Chaudhary Charan Singh University, Meerut

Syllabus of the Subject:

Library and Information Science

For Bachelor of Library and Information Science (BLISc) Programme

(As per guidelines of Common Minimum Syllabus by U.P. Government according to National Education Policy-2020 w.e.f. the session 2021-2022)

(For both University Campus and Colleges)

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9. Dr. J. A. Siddiqui, Coordinator, Department of Library and Information Science, Ch. Charan Singh University, Meerut **(Convener)**

SUBJECT: LIBRARY AND INFORMATION SCIENCE

Semester-wise Titles of the Papers in BLISc Programmes (Library and Information Science)

Year	Semester	Course Code	Paper Title	Theory/Practical	Credits
1	I	A190101T	Foundations of Library and Information Science	Theory	4
1	I	A190102T	Library Classification	Theory	4
1	I	A190103T	Library Cataloguing	Theory	4
1	I	A190104P	Library Classification	Practical	4
1	I	A190105P	Library Cataloguing	Practical	4
1	I		Project Work in LIS (a) Library Survey and (b) Literature Survey	Project	6
				Total Credits	**26**
1	II	A190201T	Management of Libraries and Information Centers	Theory	4
1	II	A190202T	Information Sources and Services	Theory	4
1	II	A190203T	Information Processing and Retrieval	Theory	4
1	II	A190204T	Library and Information Technology	Theory	4
1	II	A190205P	Library and Information Technology	Practical	4
			Project Work in LIS (a) Field Survey and (b) Compilation of Annotated Bibliography	Project	6
				Total Credits	**26**

Bachelor of Library and Information Science (BLISc)

Program Outcome

Bachelor's degree in Library and Information Science aims to:

- Train students in modern library administration and prepare them for careers in Academic, Public and Special Libraries.
- Impart education and training for generating budding library professionals in the p[resent scenario of information age.
- Develop manpower for libraries and information centres for effective and efficient services, professional values, dedication and attitude.
- To equip students with competent skills essentially required for carrying out various housekeeping operations of library and Information Centers using ICT.
- To develop LIS students as competent professionals in the field by imparting employability skill based on effective communication, critical thinking, and ethical literacy.
- Enable to become lifelong learners for their personal growth and development.

Bachelor of Library and Information Science

Programme/Class: Certificate	Year: First	Semester: First
Subject: Library and Information Science		
Course Code:	Course Title: Foundations of Library and Information Science (Theory)	

Course outcomes: After studying this paper, the students shall be able to comprehend the concept, objectives and development of libraries and its importance to the society. Understand the professional ethics of librarianship and the five laws of library science with their implications on various services of the libraries. Understand the importance of Library legislation and features of library acts. Familiarize with the role of various National and International Library Associations and Organizations.

Credits: 4	***Core Compulsory***
Max. Marks: 25+75	Min. Passing Marks: 40

Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 4-0-0

Unit	Topics	No. of Lectures
	Part I	
I	**Contribution of Indian LIS Professionals in the development of Library Profession:** S. R. Ranganathan, P.N. Panicker, M. A. Gopinath, B. S. Kesvan, A. Neelameghan, S. Bashiruddin. **Essentials of Library and Information Science** Librarianship as a Profession; User Education; Extension Service; Library Building.	15
II	**Conceptual framework and history of libraries** Social foundation of Libraries; History of Libraries; Development of libraries in India, U.S.A. and Britain; Five Laws of Library Science; Types of Libraries. Public and Rural Libraries in Uttar Pradesh.	15
III	**Laws relating to libraries and information centers** Library Legislation-Need and essential Features; Library Acts in India; Intellectual Property Right.	15
IV	**Library Associations** Role and contribution of National Organizations such as UGC, ILA, IASLIC; Role and contribution of International Organizations such as LA, ALA, IFLA, FID, UNESCO, ASLIB in the growth and development of Libraries.	15

Suggested Readings:

1. Jafferson, G: Library Cooperation. London : Andre Deutsch, 1977
2. Kent, Allan: Resource sharing in libraries. New York: Dekker, 1974.
3. Khanna, JK: Library and Society. Kurukshetra: Research Publications, 1987.

4. Pandey, SK Sharma: Libraries and Society. New Delhi:EssEss, 1992.
5. Ranganathan, SR: The Five Laws of Library Science. Bangalore: Sarda Ranganathan Endowment for Library Science, 1988.
6. Sukula, Shiva: Librarianship: Redefining and Redesigning Beyond the Customary Craft. New Delhi, Ess Ess Publications, 2016.
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Suggestive digital platforms web links

1. https://lisstudymaterials.wordpress.com/
2. http://egyankosh.ac.in/
3. http://library-soup.blogspot.com/

This course can be opted by the students of BLISc.
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Suggested Continuous Evaluation Methods:
Internal Evaluation 25 Marks : 20 Marks (2 Tests –10 Marks each) 05 Marks (Assignment)

External Evaluation 75 Marks : The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75words. The examinee will attempt all questions. Each question carries 2 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks

Course prerequisites: To study this course, a student must have had the Graduation in any discipline with a minimum of 45% in aggregate.

Suggested equivalent online courses: Courses on Swayam / MOOCS/NPTEL
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Further Suggestions:
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Bachelor of Library and Information Science

Programme/Class: Certificate	Year: First	Semester: First

Subject: Library and Information Science	
Course Code:	Course Title: Library Classification (Theory)

Course Outcome

After studying this paper, the students shall be able to understand the meaning, purpose, functions, theories and canons of library classification. Analyze the characteristics, merits and demerits of different species of library classification Schemes. Highlight salient features of major classification schemes. Elucidate various facets of notation and call number. Review current trends in library classification

Credits: 4	***Core Compulsory***
Max. Marks: 25+75	Min. Passing Marks: 40

Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 4-0-0

Unit	Topics	No. of Lectures
	Part I	
I	**Library Classification** Definition, Need, Purpose of Library Classification. Terminology of Classification. General Theory of Classification. Species of Classification. Major Schemes of Classification: DDC, CC, UDC.: An Overview	15
II	**Normative Principles of Classification** Work of classification in three Planes: Canons and their applications in Standard Schemes	15
III	**Mnemonics:** Definition, types, Canons and their applications in Standard Schemes. Hospitality in Notational System: Canons and Devices	15
IV	**Facet Sequence:** Concept and Principles. Postulational Steps in practical Classification. Book Number and Collection Number Library Classification and Trends	15

Suggested Readings:

1. Ranganathan, S. R. (1962). Elements of library classification. Bombay: Asia Publishing
2. Bavakutty, M. (1981).Canons of library classification. Trivandrum: Kerala library Association
3. Ranganathan, S. R. & Gopinath, M. A.(1989). Prolegomena to Library Classification v.1Bangalore: Sarada Ranganathan Endowment for Library Science
4. Sayers,W.C.Berwick (1955). Introduction to Library Classification: Theoretical, Historical and Practical with. London: Grafton and Company
5. Dutta, D.N. (1978). Library Classification: a manual. Calcutta: The World Press

6. Husain, Shabahat (2004). Library Classification: Facets and Analyses. Delhi: B.R. Publishing Corporation.
7. Krishan Kumar (1979). Theory of Classification. New Delhi: Vikas Publishing
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2. http://egyankosh.ac.in/
3. http://library-soup.blogspot.com/

This course can be opted by the students of BLISc.
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Suggested Continuous Evaluation Methods:

Internal Evaluation 25 Marks : 20 Marks (2 Tests –10 Marks each) 05 Marks (Assignment)

External Evaluation 75 Marks : The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75words. The examinee will attempt all questions. Each question carries 2 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks

Course prerequisites: To study this course, a student must have had the Graduation in any discipline with a minimum of 45% in aggregate.

Suggested equivalent online courses: Courses on Swayam / MOOCS/NPTEL
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Further Suggestions:
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Bachelor of Library and Information Science

Programme/Class: Certificate	Year: First	Semester: First
Subject: Library and Information Science		

Course Code:	Course Title: Library Cataloguing (Theory)

Course Outcome

After studying this paper, the students shall be able to understand the concept and objectives of library catalogue. To know about the normative principles of cataloguing. Comprehend various forms (inner and outer) of library catalogue. Review the features and development of different cataloguing codes. Understand various approaches of deriving subject headings. Understand the concept of co-operative and centralized cataloguing. Examine the current trends in library cataloguing. Understand the complexities in rendering of entries and alphabetization.

Credits: 4	***Core Compulsory***
Max. Marks: 25+75	Min. Passing Marks: 40

Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 4-0-0

Unit	Topics	No. of Lectures
	Part I	
I	**Library Catalogue:** Definition, Need, Objective & Functions. Normative Principles of Cataloguing. Cataloguing and Classification: Symbiotic relationship. Forms of Library Catalogue.	15
II	**Types and Functions of Cataloguing:** Dictionary, Classified. Library Catalogue Codes – CCC and AACR-II: Historical Development	15
III	**Subject Cataloguing:** Concept, Principles. Chain Procedure, Lists of Subject Headings. Centralized and Cooperative Cataloguing: Need, CIS and CIP, Prenatal Cataloguing. Union Catalogue: Need, Rules for Compilation. NUCSSI, DELNET, IndCat, WORLDCAT.	15
IV	**Indic Names:** Problems and Rendering. Cataloguing Rules according to A.A.C.R.II and CCC for Joint authors, Corporate Authors and Pseudonyms. Cataloguing of Non-book Materials: Microfilms, Gramophone Records, Maps, Computer files	15

Recommended Books

1. Girja Kumar &Krishan Kumar (1975). Theory of cataloguing. New Delhi: Vikas Publishing House
2. Sharma, Pandey S. K. (1986). Cataloguing Theory. New Delhi: EssEss Publication.
3. Viswanathan, C. G. (1983). Cataloguing: Theory and Practice. Lucknow: Print House.
4. Shera, Jesse H. & Eagan, Margret E. (1956). Classified Catalog: basic principles and practices. Chicago: American Library Association.
5. Sengupta, B (1974). Cataloguing: Its theory & practice. Calcutta: World Press.
7. Krishan Kumar (2001). An Introduction to AACR-2 (Anglo-American Cataloguing Rules). New Delhi: Vikas Publishing.

8. Siddiqui, JA and Husain, Mohd Sabir. Library Cataloguing with AACR-II. New Delhi, Ess Ess Publications, 2018. ISBN 978-93-87698-03-1

9. Siddiqui, JA; Husain, Mohd. Sabir and Sharma, BK. Hindi Granthon ki Suchikaran Pirkriya. Agra, Y. K. Publishers, 2018. ISBN 978-93-80668-97

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3. http://library-soup.blogspot.com/

This course can be opted by the students of BLISc.
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Suggested Continuous Evaluation Methods:
Internal Evaluation 25 Marks : 20 Marks (2 Tests –10 Marks each) 05 Marks (Assignment)

External Evaluation 75 Marks : The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75words. The examinee will attempt all questions. Each question carries 3 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks

Course prerequisites: To study this course, a student must have had the Graduation in any discipline with a minimum of 45% in aggregate.

Suggested equivalent online courses: Courses on Swayam / MOOCS/NPTEL
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Further Suggestions:
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Bachelor of Library and Information Science

Programme/Class: Certificate	Year: First	Semester: First
Subject: Library and Information Science		
Course Code:	Course Title: Library Classification (Practical)	

Course outcomes: After studying the paper, students shall be able to classify and construct the class numbers for titles using Colon Classification Scheme. Synthesize class numbers by using common

isolates and 'different devices of CC scheme. Classify and construct the class numbers for complex titles using DDC scheme. Synthesize class numbers by using the tables and 'add to instructions' of DDC scheme. Use of different schedules, manual and relative index of Classification Schemes.

Credits: 4	***Core Compulsory***
Max. Marks: 25+75	Min. Passing Marks: 40

Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 0-0-4

Unit	Topics	No. of Lectures
	Part I	
I	**Section – A: Classification of documents (using DDC)** Classification of documents with the Dewey Decimal Classification19th Edition with the following details: Main Classes, Divisions, Sectors, Sub-sectors, Auxiliary Tables.	30
II	**Section – B: Classification of documents (using CC)** Classification of documents by Colon Classification 6thRevised and Enlarged edition with following details BasicSubject, compound and complex subject, phase Relations, common isolates etc.	30

Recommended Books

1. Dewey, Melvil: Decimal Classification and Relative Index. 19th ed. New York, Lake Placed Club, 1979.
2. Ranganathan, SR: Elements of Library Classification. 3rd ed. Bombay, Asia Pub. House, 1962.
3. Ranganathan, SR: prolegomena to Library Classification. Assisted by M A Gopinath. 3rd ed. Bangalore, SRELS, 1969.
4. Satija, MP: Colon Classification: a practical introduction. Delhi, EssEss, 1989.
5. Ranganathan, SR: Colon Classification. 6th rev ed. Banglaore, SRELS, 1968.
6. Satija, MP: Manual of Practical Colon Classification. 3rd rev ed. New Delhi, Sterling, 1995.

Note: There will be Three Sections A, B and C.

Section A will consist of ***Eight*** Titles and the examinee will classify ***Five*** Titles by Dewey Decimal

Classification Edition 19th . Each Title carries 6 marks. **Section B** will consist of ***Eight*** Titles and the examinee will classify ***Five*** Titles by Colon Classification Scheme 6th Revised and Enlarged Edition. Each Title carries 6 marks. **Section C** will consist of ***Two*** Titles and the examinee will classify ***One*** Title by both Dewey Decimal Classification Edition 19th and Colon Classification Scheme 6th Revised and Enlarged Edition. This Title carries 15 marks. **Methodology:** Lectures, self study, case studies, assignments, experimental learning exercises
Course prerequisites: To study this course, a student must have had the Graduation in any discipline with a minimum of 45% in aggregate.
Suggested equivalent online courses: Courses on Swayam / MOOCS/NPTEL ……..
Further Suggestions: ……..

Bachelor of Library and Information Science

Programme/Class: Certificate	Year: First	Semester: First
Subject: Library and Information Science		
Course Code:	Course Title: Library Cataloguing (Practical)	
Course outcomes: After studying the paper, students shall be able to use the AACR-2 and CCC cataloguing codes for cataloguing of printed documents in a library. Preparation of catalogue for single		

personal author, joint personal author and pseudonymous works. Preparation of catalogue for simple personal name entries in Hindi and Urdu by AACR-2. To Prepare different types of entries in order to fulfill various search approaches of users. Practically identify and describe various bibliographic elements of the documents. Derive subject headings using Sear's List of Subject Headings and Chain Procedure method for subject entries.

Credits: 4	***Core Compulsory***
Max. Marks: 25+75	Min. Passing Marks: 40

Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 0-0-4

Unit	Topics	No. of Lectures
	Part I	
I	**Cataloguing of documents (using AACR II)** Cataloguing of books and periodicals in accordance with the latest edition of AACR II and Sears List of Subject Headings	20
II	**Cataloguing of documents (using CCC)** Cataloguing of books and periodicals in accordance with the Classified Catalogue Code (CCC) 5th Edition.	20
III	**Computerised Cataloguing through MARC**	20

Recommended Books

1. Ranganathan, SR: Classified Catalogue Code with additional rules for Dictionary Catalogue Code. Assisted by A. Neelameghan. 5th reprinted ed. Bangalore, SRELS, 1988.
2. Anglo American Cataloguing Rules. (North American Text). Chicago, ALA, 1967.
3. Ranganathan, SR: Cataloguing Practice. Assisted by G. Bhattacharya. Bombay, Asia Pub. House, 1974.
4. Job, M.M. (1989). Theory and practice of Cataloguing. New Delhi: Metropolitan.
5. Gernert, Leigh (2003). A Textbook of Cataloguing. New Delhi: Dominant Publishers and Distributors.
6. Krishan Kumar (2001). An Introduction to AACR-2 (Anglo-American Cataloguing Rules). New Delhi: Vikas Publishing.

7. Siddiqui, JA and Husain, Mohd Sabir. Library Cataloguing with AACR-II. New Delhi, Ess Ess Publications, 2018. ISBN 978-93-87698-03-1

8. Siddiqui, JA; Husain, Mohd. Sabir and Sharma, BK. Hindi Granthon ki Suchikaran Pirkriya. Agra, Y. K. Publishers, 2018. ISBN 978-93-80668-97

Note: There will be Three Sections A, B and C

Section A will consist of ***Four*** Entries and the examinee will prepare ***Two*** Entries by using **AACR-II**. Each Entry carries 15 marks.

Section B will consist of ***Four*** Entries and the examinee will prepare ***Two*** Entries by using **CCC**. Each Entry carries 15 marks.

Section C will consist of ***Two*** Entries and the Examinee will prepare only ***One*** Entry through **MARC**. Each Entry carries 15 marks.

Course prerequisites: To study this course, a student must have had the Graduation in any discipline with a minimum of 45% in aggregate.

Suggested equivalent online courses: Courses on Swayam / MOOCS/NPTEL
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Further Suggestions:
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Bachelor of Library and Information Science

Programme/Class: Certificate	Year: First	Semester: Second
Subject: Library and Information Science		
Course Code:	Course Title: Management of Libraries and Information Centres (Theory)	

Course outcomes: After studying the paper, students shall be able to understand the concept and scope of library management. Elaborate principles and functions of library management. Efficiently carry out

various operations of Library and Information Centres. Comprehend the concept of financial management and human resource management. Designing of library and information system/ MIS. Maintain the library statistics and prepare annual report

Credits: 4	***Core Compulsory***
Max. Marks: 25+75	Min. Passing Marks: 40

Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 4-0-0

Unit	Topics	No. of Lectures
	Part I	
I	**Essentials of management:** Concept, history and functions of management. Concept and principles of scientific management Concept, elements and standards of TQM	15
II	**Library Management-general aspects:** HRM, Job description, analysis, specification and evaluation. Selection and Recruitment. Motivation. Training and Development. Performance appraisal. Stock Verification	15
III	**Library Management –specific aspects:** Library authority and library committee. Staffing. Different sections of libraries and their working. Annual report.	15
IV	**Preservation and Conservation** of library resources (printed and digital). Financial Management in Libraries : Budget	15

Recommended Books

1. Mittal, RL: Library and Administration: Theory and practice. New Delhi: Metropolitan Book, 1983.
2. Ranganathan, SR: Library Book Selection. Bombay: Asia Pub. House, 1966.
3. Brown, James Duff: Manual of Library Economy. London: Andre Deutsch, 1961.
4. Mahapatra, PK and Chakrabarti, B: Preservation in Libraries. New Delhi: EssEss, 2003
5. Adhikari, Rajiv: Library Preservation and Automation. Delhi: Rajat Publications, 2002.

Suggestive digital platforms web links

1. https://lisstudymaterials.wordpress.com/

2. http://egyankosh.ac.in/
3. http://library-soup.blogspot.com/

Elective Paper

This course can be opted as an elective by the students of following subjects: Open for all.

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75words. The examinee will attempt all questions. Each question carries 2 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self study, case studies, assignments, experimental learning exercises

Course prerequisites: To study this course, a student must have had the Graduation in any discipline with a minimum of 45% in aggregate.

Suggested equivalent online courses: Courses on Swayam / MOOCS/NPTEL
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Further Suggestions:
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Bachelor of Library and Information Science

Programme/Class: Certificate	Year: First	Semester: Second

Subject: Library and Information Science	
Course Code:	Course Title: Information Sources and Services (Theory)

Course outcomes: After studying the paper, students shall be able to understand the concept of reference and information sources and services provided in libraries. Understand criteria of evaluation of different sources of information. Understand the reference interview and various techniques of searching information. Understand the latest trends in Reference & Information Sources and Services.

Credits: 4	***Core Compulsory***
Max. Marks: 25+75	Min. Passing Marks: 40

Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 4-0-0

Unit	Topics	No. of Lectures
	Part I	
I	**Information Sources I** Concept of information sources. Primary sources of information -journal, conference proceedings, archival materials, standards, Newspapers, patents, research reports, thesis and their electronic form etc.	15
II	**Information Sources – II** Secondary sources of information- Bibliographic Sources – INB and BNB, Encyclopedias – General and Special, Dictionaries – General and Special Yearbooks, Biographical Source, Geographical Source, text book, Index and abstract and their electronic form	15
III	**Information Sources – III** Tertiary source of information- Bibliography of bibliographies, Directory, and guide to literature and their electronic form. Human Resources, Information Centres	15
IV	**Five Laws and Reference Sources**	15

Recommended Books

1. Bradford, SC: Documentation. 2nd ed. London, Lockwood, 1953.
2. Foskett, AC: Subject approach to Information. 5th ed. London, Library Association, 1997.
3. Guha, B: Documentation and Information: services, techniques and systems. 2nd rev ed. Calcutta, World Press, 1983.
4. Kawatra, PS: Fundamentals of Documentation with special reference to India. New Delhi, Sterling, 1983.

5. Khanna, JK: Documentation and Information Services: systems and techniques. Agra, Y K Publishers, 2000.
6. Lancaster, FW: Information Retrieval Systems: Characteristics, Testing and Evaluation. New York, John Wiley, 1968.
7. Ranganathan, SR: Documentation and its facets. London, Asia Pub. House, 1963.
8. Prasher, RG: Index and Indexing. New Delhi, Medallion Press, 1989.
9. Sukula, Shiva: Information Retrieval. New Delhi, Ess Ess Publications, 2014.

Suggestive digital platforms web links

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3. http://library-soup.blogspot.com/

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75words. The examinee will attempt all questions. Each question carries 2 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self study, case studies, assignments, experimental learning exercises

Course prerequisites: To study this course, a student must have had the Graduation in any discipline with a minimum of 45% in aggregate.
Suggested equivalent online courses: Courses on Swayam / MOOCS/NPTEL ……..
Further Suggestions: ……..

Bachelor of Library and Information Science

Programme/Class: Certificate	Year: First	Semester: Second

Subject: Library and Information Science	
Course Code:	Course Title: Information Processing and Retrieval (Theory)

Course outcomes: After studying the paper, the students shall be able to understand the concept and process of documentation and its services in libraries. Understand the types and characteristics of indexing languages including the vocabulary Control and information retrieval thesaurus. Understand the concept and types of indexing and abstracting services at the National and International Level. Understand the various categories of users and different methods of providing user studies in libraries.

Credits: 4	***Core Compulsory***
Max. Marks: 25+75	Min. Passing Marks: 40

Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 4-0-0

Unit	Topics	No. of Lectures
	Part I	
I	**Documentation:** Definition, Need, Purpose. Documentation Work, Service, CAS and SDI. Index and Indexing: Scope and Importance Types of indexes • Keyword indexing	15
II	**Index and Indexing:** Pre and Post Co-ordinate Indexing. Chain Procedure, PRECIS, POPSI, Citation Indexing. Indexing Languages: Types and Characteristics. Vocabulary Control and IR Thesaurus. Indexing Services: National and International	15
III	**Abstracting:** Types and Guidelines. Abstracting Services: National and International, Chemical Abstract, Biological Abstract, Physics Abstract, Psychological Abstract, Sociological Abstract, Indian Science Abstract	15
IV	**Search Strategies,** Feedback and Refining. Information Users: Categories. User Studies: Methods, Techniques and Evaluation	15

Recommended Books

1. Brown, A.G. (1982). An Introduction to Subject Indexing. London: Clive Bingly.
2. Mohammad, Riaz (1989). Advanced Indexing and Abstracting Practices. New Delhi: Atlantic Publishers.
3. Chakraborty, A.R. and Chakraborty, B. (1984). Indexing: Principles, Process and Products.

Calcutta: The World Press.

5. Sengupta, B. and Chatterjee, M. (1977). Documentation and Information Retrieval. Calcutta: The World Press.
7. Rajan, T.N. (1981). Indexing Systems: Concepts, Models and Techniques. Calcutta: IASLIC.
8. Ranganathan, S.R. (1963). Documentation and its Facts. London: Asia Publishing House.
9. Shera, J.H., Kent, A. and Pessy, J.W. (1957). Documentation in Action. New York: Reinhold Publishing.

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Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75words. The examinee will attempt all questions. Each question carries 2 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self study, case studies, assignments, experimental learning exercises

Course prerequisites: To study this course, a student must have had the Graduation in any discipline with a minimum of 45% in aggregate.
Suggested equivalent online courses: Courses on Swayam / MOOCS/NPTEL ……..
Further Suggestions: ……..

Bachelor of Library and Information Science

Programme/Class: Certificate	Year: First	Semester: Second

Subject: Library and Information Science	
Course Code:	Course Title: Library and Information Technology (Theory)

Course outcomes: After studying the paper, students shall be able to understand the planning and implementation of automation in various library housekeeping operations and services. Understand and assess the feasibility of various library automation software and their functionalities. Understand the concept and purpose of a digital library and the new concepts of mining and retrieving the data. Understand the computer networks and their types, topologies, protocols and Standards. Understand the concept of internet security, its solutions and cyber laws prevalent in India.

