of Opportunities -Choice of Technology- Make or Buy Decision-Biography of Indian Entrepreneurship –Status of Worldwide Entrepreneurship. | 3 |
| b) | Need, Scope and Characteristics of Entrepreneurship, Special Schemes for Technical Entrepreneurs, STED.  | 2 |
| c) | Social responsibility and business ethics.   | 1 |
| d) | Environmental Awareness.   | 1 |

- e) Human Resource Management, Management of self and understanding human behavior. Leadership, Motivation Attitude – Belief, Communication, Group Dynamics, Delegation, Setting of Goals, Self assessment, Organizational / Psychology- Transactional approach and Analysis Creativity, Problem Solving – Strength Weakness Opportunity and Threat (SWOT) Techniques – Decision Making – Stress Management – Positive Reinforcement, Recruitment, Selection, Training.

Total : 12

**SOURCE OF FACULTY :**

- i) In house experts and faculty members of the College.
- ii) Director, Cottage & Small Scale Industries, W.B., New Secretariat Building (9<sup>th</sup> floor), 1, Kiron Sankar Roy Road, Calcutta – 700 001.
- iii) SISI, Calcutta, 111 & 112, B.T. Road, Calcutta – 35.
- iv) GM / DIC of respective District.
- v) GNCCI / NEBCON.
- vi) Any successful Entrepreneur of the locality.
- vii) IIM, Calcutta.
- viii) Experts from Bengal Engineering & Science University.
- ix) IISWBM, Calcutta.


2. **TECHNOLOGY MANAGEMENT :** **No. of periods.**

- a) Criteria for principles of product, selection and development. 2
- b) Choice of technology, plant and equipment. 2
- c) Energy requirement & utilization. 1
- d) Resource Management – Men, Machine and materials. 1
- e) Critical Path Method (CPM) & Project Evaluation Review Techniques (PERT) as planning tools for establishing SSI. 3
- f) Plant Layout & Process Planning for the product. 1
- g) Quality control/quality assurance and testing of product. 1
- h) Production Management : Elements of production process, production planning and control, product development testing facilities, patents, Quality Assurance, Time control and Cost control, Total Quality Management. 3
- i) Materials – Purchasing Management : 2  
Materials Planning and budgeting, Source selection, Public buying, Value engineering, Value analysis, Economic ordering quantity, Inventory control, Linkage with Import & Export Management.

Total :16

**SOURCE OF FACULTY :**

- i) In house experts and faculty members of the College.
- ii) Experts from Bengal Engineering & Science University
- iii) Experts from Jadavpur University.
- iv) SISI, Calcutta, 111 & 112, B.T. Road, Calcutta – 35.
- v) IIM, Calcutta.
- vi) IISWBM

  
 23/11/2007  
 Secretary, Faculty Councils (U.G.)  
 University of Kalyani  
 Kalyani, Nadia

<b>3. <u>PROJECT FORMULATION :</u></b>	<b>No. of periods.</b>
a) Needs, scopes and approaches.	1
b) Stages and methodology in project Identification-, selection of a project format, Project Report Writing.	1
c) Analysis and evaluation of a project report.	1
d) Critical decision making areas - Money-Market-People.	1
e) Interaction with appraisal authority and Financial Institutions, project outline of relevant professions.	1
f) Economic viability and financial feasibility.	2
g) Business and industrial laws, labour relations.	1
h) Entrepreneurs and society, changing concept of social responsibility, shift to ethics, institutionalizing & challenge of relativism.	2

Total : 10

**SOURCE OF FACULTY :**

- i) In house resource persons and faculty members of the College.
- ii) SISI, Calcutta
- iii) GM/DIC of respective district.
- iv) Directorate of Cottage & Small Scale Industries, W.B.
- v) Experts from Bengal Engineering & Science University
- vi) Experts from Jadavpur University.

Group B

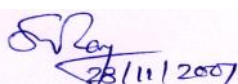
**50 Marks**

<b>1. <u>FINANCIAL MANAGEMENT :</u></b>	<b><u>No. of periods</u></b>
a) Institutions, financing procedure and financial incentives, Banking norms as in vogue.	2
b) Financial ratios & their significance.	2
c) Costing and pricing.	2
d) Knowledge of capital market and mobilization thereof	1
e) Funds flow & cash flow concept.	1

Total : 8

**SOURCE OF FACULTY :**

- i) In house experts and faculty members of the College.
- ii) Cost Accountant Institutes.
- iii) Training Institutes of Bank.
- iv) Directorate of Cottage & Small Scale Industries, W.B., New Secretariat Buildings (9<sup>th</sup> floor), 1, Kiron Sankar Roy Road, Calcutta – 700 001.
- v) Reputed consultants.
- vi) BNCCI / WEBCON.
- vii) Business Management Deptt., C.U.