Credits: 4	***Core Compulsory***
Max. Marks: 25+75	Min. Passing Marks: 40

Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 4-0-0

Unit	Topics	No. of Lectures
	Part I	
I	**Information Technology – I** Concept of Information Technology. Types of Information Technology. Computer Technology – History, Classification and Generation of Computers, Computer Hardware and Software, Operating Systems –WINDOWS, Linux. Programming Languages, Algorithm & Flow Charting	15
II	**Information Technology – II** Communication Technology – General Aspects. Reprographic Technology – General Aspects. Micrographic Technologies – General Aspects	15
III	**Library Automation:** Concept and need of library automation. Planning and implementation of library automation. In-house operations (Acquisition, Cataloguing, Circulation, Serials Control)	15
IV	**Library Softwares:** SOUL and Alice for Windows, Libsys including Open Source Softwares, Library Networks, New development in Library Automation such as use of RFID etc.	15

Recommended Books

1. Kumar, PSG: Computerization of Indian Libraries. Delhi, B. R. Publishing, 1987.
2. Pandey, SK Sharma: Library Computerization: theory and practice. New Delhi, Ess Ess, 1993.
3. Satyanarayana, NR: A manual of Library Automation and Networking. 2nd ed. Lucknow, New Royal Book, 2003.
4. Dhawan, A: Computers for Beginners. New Delhi, Frank Bros, 1990.
5. Sehgal, RL: An introduction to Library Networks. New Delhi, EssEss, 1996.

6. Devrajan, G and Rahelamma, AV: Library Computerization in India. New Delhi, EssEss, 1990.
7. Siddiqui, JA : Information Technology Application in Libraries. New Delhi, Shree Publishers & Distributors. 2019. ISBN 978-81-8329-988-6.
8. Sukula, Shiva: Demystifying Databases: A hands-on Guide to Database Management. New Delhi, Ess Ess Publications, 2016.

Suggestive digital platforms web links

1. https://lisstudymaterials.wordpress.com/
2. http://egyankosh.ac.in/
3. http://library-soup.blogspot.com/

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75words. The examinee will attempt all questions. Each question carries 2 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self study, case studies, assignments, experimental learning exercises

Course prerequisites: To study this course, a student must have had the Graduation in any discipline with a minimum of 45% in aggregate.
Suggested equivalent online courses: Courses on Swayam / MOOCS/NPTEL ……..
Further Suggestions: ……..

Bachelor of Library and Information Science

Programme/Class: Certificate	Year: First	Semester: Second
Subject: Library and Information Science		

Course Code:	Course Title: Library and Information Technology (Practical)

Course outcomes: After studying the paper, students shall be able to familiarize with housekeeping operations using library management software packages. Create database for different categories of documents. Generate barcode labels and membership cards. Search online databases.

Credits: 4	***Core Compulsory***
Max. Marks: 25+75	Min. Passing Marks: 40

Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P: 0-0-4

Unit	Topics	No. of Lectures
	Part I	
I	Installation and Functions of Different Operating Systems: Windows NT, Linux. Setting of Desktop, Library Server and its Maintenance. Editing and Formatting Word Documents. Creating Presentations with PowerPoint.	15
II	Database Creation and Library Software Installation and Creation of Databases: Import, Export, Hyperlinks and Alice for Windows.	15
III	Installation, Configuration and Functions Installation, Configuration and Application of SOUL	15
IV	Online and Offline Searching, Web Searching, Advanced Internet Searching, Search through Meta Search Engines, Offline Databases Internet and E-mail	15

Recommended Books

1. Kumar, PSG: Computerization of Indian Libraries. Delhi, B. R. Publishing, 1987.
2. Pandey, SK Sharma: Library Computerization: theory and practice. New Delhi, EssEss, 1993.
3. Satyanarayana, NR: A manual of Library Automation and Networking. 2nd ed. Lucknow, New Royal Book, 2003.
4. Dhawan, A: Computers for Beginners. New Delhi, Frank Bros, 1990.
5. Sehgal, RL: An introduction to Library Networks. New Delhi, Ess Ess, 1996.
6. Devrajan, G and Rahelamma, AV: Library Computerization in India. New Delhi, EssEss, 1990.
7. Shiva Sukula: Information Technology: Bridge to the Wired Virtuality, New Delhi, EssEss

Publications, 2008.

8. Shiva Sukula: Electronic Resource Management: What, why and how, New Delhi, EssEss Publications, 2010

Note: There will be ***Eight*** questions. The examinee has to answer ***Five*** questions. Each question carries 15 marks.

i) Documents, data, database, etc. to work on for the practical assignments will be provided by the Teacher in the computer lab

ii) Students are required to do the practical assignment in the computer lab. Evaluation of the assignment will be done by the Teacher on the spot.

iii) Students have to make Screen Captures for all the answers and save them in one file. The Teacher will evaluate these screen captures and give marks accordingly.

Methodology: Lectures, self study, case studies, assignments, experimental learning exercises

Course prerequisites: To study this course, a student must have had the Graduation in any discipline with a minimum of 45% in aggregate.

Suggested equivalent online courses: Courses on Swayam / MOOCS/NPTEL
……..

Further Suggestions:
……..

DEPARTMENT OF LIBRARY & INFORMATION SCIENCE

Ch. Charan Singh University, Meerut

Master of Library & Information Science

FIRST SEMESTER

2020 – 2021

Paper	Paper Code	Paper Title	Credit	Internal Marks	Exam Marks	Total
I	MLS 101	Knowledge, Information and Communication	04	20	80	100
II	MLS 102	Knowledge Organization: Classification (Theory)	04	20	80	100
III	MLS 103	Knowledge Organization: Classification (Practice)	02	10	40	50
IV	MLS 104	Research Methods and Statistical Techniques	04	20	80	100
V	MLS 105	Computer Application in LIS (Theory)	04	20	80	100
VI	MLS 106	Computer Application in LIS (Practical)	02	10	40	50
VII	MLS 107	**Any ONE of the following:** a) Public Library System b) Academic Library System c) Special Library System	04	20	80	100
		Total Credit / Marks	**24**	**120**	**480**	**600**

FIRST SEMESTER
MLS 101

Knowledge, Information and Communication

Max. Marks: 100

Internal assessment: 20 Marks (2 Tests –10 Marks each)

Theory: 80 Marks **Time: 3 Hours**

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75 words. The examinee will attempt all questions. Each question carries 3 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Unit-I Information: Definition; Characteristics, Nature, and Value; Conceptual difference between Data, Information and Knowledge; Communication of Information; Barriers.

Unit-II Knowledge: Definition, Kinds of Knowledge, Growth of Knowledge, Universe of Subjects: Formation, Structure and Development of Subjects.

Unit-III Information Science: Definition, Scope and Objectives; Information science as a discipline and its relationship with other subjects; Information Society: Genesis, Characteristics, Implications

Unit-IV Information Industry: Generators, Providers and Intermediaries; Intellectual Property Right Acts.

Unit-V Knowledge Management: Definition, Concept, Need and Basic Tools; Trends in Knowledge Management, Role of Information Manager.

Recommended Books

1. Raman Nair, R: Accessing information through internet. New Delhi, Ess Ess, 2002.
2. Bavakutty, M. et al. ed.: Information Access, management and exchange in the technological age. New Delhi, Ess Ess, 2003.
3. Ramesh Babu, M and Gopalakrishnan, S. ed.: Information, Communication, Library and Community Development. Delhi, B. R. Publishing, 2004.
4. Khan, MTM: Information Organisation and Communication, 1997.
5. Ramamurthy, CR: Information Security: A source book for librarians. Delhi, Authorspress, 2001.
6. Siddiqui, JA: Knowledge, Information and Communication, New Delhi, Shree Publishers & Distributors, 2016.
7. Mahapatra, PK and Chakrabarti, B: Knowledge Management in Libraries. New Delhi, Ess Ess, 2002.

MLS 102

Knowledge Organization: Classification (Theory)

Max. Marks: 100

Internal assessment: 20 Marks (2 Tests –10 Marks each)

Theory: 80 Marks **Time: 3 Hours**

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75 words. The examinee will attempt all questions. Each question carries 3 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Unit-I Development of general theory of Classification: Contributions of Richardson, W. C. Berwick Sayers, H. E. Bliss, S. R. Ranganathan and CRG. Mapping of Universe of Knowledge: Problems; Categorization of Isolates: Modern Trends.

Unit-II Mapping of Universe of Subjects in CC, UDC and DDC; Features of Special Classification Schemes

Unit-III Classificatory Principles in Classification of Sciences, Social Sciences and Humanities

Unit-IV Comparative study of CC & UDC with regard to Common Subdivisions and Indicator Digits

Unit-V Recent Trends in Classification; Automatic Classification, Web Dewey, Dewey on CD, Classification in Online System.

Recommended Books

1. Kumar, PSG: Knowledge Organisation, Information processing and retrieval: practice, Paper III of UGC Model Curriculum. Delhi, B. R. Publishing, 2003.
2. Kumar, PSG: Knowledge Organisation, Information processing and retrieval: theory, Paper II of UGC Model Curriculum. Delhi, B. R. Publishing, 2003.
3. Hussain, Shabahat: Library Classification: facets and analysis. Delhi, B. R. Publishing, 2004.
4. Ramalingam, MS: ed. Library Cataloguing and Classification Systems. Delhi, Kalpaz, 2000.
5. Kochar, RS: Library Classification Systems. 1998.
6. Balakrishnan, S and Paliwal, PK ed.: Library Online Cataloguing Systems. New Delhi, Anmol, 2001.
7. Aswal, RS: MARC 21: Cataloguing format for twenty first century. New Delhi, Ess Ess, 2004.

MLS 103

Knowledge Organization: Classification (Practice)

Max. Marks: 50

Internal assessment: 10 Marks (2 Tests –5 Marks each)

Theory: 40 Marks **Time: 3 Hours**

The practical examination will consist of ***Ten*** complex titles to be classified in depth according to UDC (Abridged edition 2003) out of ***Twenty*** Titles

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Recommended Books

1. Fosket, AC: Universal Decimal Classification. Clive Bingley, London.
2. Mcllwaine, IC: The Universal Decimal Classification: A guide to its use.
3. Universal Decimal Classification. British Standards Institution, London.

MLS 104

Research Methods and Statistical Techniques

Max. Marks: 100

Internal assessment: 20 Marks (2 Tests –10 Marks each)

Theory: 80 Marks **Time: 3 Hours**

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75 words. The examinee will attempt all questions. Each question carries 3 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Unit-I Research: Concept, Meaning, Need, Purpose; Types of Research: Hypothesis: Definition, Characteristics, Functions, Research Design: Concept and Types; Identification of Problem.

Unit-II Research Methods: Scientific Method: Definition, Characteristics, Process, Spiral of Scientific Method; Historical Method: Definition, Steps, Descriptive Method: Meaning, Assessment, Evaluation

Unit-III Research Techniques; Questionnaire: Print and Electronic Form; Quantitative and Qualitative Studies; Interview; Observation; Library Records and Reports; Sampling Techniques.

Unit-IV Data Analysis and Interpretation; Measures of Central Tendency; Mean; Mode; Median; Measures of Dispersion: Variance and Covariance; Standard Deviation; Graphical Representation of Data; Bar Graph; Pie Graph; Histograms; Chi Square Test.

Unit-V Bibliometrics; Scientometrics; Infometrics and Webometrics: Concepts and Definition; Bibliometric Laws: Bradford; Zipf; Lotka; Research Report; Structure, Style, Contents, Guidelines

Recommended Books

1. Sinha, SC and Dhiman, AK: Research Methodology. New Delhi, Ess Ess, 2002.
2. Khan, MA: Research Methods in Library and Information Science. New Delhi, Cosmo, 2002.
3. Deverajan, G: Research in Library and Information Science. New Delhi, Ess Ess, 2002.
4. Kumar, K: Research Methods in Library and Information Science, 1992.
5. Lancaster, FW: Bibliometric Methods in accessing productivity and impact of research. 1991.
6. Ravichandra Rao, IK: Quantitative Techniques for Library and Information Science, 1983.

MLS 105

Computer Application in LIS (Theory)

Max. Marks: 100

Internal assessment: 20 Marks (2 Tests –10 Marks each)

Theory: 80 Marks **Time: 3 Hours**

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75 words. The examinee will attempt all questions. Each question carries 3 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Unit-I Introduction to Computers: Brief Description of various components of Computer; Input and Output devices; Classification of Computers; Hardware and Software.

Unit-II IT and Libraries; Representing Data in a Computer: ASCII, EBCDIC; Programming Languages: Generations; Software Packages; Operating Systems, Multimedia: Elements and its Application in Libraries.

Unit-III Library Automation Software Packages: Libsys, SOUL, Alice for Windows, Application of Library Software Packages in Library Operations and Services.

Unit-IV Telecommunication and Networking; Network Media: UTP, Optical Fibre Element, Network Interface Card, Hub, Router, Modem; Types of Network: LAN, MAN, WAN and their Applications; Network Typologies: Bus, Star, Ring, Token Ring; Internet and Intranet: Basic Features and Applications.

Unit-V Digital Libraries: Genesis, Definition, Objective and Scope; Software and Hardware for Digital Libraries; Data Warehousing; Data Mining; Meta Data; Artificial Intelligence and Expert Systems; Online Searching of Databases: MEDLINE, DIALOG, OCLC.

Recommended Books

1. Deitel, HM: An introduction to operating systems. Masschusettes, Addison-Wesley, 1984.
2. Martin, J: Fourth generation languages. New Jersey, Prentice Hall, 1985.
3. Vasantha, N and Mudhol, MV: Software packages for library automation. Delhi, Ess Ess, 2000.
4. Raman Nair: accessing Information through Internet. New Delhi, Ess Ess,2002.
5. Dhiman, AK: Basics of Information Technology for Librarians and Information Scientists. New Delhi, Ess Ess,2003.
6. Siddiqui, JA: Information Technology Application in Libraries. New Delhi, Shree Publishers & Distributors, 2019.

MLS 106

Computer Application in LIS (Practical)

Max. Marks: 50

Internal assessment: 10 Marks (2 Tests –5 Marks each)

Theory: 40 Marks **Time: 3 Hours**

Note: There will be ***FIVE*** questions. The examinee has to answer ***ALL*** questions. All questions carry equal marks.

i) Documents, data, database, etc. to work on for the practical assignments will be provided by the Teacher in the computer lab
ii) Students are required to do the practical assignment in the computer lab Evaluation of the assignment will be done by the Teacher on the spot.
iii) Students have to make Screen Captures for all the answers and save them in one file. The Teacher will evaluate these screen captures and give marks accordingly.

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Note: This paper will be of 50 marks out of which 10 marks will be allotted for internals and 40 marks will be allotted for external examination. The external examination will be conducted by one external examiner and one internal examiner to be appointed by the university. The duration of the examination would be of 3 hours. The practical questions will be set to check IT skills in the following areas:

Unit-I Creation and Maintenance of Database by using Library Software Package, Use of Library Software Packages for In-House Operations, Bar Code Generation, Membership Cards, Machine Readable Catalogue Cards

Unit-II CD-ROM On-line Searching, Digitization of Documents (scanning, OCR etc.)

Unit-III Internet Searching – Web 2.0 tools b. Content Management Software

Unit-IV Web Page Creation and Design

Recommended Books

1. Deitel, HM: An introduction to operating systems. Masschusettes, Addison-Wesley, 1984.
2. Martin, J: Fourth generation languages. New Jersey, Prentice Hall, 1985.
3. Vasantha, N and Mudhol, MV: Software packages for library automation. Delhi, Ess Ess, 2000.
4. Raman Nair: accessing Information through Internet. New Delhi, Ess Ess,2002.
5. Dhiman, AK: Basics of Information Technology for Librarians and Information Scientists. New Delhi, Ess Ess,2003.
6. Siddiqui, JA: Information Technology Application in Libraries. New Delhi, Shree Publishers & Distributors, 2019.

Paper-107 (a)

Planning and Management of Public Library System

Max. Marks: 100

Internal assessment: 20 Marks (2 Tests –10 Marks each)

Theory: 80 Marks **Time: 3 Hours**

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75 words. The examinee will attempt all questions. Each question carries 3 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Unit-I Concept, Nature and Characteristics of Public Libraries. Public Library Movement in India. Public Library Legislation: Need and Importance.

Unit-II Public Library Systems in India. National Policy for Public Library Development in India. Public Library Users.

Unit-III Public Library Collection. Library Cooperation and Resource Sharing among Public Libraries in India. Budgeting for Public Libraries. Human Resource Development.

Unit-IV Public Library Services. Library Extension Services. Role of UNESCO, IFLA, Raja Rammohan Roy Library Foundation for Development and Promotion of Public Libraries.

Unit-V Public Libraries in India: The State Central Library, Mumbai; Delhi Public Library; T. S. Central Public Library, Chandigarh. Recent Trends in Public Library Services.

Recommended Books

1. Raman Nair, R: Public Library Development. New Delhi, Ess Ess Publications, 1993.
2. Kumar, S and Leena Shah: Public Library Acts in India. New Delhi, Ess Ess Publications, 2001.
3. Augustine, CA and Devarajan, G: Public Library System in India. New Delhi, Ess Ess Publications, 1990.
4. Vishwanathan, CG: Public Library Organisation. New Delhi, Ess Ess Publications, 2005.
5. Raju, AAN: Glimpses of Library Movement and Public Library Development in Andhra Pradesh. New Delhi, Ess Ess Publications, 2010.
6. Trivedia, Priya Ranjan and Others: Public Library Systems and Services. New Delhi, Jnanada Prakashan (P&D), 2010.

Paper –107 (b)

Planning and Management of Academic Library System

Max. Marks: 100

Internal assessment: 20 Marks (2 Tests –10 Marks each)

Theory: 80 Marks **Time: 3 Hours**

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75 words. The examinee will attempt all questions. Each question carries 3 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Unit-I Role of Libraries in Academic Institutions. Development of Academic Libraries in India. Planning of Academic Libraries. Role of UGC and UNESCO in Promoting Academic Libraries.

Unit-II Library Governance: Authority, Committees and Role of librarian. Human Resource Management: Staffing, Selection & Recruitment, Performance Appraisal.

Unit-III Budgeting. Academic Library Buildings: Planning, Basic Elements in Designing. Furniture.

Unit-IV Library and Information Services: Need and Types. Library Cooperation and Resource Sharing. Role of INFLIBNET: Electronic Journals and Consortia. E-ShodhSindhu: Consortium for Higher Education E-Resources. OCLC

Unit-V Shodhganga, Shodhgangotri. Role of NAAC and UGC in Academic Libraries.

Recommended Books

1. Singh, S: Reference Service in Academic Libraries in India, New Delhi; Ess Ess Publications.
2. Prasher, RG: University Libraries in India 1980s and Beyond, New Delhi: Medallian Press.
3. Sahai, Shri Nath: Academic Library System. 2nd Edition. New Delhi, Ess Ess Publications, 2009.
4. Dhiman, AK and Sinha, SC: Academic Libraries. New Delhi, Ess Ess Publications, 2002.
5. Bavakutty, M and Abdul Aziz TA: Redefining Academic Libraries in Knowledge Society. New Delhi, Ess Ess Publications, 2014.
6. Waghchaure, Shilpa S: Best Practices in Academic Libraries. New Delhi, Ess Ess Publications, 2016.
7. Verma, Shiv Ram: Academic Library System. New Delhi, Shree Publishers and Distributors, 2005.

Paper –107 (c)

Planning and Management of Special Library System

Max. Marks: 100

Internal assessment: 20 Marks (2 Tests –10 Marks each)

Theory: 80 Marks **Time: 3 Hours**

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75 words. The examinee will attempt all questions. Each question carries 3 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Unit-I Definition, Meaning, Objectives and Scope of Special Libraries. Types of Special Libraries. Development of Special Libraries in India.

Unit-II Special Libraries Governance: Authority, Committee and Role of Librarian. Organisational Pattern: Staff, Selection. Budgeting, Special Library Buildings. Furniture.

Unit-III Library Cooperation and Resource Sharing among Special Libraries. Networking and E-journals Consortia. ~~INDEST~~, FORSA, CSIR.

Unit-IV Study of Important Special Libraries in India. IIT Madras; BARC, Mumbai; CFTRI, Mysore; Khuda Bakhsh Oriental Public Library, Patna. Raza Library Rampur.

Unit-V Library and Information Services in Special Libraries. Need and Types of Services. Recent Trends in Special Libraries in India. Role of National Organisations for the development of Special Libraries.

Recommended Books

1. Mukherjee, AK: Fundamentals of Special Librarianship and Documentation.
2. Sinha, SC and Dhiman, AK: Special Libraries: Research and Technical Libraries. New Delhi: Ess Ess Publications.
3. Dhiman, AK: A Handbook of Special Libraries and Librarianship. Verma, Shiv Ram: Academic Library System. New Delhi, Shree Publishers and Distributors, 2008.
4. Barua, BP: National Policy on Library and Information Systems and Services for India. Bombay, Popular Prakashan, 1992.

SECOND SEMESTER

2020 – 2021

Paper	Paper Code	Paper Title	Credit	Internal Marks	Exam Marks	Total
I	MLS 201	Information Storage and Retrieval System	04	20	80	100
II	MLS 202	Knowledge Organisation: Cataloguing (Theory)	04	20	80	100
III	MLS 203	Knowledge Organisation: Cataloguing (Practice)	02	10	40	50
IV	MLS 204	**Any ONE of the following:** Information Sources and Systems a) Natural Sciences b) Social Sciences c) Medical Sciences	04	20	80	100
V	MLS 205	Information Technology Application in LIS (Theory)	04	20	80	100
VI	MLS 206	Information Technology Application in LIS (Practice)	02	10	40	50
VII	MLS 207	Dissertation and Viva	04	Dissertation = 80 Viva Voce = 20		100
		Total Credit / Marks	**24**	**120**	**480**	**600**

MLS 201

Information Storage and Retrieval

Max. Marks: 100

Internal assessment: 20 Marks (2 Tests –10 Marks each)

Theory: 80 Marks **Time: 3 Hours**

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75 words. The examinee will attempt all questions. Each question carries 3 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Unit-I Abstract and Abstracting: Concept, Types, Procedure of Abstracting; Guidelines in Preparing Abstracts; Principles of Abstracting (Canons); Auto Abstracting.

Unit-II Index and Indexing: Concepts and Types, Principles of Indexing; Subject Indexing; Pre-coordinate Indexing System; Post Coordinate Indexing Systems; Chain Indexing; Citation Indexing.

Unit-III Special types of Indexing: KWIC, KWAC, KWOC etc. Thesaurus; Thesaurofacet; Vocabulary Control: Tools of Vocabulary Control.

Unit-IV Features of IR System; Information Retrieval Models; Search Strategies: Manual, Machine; Evaluation of IR Systems; Trends in IR.

Unit-V Information Products: Nature, Concept, Types; Marketing of Information Products.

Recommended Books

1. Bradford, SC: Documentation. 2nd ed. London, Lockwood, 1953.
2. Foskett, AC: Subject approach to Information. 5th ed. London, Library Association, 1997.
3. Guha, B: Documentation and Information: services, techniques and systems. 2nd rev ed. Calcutta, World Press, 1983.
4. Kawatra, PS: Fundamentals of Documentation with special reference to India. New Delhi, Sterling, 1983.
5. Khanna, JK: Documentation and Information Services: Systems and techniques. Agra, Y K Publishers, 2000.
6. Lancaster, FW: Information Retrieval Systems: Characteristics, Testing and Evaluation. New York, John Wiley, 1968.
7. Ranganathan, SR: Documentation and its facets. London, Asia Pub. House, 1963.
8. Prasher, RG: Index and Indexing. New Delhi, Medallion Press, 1989.

MLS 202

Knowledge Organisation: Cataloguing (Theory)

Max. Marks: 100

Internal assessment: 20 Marks (2 Tests –10 Marks each)

Theory: 80 Marks **Time: 3 Hours**

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75 words. The examinee will attempt all questions. Each question carries 3 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Unit-I Introduction of Library Catalogue. Objectives of Library Catalogue. Forms of Catalogue. Types of Library Catalogue. Kinds of Entries.

Unit-II Contributions of Cutter, Lubetzkey, S. R. Ranganathan in the field of Cataloguing. Paris Principles in the Development of Catalogue Codes. Comparative Study of CCC and AACR-II. Corporate Authors.

Unit-III Normative Principles. Subject Cataloguing. Subject Headings: LCSH, POPSI, PRECIS, Chain Procedure, Thesaurus: Need and importance. Principles for Compilation.

Unit-IV Centralized and Cooperative Cataloguing. Rules for the Union Catalogues of Books, Periodicals, Indexing and Abstracting Journals.