  
 23/11/2007  
 Secretary, Faculty Councils (U.G.)  
 University of Kalyani  
 Kalyani, Nadia

<b>2.     <u>MARKETING MANAGEMENT :</u></b>	<b><u>No. of periods</u></b>
a)     Exposure to demand based, resource based, service based, Import substitute & Export promotion Industries.	3
b)     Market survey techniques.	
c)     Elements of marketing & Sales management.	1
d)     Nature of product and market strategy - Packing & advertising – After sales service.	2
e)     Touch an Import-Export procedure & methods.	1
f)     Analysing marketing opportunities, planning marketing strategy, forecasting, marketing mix, advertising the marketing programme & sales management.	4
	Total : 14

**SOURCE OF FACULTY :**

- i) In house experts and faculty members of the College.
- ii) IIM, Calcutta.
- iii) Deptt. of Business Management, C.U.
- iv) Experts from Bengal Engineering & Science University
- v) SISI, Calcutta.
- vi) GM/DIC of respective district.
- vii) IISWBM

**3.     MONITORING & FOLLOWUP :**

- |  |           |
|--|-----------|
| a)     Sickness in small scale industries and their remedial measures. | 1         |
| b)     Coping with uncertainties and managing the situation.           | 1         |
|  | Total : 2 |

**SOURCE OF FACULTY :**

- i) In house experts and faculty members of the College.
- ii) Directorate of Cottage & Small Scale Industries, W.B.
- iii) Experts from Bengal Engineering & Science University
- iv) Experts from Jadavpur University.

<b>4.     <u>DATA BASE MANAGEMENT :</u></b>	<b><u>No. of periods</u></b>
a)     Books of accounts, financial statements.	2
b)     Creation of data base/Management Information Sys tem (MIS)	2
	Total : 4

**SOURCE OF FACULTY :**

- i) In house experts and faculty members of the College.
- ii) Experts from Bengal Engineering & Science University
- iii) Experts from Jadavpur University.
- iv) IIM, Calcutta.
- v) Business Management Deptt, C.U.
- vi) IISWBM, Calcutta.

<b>5.      <u>STATUTORY PROVISION :</u></b>	<b><u>No. of periods</u></b>
a)      Licensing, registration – Municipal bye laws and Insurance coverage.	1
b)      Important provisions of factory Act, Sales of goods Act, partnership Act.	1
c)      Pollution control & Environmental Act.	2
d)      Income Tax, Sales Tax and Excise Rules.	1
	Total : 5

**SOURCE OF FACULTY :**

- Faculty with Industrial Relation Management / Experience background.
- Tax Practitioner / Lawyer.
- Member from WBPCB, Calcutta.

**6.      KNOWLEDGE INPUT :**

- Industrial and economic policy declared by Govt. from time to time.      2

**SOURCE OF FACULTY :**

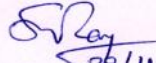
- Directorate of Cottage & Small Scale Industries, W.B.
- SISI, Calcutta.

**N.B. :** The students shall be required to visit to linked institutions & promotional agencies, like Commercial banks, WBFC, SISI, DIG, Commercial Tax Offices, WBPCB & some testing centers for getting practical exposure.

**Suggested Reading Material :**

- Deshpande M.V.      :    Entrepreneurship of Small-Scale Industries : Concept, Growth & management , Deep & Deep Publication, D-1/24, Rajouri Garden, New Delhi -110027, 1984.
- Mc Clelland DC      :    The Achieving Society, Princeton, NJD, Van Nostrand Co. N.Y. 1961.
- Meredith GG, Nelson Be. et. al.      :    Practice of Entrepreneurship, ILO, Geneva, 1982.
- Pareek U & Rao TV    :    Personal Efficacy in Developing Entrepreneurship, Learning Systems, New Delhi, 1978.
- Rao TV & Pareek U.    :    Developing Entrepreneurship- A Handbook, Learning Systems, New Delhi, 1982.
- Vyas JN              :    Planning an Industrial Unit 1, Neelkunj Neelk anth Park Opp. Navrangpura, Ahmedabad.
- Welsh JA & Jerry FW   :    Entrepreneurs Master Planning Guide – How to Launch a successful Business. Prentice Hall, Englewood Cliffs, 1983
- Department of Industrial Development.      :    Incentives & Concessions for Setting up Industries in Backward Areas, Deptt. of Industrial Development, Govt. of India, New Delhi.

9. India Investment Industrial Centre. : Guide for Entrepreneurs, India Investment Centre, Jeevan Vihar Building, Sansad Marg, New Delhi.
10. Entrepreneurship Development Institute of India. : A handbook for New Entrepreneurs (with special reference to S & T group), Entrepreneurship Development Institute of India.
11. Philip Kotler Publisher : Marketing Management, Prentice Hall of India.
12. James C. Van Horne : Fundamentals of Financial Management, Publisher : Prentice Hall of India.
13. Edgar H. Schein : Organisation Psychology, Publisher : Prentice Hall of India.
14. A.K. Datta : Materials Management, Publisher : Prentice Hall of India.
15. Monthly Bullentin of Reserve Bank of India.
16. Industrial Survey of India, Hindu Group.
17. Business Today, Indian Express Group.
18. Economic Times.

  
28/11/2007  
Secretary, Faculty Councils (U.G.)  
University of Kalyani  
Kalyani, Nadia