Unit-V Recent Trends in Library Cataloguing. Online Cataloguing: OPAC, WEBOPAC. Exchange Formats: ISBD, MARC, CCF, UNIMARC, MARC21.

Recommended Books

1. Girja Kumar and Krishna Kumar: Theory of Cataloguing, 5th Rev Edition. New Delhi, Vikas Publishing House Pvt. Ltd.
2. Sahoo, KC: Information Management with IT Applications. New Delhi, Medallian Press.
3. Parmeshwaran, M. Anglo American Cataloguing Rules and CCC. New Delhi, Ess Ess Publications.
4. Singh, SN and Prasad, HN: Cataloguing Manual AACR-II. New Delhi, B. R. Publishing House.
5. Khan, MTM: Anglo American Cataloguing Rules. New Delhi, Shree Publishers.

MLS 203

Knowledge Organisation: Cataloguing (Practice)

Max. Marks: 50

Internal assessment: 10 Marks (2 Tests – 5 Marks each)

Theory: 40 Marks **Time: 3 Hours**

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Cataloguing of complex problems involving the rendering of Headings and Description will be done according to AACR-II for Corporate Authors, Non-Book Materials and Periodicals. There will be **SIX** Cataloguing Problems. The examinee has to attempt **FOUR** Cataloguing problems. All problems carry equal marks. The Practical Examination will be conducted through a question Paper and evaluated by One External Examiner and One Internal Examiner to be appointed by the University.

Recommended Books

1. Girja Kumar and Krishna Kumar: Theory of Cataloguing, 5th Rev Edition. New Delhi, Vikas Publishing House Pvt. Ltd.
2. Sahoo, KC: Information Management with IT Applications. New Delhi, Medallian Press.
3. Parmeshwaran, M. Anglo American Cataloguing Rules and CCC. New Delhi, Ess Ess Publications.
4. Singh, SN and Prasad, HN: Cataloguing Manual AACR-II. New Delhi, B. R. Publishing House.
5. Khan, MTM: Anglo American Cataloguing Rules. New Delhi, Shree Publishers.
6. Mohd. Sabir Husain and Siddiqui, JA: Practical Cataloguing with AACR-II. New Delhi, Ess Ess Publications, 2018.

MLS – 204 (a)

Information Sources and Systems in Natural Sciences

Max. Marks: 100

Internal assessment: 20 Marks (2 Tests –10 Marks each)

Theory: 80 Marks **Time: 3 Hours**

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75 words. The examinee will attempt all questions. Each question carries 3 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Unit-I Sciences: Definition, Terminology, Scope. Information Systems, Components of Information Systems. Sectoral, Regional, and National Information Systems in Natural Sciences in India.

Unit-II Information Sources: Types, Need and Purpose. Primary Sources, Secondary Sources and Tertiary Sources in the field of Natural Sciences.

Unit-III Information Networks in Natural Sciences: Need and Purpose. Study of Global Information Systems and Networks. INIS, ENVIS, AGRIS, MEDLARS. Sciencedirect, Scopus, Science Citation Index.

Unit-IV Major activities of important Research Organisations in the growth of Natural Sciences with Special Reference to India, USA and UK.

Unit-V Information Analysis and Repackaging. Content Analysis, Consolidation, Compilation.

Recommended Books

1. Katz, WA: Introduction to Reference Work. New York, McGraw Hill.
2. Sharma, Pandey SK: Library and Society. New Delhi, Ess Ess Publications.
3. Dhiman, AK and Rani, Y: Resource Sharing and Library & Information Networks. New Delhi, Ess Ess Publications.
4. Foskett, AC: Subject Approach to Information. 5th Edition. London, Library Association.
5. Kwatra, PS: Fundamentals of Documentation with special reference to India. New Delhi, Sterling.
6. Khanna, JK: Documentation and Information Services: Systems and Techniques. Agra, YK Publishers.
7. Ranganathan, SR: Documentation and its Facets. London, Asia Publishing House.
8. Guha, B: Documentation and Information. Services, techniques and systems. 2nd rev ed. Calcutta, World Press.

MLS–204 (b)

Information Sources and Systems in Social Sciences

Max. Marks: 100

Internal assessment: 20 Marks (2 Tests –10 Marks each)

Theory: 80 Marks **Time: 3 Hours**

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75 words. The examinee will attempt all questions. Each question carries 3 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Unit-I Social Sciences: Definition, Terminology, Scope and History of Social Sciences. Branches and Landmarks in Social Sciences.

Unit-II Information Sources: Types, Need and Purpose. Primary Sources, Secondary Sources and Tertiary Sources in the field of Social Sciences.

Unit-III Information Networks in Social Sciences: Need and Purpose. Study of Social Science Networks at National and International Level.

Unit-IV Major activities of important Research Organisations in the growth of Social Sciences with special reference to India, USA and UK.

Unit-V Information Analysis and Repackaging. Content Analysis, Condensation, Consolidation, Compilation in the field of Social Sciences.

Recommended Books

1. Katz, WA: Introduction to Reference Work. New York, McGraw Hill.
2. Sharma, Pandey SK: Library and Society. New Delhi, Ess Ess Publications.
3. Dhiman, AK and Rani, Y: Resource Sharing and Library & Information Networks. New Delhi, Ess Ess Publications.
4. Foskett, AC: Subject Approach to Information. 5th Edition. London, Library Association.
5. Kwatra, PS: Fundamentals of Documentation with special reference to India. New Delhi, Sterling.
6. Khanna, JK: Documentation and Information Services: Systems and Techniques. Agra, YK Publishers.
7. Ranganathan, SR: Documentation and its Facets. London, Asia Publishing House.
8. Guha, B: Documentation and Information. Services, techniques and systems. 2nd rev ed. Calcutta, World Press.

MLS–204 (c)

Information Sources and Systems in Medical Sciences

Max. Marks: 100

Internal assessment: 20 Marks (2 Tests –10 Marks each)

Theory: 80 Marks **Time: 3 Hours**

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75 words. The examinee will attempt all questions. Each question carries 3 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Unit-I Medical Sciences: Definition, Terminology, Scope and History of Health Sciences. Branches and Developments in Health Sciences.

Unit-II Information Sources: Types, Need and Purpose. Primary Sources, Secondary Sources and Tertiary Sources in the field of Medical Sciences.

Unit-III Information Networks in Health Sciences: Need and Purpose. Study of Health Science Networks at National and International Level. MEDLARS, PubMed, IndMed, MEDInd.

Unit-IV Major activities of important Research Organisations in the growth of Health Sciences in India and USA.

Unit-V Information Analysis and Repackaging. Content Analysis, Condensation, Consolidation, Compilation in the field of Health Sciences.

Recommended Books

1. Katz, WA: Introduction to Reference Work. New York, McGraw Hill.
2. Sharma, Pandey SK: Library and Society. New Delhi, Ess Ess Publications.
3. Dhiman, AK and Rani, Y: Resource Sharing and Library & Information Networks. New Delhi, Ess Ess Publications.
4. Foskett, AC: Subject Approach to Information. 5th Edition. London, Library Association.
5. Kwatra, PS: Fundamentals of Documentation with special reference to India. New Delhi, Sterling.
6. Khanna, JK: Documentation and Information Services: Systems and Techniques. Agra, YK Publishers.
7. Ranganathan, SR: Documentation and its Facets. London, Asia Publishing House.
8. Guha, B: Documentation and Information. Services, techniques and systems. 2nd rev ed. Calcutta, World Press.

MLS 205

Information Technology Application in LIS (Theory)

Max. Marks: 100

Internal assessment: 20 Marks (2 Tests –10 Marks each)

Theory: 80 Marks **Time: 3 Hours**

Note: The paper will be divided into Three Sections A, B and C.

Section A will consist of ***Five*** Short Answer Type questions not exceeding 75 words. The examinee will attempt all questions. Each question carries 3 marks.

Section B will consist of ***Three*** questions not exceeding 200 words. The examinee will attempt ***Two*** questions. Each question carries 10 marks.

Section C will consist of ***Five*** questions in detail. The examinee will attempt ***Three*** questions. Each question carries 15 marks.

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

Unit-I Internet and Intranet: Basic features and Applications. Protocols: Concept and Functions. Modes of Connectivity: Dial Up, ISDN, Leased Line, Blue Tooth, Wi Fi etc.

Unit-II E-mail: Definition, Importance, Types, Process and Applications. Web Browser: Netscape Navigator, Internet Explorer, Mozilla Firefox.

Unit-III Web Servers, Web Tools, Search Engines. Internet Security. Network Protocols: TCP/IP, SPX, NetBUI, FTP, HTTP.

Unit-IV Digital Libraries: Definition, Need, Objectives and Scope. Storage Media, Standards, Formats: ISO-9660, DVD. Software and Hardware for Digital Libraries. Open Source Softwares. RFID: Features components and its applications.

Unit-V Data Warehousuing, Data Mining, Meta Data. Scanners and Cameras. Artificial Intelligence and Expert Systems. Online Searching of Databases: Web of Science Institutional Repositories, Subject Gateways.

Recommended Books

1. Devrajan, G and Asari, K. Ravindaran: Information Technology and Library Automation. New Delhi, Ess Ess Publications.
2. Chopra, HS: Digital Library. New Delhi, Shree Publishers and Distributors.
3. Deital, HM: An introduction to Operating Systems. Massachussettes, Addisson Wesley, 1984.
4. Dhiman, AK: Basics of Information Technology for Librarians and Information Scientists. New Delhi, Ess Ess Publications, 2003.
5. Aswal, RS: CDS/ISIS for Windows: A handbook for Librarians. New Delhi, Ess Ess Publications, 2003.

MLS- 206

Information Technology Application in LIS (Practice)

Max. Marks: 50

Internal assessment: 10 Marks (2 Tests –5 Marks each)

Theory: 40 Marks **Time: 3 Hours**

Note: There will be ***FIVE*** questions. The examinee has to answer ***ALL*** questions. All questions carry equal marks.

i) Documents, data, database, etc. to work on for the practical assignments will be provided by the Teacher in the computer lab

ii) Students are required to do the practical assignment in the computer lab Evaluation of the assignment will be done by the Teacher on the spot.

iii) Students have to make Screen Captures for all the answers and save them in one file. The Teacher will evaluate these screen captures and give marks accordingly.

Methodology: Lectures, self-study, case studies, assignments, experimental learning exercises

The question paper for practical examination will be set to check IT skills in the following areas.

1. Database creation in SOUL 2.0 and KOHA
2. Use of Library Software Packages, SOUL 2.0, Alice for Windows and KOHA for In-House Operations, Bar Code Generations, Membership Cards, Machine Readable Catalogue Cards.
3. Access to World e-Book Library, Web of Science and Shodhganga.

Recommended Books

1. Devrajan, G and Asari, K. Ravindaran: Information Technology and Library Automation. New Delhi, Ess Ess Publications.
2. Chopra, HS: Digital Library. New Delhi, Shree Publishers and Distributors.
3. Deital, HM: An introduction to Operating Systems. Massachusetts, Addison Wesley, 1984.
4. Dhiman, AK: Basics of Information Technology for Librarians and Information Scientists. New Delhi, Ess Ess Publications, 2003.
5. Aswal, RS: CDS/ISIS for Windows: A handbook for Librarians. New Delhi, Ess Ess Publications, 2003.
6. Siddiqui, JA: Information Technology Application in Libraries. New Delhi, Shree Publishers & Distributors, 2019.

MLS–207
Dissertation

Max. Marks: 100

Viva Voce: 20 Marks **Dissertation Marks: 80**

Note: This paper will consist of areas such as annotated subject bibliography, bibliometric study, case study, survey, trend report etc. The dissertation on any one of the above theme will be submitted before the commencement of Second Semester examination and will be evaluated by an external examiner. It will carry 80 marks. Viva-Voce examination will be of 20 marks. This will be conducted by a group of Three members consisting of Coordinator of the Department, External Examiner and the Supervisor.

Note: For more "Suggested Readings" please contact concerned teachers.

MULTANIMAL MODI COLLEGE, MODINAGAR

DEPARTMENT OF LIBRARY & INFORMATION SCIENCE

Bachelor of Library and Information Science (BLIS)

Program Outcome

The designing of the Library & Information Science programme at the CCS University is to provide the organization of knowledge, processing of the knowledge, dissemination of information, automation of library, networking, communication technology, management techniques in organization of library informatics centre's, thus also provide hands on practice on different types of information, source and services, to aware of different types of e- resources and their use and use of advanced version of technology in library operations, aware of various consortia and consortia- based resources to prepare students for careers as professionals in the field of library Information science, for further study in library information science, communication technology, digital library and related fields, the faculty is committed to providing an environment that addresses the individual need of each student an encourages them to develop their potential

PROGRAM SPECIFIC OUTCOME(PSO)

PSO_1Train students in modern library administration and prepare them for careers in Academic, Public and Special Libraries.

PSO_2 Impart education and training for generating budding library professionals in the present scenario of information age.

PSO_3 Develop manpower for libraries and information centres for effective and efficient services, professional values, dedication and attitude.

$PSO_4$to equip students with competent skills essentially required for carrying out various housekeeping operations of library and Information Centers using ICT.

PSO_5To develop LIS students as competent professionals in the field by imparting employability skill based on effective communication, critical thinking, and ethical literacy.

PSO_6Enable to become lifelong learners for their personal growth and development.

Course Code: A190101T

Course Title: Foundations of Library and Information Science (Theory):

Max. Marks: 25+75 Min. Passing Marks: 40 Total No. of Lectures-60

Course outcome: After studying this paper, the students shall be able to comprehend the concept, objectives and development of libraries and its importance to the society. Understand the professional ethics of librarianship and the five laws of library science with their implications on various services of the libraries. Understand the importance of Library legislation and features of library acts. Familiarize with the role of various National and International Library Associations and Organizations.

Course Code: A190102T

Course Title: Library Classification (Theory)

Max. Marks: 25+75 Min. Passing Marks: 40 Total No. of Lectures-60

Course outcome: After studying this paper, the students shall be able to understand the meaning, purpose, functions, theories and canons of library classification. Analyze the characteristics, merits and demerits of different species of library classification Schemes. Highlight salient features of major classification schemes. Elucidate various facets of notation and call number. Review current trends in library classification Credits:

Course Code: A190103T

Course Title: Library Cataloguing (Theory)

Max. Marks: 25+75 Min. Passing Marks: 40 Total No. of Lectures-60

Course outcome: After studying this paper, the students shall be able to understand the concept and objectives of library catalogue. To know about the normative principles of cataloguing. Comprehend various forms (inner and outer) of library catalogue. Review the features and development of different cataloguing codes. Understand various approaches of deriving subject headings. Understand the concept of co-operative and centralized cataloguing. Examine the current trends in library cataloguing. Understand the complexities in rendering of entries and alphabetization.

Code: A190104P

Course Title: Library Classification (Practical)

Max. Marks: 25+75 Min. Passing Marks: 40 Total No. of Lectures:60

Course outcome: After studying the paper, students shall be able to classify and construct the class numbers for titles using Colon Classification Scheme. Synthesize class numbers by using common 11 isolates and 'different devices of CC scheme. Classify and construct the class numbers for complex titles using DDC scheme. Synthesize class numbers by using the tables and 'add to instructions' of DDC scheme. Use of different schedules, manual and relative index of Classification Schemes.

Course Code: A190105P

Course Title: Library Cataloguing (Practical)

Max. Marks: 25+75 Min. Passing Marks: 40 Total No. of Lectures:60

Course outcome: After studying the paper, students shall be able to use the AACR-2 and CCC cataloguing codes for cataloguing of printed documents in a library. Preparation of catalogue for single 13 personal author, joint personal author and pseudonymous works. Preparation of catalogue for simple personal name entries in Hindi and Urdu by AACR-2. To Prepare different types of entries in order to fulfil various search approaches of users. Practically identify and describe various bibliographic elements of the documents. Derive subject headings using Sear's List of Subject Headings and Chain Procedure method for subject entries.

Course Code: A190201T

Course Title: Management of Libraries and Information Centres (Theory)

Max. Marks: 25+75 Min. Passing Marks: 40 Total No. of Lectures: 60

Course outcome: After studying the paper, students shall be able to understand the concept and scope of library management. Elaborate principles and functions of library management. Efficiently carry out 15 various operations of Library and Information Centres. Comprehend the concept of financial management and human resource management. Designing of library and information system/ MIS. Maintain the library statistics and prepare annual report.

Course Code: A190202T

Course Title: Information Sources and Services (Theory)

Max. Marks: 25+75 Min. Passing Marks: 40 Total No. of Lectures: 60

Course outcome: After studying the paper, students shall be able to understand the concept of reference and information sources and services provided in libraries. Understand criteria of evaluation of different sources of information. Understand the reference interview and various techniques of searching information. Understand the latest trends in Reference & Information Sources and Services.

Course Code: A190203T

Course Title: Information Processing and Retrieval (Theory)

Max. Marks: 25+75 Min. Passing Marks: 40 Total No. of Lectures: 60

Course outcome: After studying the paper, the students shall be able to understand the concept and process of documentation and its services in libraries. Understand the types and characteristics of indexing languages including the vocabulary Control and information retrieval thesaurus. Understand the concept and types of indexing and abstracting services at the National and International Level. Understand the various categories of users and different methods of providing user studies in libraries.

Course Code:A190204T

Course Title: Library and Information Technology (Theory)

Max. Marks: 25+75 Min. Passing Marks: 40 Total No. of Lectures: 60

Course outcome: After studying the paper, students shall be able to understand the planning and implementation of automation in various library housekeeping operations and services. Understand and assess the feasibility of various library automation software and their functionalities. Understand the concept and purpose of a digital library and the new concepts of mining and retrieving the data. Understand the computer networks and their types, topologies, protocols and Standards. Understand the concept of internet security, its solutions and cyber laws prevalent in India.

Course Code: A190205P

Course Title: Library and Information Technology (Practical)

Max. Marks: 25+75 Min. Passing Marks: 40 Total No. of Lectures: 60

Course outcome: After studying the paper, students shall be able to familiarize with housekeeping operations using library management software packages. Create database for different categories of documents. Generate barcode labels and membership cards. Search online databases.

Suggestive digital platforms web links-

1. https://lisstudymaterials.wordpress.com/
2. http://egyankosh.ac.in/
3. http://library-soup.blogspot.com

MULTANIMAL MODI COLLEGE, MODINAGAR

DEPARTMENT OF LIBRARY & INFORMATION SCIENCE

Master of Library and Information Science (MLIS)

Program Outcome

The designing of the Library & Information Science programme at the CCS University is to provide the organization of knowledge, processing of the knowledge, dissemination of information, automation of library, networking, communication technology, management techniques in organization of library informatics centres, thus also provide hands on practice on different types of information, source and services, to aware of different types of e- resources and their use and use of advanced version of technology in library operations, aware of various consortia and consortia- based resources to prepare students for careers as professionals in the field of library Information science, for further study in library information science, communication technology, digital library and related fields, the faculty is committed to providing an environment that addresses the individual need of each student an encourages them to develop their potential

PROGRAM SPECIFIC OUTCOME(PSO)

PSO_1Train students in modern library administration and prepare them for careers in Academic, Public and Special Libraries.

PSO_2 Impart education and training for generating budding library professionals in the present scenario of information age.

PSO_3 Develop manpower for libraries and information centres for effective and efficient services, professional values, dedication and attitude.

PSO_4o equip students with competent skills essentially required for carrying out various housekeeping operations of library and Information Centers using ICT.

PSO_5To develop LIS students as competent professionals in the field by imparting employability skill based on effective communication, critical thinking, and ethical literacy.

PSO_6Enable to become lifelong learners for their personal growth and development.

M.LIB FIRST SEMESTER

Course Code: MLS -101

Course Title: Knowledge, Information and Communication

Max. Marks: 20+80 No. of Lectures: 60

Course outcome: After studying this paper, the students shall be able to understand the concept, objectives and characteristics of knowledge and information communication. Universe of Subjects, Information science as a discipline and its relationship with other subjects; Information Society, Information Industry, Intellectual Property Right Acts. Knowledge Management: Trends in Knowledge Management, Role of Information Manager.

Course Code: MLS- 102

Course Title: Knowledge Organization: Classification (Theory)

Max. Marks: 20+80 No. of Lectures: 60

Course outcome: After studying this paper, the students shall be able to understand the meaning, purpose, functions, theories and canons of library classification. Development of general theory of Classification: Contributions of Richardson, W. C. Berwick Sayers, H. E. Bliss, S. R Ranganathan, Mapping of Universe of Subjects in CC, UDC and DDC, Comparative study of CC & UDC, Recent Trends in Classification; Automatic Classification, Web Dewey, Dewey on CD, Classification in Online System.Analyse the characteristics, merits and demerits of different library classification Schemes.

Course Code: MLS- 103

Course Title: Knowledge Organization: Classification (Practice)

Max. Marks: 10+40 No. of Lectures: 30

Course outcome: After studying this paper, the students shall be able to understand the concept, salient features and objectives of UDC (Abridged edition 2003) and students are used this classification scheme for classified your library documents.

CourseCode:MLS- 104

Course Title: Research Methods and Statistical Techniques

Max. Marks: 20+80 **No. of Lectures: 60**

Course outcome: After studying the paper, students shall be able to understand the Concept, Meaning, Need, Purpose & Types of Research, Hypothesis: Definition, Characteristics, Functions, Research Design: Concept and Types; Identification of Problem.

Research Methods: Scientific Method: Definition, Characteristics, Process, Spiral of Scientific Method; Historical Method: Definition, Steps, Descriptive Method: Meaning, Assessment, Evaluation.

Research Techniques; Questionnaire: Print and Electronic Form; Quantitative and Qualitative Studies; Interview; Observation; Library Records and Reports; Sampling Techniques.

Data Analysis and Interpretation; Measures of Central Tendency; Mean; Mode; Median; Measures of Dispersion: Variance and Covariance; Standard Deviation; Graphical Representation of Data; Bar Graph; Pie Graph; Histograms; Chi Square Test.

Bibliometrics; Scientometrics; Infometrics and Webometrics: Concepts and Definition; Bibliometric Laws: Bradford; Zipf; Lotka; Research Report; Structure, Style, Contents, Guidelines

Course Code: MLS -105

Course Title: Computer Application in LIS (Theory)

Max. Marks: 20+80 **No. of Lectures: 60**

Course outcome: After studying the paper, students shall be able to understand the concepts of Computers, use of ICT in Libraries planning and implementation of automation in various library housekeeping operations and services, Library Automation Software Packages. Understand the concept and purpose of a digital library and the new concepts of mining and retrieving the data. Understand the Telecommunication,computer networks and their types, topologies, protocols Standards and internet security etc.

Course Code: MLS -106

Course Title: Computer Application in LIS (Practical)

Max. Marks:10+40 **No. of Lectures: 30**

Course outcome: After studying the paper, students shall be able to familiarize with housekeeping operations using library management software packages. Create database for different categories of documents. Generate barcode labels and membership cards. Search online databases.

Course Code: MLS- 107

Course Title: Any ONE of the following:

a) Public Library System

b) Academic Library System

c) Special Library System

Max. Marks: 20+80 **No. of Lectures: 60**

Course outcome: This paper code having three papers which are optional students are free to choose any one of the following:

a) Public Library System

b) Academic Library System

c) Special Library System

According to their area of interests.After studying the aforesaid papers, students shall be able to understand the Concept, Nature and Characteristics of Public Libraries, Public Library Systems in India, Public Library Legislation, Public Library Services, Role of Libraries in Academic Institutions, Library Governance, Budgeting, Library and Information Services, Role of NAAC and UGC in Academic Libraries, Objectives and Scope of Special Libraries, Special Libraries Governance, Library Cooperation and Resource Sharing among Special Libraries, Library and Information Services in Special Libraries.

M.LIB SECOND SEMESTER

Course Code:MLS-201

Course Title: Information Storage and Retrieval System

Max. Marks: 20+80 **No. of Lectures: 60**

Course outcome: After studying the paper, students shall be able to understand and know aboutAbstract and Abstracting: Concept, Types, Procedure of Abstracting; Guidelines in Preparing Abstracts; Principles of Abstracting (Canons); Auto Abstracting.

Index and Indexing: Concepts and Types, Principles of Indexing; Subject Indexing; Pre-coordinate Indexing System; Post Coordinate Indexing Systems; Chain Indexing; Citation Indexing.

Special types of Indexing: KWIC, KWAC, KWOC etc. Thesaurus; Thesaurofacet; Vocabulary Control: Tools of Vocabulary Control. Unit-IV Features of IR System; Information Retrieval Models; Search Strategies: Manual, Machine; Evaluation of IR Systems; Trends in IR.

Information Products: Nature, Concept, Types; Marketing of Information Products.

Course Code:MLS-202

Course Title: Knowledge Organisation: Cataloguing (Theory)

Max. Marks: 20+80 **No. of Lectures: 60**

Course outcome: After studying the paper, students shall be able to understand and know aboutIntroduction of Library Catalogue. Objectives of Library Catalogue. Forms of Catalogue. Types of Library Catalogue. Kinds of Entries. Contributions of Cutter, Lubetzkey, S. R. Ranganathan in the field of Cataloguing Normative Principles. Subject Cataloguing. Subject Headings Centralized and Cooperative Cataloguing Recent Trends in Library Cataloguing. Online Cataloguing.

Course Code: MLS-203

Course Title: Knowledge Organisation: Cataloguing (Practice)

Max. Marks: 10+40 **No. of Lectures: 30**

Course outcome: After studying the paper, students shall be able to understand and know about Cataloguing of complex problems involving the rendering of Headings and Description will be done according to AACR-II for Corporate Authors, Non-Book Materials and Periodicals.

Course Code: MLS- 204

Course Title: Any ONE of the following: Information Sources and Systems

a) Natural Sciences

b) Social Sciences

c) Medical Sciences

Max. Marks: 20+80 **No. of Lectures: 60**

Course outcome: This paper code having three papers which are optional students are free to choose any one of the following:

a) Natural Sciences

b) Social Sciences

c) Medical Sciences

According to their area of interests. After studying the aforesaid papers, students shall be able to understand theDefinition, Terminology, Scope of natural sciences, social sciences and medical sciences. Information Systems, Components of Information Systems. Sectoral, Regional, and National Information Systems in Natural Sciences, social sciences and medical sciences in India. Information Sources: Types, Need and Purpose. Primary Sources, Secondary Sources and Tertiary Sources in the field of Natural Sciences, social sciences and medical sciences. Information Networks in Natural Sciences: Need and Purpose. Study of Global Information Systems and Networks. INIS, ENVIS, AGRIS, MEDLARS,PubMed, IndMed, MEDInd,. Sciencedirect, Scopus, Science Citation Index. Major activities of important Research Organisations in the growth of Natural Sciences, social sciences and medical sciences with Special Reference to India, USA and UK. Information Analysis and Repackaging. Content Analysis, Consolidation, Compilation in the field of Natural Sciences, social sciences and medical sciences.

Course Code:MLS- 205

Course Title: Information Technology Application in LIS (Theory)

Max. Marks: 20+80 **No. of Lectures: 60**

Course outcome: After studying the paper, students shall be able to understand and know about Internet and Intranet, Modes of Connectivity, E-mail: Definition, Importance, Web Browser, Search Engines, Internet Security, Network Protocols, Open Source software's, RFID technology, concept and purpose of a digital library, Data warehousing, Data Mining, Meta Data, Scanners and Cameras. Artificial Intelligence and Expert Systems. Online Searching of Databases: Web of Science Institutional Repositories, Subject Gateways.

Course Code: MLS- 206

Course Title: Information Technology Application in LIS (Practice)

Max. Marks: 10+40 **No. of Lectures: 30**

Course outcome: After studying this paper, students shall be able to understand and familiarize with Database creation in SOUL 2.0 and KOHA, Use of Library Software Packages, SOUL 2.0, Alice for Windows and KOHA for in House Operations, Bar Code Generations, Membership Cards, Machine Readable Catalogue Cards, Access to World E-book Library, Web of Science and Shodhganga.

Course Code: MLS–207

Course Title: Dissertation

Max. Marks: 20 +80

In this paper conduct a project work, paper will consist of areas such as annotated subject bibliography, bibliometric study, case study, survey, trend report etc. we teach to student how to choose your dissertation topic as per area of interest how to prepare a questionnaire list, how to collect manage and analysed your data to write a good dissertation with fact finding conclusion.

Suggestive digital platforms web links-

1. https://lisstudymaterials.wordpress.com/
2. http://egyankosh.ac.in/
3. http://library-soup.blogspot.com

Ch. Charan Singh University, Meerut –250004

DEPARTMENT OF BIOTECHNOLOGY (SFS COURSE)

M.Sc. BIOTECHNOLOGY, 2009

Distribution of Marks in different courses:

I Semester	**Course Title**	**Theory External**	**Theory Internal**	**Total Marks**
Course I	Fundamental of Genetics	50	50	100
Course II	Cytogenetics and Molecular Genetics	50	50	100
Course III	Statistical Methods and Bioinformatics in Biology	50	50	100
Course IV	Tools and Techniques in Biotechnology	50	50	100
Practical I (4 hours)		100(External)	100(Internal)	200
Total Marks		300	300	600

II Semester	**Course Title**	**Theory External**	**Theory Internal**	**Total Marks**
Course V	Fundamentals of Biochemistry	50	50	100
Course VI	Plant Genetic Resources: - Conservation and Sustainable use	50	50	100
Course VII	Biotechnology in Crop improvement	50	50	100
Course VIII	Recombinant DNA Technology and Genetic Engineering	50	50	100
Practical II (4 hours)		100 (External)	100(Internal)	200
Total Marks		100	300	600

III Semester	**Course Title**	**Theory External**	**Theory** Internal	**Total Marks**
Course IX	Microbial, Industrial and Environmental Biotechnology	50	50	100
Course X	Concepts of Nanotechnology	50	50	100
Course XI	Animal biotechnology and Immunology	50	50	100
Course XII	Genomics and Proteomics	50	50	100
Practical III (4 hours)		100(external)	100(Internal)	200
Total Marks		300	300	600

IV Semester	**Course Title**	Dissertation, presentation, viva-voce	**Total Marks**
	Project	400	400
Grand Total of Marks		2200	2200

A minimum of 30% marks separately in internal and external assessment of each course and an aggregate of 40% marks in all the courses is required for passing. In case of failing to obtain 30 % marks in internal assessment of any paper, the candidate will not be eligible to appear in external examination of that course.

CURRICULUM: M.Sc. BIOTECHNOLOGY (2009)

I Semester

1. Fundamental of Genetics

2. Cytogenetics and Molecular Genetics

3. Statistical Methods and Bioinformatics in Biology

4. Tools and Techniques in Biotechnology

Lab.: Fundamental of Genetics; Cytogenetics and Molecular Genetics; Statistical Methods and Bioinformatics in Biology; Tools and Techniques in Biotechnology

II Semester

5. Fundamentals of Biochemistry
6. Plant Genetic Resources: - Conservation and Sustainable use
7. Biotechnology in Crop improvement
8. Recombinant DNA Technology and Genetic Engineering

Lab.: Fundamentals of Biochemistry; Plant Genetic Resources: - Conservation and Sustainable use; Biotechnology in Crop improvement; Recombinant DNA Technology and Genetic Engineering

III Semester

9. Microbial, Industrial and Environmental Biotechnology
10. Concepts of Nanotechnology
11. Animal biotechnology and Immunology
12. Genomics and Proteomics

Lab.: Microbial, Industrial and Environmental Biotechnology; Concepts of Nanotechnology; Animal Biotechnology and Immunology; Genomics and Proteomics

IV Semester

Project: 1. Report of work

2. Presentation of work.

3. Viva-voce examination.

Course-I

Fundamental of Genetics

Unit-I

Introduction: History of Genetics, its scope and significance, Mendel's experiments, Principles of Segregation and Law of Independent Assortment, Lethality and Interaction of genes**.**
(4)

Unit-II

Linkage and crossing over: Linkage in higher eukaryotes, Coupling and Repulsion Hypothesis, measurement of Linkage, Detection of linkage, Breakdown of Linkage, Four- strand crossing over, Three-Point Test cross, cytological basis of crossing over, Interference and Coincidence, Crossing over and Chisma formation, Factor affecting recombination frequencies.
(4)

Unit-III

Genetics of Sex Determination and Differentiation: Sex-linked, Sex- limited and Sex- influenced traits in *Drosophila* and Human beings, Theories of Sex-determination- Chromosomal theory, environmental theory and genic balance theory, Sex- determination in dioeciously plants, Sex reversal and Gynandromorphs, Human sex anomalies (Klinefelter's Syndrome and Turner's Syndrome), brief idea of Dosage Compensation and Lyon's hypothesis. **(6)**

Unit-IV

Mutation and Mutagenic Agents: Brief history of mutation, physical and chemical Mutagens, Detection of mutation in *Drosophila* (CIB method, Muller-5 method), Detection of mutation in plants and their practical application in crop improvement.

(6)

Unit-IV

Multiple Alleles: Concepts of multiple alleles, self incompatibility alleles in Nicotiana, coat color in rodents, Blood group in Humans, antigen-antibody interaction in inheritance of A, B, AB and O blood groups, H-antigens, MNS system, Rh Factor, Epitasis and multiple allelism (Bombay blood group).
(6)

Unit-V

Genetics of Inbreeding Depression and Heterosis: Definition and Historical aspects of heterosis and Inbreeding depression, manifestation and application of heterosis, apomixis and fixation of heterosis, application of molecular marker in heterosis breeding**.** **(8)**

Unit-VI

Extra -chromosomal Inheritance: Criteria for extra- chromosomal inheritance, plastid inheritance in *Mirabilis,* iojapa in corn, Kappa particles in *Paramecium*, Coiling in snails, male sterility in plants**.** **(6)**

Unit-VII

Biochemical Genetics: Inborn errors of Metabolism in man, eye transplantation in *Drosophila*, biochemical mutations in Neurospora, biosynthetic pathways and biochemical mutations**.** **(4)**

Unit-VIII

Concepts of Genes: Classical and modern gene concepts, Pseudoallelism, position effects, intragenic crossing over and complementation (cistron, recon, muton), Benzer's work on rII locus in T4 phases. **(6)**

Course-II

Cytogenetics and Molecular Genetics

PART-A: - Cytogenetics

Unit-I

Cell Division: Cell Cycle, differences between mitosis and meiosis, mechanism of chromosome moment, reduction division and equational division, double reduction. **(6)**

Unit-II

Duplication and deficiencies: Classification, methods of production, meiotic pairing and Phenotypic effects. (4)

Unit-III

Translocation: - Classification, methods of production, identification, meiotic pairing and role in evolution. (4)

Unit-IV

Inversion: Classification, methods of production, identification, meiotic pairing and crossing over in different regions, Role in evolution. (6)

Unit-V

Trisomic and Tetrasomic: - Classification, methods of production, Identification, meiotic pairing and utility in Chromosome mapping. (2)

Unit-VI

Monosomic and Nullisomic: - Methods of Production, Identification, meiotic behavior, monosomic analysis, alien additions/substitution lines. (2)

PART-B: - Molecular Genetics

Unit-VII

Genetic Material: DNA and RNA as genetic material (experimental evidences), structure of DNA(including Z-DNA and 5- hasisekharan's RL model), super coiling of DNA, Different type of RNAs and their roles, difference between DNA and RNA. (6)

Unit-VIII

DNA Duplication (in prokaryotes and Eukaryotes):- Unwinding proteins, Role of RNA Polymerases and DNA polymerases in prokaryotic and eukaryotic DNA replication, Semi-conservative, Discontinuous and Bi-directional replication, RNA primers, Role of proteins in prokaryotic and eukaryotic DNA replication, Models of replication. (8)

Unit-IX

Organization of Genetic Material: Chromosome ultra structure and nucleosome concept, packing of DNA as nucleosomes in eukaryotes, techniques used for discovery of nucleosome, structure and assembly of nucleosomes, solenoid, phasing of nucleosomes, DNA concept and C-value paradox, repetitive and unique sequences, overlapping, pseudo, crying and split genes, satellite DNA's, selfish DNA. (8)

Unit-X

Genetic Code (including mitochondrial genetic code):- Deciphering of code in vitro and in vivo (use of mutations-base replacement, frame-shift and suppressor mutation). (4)

Course-III

Statistical Methods and Bioinformatics in Biology

PART-I: Statistical Methods

Unit-I

Presentation of Data: Frequency distributions, graphical presentation of data by histogram, frequency polygon, frequency curve, and cumulative frequency curves. (4)

Unit-II

Measures of central tendency and dispersion: - Mean, Median, Mode and their simple properties (without derivations), and calculation of median by graphs, range, mean derivation, standard deviations, coefficient of variation. (6)

Unit-III

Test of Significance: - Sampling distribution of mean and standard error, large scale sample tests(tests for an assumed mean and equality of two population means with known S.D.), small sample tests(t-tests for an assumed mean and equality of means of two populations when sample observations are independent, paired and unpaired t- test, t- test for correlation and regression coefficients), t-test for comparison of variances of two populations, chi-square test for independent of attributes, goodness of fit and homogeneity of samples. (10)

Unit-IV

Experimental Designs: Principles of experimental designs, completely randomized, randomized block and Latin square designs, simple factorial experiments (mathematical derivation not required), analysis of variance (ANOVA) and its uses. (8)

PART-II: Bioinformatics

Unit-V

Introduction: - History, aims of Bioinformatics, Definition and Concepts, Components of Bioinformatics, Basic tools, Scope of Bioinformatics in molecular biology and Computers, Role of internet in Bioinformatics, Applications of Bioinformatics. (6)

Unit-VI

Bioinformatics- Approaches and applications: - Introduction, DNA-the staff of life, molecular sequence alignments, databases, molecular visualization integrated molecular biology database.

(8)

Unit-VII

Protein and Nucleic acid databases: - Introduction, Protein and Nucleic acid databases, databases accession, database searching, NCBI based study. (8)

Course-IV

Tools and Techniques in Biotechnology

Unit-I

Microscopy: Principles, Resolving Power and applications of Light Microscopy, Electron Microscopy (SEM, TEM) and Confocal Microscopy. (6)

Unit-II

Centrifugation: Brief history, type of centrifugation, theory of centrifugation, types of centrifuges and centrifugation techniques, Types of rotors. (8)

Unit-III

Electrophoresis: - History, Principles, Application and factor affecting of electrophoresis with detail reference to Agarose, PAGE, PFGE, Capillary electrophoresis, continuous, 2D-PAGE, IEF. (8)

Unit-IV

Nuclear Magnetic Resonance Spectroscopy: - History of NMR, theory and principles of NMR, NMR spectrometer, Detection of frequencies and Measurement by NMR. (6)

Unit-V

Radioisotope Technique: - Nature of Radioactivity, characteristics of different radiolabels, detection and measurement in Radioactivity, applications of radioisotopes in biological sciences.

(6)

Unit-VI

Spectroscopy: - Introduction, theory and principles of different types of Spectroscopy and their applications in biotechnology. (6)

Unit-VII

Chromatography: - General principles and techniques of HPLC, LPLC, GLC, Adsorption Chromatography, partition chromatography, IEC, permeation Chromatography, Affinity Chromatography. (10)

Course-V

Fundamentals of Biochemistry

Unit-I

Structural and Biochemical Organization: - Amino Acids, Carbohydrates, Lipids and Fatty Acids and Nucleotides. (6)

Unit-II

Secondary metabolites: - Hormones, Alkaloids, Porphyrins. (6)

Unit-III

Enzymology: - Enzymes, Elementary Kinetics, Mechanism of enzymes action, assay types, reaction rates, Extremozymes engineering, enzyme activity and substrate specificity, Non-aqueous enzymology, coenzymes and vitamins, Isozymes and allosteric enzymes. (12)

Unit-IV

Protein as base unit: - Structure and function, Protein folding, Protein sequencing, Ramachandran's plot and Protein catabolism (10)

Unit-V

Major intermediary metabolic pathways, biosynthesis and catabolism of saturated and unsaturated fatty acid, nucleotides. (8)

Unit-VI

Glycolysis, Kreb's cycle, ETS of respiration and oxidative phosphorylation substrate level phosphorylation, Anaplerotic pathway. (8)

Course-VI

Plant Genetic Resources: - Conservation and Sustainable use.

Unit-I

Biological species: Concepts and its limitation**.** (2)

Unit-II

Centers of Diversity and Centers of Origin. (2)

Unit-III

A brief idea of the evolution of crop plants: - Wheat, Barley, Rice, Maize, Cotton, Sugarcane, Potato, Cole crops, Rapeseeds and mustard. (6)

Unit-III

Biodiversity vs. Genetic Resources: - Definition and Explanation, alpha vs. beta biodiversity and methods of their study, present levels of Biodiversity and rate of loss of biodiversity, causes for the loss of biodiversity, uses of biodiversity, extent of biodiversity in plants, exploration and germplasm collection, introduction and exchange of PGR, Red Data Books and Endangered plant species. (8)

Unit-IV

Plant Genetic Resources: - Different kinds of PGR, Taxonomical Classification of PGR, Basic, derived and molecular, core collections, principles of germplasm characterization, evaluation, maintenance and regeneration, Plant quarantine aspects- Sanitary and Phytosanitary Systems (SPS). (8)

Unit-V

Techniques for conservation of plant germplasm: - *In-situ* and *Ex-situ* methods of conservation, Cryopreservation of genetic materials. Gene banks and Cryobanks. (2)

Unit-VI

IPGRI, NBPGR, FAO and CGIAR: - Their role is conservation of PGR. (6)

Unit-VII

Future Harvest Centers and CBD: -A Brief Idea, CBD and Cartagena protocol. (6)

Unit-VIII

UPOV, Plant Breeders Rights (PBRs) and farmers Right (FRs), Protection of plant varieties and farmers right act (PPV and FRA) 2001. (4)

Unit-IX

PGR and IPRs (Intellectual Property Rights):- Patents, copyrights, Trademarks, GATT and TRIPs, Terminator and Traitor Techniques (v-GURT and t- GURT), Biodiversity Bill 2002, Geographic indicator bill. (6)

Course-VII

Biotechnology in Crop improvement

Unit-I

Plant organ, tissue and cell culture: - Somaclonal variation and its use in crop improvement, embryo culture and its utility in hybridization programmes, Anther culture, haploid production and their uses, micro propagation in horticultural crops and forestry and its uses, artificial seeds, techniques of protoplast culture, regeneration and somatic cell hybridization, achievements , limitations, utility in improvement of crop plants. (12)

Unit-II

Biofertilizers, Bioinsecticides and Molecular Farming. Concept and utility (4)

Unit-III

Methods of Gene Transfer in Plants: *Agarobacterium* mediated gene transfer, direct DNA delivery methods (microinjection, particle gun, electrophoration). (6)

Unit-IV

Hybridization: - Distant hybridization and Somatic hybridization in crop improvement. (4)

Unit-V

Transgenic Plants in dicots and monocots: - Utility of Transgenic in basic studies and in crop improvement (resistance for herbicides, viruses, insects and abiotic stresses, Barnase and Barstar for hybrid seed production), Biosafety issues including risks associated with transgenic crops, biosafety regulations. (8)

Unit-VI

Improvement of Nutritional quality of plants: - seed storage proteins e.g. Glycinin, Conglycinin, Legumin, Phytohaemaglutinin, Phaseolin, Prolamins, Albumins and Designer-proteins, Engineering for vitamins and Iron-Deficiency, Engineering Traits related to hybrid seed Production (e.g. Male Sterility) (8)

Unit-VII

Plant genome Programs: - Impact of genetically modified crops and genomics research in agriculture and biology, Evaluation of Transgenic plants as to their commercial value, Efficacy and Environmental concerns, Legislation for Transgenic plants, Economic viability of Transgenic plants (8)

M.Sc. (Biotechnology)

Course-VIII

Recombinant DNA Technology and Genetic Engineering

Unit-I

Genetic Engineering: - Definition and explanation, scope of GE, Concept and importance of GE, RDT in prokaryotes and eukaryotes, Restriction enzymes, modifying enzymes, Isoschizomers and cloning into mutagenesis, DNA Fingerprinting. (12)

Unit-II

Cloning and expression vectors:-Plasmid, Phage, M13, Phagemid, BAC, YAC, MAC, Expression vectors, Use of Promoters, Expression through Strong and Regulatable Promoters, Binary and Shuttle Vectors. (8)

Unit-III

Libraries and molecular probes: - Construction and Screening of genomic and cDNA libraries, BAC libraries and assembly of BACs into contigs, Molecular probes and their preparation, labeling and applications, Southern, Northern, Western blotting, Chromosome walking, Chromosome jumping. (12)

Unit-IV

Polymerase Chain Reaction: - Basic principles and its modifications, designing of primers, Different schemes of PCR, application of PCR, RACEs, Electronic PCR (e-PCR), RT- PCR, Real- Time PCR (8)

Unit-V

Gene Sequencing: - Different methods of gene isolation, techniques for sequencing (Maxam & Gilbert degradation method, Sanger's Dideoxy method), Organo-chemical gene synthesis mechanism, cDNA using reverse transcriptase. (10)

Course-IX

Microbial, Industrial and Environmental Biotechnology

Unit-I

Introduction: - Concepts, Growth curve, sterilization techniques, Isolation and Characterization. (2)

UNIT II

Microbes: - Definition, classification, sources of useful microbes and their characteristics. (4)

Unit-III

Use of Microbes in food and dairy, single cell proteins, physiological aspects SCP from CO_2, waste materials and renewable resources, improvement in single cell protein production, Probiotic foods. (8)

Unit-IV

Industrial source of enzymes: - Cellulases, Xylanases, Pectinases, Amylase, Lipase and Proteases their production and applications. (6)

Unit-V

Commercial production of important antibiotics, amino acids, insulin, steroids, Fermentation and production of Ethanol, Acetone, Butanol, Glycerol, Vitamins and Alkaloid (8)

Unit-VI

Pollution: - Types, causes, Prevention and Control, methods of reducing environmental impacts of chemicals, weedicides, Pesticides and fertilizers, Biotechnological advances in pollution control through GEMs, Sewage treatment, Newer approaches to sewage treatment, treatment of solid waste, Energy production- Bio-fuels. (8)

Unit-VII

Bioremediation and pollution control through microbes and plants, Biodegradation of Natural Products, microbial desulphurization, biodegradation of xenobiotics, hydrocarbons. (8)

Unit-VIII

Biotechnology of fermentation: Methods and types of fermentation, dual/multiple fermentation, continuous fermentation and late nutrient addition, growth kinetics of microorganisms, fermenter systems and fermentation. (6)

Course-X

Concepts of Nano-biotechnology

Unit-I

Introduction: - Concept, scope, vision, application, present and future prospects in biological sciences. (6)

Unit-II

Applications of Quantum Dots in Biology: - An overview, Introduction, General properties, applications. (6)

Unit-III

Assembly and Characterization of Bio-molecules: - Gold Nano-particle conjugates and their use in intracellular imaging (introduction, different methods). (6)

Unit-IV

Surface-functionalized Nano-particles for controlled drug delivery: - Introduction and different Methods. (4)

Unit-V

Structural DNA nanotechnology- An overview: - Introduction, DNA objects, DNA Arrays, DNA nanomechanical devices, DNA based computational studies. (8)

Unit-VI

Nanostructure DNA templates: - Introduction, synthesis and purification of Plasmid templates, Fabrication and preparation of ultrathin carbon-coated TEM Grids, Preparation of Q-Cds/pUCLen4 or Q-Cds/Φx174 RF11 samples, their characterization. (8)

Unit-VII

Probing DNA structure with Nanoparticles: -Introduction, Different methods. (4)

Unit-VIII

Synthetic Nanoscale Elements for Delivery of Material into Viable cells: - Introduction, different Material required, Different methods. (8)

Course-XI

Animal biotechnology and Immunology

Part-A: Animal Biotechnology

Unit-I

Introduction: - Animal Tissue and Organ Culture, Plasma clot method, Raft method, Agar-gel method, Grid method, cyclic exposure to medium and Gas phase, advantages, limitations and applications, artificial skin. (6)

Unit-II

Cell Culture: - Substrate and suspension culture, Culture Media, natural and artificial, initiation of cell culture, sub-cultures, Evaluation and Maintenance of cell culture lines, Large scale culture of cell lines, Monolayer, Suspension culture, Immobilized cultures, Somatic cell fusion, mechanism and applications, cell culture products and their applications, Interferon's. (8)

Unit-III

Cloning: -In-vitro Fertilization and Embryo transfer, Application of Embryo transfer technology, Embryo transfer in cattle, , Animal cloning, Ethical and Social Issues relating to Human cloning, Transgenic and their future Prospective. (8)

PART B: Immunology

Unit-IV

Introduction: - History, concept and Scope of Immunology. (2)

Unit-V

Immunity: - Innate and Acquired immunity, Passive and Active Immunity, Lymph and organs, Humoral and Cell Mediated immunity, Specificity and Memory, Transplantation immunity, Major Histocompatibility Complex (MHC) and Complements. (6)

Unit-VI

Interactions: - Antigen-Antibody reactions, Antigen type-hapten, Immunoglobulin's (fine structure of IGg and diversity), serological reactions, Agglutination, Precipitation, Immuno-electrophoresis, ELISA, RIA, Immuno-electromicroscopy. (6)

Unit-VII

Hybridoma Technology: - Monoclonal antibody production, myeloma cell lines, Fusion of myeloma cells without antibody producing B-cells, selection and screening methods for positive hybrids, production, purification and characterization of monoclonal antibodies without Hybridoma, Genetic manipulation of immunoglobins. (6)

Unit-VIII

Diseases and Vaccines: - T-cell cloning, mechanism of antigen recognition by T-and B-lymphocytes, Genetic control of immune response, autoimmune diseases, immunodiagnosis, AIDS, types of vaccines, Strategies for the development of vaccines, infectious diseases. (8)

Course-XII

Genomics and Proteomics

PART A: Genomics

Unit-I

Origin and Evolution of genomics: - Origin of genomics, the first DNA genomes, microcollinearity and lack of it, DNA based phylogenetic trees, genomes and human evolution, evolution of nuclear and organellar (mitochondrial and Chloroplast genome, the concept of minimal genome and possibility of synthesizing it. (6)

Unit-II

Molecular maps of genomes and comparative genomics: - Genetic maps, physical maps, EST and transcript maps, functional maps, comparative genomics and collinearity/synteny in maps.(4)

Unit-III

Whole Genome sequencing: - Whole genome shotgun sequencing, clone-by-clone or 'hiererchical stotgun' sequencing, microbial genomes (including yeast), plant genomes (Arabidopsis and rice), Animal genomes (fruit fly, mouse, human). (6)

Unit-IV

Annotation of whole genome sequence and functional genomics: - *In silico* methods, insertion mutagenesis (T-DNA and transport insertion), TILLING, management of data, gene expression and transcript profiling, EST contigs and unigene sets, use of DNA chips and microarrays. (6)

Unit-V

Pharmacogenomics: - Use in biomedicine involving diagnosis and treatment of diseases, genomics in medical practice, personalized medicine, DNA polymorphism and treatment of diseases, use of SNP in pharmacogenomics, pharmacogenomics and industry. (6)

PART B: Proteomics

Unit-VI

Study and Scope: - Introduction, definition concepts and approaches of proteomics studies and activities. (2)

Unit-VII

Quantitative and Qualitative proteome analysis technique: - Separation technique- 2D-PAGE, 2-DE (BN-PAGE), image analysis, Mass- spectrophotometery, LC-TMS, MALDI, and SALDI (8)

Unit-VIII

Protein interaction and Protein complex: - Protein interaction, DNA- Protein interaction, Yeast two hybrid system and their applications. (4)

Unit-IX

Drug Discovery and Development: - Current issues, drug targets, Drug efficacy, Drug toxicology, Protein chips and Antibody Microarray. (4)

Unit-X

Cancer Proteomics: - An overview of cancer, origin and types of cancer, proteomics in cancer research, techniques of proteomics in cancer research, future approaches of proteomics and cancer research. (4)

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

SEMESTER-I

Course Code	Course Name
BCA-101	Mathematics-I
BCA-102	Programming Principle & Algorithm
BCA-103	Computer Fundamental and Office Automation
BCA-104	Principle of Management
BCA-106	Business Communication
BCA-108	Environmental Studies
BCA-105	Computer Laboratory and Practical Work of Computer Fundamental and Office Automation
BCA-107	Computer Laboratory and Practical Work of Programming Principle & Algorithm

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

Course Code Course Name

BCA-101 Mathematics -I

UNIT-I

DETERMINANTS:

Definition, Minors, Cofactors, Properties of Determinants MATRICES: Definition, Types of Matrices, Addition, Subtraction, Scalar Multiplication and Multiplication of Matrices, Adjoint, Inverse, Cramers Rule, Rank of Matrix Dependence of Vectors, Eigen Vectors of a Matrix, Caley-Hamilton Theorem (without proof).

UNIT-II

LIMITS & CONTINUITY:

Limit at a Point, Properties of Limit, Computation of Limits of Various Types of Functions, Continuity at a Point, Continuity Over an Interval, Intermediate Value Theorem, Type of Discontinuities

UNIT-III

DIFFERENTIATION:

Derivative, Derivatives of Sum, Differences, Product & Quotients, Chain Rule, Derivatives of Composite Functions, Logarithmic Differentiation, Rolle's Theorem, Mean Value Theorem, Expansion of Functions (Maclaurin's & Taylor's), Indeterminate Forms, L' Hospitals Rule, Maxima & Minima, Curve Tracing, Successive Differentiation & Liebnitz Theorem.

UNIT-IV

INTEGRATION:

Integral as Limit of Sum, Fundamental Theorem of Calculus(without proof.), Indefinite Integrals, Methods of Integration Substitution, By Parts, Partial Fractions, Reduction Formulae for Trigonometric Functions, Gamma and Beta Functions(definition).

UNIT-V

VECTOR ALGEBRA:

Definition of a vector in 2 and 3 Dimensions; Double and Triple Scalar and Vector Product and physical interpretation of area and volume.

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

Course Code Course Name

BCA-102 Programming Principle Algorithm

UNIT-I

Introduction to 'C' Language History, Structures of 'C' Programming, Function as building blocks.

Language Fundamentals Character set, C Tokens, Keywords, Identifiers, Variables, Constant, Data Types, Comments.

UNIT-II

Operators

Types of operators, Precedence and Associativity, Expression, Statement and types of statements

Build in Operators and function Console based I/O and related built in I/O function: printf(), scanf(), getch(), getchar(), putchar(); Concept of header files, Preprocessor directives: #include, #define.

UNIT-III

Control structures

Decision making structures: If, If-else, Nested If-else, Switch; Loop Control structures: While, Do-while, for, Nested for loop; Other statements: break, continue, goto, exit.

UNIT-IV

Introduction to problem solving

Concept: problem solving, Problem solving techniques (Trail & Error, Brain Stroming, Divide & Conquer) Steps in problem solving (Define Problem, Analyze Problem, Explore Solution) Algorithms and Flowcharts (Definitions, Symbols), Characteristics of an algorithm Conditionals in pseudo-code, Loops in pseudo code Time complexity: Big-Oh notation, efficiency Simple Examples: Algorithms and flowcharts (Real Life Examples)

UNIT-V

Simple Arithmetic Problems

Addition / Multiplication of integers, Determining if a number is +ve / -ve / even / odd, Maximum of 2 numbers, 3 numbers, Sum of first n numbers, given n numbers, Integer division, Digit reversing, Table generation for n, a^b, Factorial, sine series, cosine series, ${}^nC_r$, Pascal Triangle, Prime number, Factors of a number, Other problems such as Perfect number, GCD numbers etc (Write algorithms and draw flowchart), Swapping

UNIT-VI

Functions

Basic types of function, Declaration and definition, Function call, Types of function, Parameter passing, Call by value, Call by reference, Scope of variable, Storage classes, Recursion.

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

Course Code Course Name

BCA-103 Computer Fundamental & Office Automation

UNIT-I

Introduction to Computers

Introduction, Characteristics of Computers, Block diagram of computer.Types of computers and features, Mini Computers, Micro Computers, Mainframe Computers, Super Computers.Types of Programming Languages (Machine Languages, Assembly Languages, High Level Languages).Data Organization, Drives, Files, Directories.Types of Memory (Primary And Secondary) RAM, ROM, PROM, EPROM.

Secondary Storage Devices (FD, CD, HD, Pen drive)

I/O Devices (Scanners, Plotters, LCD, Plasma Display)

Number Systems

Introduction to Binary, Octal, Hexadecimal system Conversion, Simple Addition, Subtraction, Multiplication

UNIT-II

Algorithm and Flowcharts

Algorithm: Definition, Characteristics, Advantages and disadvantages, Examples,Flowchart: Definition, Define symbols of flowchart, Advantages and disadvantages, Examples

UNIT-III

Operating System and Services in O.S.

Dos – History, Files and Directories, Internal and External Commands, Batch Files, Types of O.S.

UNIT-IV

Windows Operating Environment

Features of MS – Windows, Control Panel, Taskbar, Desktop, Windows Application, Icons, Windows Accessories, Notepad, Paintbrush.

UNIT-V

Editors and Word Processors

Basic Concepts, Examples: MS-Word, Introduction to desktop publishing.

UNIT-VI

Spreadsheets and Database packages

Purpose, usage, command, MS-Excel, Creation of files in MS-Access, Switching between application, MS-PowerPoint.

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

Course Code Course Name

BCA-104 Principle of Management

UNIT-I

Nature of Management:

Meaning, Definition, it's nature purpose, importance & Functions, Management as Art, Science & Profession- Management as social System Concepts of management-Administration-Organization, Management Skills, Levels of Management.

UNIT-II

Evolution of Management Thought:

Contribution of F.W.Taylor, Henri Fayol, Elton Mayo, Chester Barhard & Peter Drucker to the management thought. Business Ethics & Social Responsibility: Concept, Shift to Ethics, Tools of Ethics.

UNIT-III

Functions of Management: Part-I

Planning – Meaning- Need & Importance, types, Process of Planning, Barriers to Effective

Planning, levels – advantages & limitations. Forecasting- Need & Techniques

Decision making-Types - Process of rational decision-making & techniques of decision-making

Organizing – Elements of organizing & processes: Types of organizations, Delegation of authority – Need, difficulties Delegation – Decentralization

Staffing – Meaning & Importance, Direction – Nature – Principles, Communication – Types & Importance

UNIT-IV

Functions of Management: Part-II

Motivation – Importance – theories

Leadership – Meaning –styles, qualities & function of leader Controlling - Need, Nature, importance, Process & Techniques, Total Quality Management Coordination – Need – Importance

UNIT – V

Management of Change: Models for Change, Force for Change, Need for Change, Alternative Change Techniques, New Trends in Organization Change, Stress Management.

UNIT-VI

Strategic Management

Definition, Classes of Decisions, Levels of Decision, Strategy, Role of different Strategist, Relevance of Strategic Management and its Benefits, Strategic Management in India

Course Code Course Name

BCA-106 Business Communication

UNIT-I

Means of Communication:

Meaning and Definition – Process – Functions – Objectives – Importance – Essentials of good communication – Communication barriers, 7C's of Communication

UNIT-II

Types of Communication:

Oral Communication:

Meaning, nature and scope – Principle of effective oral communication – Techniques of effective speech – Media of oral communication (Face -to-face conversation – Teleconferences – Press Conference – Demonstration – Radio Recording – Dictaphone – Meetings – Rumour – Demonstration and Dramatisation – Public address system – Grapevine – Group Discussion – Oral report – Closed circuit TV). The art of listening – Principles of good listening.

UNIT-III

Written Communication

Purpose of writing, Clarity in Writing, Pricinciple of Effective writing, Writing Techniques, Electronic Writing Process.

UNIT-IV

Business Letters & Reports:

Need and functions of business letters – Planning & layout of business letter – Kinds of business letters – Essentials of effective correspondence, Purpose, Kind and Objective of Reports, Writing Reports.

UNIT-V

Drafting of business letters:

Enquiries and replies – Placing and fulfilling orders – Complaints and follow-up Sales letters – Circular letters Application for employment and resume

UNIT-VI

Information Technology for Communication:

Word Processor – Telex – Facsimile(Fax) – E-mail – Voice mail –Internet – Multimedia – Teleconferencing – Mobile Phone Conversation – Video Conferencing –SMS – Telephone Answering Machine – Advantages and limitations of these types.

Topics Prescribed for workshop/skill lab

Group Discussion, Mock Interview, Decision Making in a Group

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

SEMESTER -II

Course Code	Course Name
BCA-201	Mathematics-II
BCA-202	C-Programming
BCA-203	Organization Behavior
BCA-204	Digital Electronics and Computer Organisation
BCA-205	Financial Accounting and Management
BCA-206	Computer Laboratory and Practical Work of C

Course Code Course Name

BCA-201 Mathematics II

UNIT-I

SETS

Sets, Subsets, Equal Sets Universal Sets, Finite and Infinite Sets, Operation on Sets, Union, Intersection and Complements of Sets, Cartesian Product, Cardinality of Set, Simple Applications.

UNIT-II

RELATIONS AND FUNCTIONS

Properties of Relations, Equivalence Relation, Partial Order Relation Function: Domain and Range, Onto, Into and One to One Functions, Composite and Inverse Functions, Introduction of Trignometric, Logarithmic and Exponential Functions.

UNIT-III

PARTIAL ORDER RELATIONS AND LATTICES

Partial Order Sets, Representation of POSETS using Hasse diagram, Chains, Maximal and Minimal Point, Glb, lub, Lattices & Algebric Systems, Principle of Duality, Basic Properties, Sublattices, Distributed & Complemented Lattics.

UNIT-IV

FUNCTIONS OF SEVERAL VARIABLES

Partial Differentiation, Change of Variables, Chain Rule, Extrema of Functions of 2 Variables, Euler's Theorem.

UNIT-V

3D COORDINATE GEOMETRY

3D Coordinate Geometry: Coordinates in Space, Direction Cosines, Angle Between Two Lines, Projection of Join of Two Points on a Plane, Equations of Plane, Straight Lines, Conditions for a line to lie on a plane, Conditions for Two Lines to be Coplanar, Shortest Distance Between Two Lines, Equations of Sphere, Tangent plane at a point on the sphere.

UNIT-VI

MULTIPLE INTEGRATION

Double Integral in Cartesian and Polar Coordinates to find Area, Change of Order of Integration, Triple Integral to Find Volume of Simple Shapes in Cartesian Coordinates

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

Course Code Course Name

BCA-202 C Programming

UNIT-I

Arrays

Definition, declaration and initialization of one dimensional array; Accessing array elements; Displaying array elements; Sorting arrays; Arrays and function; Two-

Dimensional array: Declaration and Initialization, Accessing and Displaying, Memory representation of array [Row Major, Column Major]; Multidimensional array

UNIT-II

Pointers

Definition and declaration, Initialization; Indirection operator, address of operator; pointer arithmetic; dynamic memory allocation; arrays and pointers; function and pointers

UNIT-III

Strings

Definition, declaration and initialization of strings; standard library function: strlen(), strcpy(), strcat(), strcmp(); Implementation without using standard library functions

UNIT-IV

Structures

Definition and declaration; Variables initialization; Accessing fields and structure operations; Nested structures; Union: Definition and declaration; Differentiate between Union and structure

UNIT-V

Introduction C Preprocessor

Definition of Preprocessor; Macro substitution directives; File inclusion directives; Conditional compilation

Bitwise Operators

Bitwise operators; Shift operators; Masks; Bit field

UNIT-VI

File handling

Definition of Files, Opening modes of files; Standard function: fopen(), fclose(), feof(), fseek(),

fewind();Using text files: fgetc(), fputc(), fscanf()

Command line arguments

BCA-203 Organization Behavior

Course Code Course Name

UNIT-I

Fundamentals of Organizational Behaviour

Nature, Scope, Definition and Goals of Organizational Behaviour; Fundamental Concepts of Organizational Behaviour; Models of Organizational Behaviour; Emerging aspects of Organizational Behaviour: Meaning Cultural Diversity, Managing the Perception Process

UNIT-II

Perception, Attitude, Values and Motivation

Concept, Nature, Process, Importance, Management Behavioural aspect of Perception. Effects of employee attitudes; Personal and Organizational Values; Job Satisfaction; Nature and Importance of Motivation; Achievement Motive; Theories of Work Motivation: Maslow's Need Hierarchy Theory McGregcrs's Theory 'X' and Theory 'Y'

UNIT-III

Personality

Definition of Personality, Determinants of Personality; Theories of Personality- Trait and Type Theories, The Big Five Traites, Mytes-Briggs Indicator; Locus of Control, SType A and Type B Assessment of Personality

UNIT-IV

Work Stress

Meaning and definition of Stress, Symptoms of Stress; Sources of Stress: Individual Level, Group Level, Organizational Level; Stressors, Extra Organizational Stressors; Effect of Stress – Burnouts; Stress Management – Individual Strategies, Organizational Strategies; Employee Counselling

UNIT-V

Group Behaviour and Leadership

Nature of Group, Types of Groups; Nature and Characteristics of team; Team Building, Effective Teamwork; Nature of Leadership, Leadership Styles; Traits of Effective Leaders

UNIT-VI

Conflict in Organizations

Nature of Conflict, Process of Conflict; Levels of Conflict – Intrapersonal, Interpersonal; Sources of Conflict; Effect of Conflict; Conflict Resolution, Meaning and types of Grievances & Process of Grievances Handling.

Course Code Course Name

BCA-204 Digital electronics and Computer Organisation

UNIT-I

Logic gates and circuit

Gates (OR, AND, NOR, NAND, XOR & XNOR); Demogran's laws; Boolean laws, Circuit designing techniques (SOP, POS, K-Map).

UNIT-II

Combinational Building Blocks

Multiplexes; Decoder; Encoder; Adder and Subtracter.

UNIT-III

Memories

ROMs, PROMs, EPROMs, RAMs, Hard Disk, Floppy Disk and CD-ROM.

UNIT-IV

Sequential Building Blocks

Flip-Flop (RS, D, JK, Master-slave & & T flip-flops); Registers & Shift registers; Counters; Synchronous and Asynchronous Designing method.

UNIT-V

Memory Organization: Basic cell of static and dynamic RAM; Building large memories using chips; Associative memory; Cache memory organization and Virtual memory organization

Course Code Course Name

BCA-205 Financial Accounting & Management

UNIT-I

Overview - Meaning and Nature of Financial Accounting, Scope of Financial Accounting, Financial Accounting & Management Accounting, Accounting concepts & convention, Accounting standards in India.

UNIT-II

Basics of accounting – Capital & Revenue items, Application of Computer in Accounting Double Entry System, Introduction to Journal, Ledger and Procedure for Recording and Posting, Introduction to Trail Balance, Preparation of Final Account, Profit & Loss Account and related concepts, Balance Sheet and related concept.

UNIT-III

Financial statement analysis: Ratio analysis, Funds flow analysis, concepts, uses, Preparation of funds flow statement, simple problem, Cash flow analysis, Concepts, uses, preparation of cash flow statement, simple problem, Break – even analysis.

UNIT-IV

Definition nature and Objective of Financial Management, Long Term Sources of Finance, Introductory idea about capitalization, Capital Structure, Concept of Cost of Capital, introduction, importance, explicit & implicit cost, Measurement of cost of capital, cost of debt.

UNIT-V

Concept & Components of working Capital. Factors Influencing the Composition of working Capital, Objectives of working Capital Management – Liquidity Vs. Profitability and working capital policies. Theory of working capital: Nature and concepts

UNIT-VI

Cash Management, Inventory Management and Receivables Management.

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

SEMESTER -III

Course Code	Course Name
BCA-301	Object Oriented Programming Using C++
BCA-302	Data Structure Using C & C++
BCA-303	Computer Architecture & Assembly Language
BCA-304	Business Economics
BCA-305	Elements of Statistics
BCA-306	Computer Laboratory and Practical Work of OOPS
BCA-307	Computer Laboratory and Practical Work of DS

Course Code Course Name

BCA-301 Object Oriented programming language

UNIT-I

Introduction

Introducing Object – Oriented Approach, Relating to other paradigms {Functional, Data decomposition}.

Basic terms and ideas

Abstraction, Encapsulation, Inheritance, Polymorphism, Review of C, Difference between C and C++ - cin, cout, new, delete, operators.

UNIT-II

Classes and Objects

Encapsulation, information hiding, abstract data types, Object & classes, attributes, methods, C++ class declaration, State idendity and behaviour of an object, Constructors and destructors, instantiation of objects, Default parameter value, object types, C++ garbage collection, dynamic memory allocation, Metaclass / abstract classes.

UNIT-III

Inheritance and Polymorphism

Inheritance, Class hierarchy, derivation – public, private & protected, Aggregation, composition vs classification hierarchies, Polymorphism, Categorization of polymorphism techniques, Method polymorphism, Polymorphism by parameter, Operator overloading, Parameteric Polymorphism

UNIT-IV

Generic function

Template function, function name overloading, Overriding inheritance methods, Run time polymorphism, Multiple Inheritance.

UNIT-V

Files and Exception Handling

Streams and files, Namespaces, Exception handling, Generic Classes

Course Code Course Name

BCA-302 Data Structure Using C & C++

UNIT-I

Introduction to Data Structure and its Characteristics Array

Representation of single and multidimensional arrays; Sprase arrays – lower and upper triangular matrices and Tridiagonal matrices with Vector Representation also.

UNIT-II

Stacks and Queues

Introduction and primitive operations on stack; Stack application; Infix, postfix, prefix expressions; Evaluation of postfix expression; Conversion between prefix, infix and postfix, introduction and primitive operation on queues, D- queues and priority queues.

UNIT-III

Lists

Introduction to linked lists; Sequential and linked lists, operations such as traversal, insertion, deletion searching, Two way lists and Use of headers

UNIT-IV

Trees

Introduction and terminology; Traversal of binary trees; Recursive algorithms for tree operations such as traversal, insertion, deletion; Binary Search Tree

UNIT-V

B-Trees

Introduction, The invention of B-Tree; Statement of the problem; Indexing with binary search trees; a better approach to tree indexes; B-Trees; working up from the bottom; Example for creating a B-Tree

UNIT-VI

Sorting Techniques; Insertion sort, selection sort, merge sort, heap sort, searching Techniques: linear search, binary search and hashing

Course Code Course Name

BCA-303 Computer Architecture & Assembly Language

UNIT-I

Basic computer organization and design, Instructions and instruction codes, Timing and control/ instruction cycle, Register/ Types of register/ general purpose & special purpose registers/ index registers, Register transfer and micro operations/ register transfer instructions, Memory and memory function, Bus/ Data transfer instructions, Arithmetic logic micro-operations/ shift micro-operations, Input/ Output and interrupts, Memory reference instructions, Memory interfacing memory/ Cache memory.

UNIT-II

Central Processing Unit

General Register Organization/ stacks organizations instruction formats, addressing modes, Data transfer and manipulation. Program control reduced computer, pipeline/ RISC/ CISC pipeline vector processing/ array processing.

Arithmetic Algorithms: Integer multiplication using shift and add, Booth's algorithm, Integer division, Floating-point representations.

UNIT-III

Computer Arithmetic

Addition, subtraction and multiplication algorithms, divisor algorithms. Floating point, arithmetic operations, decimal arithmetic operations, decimal arithmetic operations.

UNIT-IV

Input – Output Organization

Peripheral devices, Input/output interface, ALU Asynchronous Data transfer, mode of transfer, priority interrupts, Direct memory Address (DMA), Input/ Output processor (IOP), serial communication.

UNIT-V

Evaluation of Microprocessor

Overview of Intel 8085 to Intel Pentium processors Basic microprocessors, architecture and interface, internal architecture, external architecture memory and input/ output interface.

UNIT-VI

Assembly language, Assembler, Assembly level instructions, macro, use of macros in I/C instructions, program loops, programming arithmetic and logic subroutines, Input-Output programming.

Course Code Course Name

BCA-304 Business Economics

UNIT-I

The Scope and Method of Economics, the Economic Problem: Scarity & Choice, The Price Mechanism, Demand & Supply Equilibrium: The Concept of Elasticity and it's Applications.

The Production Process: output decisions – Revenues Costs and Profit Maximisation

Laws of returns & Returns to Scale: Economics and Diseconomies of scale.

UNIT-II

Market Structure: Equilibrium of a firm and Price, Output Determination under Perfect Competition Monopoly, Monoplastic Competition & Oligopoly

UNIT-III

Macro Economic Concerns

Inflalation, Unemployment, Trade-Cycles, Circular Flow upto Four Sector Economy, Government in the Macro Economy: Fiscal Policy, Monetary Policy, Measuring national Income and Output

UNIT-IV

The World Economy – WTO, Globalisation, MNC's, Outsourcing, Foreign Capital in India, Trips, Groups of Twenty (G-20), Issues of dumping, Export-Import Policy 2004-2009

Course Code Course Name

BCA-305 Elements of Statistics

UNIT-I

Population, Sample and Data Condensation

Definition and scope of statistics, concept of population and simple with Illustration, Raw data, attributes and variables, classification, frequency distribution, Cumulative frequency distribution.

UNIT-II

Measures of Central Tendency

Concept of central Tendency, requirements of a good measures of central tendency, Arithmetic mean, Median, Mode, Harmonic Mean, Geometric mean for grouped and ungrouped data.

UNIT-III

Measures of Dispersion:

Concept of dispersion, Absolute and relative measure of dispersion, range variance, Standard deviation, Coefficient of variation.

UNIT-IV

Permutations and Combinations

Permutations of 'n' dissimilar objects taken 'r' at a time (with or without repetitions). ${}^{n}P_{r}$ = n!/(n-r) !(without proof). Combinations of 'r' objects taken from 'n' objects. ${}^{n}C_{r}$ = n!/(r!(n-r)!) (without proof) . Simple examples, Applications.

UNIT-V

Sample space, Events and Probability

Experiments and random experiments, Ideas of deterministic and non-deterministic experiments; Definition of sample space, discrete sample space, events; Types of events, Union and intersections of two or more events, mutually exclusive events, Complementary event, Exhaustive event; Simple examples.

Classical definition of probability, Addition theorem of probability without Proof (upto three events are expected). Definition of conditional probability Definition of independence of two events, simple numerical problems.

UNIT-VI

Statistical Quality Control

Introduction, control limits, specification limits, tolerance limits, process and product control; Control charts for X and R; Control charts for number of defective {n-p chart} ,control charts for number of defects {c - chart}

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

SEMESTER -IV

Course Code	**Course Name**
BCA-401	Computer Graphics & Multimedia Application
BCA-402	Operating System
BCA-403	Software Engineering
BCA-404	Optimization Techniques
BCA-405	Practical Based on Subject Code -401.
BCA-406	Mathematics-III

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

Course Code Course Name

BCA-401 Computer Graphics & Multimedia Application

UNIT-I

Introduction: The Advantages of Interactive Graphics, Representative Uses of Computer Graphics, Classification of Application Development of Hardware and software for computer Graphics, Conceptual Framework for Interactive Graphics, Overview, Scan: Converting Lines, Scan Converting Circles, Scan Converting Ellipses.

UNIT-II

Hardcopy Technologies, Display Technologies, Raster-Scan Display System, Video

Controller, Random-Scan Display processor, Input Devices for Operator Interaction, Image Scanners, Working exposure on graphics tools like Dream Weaver, 3D Effects etc,

Clipping

Southland- Cohen Algorithm, Cyrus-Beck Algorithm, Midpoint Subdivision Algorithm

UNIT-III

Geometrical Transformation

2D Transformation, Homogeneous Coordinates and Matrix Representation of 2D Transformations, composition of 2D Transformations, the Window-to-Viewport Transformations, Introduction to 3D Transformations Matrix.

UNIT-IV

Representing Curves & Surfaces

Polygon meshes parametric, Cubic Curves, Quadric Surface;

Solid Modeling

Representing Solids, Regularized Boolean Set Operation primitive Instancing Sweep Representations, Boundary Representations, Spatial Partitioning Representations, Constructive Solid Geometry Comparison of Representations.

UNIT-V

Introductory Concepts: Multimedia Definition, CD-ROM and the multimedia highway, Computer Animation (Design, types of animation, using different functions) UNIT-VI

Uses of Multimedia, Introduction to making multimedia – The stage of Project, hardware & software requirements to make good multimedia skills and Training opportunities in Multimedia Motivation for Multimedia usage

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

Course Code **Course Name**

BCA-402 **Operating System**

UNIT-I

Introduction, What is an operating system, Simple Batch Systems, Multi-programmed Batch systems, Time- Sharing Systems, Personal – Computer Systems, Parallel systems, Distributed

systems, Real- Time Systems**.**

Memory Management: Background, Logical versus physical Address space, swapping, Contiguous allocation, Paging, Segmentation

Virtual Memory: Demand Paging, Page Replacement, Page- replacement Algorithms, Performance of Demand Paging, Allocation of Frames, Thrashing, Other Considerations

UNIT-II

Processes: Process Concept, Process Scheduling, Operation on Processes

CPU Scheduling: Basic Concepts, Scheduling Criteria, Scheduling Algorithms, Multiple – Processor Scheduling.

Process Synchronization: Background, The Critical – Section Problem, Synchronization Hardware, Semaphores, Classical Problems of Synchronization

UNIT-III

Deadlocks: System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock

UNIT-IV

Device Management: Techniques for Device Management, Dedicated Devices, Shared Devices, Virtual Devices; Input or Output Devices, Storage Devices, Buffering, Secondary Storage Structure: Disk Structure, Disk Scheduling, Disk Management, Swap- Space Management, Disk Reliability

UNIT-V

Information Management: Introduction, A Simple File system, General Model of a File System, Symbolic File System, Basic File System, Access Control Verification, Logical File System, Physical File system File – System Interface; File Concept, Access Methods, Directory Structure, Protection, Consistency Semantics File – System Implementation: File – System Structure, Allocation Methods, Free- Space Management

Course Code Course Name

BCA-403 Software Engineering

UNIT-I

Software Engineering: Definition and paradigms, A generic view of software engineering.

UNIT-II

Requirements Analysis: Statement of system scope, isolation of top level processes and entitles and their allocation to physical elements, refinement and review.

Analyzing a problem, creating a software specification document, review for correctness, consistency, and completeness.

UNIT-III

Designing Software Solutions: Refining the software Specification; Application of fundamental design concept for data, architectural and procedural designs using software blue print methodology and object oriented design paradigm; Creating design document: Review of conformance to software requirements and quality.

UNIT-IV

Software Implementation: Relationship between design and implementation, Implementation issues and programming support environment, Coding the procedural design, Good coding style and review of correctness and readability.

UNIT-V

Software Maintenance: Maintenance as part of software evaluation, reasons for maintenance, types of maintenance (Perceptive, adoptive, corrective), designing for maintainability, techniques for maintenance.

UNIT-VI

Comprehensive examples using available software platforms/case tools, Configuration Management.

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

Course Code **Course Name**

BCA-404 **Optimization Techniques**

UNIT-I

Linear programming

Central Problem of linear Programming various definitions included Statements of basic theorem and also their properties, simplex methods, primal and dual simplex method, transport problem, tic-tac problem, and its solution. Assignment problem and its solution. Graphical Method Formulation, Linear Programming Problem.

UNIT-II

Queuing Theory

Characteristics of queuing system, Classification of Queuing Model Single Channel Queuing Theory, Generalization of steady state M/M/1 queuing models(Model-I, Model-II).

UNIT-III

Replacement Theory

Replacement of item that deteriorates replacement of items that fail. Group replacement and individual replacement.

UNIT-IV

Inventory Theory

Cost involved in inventory problem- single item deterministic model economics long size model without shortage and with shorter having production rate infinite and finite.

UNIT-V

Job Sequencing

Introduction, solution of sequencing problem Johnson s algorithm for n jobs through 2 machines

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

Course Code Course Name

BCA-405 Mathematics –III

UNIT-I

COMPLEX VARIABLES: Complex Number System, Algebra of Complex Numbers, Polar Form, Powers and Roots, Functions of Complex Variables, Elementary Functions, Inverse Trigonometric Function.

UNIT-II

SEQUENCE, SERIES AND CONVERGENCE: Sequence, Finite and Infinite Sequences, Monotonic Sequence, Bounded Sequence, Limit of a Sequence, Convergence of a Sequence, Series, Partial Sums, Convergent Series, Theorems on Convergence of Series (statement, alternating series, conditional convergent), Leibnitz Test, Limit Comparison Test, Ratio Test, Cauchy's Root Test, Convergence of Binomial and Logarithmic Series, Raabe's Test, Logarithmic Test, Cauchy's Integral Test (without proof)

UNIT-III

VECTOR CALCULUS: Differentiation of Vectors, Scalar and Vector Fields, Gradient, Directional Derivatives, Divergence and Curl and their Physical Meaning.

UNIT-IV

FOURIER SERIES: Periodic Functions, Fourier series, Fourier Series of Even and Odd Functions, Half Range Series.

UNIT-V

ORDINARY DIFFERENTIAL EQUATIONS OF FIRST ORDER: Variable - Separable Method, Homogeneous Differential Equations, Exact Differential Equations, Linear Differential Equations, Bernoulli's Differential Equations, Differential Equations of First Order and First Degree by Integrating Factor.

UNIT-VI

ORDINARY DIFFERENTIAL EQUATIONS OF SECOND ORDER: Homogenous Differential Equations with Constant Coefficients, Cases of Complex Roots and Repeated

Roots, Differential Operator, Solutions by Methods of Direct Formulae for Particular Integrals, Solution by Undetermined Coefficients, Cauchy Differential Equations, (only Real and Distinct Roots) Operator Method for Finding Particular Integrals, (Direct Formulae).

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

SEMESTER -V

Course Code	**Course Name**
BCA-501	Introduction to DBMS
BCA-502	Java Programming and Dynamic Webpage Design
BCA-503	Computer Network
BCA-504	Numerical Methods
BCA-508	Minor Project
BCA-507	Viva-Voice on Summer Training
BCA-505	Computer Laboratory and Practical Work of DBMS
BCA-506	Computer Laboratory and Practical Work of Java Programming & Dynamic Webpage Design

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

Course Code **Course Name**

BCA-501 **Introduction to DBMS**

UNIT-I

Introduction: Characteristics of database approach, data models, DBMS architecture and data independence.

UNIT-II

E-R Modeling: Entity types, Entity set, attribute and key, relationships, relation types, roles and structural constraints, weak entities, enhanced E-R and object modeling, Sub classes; Super classes, inheritance, specialization and generalization.

UNIT-III

File Organization: Indexed sequential access files; implementation using B & B++ trees, hashing, hashing functions, collision resolution, extendible hashing, dynamic hashing approach implementation and performance.

UNIT-IV

Relational Data Model: Relational model concepts, relational constraints, relational alzebra

SQL: SQL queries, programming using SQL.

UNIT-V

EER and ER to relational mapping: Data base design using EER to relational language.

UNIT-VI

Data Normalization: Functional Dependencies, Normal form up to 3rd normal form.

Concurrency Control: Transaction processing, locking techniques and associated, database recovery, security and authorization. Recovery Techniques, Database Security

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

Course Code **Course Name**

BCA- 502 **Java Programming and Dynamic Webpage Design**

UNIT-I

Java Programming: Data types, control structured, arrays, strings, and vector, classes (inheritance, package, exception handling) multithreaded programming.

UNIT-II

Java applets, AWT controls (Button, Labels, Combo box, list and other Listeners, menu bar) layout manager, string handling (only main functions)

UNIT-III

Networking (datagram socket and TCP/IP based server socket) event handling, JDBC:

Introduction, Drivers, Establishing Connection, Connection Pooling.

UNIT-IV

HTML: use of commenting, headers, text styling, images, formatting text with <FONT>, special characters, horizontal rules, line breaks, table, forms, image maps, <META> tags, <FRAMESET> tags, file formats including image formats.

UNIT-V

Java Servlets: Introduction, HTTP Servlet Basics, The Servlet Lifecycle, Retrieving Information, Sending HTML Information, Session Tracking, Database Connectivity

UNIT-VI

Java Server Pages: Introducing Java Server Pages, JSP Overview, Setting Up the JSP Environment, Generating Dynamic Content, Using Custom Tag Libraries and the JSP Standard Tag Library, Processing Input and Output

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

Course Code **Course Name**

BCA-503 **Computer Network**

UNIT-I

Basic Concepts: Components of data communication, distributed processing, standards and organizations. Line configuration, topology, Transmission mode, and categories of networks. **OSI and TCP/IP Models:** Layers and their functions, comparison of models.

Digital Transmission: Interfaces and Modems: DTE-DCE Interface, Modems, Cable modems.

UNIT-II

Transmission Media: Guided and unguided, Attenuation, distortion, noise, throughput, propagation speed and time, wavelength, Shannon capacity, comparison of media

UNIT-III

Telephony: Multiplexing, error detection and correction: Many to one, One to many, WDM, TDM, FDM, Circuit switching, packet switching and message switching.

Data link control protocols: Line discipline, flow control, error control, synchronous and asynchronous protocols, character and bit oriented protocols, Link access procedures.

Point to point controls: Transmission states, PPP layers, LCP, Authentication, NCP. **ISDN:** Services, Historical outline, subscriber's access, ISDN Layers and broadcast ISDN. **UNIT-IV**

Devices: Repeaters, bridges, gateways, routers, The Network Layer; Design issues, Routing algorithms, Congestion control Algorithms, Quality of service, Internetworking, Network-Layer in the internet.

UNIT-V

Transport and upper layers in OSI Model: Transport layer functions, connection management, functions of session layers, presentation layer and application layer.

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

Course Code **Course Name**

BCA-504 **Numerical Methods**

UNIT-I

Roots of Equations: Bisections Method, False Position Method, Newton's Raphson Method, Rate of convergence of Newton's method.

UNIT-II

Interpolation and Extrapolation : Finite Differences, The operator E, Newton's Forward and Backward Differences, Newton's dividend differences formulae, Lagrange's Interpolation formula for unequal Intervals, Gauss's Interpolation formula, Starling formula, Bessel's formula, Laplace-Everett formula.

UNIT-III

Numerical Differentiation Numerical Integration : Introduction, direct methods, maxima and minima of a tabulated function, General Quadratic formula, Trapezoidal rule, Simpson's One third rule, Simpson's three- eight rule.

UNIT-IV

Solution of Linear Equation: Gauss's Elimination method and Gauss's Siedel iterative method.

UNIT-V

Solution of Differential Equations: Euler's method, Picard's method, Fourth-order Ranga – Kutta method.

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise
SEMESTER -VI

Course Code	Course Name
BCA-601	Computer Network Security
BCA-602	Information System: Analysis Design & Implementation
BCA-603	E-Commerce
BCA-604	Knowledge Management
BCA-605	Major Project
BCA-606	Presentation/Seminar based on Major Project

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

Course Code Course Name

BCA-601 Computer Network Security

UNIT-I

Introduction: Attack, Services and Mechanism, Model for Internetwork Security.

Cryptography: Notion of Plain Text, Encryption, Key, Cipher Text, Decryption and cryptanalysis; Public Key Encryption, digital Signatures and Authentication.

UNIT-II

Network Security:

Authentication Application: Kerveros, X.509, Directory Authentication Service, Pretty Good Privacy, S/Mime.

UNIT-III

IP security Architecture: Overview, Authentication header, Encapsulating Security Pay Load combining Security Associations, Key Management.

UNIT-IV

Web Security: Requirement, Secure Socket Layer, Transport Layer Security, and Secure Electronic Transactions.

UNIT-V

Network Management Security: Overview of SNMP Architecutre-SMMPVI1 Communication Facility, SNMPV3.

UNIT-VI

System Security: Intruders, Viruses and Relate Threats, Firewall Design Principles. Comprehensive examples using available software platforms/case tools, Configuration Management.

Course Code Course Name

BCA-602 Information System Analysis Design and Implementation

UNIT-I

Overview of System Analysis and Design: Systems Development Life Cycle; concept and Models: requirements determination, logical design, physical design, test planning, implementation, planning and performance evaluation, communication, interviewing, presentation skills; group dynamics; risk and feasibility analysis; group based approaches, JAD, structures walkthroughs, and design and code reviews; prototyping; database design software quality metrics; application categories software package evaluation and acquisition.

UNIT-II

Information Requirement Analysis: Process modeling with physical logical data flow diagrams, data modeling with logical entity relationship diagrams.

UNIT-III

Developing a Proposal: Feasibility study and cost estimation.

System Design: Design of input and control, design of output and control, file design/database design, process, user interface design, prototyping; software constructors; documentation.

UNIT-IV

Application Development Methodologies and CASE tools: Information engineering structured system analysis and design, and object oriented methodologies for application development data modeling, process modeling, user interface design, and prototyping, use of computer aided software engineering (CASE) tools in the analysis design and implementation of information systems.

UNIT-V

Design and Implementation on OO Platform: Object oriented analysis and design through object modeling technique, object modeling, dynamic modeling and functional object oriented design and object oriented programming systems for implementation, object oriented data bases.

UNIT-VI

Managerial issues in Software Projects: Introduction to software markets; planning of software projects, size and cost estimates; project scheduling; measurement of software quality and productivity, ISO and capability maturity models for organizational growth.

Course Code Course Name

BCA-603 E-Commerce

UNIT-I

Introduction to E-Commerce: The Scope of Electronic Commerce, Definition of Electronic Commerce, Electronic E-commerce and the Trade Cycle, Electronic Markets, Electronic Data Interchange, Internet Commerce, E-Commerce in Perspective.

Business Strategy in an Electronic Age: Supply Chains, Porter's Value Chain Model, Inter Organizational Value Chains, Competitive Strategy, Porter's Model, First Mover Advantage Sustainable Competitive Advantage, Competitive Advantage using E -Commerce, Business Strategy, Introduction to Business Strategy, Strategic Implications of IT, Technology, Business Environment, Business Capability, Exiting Business Strategy, Strategy Formulation & Implementation Planning, E-Commerce Implementation, E-Commerce Evaluation.

UNIT-II

Business-to-Business Electronic Commerce: Characteristics of B2B EC, Models of B2B Ec,

Procurement Management Using the Buyer's Internal Marketplace, Just in Time Delivery, Other

B2B Models, Auctions and Services from Traditional to Internet Based EDI, Intergration with

Back-end Information System, The Role of Software Agents for B2B EC, Electronic marketing in B2B, Solutions of B2B EC, Managerial Issues, Electronic Data Interchange (EDI), EDI: The Nuts and Bolts, EDI & Business.

UNIT-III

Internet and Extranet : Automotive Network Exchange, The Largest Extranet, Architecture of the Internet, Intranet and Extranet, Intranet software, Applications of Intranets, Intranet Application Case Studies, Considerations in Intranet Deployment, The Extranets, The structures of Extranets, Extranet products & services, Applications of Extranets, Business Models of Extranet Applications, Managerial Issues.

Electronic Payment Systems : Is SET a failure, Electronic Payments & Protocols, Security Schemes in Electronic payment systems, Electronic Credit card system on the Internet, Electronic Fund transfer and Debit cards on the Internet, Stored – value Cards and E- Cash, Electronic Check Systems, Prospect of Electronic Payment Systems, Managerial Issues.

UNIT-IV

Public Policy: From Legal Issues to Privacy : EC- Related Legal Incidents, Legal Incidents, Ethical & Other Public Policy Issues, Protecting Privacy, Protecting Intellectual Property, Free speech, Internet Indecency & Censorship, Taxation & Encryption Policies, Other Legal Issues: Contracts, Gambling & More, Consumer & Seller Protection In EC.

UNIT-V

Infrastructure For EC : It takes more than Technology, A Network Of Networks, Internet Protocols, Web- Based client/ Server, Internet Security, selling on the web, Chatting on the Web, Multimedia delivery, Analyzing Web Visits, Managerial Issues.

C.C.S. University, Meerut.
Bachelors of Computer Application
Semester – wise

Course Code Course Name

BCA-604 Knowledge Management.

UNIT-I

Business Intelligence and Business Decisions: Modeling Decision Process; Decision support systems; Group decision support and Groupware Technologies.

UNIT-II

Executive Information and support Systems: Business Expert System and AI, OLTO & OLAP; Data Warehousing; Data Marts, Data Warehouse architecture; Tools for data warehousing.

UNIT-III

Multi- Dimensional analysis: Data mining and knowledge discovery; Data mining and Techniques; Data mining of Advance Databases.

UNIT-IV

Knowledge Management Systems: Concept and Structure KM systems, techniques of knowledge management appreciation & limitation.

PROGRAM OUTCOME (PO)

PROGRAM SPECIFIC OUTCOME (PSO)

COURSE OUTCOME (CO)

Programme Outcomes

- ✓ Acquire Knowledge of mathematical foundations, computer application theory and algorithm principles in the design and modelling of computer based system.
- ✓ To provide thorough understanding of nature, scope and application of computer and computer languages.
- ✓ To develop interdisciplinary approach among the students.
- ✓ Exhibit clarity on both conceptual and application-oriented skills of Computing, programming for higher studies in Post Graduate programs.

Programme Specific Outcomes

- ✓ To pursue further studies to get specialization in Computer Science and Applications, Economics, Mathematic.
- ✓ To pursue the career in corporate sector can opt for M. Sc., MCA.
- ✓ To Work in the IT sector as programmer, system engineer, software tester, junior programmer, web developer, system administrator, software developer, etc.
- ✓ To work in public sector undertakings and Government organizations.
- ✓ For teaching in Schools and Colleges.
- ✓ Students will able to understand, analyse and develop computer programs in the areas related to algorithm, system software, web design and networking for efficient design of computer-based system.
- ✓ Apply standard software engineering practices and strategies in software project development using open source programming environment to deliver a quality of product for business success.
- ✓ Student will able to know various issues, latest trends in technology development and thereby innovate new ideas and solutions to existing problems

Course Outcomes (COs):

Sr. No	Name of the course	Course Code	Course Objectives / Outcome
BCA Semester First			
1	Mathematics-I	BCA-101	✓ To understand and solve mathematical problems. ✓ To impart knowledge regarding relevant topics such as matrices addition, subtraction and multiplication. ✓ To familiarize students with limits and continuity. ✓ Knowledge of differentiations, integration and vector algebra.
2	Programming Principle & Algorithm	BCA-102	✓ To understand the basic structure of a C program. ✓ To gain knowledge of various programming errors. ✓ To enable the students to make flowchart and design an algorithm for a given problem. ✓ To enable the students to develop logics and programs. ✓ Ability to design and develop Computer programs, analyses, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage. ✓ Able to define data types and use them in simple data processing applications also he/she must be able to use the concept of array of structures. ✓ Student must be able to define union and enumeration user defined data types. Develop confidence for self-education and ability for life-long learning needed for Computer language.
3	Computer Fundamental and Office Automation	BCA-103	✓ To impart knowledge about the structure, components and functions of a computer system. ✓ To understand working of basic input and output devices. ✓ To learn about the binary number representation along with its operations. ✓ Learn basic word processing skills with Microsoft Word, such as text input and formatting, editing, cut, copy and paste, spell check, margin and tab control, keyboard shortcuts, printing, as well as how to include some graphics such as pictures and charts. ✓ In general, develop an intuitive sense of how computers work and how they can be used to make your academic work more efficient. ✓ Familiarization with the terms like Operating System, peripheral devices, networking, multimedia, internet, etc. ✓ Ability to use internet for searching information on web, sending e-mails and many other tasks. ✓ Skill to work with MS-Word, Excel and PowerPoint. ✓ Initiation into the process of writing business letters or job applications, tabulating data, preparing PPTs, etc. using MS-Office. ✓ Bridge the fundamental concepts of computer with the present level of knowledge of the students.

4	Principle of Management	BCA-104	✓ Describing the Nature and Scope of Business, Forms of Business Organizations and Formation of a Company. ✓ Comparing Sole Trading Concerns, Partnership, Joint Stock Company, Co-operative Societies, Government and Business, Public Enterprise, Small Business. ✓ Examine the Functions of Management, Business Ethics, and Social Responsibility of Business. ✓ Interpret the interactions between the environment, technology, human resources, and organizations in order to achieve high performance. ✓ Examine the effectiveness of applications of management concepts. ✓ Appraise different types, roles and styles of managers across organizations.
5	Business Communication	BCA-106	✓ To provide the skills of comprehension writing. ✓ To develop Informal correspondence writing skills. ✓ To learn the language skills grammatically. ✓ To know the process of Interview Techniques, Group discussion, Conferences and Meetings. ✓ To understand the needs and benefits of written communication. ✓ Develop the student's ability to use English language accurately and effectively by enhancing their communication skills ✓ Participate actively in GD, seminars and conferences and meetings practically. ✓ To study the personality development of individuals in the micro perspective. ✓ To provide employability skills. ✓ To provide the skills of comprehension writing. ✓ To develop Formal correspondence writing skills. ✓ To actively participate in oral and written communication in practical applications.
6	Environmental Studies	BCA-008	✓ Master core concepts and methods from ecological and physical sciences and their application in environmental problem solving. ✓ Master core concepts and methods from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions. ✓ Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems. ✓ Understand the transnational character of environmental problems and ways of addressing them, including interactions across local to global scales. ✓ Apply systems concepts and methodologies to analyse and understand interactions between social and environmental processes. ✓ Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world. ✓ Demonstrate proficiency in quantitative methods, qualitative analysis, critical thinking, and written and oral communication needed to conduct high-level work as interdisciplinary scholars and/or practitioners.

7 8	Computer Laboratory and Practical Work of Computer Fundamental and Office Automation and Computer Laboratory and Practical Work of Programming Principle & Algorithm	BCA-105 & BCA-107	✓ To give detailed knowledge of MS-Office. ✓ To give an in-depth understanding of role of computers in business, education and society. ✓ To make the student learn a programming language. ✓ To learn problem solving techniques. ✓ To teach the student to write programs in C and to solve the problems. ✓ After Completion of this course the student would be able to Student will be able to identify the components of a personal computer system ✓ Student will be able to demonstrate mouse and keyboard functions ✓ Student will be able to compose, format and edit a word document, PPT, excel. ✓ Read, understand and trace the execution of programs written in C Lang. ✓ Write the C code for a given algorithm. ✓ Implement Programs with pointers and arrays, perform pointer arithmetic, and use the per-processor. ✓ Write programs that perform operations using derived data types.
BCA Semester Second			
9	Mathematics-II	BCA-201	✓ Understand the basic principles of sets and operations in sets. ✓ Demonstrate an understanding of relations and functions and be able to determine their properties. ✓ Appreciate how abstract ideas and rigorous methods in mathematical analysis can be applied to important practical problems
10	C-Programming	BCA-202	✓ Ability to design and develop Computer programs, analyses, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage. ✓ Develop confidence for self-education and ability for life-long learning needed for Computer language. ✓ Utilize the best of the inbuilt functions for various input and output operations. ✓ Implement the concept of arrays. ✓ Implement problem solving skills using pointer concept of the programming languages. ✓ Work efficiently with files using the programming languages.
11	Organization Behaviour	BCA-203	✓ Describing the Nature and Scope of Business, Forms of Business Organizations and Formation of a Company. ✓ Comparing Sole Trading Concerns, Partnership, Joint Stock Company, Co-operative Societies, Government and Business, Public Enterprise, Small Business. ✓ Examine the Functions of Management, Business Ethics, and Social Responsibility of Business. ✓ Interpret the interactions between the environment, technology, human resources, and organizations in order to achieve high performance. ✓ Examine the effectiveness of applications of management concepts. ✓ Appraise different types, roles and styles of managers across organizations.

12	Digital Electronics and Computer Organisation	BCA-204	✓ To acquire the basic knowledge of digital logic levels and application of knowledge to understand digital electronics circuits. ✓ To prepare students to perform the analysis and design of various digital electronic circuits. ✓ Have a thorough understanding of the fundamental concepts and techniques used in digital electronics. ✓ To understand and examine the structure of various number systems and its application in digital design. ✓ The ability to understand, analyse and design various combination and sequential circuits. ✓ Ability to identify basic requirements for a design application and propose a cost-effective solution. ✓ The ability to identify and prevent various hazards and timing problems in a digital design. ✓ To develop skill to build, and troubleshoot digital circuits.
13	Financial Accounting and Management	BCA-205	✓ Listing the aim, scope and significance of finance function, sources of company finance. ✓ Discussion of theories and valuation of capital structure, cost of capital and capital budgeting ✓ Assessing the SEBI guidelines for raising company finance. ✓ Recommend the working capital requirement, steps in responsibility accounting ✓ Illustrating the planning of capital expenditure and its evaluation including risk and uncertainty
14	Computer Laboratory and Practical Work of C	BCA-206	✓ To make the student learn a programming language. ✓ To learn problem solving techniques. ✓ To teach the student to write programs in C and to solve the problems. ✓ Read, understand and trace the execution of programs written in C Lang. ✓ Implement Programs with pointers and arrays, perform pointer arithmetic, and use the pre-processor. ✓ Write programs that perform operations using derived data types.
BCA Semester Third			
15	Object Oriented Programming Using C++	BCA-301	✓ To give an overview of benefits of Object-Oriented Programming (OOP) approach over the Traditional Programming approach. ✓ To deliver comprehensive view of OOP concept. ✓ To impart detailed knowledge of a powerful object-oriented programming language –C++. ✓ Familiarization with a widely used programming concept – Object Oriented Programming. ✓ Develop logical thinking. ✓ Skill to write codes in C++ by applying concept of OOP, such as Objects, Classes, Constructors, Inheritance etc., to solve mathematical or real-world problems. ✓ Ability to isolate and fix common errors in C++programs

16	Data Structure Using C & C++	BCA-302	✓ To introduce the fundamental concept of data structures and to emphasize the importance of data structures in developing and implementing efficient algorithms. ✓ To familiar with basic techniques of algorithm analysis. ✓ To master the implementation of linked data structures such as linked lists and binary trees. ✓ To familiar with several sub-quadratic sorting algorithms including Selection sort, Insertion sort etc. ✓ Describe how arrays, records, linked structures, stacks, queues, and trees are represented in memory and used by algorithms. ✓ Describe common applications for arrays, records, linked structures, stacks, queues and trees. ✓ Write programs that use arrays, records, linked structures, stacks and queues. ✓ Demonstrate different methods for traversing trees. ✓ Compare alternative implementations of data structures with respect to performance. ✓ Describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack. ✓ Discuss the computational efficiency of the principal algorithms for sorting and searching.
17	Computer Architecture & Assembly Language	BCA-303	✓ To develop background knowledge and core expertise of microprocessor & microcontroller. ✓ To know the importance of different peripheral devices and their interfacing to microcontrollers. ✓ To know the design aspects of microprocessor & microcontrollers. ✓ To write assembly language programs of microcontrollers for various applications. ✓ At the end of course, a student will able to draw & describe architecture of 8051 microcontrollers. ✓ To Interface various peripherals devices to the microcontrollers. ✓ To write assembly language program for microcontrollers. ✓ To design microcontroller based system for various applications. ✓ To know the design aspects of microprocessor & microcontrollers. ✓ To write assembly language programs of microcontrollers for various applications.
18	Business Economics	BCA-304	✓ Explain the basic concepts of microeconomics and issues in business economics ✓ Discussing the consumer equilibrium, utility analysis indifference curve and the demand and supply analysis. ✓ Examine the production and cost structure under different stages of production. ✓ Identify how and why equilibrium prices might change and their impact on resource allocation; ✓ Recommending the pricing and output decisions under various market structure.

19	Elements of Statistics	BCA-305	✓ Organize, manage and present data. ✓ Analyse statistical data graphically using frequency distributions and cumulative frequency distributions. ✓ Analyse statistical data using measures of central tendency, dispersion and location. ✓ Use the basic probability rules, including additive and multiplicative laws, using the terms, independent and mutually exclusive events. ✓ Translate real-world problems into probability models. ✓ Derive the probability density function of transformation of random variables. ✓ Calculate probabilities, and derive the marginal and conditional distributions of bivariate random variables.
20 21	Computer Laboratory and Practical Work of OOPS And Computer Laboratory and Practical Work of DS	BCA-306 & BCA-307	✓ Practically familiar with basic techniques of algorithm analysis. ✓ Implementation of linked data structures such as linked lists and binary trees. ✓ Practically isolate and fix common errors in C++programs ✓ Identify and practice the object-oriented programming concepts and techniques ✓ Practice the use of C++ classes and class libraries, arrays, vectors, inheritance and file I/O stream concepts. ✓ Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms. ✓ Describe common applications for arrays, records, linked structures, stacks, queues, trees, and graphs. ✓ Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs. ✓ Creating simple programs using classes and objects in C++. ✓ Implement Object Oriented Programming Concepts in C++.
BCA Semester Four			
22	Computer Graphics & Multimedia Application	BCA-401	✓ The main objective of this module is to introduce to the students the concepts of computer graphics. ✓ This course deals with two and three dimensional transformations, projection and graphical functions. It helps to have a better understanding of 2D and 3D technologies. ✓ Understand the basics of computer graphics, different graphics systems and applications of computer graphics. ✓ Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis. ✓ Use of geometric transformations on graphics objects and their application in composite form. ✓ Extract scene with different clipping methods and its transformation to graphics display device. ✓ Explore projections and visible surface detection techniques for display of 3D scene on 2D screen. ✓ Performing Animation techniques using twining and morphing.

			✓ Students will understand 2D and 3D graphic techniques which will help them to proceed with their project development. ✓ Knowledge and understanding • Have a knowledge and understanding of the structure of an interactive computer graphics system, and the separation of system components. • Have a knowledge and understanding of geometrical transformations. • Have a knowledge and understanding of techniques for representing 2D geometrical objects. • Have a knowledge and understanding of interaction techniques. • Cognitive skills (thinking and analysis). ▪ Practical and subject specific skills (Transferable Skills). ▪ Perform simple 2D graphics with lines, curves and can implement algorithms to rasterizing simple shapes, fill and clip polygons and have a basic grasp of anti-aliasing techniques.
23	Operating System	BCA-402	✓ To deliver a detailed knowledge of integral software in a computer system – Operating System. ✓ To understand the working of operating system as a resource manager. ✓ To familiarize the students with Process and Memory management. ✓ To describe the problem of process synchronization and its solution. ✓ Ability to apply CPU scheduling algorithms to manage tasks. ✓ Initiation into the process of applying memory management methods and allocation policies. ✓ Knowledge of methods of prevention and recovery from a system deadlock.
24	Software Engineering	BCA-403	✓ To know about software engineering and its application in Software development ✓ The aim of the course is to assist the student in understanding the basic theory of software engineering, and to apply these basic theoretical principles to a group software development project. ✓ To inculcate in student's different concepts of software engineering principles ✓ To develop the skills necessary to design, develop and execute software projects. ✓ Select and implement different software development process models ✓ Extract and analyse software requirements specifications for different projects ✓ Understand the importance of the stages in the software life cycle. ✓ Implement software development efficiently and effectively ✓ Understanding of the discipline of software Testing and Quality Management. ✓ Learn about quality standards, quality planning, quality assurance and quality control. ✓ Understand fundamental concepts in software testing, including software testing objectives, process, criteria, strategies, and methods. ✓ Gain software testing experience by applying software testing knowledge and methods to practice-oriented software testing

25	Optimization Techniques	BCA-404	✓ Ability to apply the theory of optimization methods and algorithms to develop and for solving various types of optimization problems ✓ Ability to go in research by applying optimization techniques in problems of Engineering and Technology ✓ Ability to solve the mathematical results and numerical techniques of optimization theory to concrete Engineering problems by using computer software
26	Practical Based on Subject Code -401.	BCA-405	✓ Understand the basics of computer graphics, different graphics systems and applications of computer graphics. ✓ Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis. ✓ Use of geometric transformations on graphics objects and their application in composite form. ✓ Students will understand 2D and 3D graphic techniques which will help them to proceed with their project development.
27	Mathematics-III	BCA-406	✓ Describe fundamental properties of the real numbers that lead to the formal development of real analysis. ✓ Construct rigorous mathematical proofs of basic results in real analysis. ✓ Demonstrate an understanding of limits and how they are used in sequences, series, differentiation and integration.
BCA Semester Five			
28	Introduction to DBMS	BCA-501	✓ To introduce the students to the database system. ✓ To learn how to design a database by using different models. ✓ To enable the students to understand the database handling during execution of the transactions. ✓ To understand the handling of database by concurrent users. ✓ To gain complete knowledge of SQL and PL/SQL. ✓ Familiarization with Database Management System. ✓ Comprehensive knowledge of database models. ✓ Ability to code database transactions using SQL.
29	Java Programming and Dynamic Webpage Design	BCA-502	✓ Covers software design, implementation, and testing using Java. ✓ Understands fundamentals of basic java programming ✓ Introduces object-oriented design techniques and problem solving. ✓ Emphasizes development of secure, well-designed software projects that solve practical real-world problems. ✓ Be able to use the java SDK environment to create, debug, & run simple java program. ✓ Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs. ✓ Read and make elementary modifications to Java programs that solve real-world problems. ✓ Validate input in a Java program. ✓ Identify and fix defects and common security issues in code. ✓ Document a Java program using Javadoc.

30	Computer Network	BCA-503	✓ It will help students in understanding of various types of computer networks, technologies behind networks and application protocols, e-mail and communication protocols will be introduced to students through this subject. ✓ Become familiar with the basics of computer networks ✓ Become familiar with network architectures ✓ Become familiar with fundamental protocols ✓ Explain how communication works in computer networks and to understand the basic terminology of computer networks ✓ Explain the role of protocols in networking and to analyse the services and features of the various layers in the protocol stack. ✓ Understand design issues in Network Security and to understand security threats, security services and mechanisms to counter. ✓ Demonstrate basic understanding of network principles. ✓ Demonstrate understanding of how computers communicate with each other and the methods employed to assure that the communication is reliable. ✓ Have a good understanding of the OSI Reference Model and in particular have a good knowledge of Layers 1-3.
31	Numerical Methods	BCA-504	✓ To learn how to perform error analysis for arithmetic operations. ✓ To demonstrate working of various numerical methods. ✓ To provide a basic understanding of the derivation and use of methods of interpolation and numerical integration. ✓ To impart knowledge of various statistical techniques. ✓ To develop students' understanding through laboratory activities to solve problems related to above stated concepts. ✓ Skill to choose and apply appropriate numerical methods to obtain approximate solutions to difficult mathematical problems. ✓ Ability to apply various statistical techniques such as Measures of Central Tendency and Dispersion. ✓ Understanding of relationship between variables using the method of Correlation and Trend Fit Analysis. ✓ Skill to execute programs of various Numerical Methods and Statistical Techniques for solving mathematical problems.
32	Computer Laboratory and Practical Work of DBMS	BCA-505	✓ To understand the different issues involved in the design and implementation of a database system. ✓ To study the physical and logical database designs, database modelling, relational, hierarchical, and network models. ✓ To understand and use data manipulation language to query, update, and manage a database. ✓ To develop an understanding of essential DBMS concepts such as: database security, integrity, concurrency ✓ Populate and query a database using SQL DML/DDL commands.

33	Computer Laboratory and Practical Work of Java Programming & Dynamic Webpage Design	BCA-506	✓ Understands fundamentals of basic java programming ✓ Introduces object-oriented design techniques and problem solving. ✓ Emphasizes development of secure, well-designed software projects that solve practical real-world problems. ✓ Do research in the emerging areas of cryptography and network security. ✓ Read and make elementary modifications to Java programs that solve real-world problems. ✓ Validate input in a Java program. ✓ Identify and fix defects and common security issues in code.
34	Viva-Voice on Summer Training	BCA-507	✓ Explore career alternatives prior to graduation. ✓ Integrate theory and practice. ✓ Assess interests and abilities in their field of study. ✓ Learn to appreciate work and its function in the economy. ✓ Develop work habits and attitudes necessary for job success. ✓ Develop communication, interpersonal and other critical skills in the job interview process. ✓ Build a record of work experience. ✓ Acquire employment contacts leading directly to a full-time job following graduation from college. ✓ Identify, write down, and carry out performance objectives (mutually agreed upon by the employer, the MCC experiential learning supervisor, and the student) related to their job assignment.
35	Minor Project	BCA-508	✓ To be able to apply some of the techniques/principles you have been taught ✓ To carry out time planning for the project. ✓ To follow correct grounding and shielding practices ✓ To do effective trouble-shooting of the mini project. ✓ To develop effective communication skill by delivering a seminar based on mini project ✓ Demonstrate a through and systematic understanding of project contents. ✓ Understand methodologies and professional way of documentation and communication. ✓ Know the key stages in development of the project. ✓ Extend or use the idea in mini project for major project.
BCA Semester SIX			
36	Computer Network Security	BCA-601	✓ To understand basics of Cryptography and Network Security. ✓ To understand basic concepts of different attacks and security threats. ✓ To be able to secure a message over insecure channel by various means. ✓ To understand various System Security Threats – Intruders, Viruses & related Threats ✓ To understand various protocols for network security to protect against the threats in the networks. ✓ Provide security of the data over the network. ✓ Do research in the emerging areas of cryptography and network security. ✓ Protect any network from the threats in the world.

37	Information System: Analysis Design & Implementation	BCA-602	✓ Understand both the nature of 'information systems analysis and design' and its various components. ✓ Appreciate the use of systems design techniques, methodologies, and tools. ✓ Identify various types of information systems concepts and terminologies. ✓ Explain the types of business needs that can be addressed using information technology based solutions. ✓ Discuss the initial phases of the System Development Life Cycle (SDLC) using analytical tools and quantitative techniques used to identify problems. ✓ Define problems and opportunities that initiate projects. ✓ Write clear and concise business requirements and convert them into technical specifications.
38	E-Commerce	BCA-603	✓ Explain the concept of ecommerce and its revolution. ✓ Explain the infrastructure of the Internet and how the various elements contribute to the marketing distribution solutions. ✓ Explain and develop solutions for implementing an ecommerce site. ✓ Discuss security and ecommerce and the ramifications of neglecting it. ✓ Create a marketing plan and promotional plan for an ecommerce site. ✓ Evaluate a payment system for a site. ✓ Create a strategy for the different, non-traditional areas surrounding ecommerce. ✓ Implement, in simulation or authentically, an ecommerce site.
39	Knowledge Management	BCA-604	✓ Demonstrate research skills ✓ Understand the basic concepts and technologies used in the field of management information systems. ✓ Have the knowledge of the different types of management information systems. ✓ Understand the processes of developing and implementing information systems.
40	Major Project	BCA-605	✓ Apply fundamental and disciplinary concepts and methods in ways appropriate to their principal areas of study. ✓ Demonstrate skill and knowledge of current information and technological tools and techniques specific to the professional field of study. ✓ Demonstrate a sound technical knowledge of their selected project topic. ✓ Undertake problem identification, formulation and solution. ✓ Design engineering solutions to complex problems utilising a systems approach. ✓ Use effectively oral, written and visual communication. ✓ Identify, analyse, and solve problems creatively through sustained critical investigation. ✓ Integrate information from multiple sources. ✓ Demonstrate an awareness and application of appropriate personal, societal, and professional ethical standards. ✓ Practice the skills, diligence, and commitment to excellence needed to engage in lifelong learning.

41	Presentation/Seminar based on Major Project	BCA-606	✓ Students will demonstrate the ability to perform close and critical readings. ✓ Students will demonstrate the ability to consider critically the motives and methods of scholarship and the relationship between them. ✓ Students will demonstrate the ability to distinguish opinions and beliefs from researched claims and evidence and recognize that kinds of evidence will vary from subject to subject. For instance, some fields call for quantitative support while others work more commonly with quoted, textual evidence. ✓ Students will demonstrate the ability to ask disciplinarily appropriate questions of the material and recognize when lines of inquiry fall outside of disciplinary boundaries. ✓ Students will demonstrate the ability to evaluate, credit, and synthesize sources.

Chaudhary Charan Singh University, Meerut

Syllabus

[Effective from the Session: 2020-21 onwards]

BACHELOR OF BUSINESS ADMINISTRATION (B.B.A.)

Chaudhary Charan Singh University, Meerut

THREE YEARS BACHELOR OF BUSINESS ADMINISTRATION (B.B.A.) PROGRAMME

COURSE CONTENTS

SEMESTER – I	**Theory**	**INT.**	**Total**
BBA-101:Fundamentals of Management	75	25	100
BBA-102:OrganizationalBehavior	75	25	100
BBA-103:Managerial Economics	75	25	100
BBA-104: Accounting for Managers	75	25	100
BBA-105:Business Law	75	25	100
BBA-106:BusinessOrganization and Ethics	75	25	100
BBA-008: Environmental Studies (Qualifying paper)			100
SEMESTER – II			
BBA-201:Quantitative Techniques for Business	75	25	100
BBA-202:Business Communication	75	25	100
BBA-203:Human Resource Management	75	25	100
BBA-204: Marketing Management	75	25	100
BBA-205 :Business Environment	75	25	100
BBA-206: Fundamentals of Computer	75	25	100
BBA-207:Assessments on Soft Skill Based on Presentations/ G.D/ Personality traits			100
SEMESTER – III			
BBA-301:Advertising Management	75	25	100
BBA-302:Team Building & Leadership	75	25	100
BBA-303 Indian Economy	75	25	100
BBA-304:Customer Relationship Management	75	25	100
BBA-305:Management Information System	75	25	100
BBA-306:Income Tax Law & practice	75	25	100
SEMESTER – IV			
BBA-401:ConsumerBehavior	75	25	100
BBA-402:Financial Management	75	25	100
BBA-403:Production& Operation Management	75	25	100
BBA-404:Sales& Distribution Management	75	25	100
BBA-405:Research Methodology	75	25	100
BBA-406:Entrepreneurship& Small Business Mangement	75	25	100
BBA-407:Computer Oriented Practical &Viva-Voce			100

SEMESTER – V

BBA-501:Arithmetic Aptitude	75	25	100
BBA-502:Aptitude Reasoning	75	25	100
BBA-503:General Business Awareness	75	25	100
BBA-504:General English	75	25	100
BBA-505:Elective Paper M-1/ F-1	75	25	100
BBA-506:Elective Paper M-2 / F-2	75	25	100
BBA-507:Summer Training Project Report based Viva- Voce			100

Note: Paper code BBA-501, BBA-502, BBA-503 and BBA-504 will be of multiple-choice objective type questions.

SEMESTER – VI

BBA-601:Strategic Management & Business Policy	75	25	100
BBA-602:Operation Research	75	25	100
BBA-603:Fundamentals of E Commerce	75	25	100
BBA-604:Economic and Industrial Law	75	25	100
BBA-605:Elective Paper M-3/ F-3	75	25	100
BBA-606:Elective Paper M-4/ F-4	75	25	100
BBA-607: ComprehensiveViva-Voce			100

The Elective papers in the functional specialization will be as follows:

Marketing:

M-1 Rural Marketing
M-2 Service Marketing
M-3 Retail Management
M-4 Digital Marketing

Finance:

F-1 Corporate Direct Tax and Indirect Tax
F-2 Financial Institutions & Investment Management
F-3Accounting for Managerial Decision & Analysis
F-4Goods and Service Tax

Chaudhary Charan Singh University, Meerut

Syllabus

[Effective from the Session: 2020-21 onwards]

BACHELOR OF BUSINESS ADMINISTRATION (B.B.A.)

Chaudhary Charan Singh University, Meerut

THREE YEARS BACHELOR OF BUSINESS ADMINISTRATION (B.B.A.) PROGRAMME

COURSE CONTENTS

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BBA-101:Fundamentals of Management	75	25	100
BBA-102:OrganizationalBehavior	75	25	100
BBA-103:Managerial Economics	75	25	100
BBA-104: Accounting for Managers	75	25	100
BBA-105:Business Law	75	25	100
BBA-106:BusinessOrganization and Ethics	75	25	100
BBA-008: Environmental Studies (Qualifying paper)			100
SEMESTER – II			
BBA-201:Quantitative Techniques for Business	75	25	100
BBA-202:Business Communication	75	25	100
BBA-203:Human Resource Management	75	25	100
BBA-204: Marketing Management	75	25	100
BBA-205 :Business Environment	75	25	100
BBA-206: Fundamentals of Computer	75	25	100
BBA-207:Assessments on Soft Skill Based on Presentations/ G.D/ Personality traits			100
SEMESTER – III			
BBA-301:Advertising Management	75	25	100
BBA-302:Team Building & Leadership	75	25	100
BBA-303 Indian Economy	75	25	100
BBA-304:Customer Relationship Management	75	25	100
BBA-305:Management Information System	75	25	100
BBA-306:Income Tax Law & practice	75	25	100
SEMESTER – IV			
BBA-401:ConsumerBehavior	75	25	100
BBA-402:Financial Management	75	25	100
BBA-403:Production& Operation Management	75	25	100
BBA-404:Sales& Distribution Management	75	25	100
BBA-405:Research Methodology	75	25	100
BBA-406:Entrepreneurship& Small Business Mangement	75	25	100
BBA-407:Computer Oriented Practical &Viva-Voce			100

SEMESTER – V

BBA-501:Arithmetic Aptitude	75	25	100
BBA-502:Aptitude Reasoning	75	25	100
BBA-503:General Business Awareness	75	25	100
BBA-504:General English	75	25	100
BBA-505:Elective Paper M-1/ F-1	75	25	100
BBA-506:Elective Paper M-2 / F-2	75	25	100
BBA-507:Summer Training Project Report based Viva- Voce			100

Note: Paper code BBA-501, BBA-502, BBA-503 and BBA-504 will be of multiple-choice objective type questions.

SEMESTER – VI

BBA-601:Strategic Management & Business Policy	75	25	100
BBA-602:Operation Research	75	25	100
BBA-603:Fundamentals of E Commerce	75	25	100
BBA-604:Economic and Industrial Law	75	25	100
BBA-605:Elective Paper M-3/ F-3	75	25	100
BBA-606:Elective Paper M-4/ F-4	75	25	100
BBA-607: ComprehensiveViva-Voce			100

The Elective papers in the functional specialization will be as follows:

Marketing:

M-1 Rural Marketing
M-2 Service Marketing
M-3 Retail Management
M-4 Digital Marketing

Finance:

F-1 Corporate Direct Tax and Indirect Tax
F-2 Financial Institutions & Investment Management
F-3Accounting for Managerial Decision & Analysis
F-4Goods and Service Tax

COURSE CONTENT FOR SEMESTER – I

BBA-101: FUNDAMENTALS OF MANAGEMENT

Unit – I: IntroductionConcepts,Objectives,NatureScopeand Significance of management Evolution of management thought-Contributionof Taylor, Weber and Fayol management.

Unit – II: Planning: Concept, Objectives, Nature, Limitation, Process of planning,Importance, Forms, Techniques and Process of decision making.

Unit – III: Organizing: Concept, Objectives, Nature of organizing, Types of Organization, delegation of authority, Authority and responsibilities, Centralization and Decentralization, Span of control

Unit – IV: Directing: Concept, Principles & Techniques of directing and CoordinationConcept of leadership-Style. Importance, Styles, Supervision, Motivation, Importance&Theory of Motivation, Communication.

Unit – V: Controlling: Concept, Principles, Process and Techniques of Controlling,Relationship between planning and controlling.

Suggested Readings:

1. PagareDinkar; Principles of Management
2. L M Prasad; Principles and Practice of Management
3. Satya Narayan and Raw VSP ; Principles and Practice of Management
4. Srivastava and Chunawalla; Management Principles and Practice

BBA-102: ORGANISATION BEHAVIOUR

Unit – I: Introduction, nature and scope of OB, Challenges and opportunities for OB, Organization Goals, Models of OB, Impact of Global and Cultural diversity on OB.

Unit – II: Individual Behavior - Individual behavior, Personality, Perception and its role in individual decision making, Learning, Motivation, Hierarchy of needs theory, Theory X and Y, Motivation- Hygiene theory, Vrooms Expectancy theory

Unit – III: Behavior Dynamics: Interpersonal behavior, Communication, Transaction Analysis, The Johari Window, Leadership, Its Theories and Prevailing Leadership styles in Indian Organizations.

Unit – IV: Group Behavior: Definition and classification of Groups, Types of Group Structures, Group decision making, Teams Vs Groups, Contemporary issues in managing teams, Inter group problems in organizational group dynamics, Management of conflict.

Unit – V: Management of Change: Change and Organizational development, Resistance to change, Approaches to managing organizational change, Organizational effectiveness, Organizational culture, Power and Politics in Organizational Quality of work life, Recent advances in OB.

Suggested Readings:

1. Bennis, W.G.; OrganizationDevelopment
2. Breech Islwar ; Organization -the frame-Work ofManagement
3. Dayal, Keith ; OrganizationalDevelopment
4. Sharma, R.A. ; Organizational Theory and Behavior
5. L.M Prasad ; OrganizationalBehavior

BBA-103:MANEGERIAL ECONOMICS

Unit – I: Definition, Nature, Scope & Limitation of Economics as an art or Science.Relevance of Economics in Business Management, Nature and Scope of Managerial Economics, its relationshipwith other subjects.

Unit – II: Meaning of demand. Demand theory and objectives, Demand analysis.Demand schedule. Demand Curve, Laws of Demand, Elasticity of Demand Types & Measurement, Supply Analysis, Demand Forecasting.

Unit – III: Market analysis-Nature of market, Types of markets and their characteristicsPricing under different market structures-Perfect, Monopoly, oligopoly and Monopolistic completion.

Unit – IV: National Income: Concepts and Measurements, instruments of fiscal policy, Tools of monetary policy.

Unit – V: Economic Growth and Development, Business Cycle, The balance of payments, Inflation.

Suggested Readings:

1.Adhjkari M ; Management Economics

2.Gupta G.S. ; Managerial Economics

3.Lal S.M ; Principles of Economics

4.Vaish&Sunderm ; Principles of Economics

BBA-104: ACCOUNTING FOR MANEGERS

Unit – I: Introduction to course Basic rules. Accounting concepts and conventions, Accounting information system: Mechanism of financial accounting, Accounting records ,Journal ledger, Trial Balance.

Unit – II: Concept of balance Sheet, Income statement and basic Accounting equations, Introduction and definition of Income statement ,Comprehensive exercisein banking income statement and Balance sheet.

Unit – III: Depreciation: meaning, methods and importance Accounting statement of depreciation.

Unit – IV: Cash flow: cash flow statement, preparation and interpretation of cash flow statement.

Unit –V: Introduction of financial statement analysis.Cost value profit analysis.
Ratio analysis: using Ratio in financial assessment, manufacturing firms, preparation of financial statements.

Suggested Readings:

1.Agarwal B.D ; Advanced Accounting
2.Chawla &Jain ; Financial Accounting
3.Chakrawarti K.S ; Advanced Accounts.
4.Gupta R.L. &Radhaswamy ; Fundamentals of Accounting
5.Jain &Narang ; Advanced Accounts
6.Shukla &Grewal ; Advanced Accounts

BBA-105: BUSINESS LAW

Unit – I: Indian Contract Act: Offer, Acceptance, Agreement and Contract; Capacity of parties; Essentials of Contract; Performance of Contracts; Termination of Contract, Consequence and Remedies for Termination of Contract.

Unit – II: Void Contracts; Contingent Contracts; Quasi Contract; Contract of Indemnity and Guarantee; Bailment, Lien, Pledge and Agency.

Unit – III: Sales of Goods Act: Definition, Features, and Formation of Sale Contract**;** Condition and Warranty, Ownership of Goods; Performance of Sale Contract; Rights of Unpaid Sellers; Auction Sale.

Unit – IV: Limited liability Partnership: Definition;Incorporation;Eligibility to be Partner,Relationship of partners,Partners as a agent,Penalty for False statement;winding up

Unit – V: Negotiable Instruments: Definition, Features, Types, Recognition, Crossing And Endorsement of NIs.

Suggested Readings:

1. Dhanda PMV ; Commercial and IndustrialLaws
2. N.D. Kapoor ; Elements of Mercantile law (including Companing LawIndustrial Law)
3. Gulshan S and Kapoor ; Lectures on Business & Economics Laws
4. Kuchall ; BusinessLaws
5. Mandal C ; Economics and other Legislations
6. Awtar Singh : Principles of Mercantile Law

BBA-106: BUSINESS ORGANIZATION AND ETHICS

Unit –I : Meaning and definition of business essentials & scope of business Classification of Business Activities, Meaning, Definition, Characteristics and objectives of Business Organization, Evolution of Business Organization . Modern Business, Business & Profession.

Unit – II: Business Unit, Establishing a new business unit. Meaning of Promotion.Features for business, Plant location, Plant Layout & size of business unit.

Unit – III: Forms of Business Organization. Sole Proprietorship, Partnership, Joint Stock Companies & Co-operatives.

Unit – IV: Business Ethics- An overview-Concept, nature, evolving ethical values, Arguments against business Ethics**.** Relationship between Ethics & Corporate excellence – Corporate mission and statement, Code of Ethics and culture

Unit – V: Business and Society Changing Concepts and Objectives of Business, Professionalization, Business ethics, Gandhian Philosophy, Organizational Culture, Technological Development and Social Change, Social Responsibility of Business, Social Audit

Suggested Readings

1. Koltar Philip ; Marketing Management
2. Stanton, Etzel Walker ; Fundamentals of Marketing
3. SaxenaRajan; Marketing Management
4. ChottorjeeS.K.Business Organisation
5. JagdishPrakash Business Organistaton and Management
6. Om Prakash Business Organisation

QUALIFYING PAPER

ENVIRONMENTAL STUDIES (CODE-008)

Unit-1: The Multidisciplinary Nature of Environmental Studies:

Definition, Scope and Importance, Need for Public Awareness.

Unit-2: Natural Resources

- Renewable and Non-renewable Resources:

Natural resources and associated problems: -

a) **Forest Resources:** use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.

b) **Water Resources:** use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams- benefits and problems.

c) **Mineral Resources:** use and exploitation, environmental effects of extracting and using mineral resources, case studies.

d) **Food Resources:** World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

e) **Energy Resources:** Growing energy needs, renewable and nonrenewable energy sources, use of alternate energy sources, case studies

f) **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

Unit-3: Ecosystems

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem:-
    a) Forest ecosystem
    b) Grassland ecosystem
    c) Desert ecosystem
    d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit-4: Biodiversity And Its Conservation

- Introduction – Definition: genetic, species and ecosystem diversity.
- Bio geographical classification of India
- Value of biodiversity: Consumptive use, productive use, social, ethical, and aesthetic and option values.
- Biodiversity at global, National and local levels.
- India as a mega-diversity nation
- Hot-sports 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.

Unit-5: Environmental

Pollution Definition:

- Causes, effects and control measures of:-
    a) Air pollution
    b) Water pollution
    c) Soil pollution
    d) Marine pollution
    e) Noise pollution
    f) Thermal pollution
    g) Nuclear pollution

- Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution
- Pollution case studies
- Disaster Management: Floods, earthquake, cyclone and landslides.

Unit-6: 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
- Environmental Ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies.
- Wasteland reclamation.
- Consumerism and waste products
- Environment Protection Act.
- Air (Prevention and Control of Pollution)Act
- Water (Prevention and Control of Pollution)Act
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation
- Public awareness

Unit-7: Human Population And The Environment

- Population growth, variation among nations.
- Population explosion: Family Welfare Programme.
- Environment and human health
- Human Rights
- Value Education
- Women and Child Welfare
- Role of Information Technology in Environment and human health
- Case Studies

Unit-8: Field Work

- Visit to a local area to document environmental assets-river / forest / grassland / hill /mountain.
- Visit to a local polluted site – Urban / Rural / Industrial /Agricultural
- Study of common plants, insects ,birds.
- Study of simple ecosystems-pond, river, hill slopes, etc. (Field work Equal to 5 lecture hours).

COURSE CONTENT FOR SEMESTER – II

BBA-201 :QUANTATUVE TECHNIQUES FOR BUSINESS

UNIT – I: Matrix: Introduction, Types of Matrix, Addition, Subtraction &Multiplication of Matrix, Inverse of Matrix, Solution of Linear equations by matrix inversion Method.

UNIT – II: Statistics: Types of Data, Classification & Tabulation of Data, Frequency Distribution, Graphical Presentation, Measures of Central Tendency (Mean, Median & Mode) Measures of Dispersion (Range, Mean Deviation & Standard Deviation).

UNIT – III: Correlation : significance of Correlation, Types of Correlation, Scatter Diagram Method, Karl Pearson coefficient of correlation, Spearman's coefficient of Rank correlation. Regression: Introduction, Regression Lines and Regression Equations & Regression Coefficients.

UNIT – IV: Probability: Definitions of Probability, Additive and Multiplicative Rules of probability, Bay's Theorem (Simple numerical) Probability Distributions: Binomial, Poisson and Normal.

UNIT – V: Sampling: Methods of sampling, sampling and non-sampling errors. Testing of Hypothesis, Type I and Type II Errors, Large Sample tests.

Suggested Readings:

1. Raghavachari; Mathematics for Management
2. Zamiruddin; Business Mathematics
3. Gupta S.P.& Gupta M.P; Business statistics
4. Elhance,D.N ; fundamentals of Statistics
5. Gupta C.B; introduction of statistical Methods

BBA-202: BUSINESS COMMUNICATION

Unit – I: Meaning and objective of Business communication, Forms of Communication, Communication model and process, Principles of Effective Communication

Unit – II: Corporate Communication: Formal and Informal Communication, Network Grapevine, Barriers in Communication ,Groups discussion, Mock Interviews, Seminars, Individual and Group Presentations.

Unit – III : Essential of effective Business letters, Writing Important Business letters including correspondence with Bank and Insurance companies.

Unit – IV: Ora l& Non-verbal communication: Principles of Oral Presentation Factorsaffecting Presentation, effective Presentation skills, conducting Surveys. Body Language, Para Language ,Effective Listening, Interviewing skill, Writing resume and Letter or application.

Unit – V: Modernformsof communication, International communication, Cultural sensitiveness and cultural context, Writing and presenting in international Situations. Importance of business language, vocabulary words often confused, words often miss spelt, common errors in English.

Suggested Readings:

1. Bapat&Davar; A Text book of Business Correspondence
2. Bhende D.S.; Business Communication
3. David Berio; The Process of Communication
4. Gowd& Dixit ; Advance Commercial Correspondence
5. Gurky J.M. ; A reader in human communication

BBA-203: HUMAN RESOURCE MANAGEMENT

Unit – I: Introduction to HRM & HRD Concept of HRM, Objectives, Process, HRM vs. Personnel Management, HRM Vs. HRD, Objectives of HRD, focus of HRD System, Structure of HRD System, role of HRD manpower.

Unit – II: Human Resource Policies & Strategies Introduction, role of HR in strategic management, HR policies & Procedures, HR Program, developing HR policies and strategies, International HRM, Domestic HRM compared to International HRM.

Unit – III: Human Resource Procurement & Mobility Productivity & improvement job analysis & Job design, work measurement, ergonomics. Human Resource planning-objectives, activities, manpower requirement process, Recruitment & Selection, Career planning & development, training methods, basic concept of performance appraisal, Promotion & Transfer.

Unit – IV: Employee Compensation Wage policy, Wage determination, Wage boar, factors affecting wages & Salary, systems of payments, Job evaluation, components of wage/salary-DA, incentives, bonus, fringe benefits etc.

Unit – V: Employee relations Discipline & Grievance handling types of trade unions, problems of trade unions, the e-HRM, Nature, e-activities, recruitment, selection, performance management, compensation.

Suggested Readings:

1. Human Resource Management;Dipak Kumar Bhattacharya
2. Managing Human Resource;ArunMonappa
3. Essential of HRM and Industrial Relations;P.SubbaRao
4. PersonnelManagement; C.B. Memoria
5. Human Resource Management; k. Ashwathappa

BBA-204: MARKETING MANAGEMENT

Unit – I: Marketing: Definition, nature, scope & importance, Marketing Management, Core concepts of marketing, selling concept, production concept, modern marketing concept, Social marketing, Understanding of Consumer Behavior, Purchase decision Process.
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Unit – II: Segmentation: Concept, basis of segmentation, Importance in marketing; Targeting: Concept Types, Importance; Positioning: Concept, Importance, Brand positioning, Repositioning.

Unit – III: Marketing Mix: Product: Product Mix, New Product development levels of Product, Product life cycle, Branding and packaging, Distribution: Concept, Importance, different types of distribution channels etc.

Unit – IV: Price: Meaning, objective, factors influencing pricing, methods of pricing. Promotion: Promotional mix, tools, objectives, media selection & management

Unit – V: Marketing Research: Importance, Process and Elementary knowledge of Information system, green marketing, digital marketing, Service marketing

Suggested Readings:

1. Marketing Mgt. ; Philip Kotlar (PHI)
2. Marketing by ; Etzet, Walker, Stanton
3. Marketing Management ; RajanSaxena
4. International Marketing ; Cateora Graham
5. Marketing Management; RamaswamyV.S. &NamaKumar . S

BBA-205: BUSINESS ENVIRONMENT

Unit – I: Concept, Significance, Components of Business environment, Factor affectingBusiness Environment, Social Responsibilities of Business.

Unit – II: Economic Systems: Capitalism, Socialism, Communism, Mixed Economy-Public Sector & Private Sector

Unit – III: Industrial Policy – Its historical perspective (In brief); Socio-economic implications of Liberalisation, Privatisation, Globalisation.

Unit – IV: Role of Government in Regulation and Development of Business; Monetary and Fiscal Policy; EXIM Policy, FEMA, Start-ups, Skill development, Thrust on make in India.

Unit – V: Overview of International Business Environment, Trends in World Trade: WTO-Objectives and role in international trade, Increasing trends of e-commerce with respect to e-platform like flipcart, Amazon, Myntra.

Suggested Readings:

1. Francis Cherunilum ; Business Environment
2. K.Aswathapa ; Business Environment
3. PAUL ; Business environment
4. V. Neelamegum ; Business Environment

BBA-206: FUNDAMENTALS OF COMPUTER

Unit – I: Computer Basic: Introduction, History of Computer, Types of Computer, Generations of Computer, and Basic Components of PC.

Unit – II: Hardware and Software: Introduction, Types of Software, Input Devices and Output Devices, Relationship between Hardware and Software, RAM and ROM.

Unit – III: Network, Security and Networking: LAN, WAN, MAN, SAN, CAN, Topology (Ring, Star, Bus, Mesh), Digital Piracy Management, Cyber Security / Cyber Laws, Internet Information, Internet Service, Difference Between Internet, Extranet and Ethernet.

Unit – IV: Windows (latest Version): Introduction, Features, Installation, Activation, Security Features , MS Word with all the applications and uses.

Unit – V: Excel(latest Version): Introduction, Filter, Commands for Excel . Power Point: Introduction, Creating a Presentation, Using Templates, Inserting Charts, Inserting Tables.

Suggested Readings:

1.Computer Fundamental:- V. K. Singh
2.Fundamentals of Computers:- G. B. Jain
3.Operating System:-Godbol
4.Window-98:- Manual

BBA-207: ASSESSMENT ON SOFT SKILL BASED ON PRESENTATION/G.D./P.D

Broad frame work is being given here however Instructor/Trainer/Faculty /Expertwill have freedom to design his /her program e in such manner so that effectivelearning will take place.

The phrase 'soft skills' incorporates a wide variety of personality traits, communication and people skills, social attitudes and emotional intelligence. These qualities (also known as 'core skills') are increasingly important for success in the workplace – and not just for those in leadership positions. Everyone can benefit from some focused training and development to help them realise their full potential.

Group discussion: Group Discussion improves verbal communication nonverbal behavior, Decision making ability and cooperation.

Management Games: It improves Team Work, Internships, Volunteering, Leadership Skills

Grooming Sessions: It improves Communication, Interaction, helps in admitting your flaws and Weakness, helps in discovering things and new ideas. It makes you more adaptable and accommodative.

Presentation skills: It helps in making clear objectives, Well-rehearsed, Information clearly featured and it includes call to action

Communication Skills

1. Verbal Communication
2. Body Language
3. Physical Communication
4. Writing
5. Visual Communication
6. Listening
7. Presentation Skills
8. Public Speaking
9. Interviewing

Leadership

1. Team Building
2. Mentoring
3. Delegation
4. Dispute Resolution
5. Giving Feedback
6. Decision Making

7. Supervising
8. Managing

Interpersonal Skills

1. Networking
2. Interpersonal Relationships
3. Dealing with Difficult People
4. Conflict Resolution

Personal Skills

1. Stress Management
2. Tolerance of Change and Uncertainty
3. Taking Criticism
4. Self Confidence
5. Adaptability
6. Resilience
7. Self Leadership
8. Self Assessment
9. Enthusiasm
10. Empathy

Professional Skills

1. Time Management Technology
2. Meeting Management
3. Technology Savvy
4. Trend Awareness
5. Business Trend Awareness
6. Business Etiquette

Creativity

1. Problem Solving
2. Critical Thinking
3. Innovation
4. Troubleshooting
5. Design Sense

COURSE CONTENT FOR SEMESTER – III

BBA-301: ADVERTISING MANAGEMENT

Unit – I: Advertising: Introduction, Scope, importance in business: Role of advertising, function of advertising, key players in advertising, types of advertising.

Unit – II: Public Relation and Publicity: Meaning of Public Relation, Difference between public relations and advertising, Role of Public Relations, Process of Public Relation, Advantages and disadvantages of Public Relations, Publicity, Advantages and disadvantages of publicity.

Unit-III: Sales Management and Sales Promotional: Defining Sales Management, Objectives of Sales Management, Sales Management Strategies, Functions of Sales Executive, Scope and Role of sales promotion.

Unit – IV: Print Media and Broadcasting: Characteristics of the press, Basic media concepts, newspapers, magazines, Factors to be considered for print media advertising,, Meaning of Broadcasting, Radio as a medium, television as a medium, internet advertising.

Unit –V: Media Planning and Strategies: Growth and Importance of Media, Meaning and role of media planning, Media Plan, Market Analysis, Media Objectives, Developing and implementing Media Strategies.

Suggested Readings:

1. Advertising and Promotion:George E. Beich& Michael A. Belch. T.M.H.
2. Advertising Management:Concept and Cases Manendra Mohan, TMH
3. Advertising Management: Rajeev Batra, PHI
4. Advertising Management: Thakur publications Rajeev S, N. S. Rana

BBA-302: TEAM BUILDING &LEADERSHIP

UNIT – I: Team Building Process: Overview of team; Difference between Groups and Teams. Types of Teams- Problem-solving Teams, Self-Managed Teams, Cross-functional teams, Virtual Teams.

UNIT – II: Evaluating team performance, Goal Setting of Team, Defining roles and Responsibility of team members; External and Internal factors affecting team building.

UNIT – III: Leadership – Meaning, Concepts and Myths about Leadership, Components of Leadership, Leadership Skills – Basic Leadership Skills, Building Technical Competency, Advanced Leadership Skills, Building High Performance Teams.

UNIT – IV: Personality: Meaning & Concept of Personality; Types of personality; Personality Determinants; Evaluation of Personality.

UNIT -V: Meaning of Group; Formation of group; Roles, Structure, and Size of Group; Types of Group; Characteristics of an Effective Group.

Suggested Readings:

1. Yukl G - Leadership in Organisations (Prentice hall, 7thEd.)
2. Lall& Sharma – Personal Growth Trainning& Development (ExcelBooks)
3. Janakiraman- Trainning& Development(Biztantra)
4. Hurlock., Elizabeth B - Personality Development (Tata McGraw Hill,1st Ed.)
5. Udai Pareek - Understanding Organizational Behaviour (Oxford, 2ndEd.)
6. SahuR..K. - Training for Development (Excel Books, 1stEd.)
7. Rao, V.S.P. Human Resource Management, New Delhi. ExcelBooks.
8. Bhattacharya, D. K. Organizational Change & Development. NewDelhi: Oxford UniversityPress.

BBA-303: INDIAN ECONOMY

Unit – I: Meaning of Economy, Economic growth & development, characteristics of Indian Economy, Factors affecting economic development.

Unit – II: An overview of Economic Resources of India, Human Resources of India, Concept of Population Explosion Interrelation of Population and Economic Development, Population policy of India, Problem of Unemployment in India.

Unit – III: Agriculture: Land Reforms and land tenure system, Green Revolution and capital formation in agriculture industry, trends in composition and growth, role of public and private sector, small scale and cottage industries.

Unit – IV: Problems and prospects of Indian Agriculture, Plan period Position, Problems and Prospects of Large Scale Industries. (Iron, Steel, Sugar, Cotton, Textile).Role of small scale industry in Indian economy.

Unit – V: Indian Banking System : Structure and organization of banks; Reserve bank of India; Apex banking institutions; Commercial banks; Regional rural banks; Co-Operative banks; Development banks .NITI Aayog: formation ,Function and contribution of NITI Aayog.

Suggested Readings:

1. Kenes J.M. General Theory of Employment, Interest and Money
2. Brooman Macro Economics
3. Seth, M..L. Monetary Theory
4. Vaish, M.C. Monetary Theory
5. Singh, S.P. Macro Economics

BBA-304: CUSTOMER RELATIONSHIP MANAGEMENT

UNIT – I Introduction to CRM: Definition and concepts of CRM, Components of CRM, Understanding the goal of CRM and Customer Touch Points.

UNIT – II CRM Process: Introduction and Objectives of a CRM Process; an Insight into CRM and e-CRTA/online CRM, The CRM cycle i.e. Assessment Phase; Planning Phase; The Executive Phase; Modules in CRM, 4C's (Elements) of CRM Process, CRM Process for Marketing Organization, CRM Affiliation in Retailing Sector.

UNIT – III Developing CRM Strategy: Role of CRM in business strategy, Understanding Service Quality: Technical, Functional, and dimensions of service quality, Managing Customer communications.

UNIT – IV CRM Implementation: Choosing the right CRM Solution; Framework for Implementing CRM: a Step-by-Step Process: Five Phases of CRM Projects: Development Customizations; Beta Test and Data Import; Train and Retain; Roll out and System Hand-off Support.

UNIT – V Sales Force Automation - Sales Process, Activity, Contact, Lead and Knowledge Management: Field Force Automation.CRM Links in E-Business: E-Commerce and Customer Relationships on the Internet, Supplier : Role and Importance.

Suggested Readings:

1. Alok Kumar Rai: Customer Relationship Management: Concepts and Cases (Second Edition)-PHILearning

2. Bhasin: Customer Relationship Management (Wiley Dreamtech)
3. Dyche: Customer relationship management handbook prentice hall
4. Peelan: Customer relationship management prentice hall
5. Kristin Anderson, Carol Kerr: Customer relationship management, McGraw-Hill Professional
6. Chaturvedi: Customer Relationship Management(Excel Books)
7. Sheth J N, Parvatiyar A. and Shainesh G: Customer relationship management: Emerging

BBA-305: MANAGEMENT INFORMATION SYSTEM

Unit – I: Management Information System(MIS): Concept & definition, Role of MIS, Process of Management, MIS-A tool for management process, Impact of MIS, MIS & computers, MIS & the user, IMS- a support to the Management.

Unit – II: Planning & Decision making: The concept of corporate planning, Strategic planning Type of strategic, Tools of Planning, MIS-Business Planning; Decision making concepts, Methods, tools and procedures, Organizational Decision making, MIS & Decision making concepts.

Unit – III: Information &System: Information concepts, Information: A quality product classification of the information, Methods of data & information collection, Value of information, MIS &System concept, MIS & System analysis ,Computer System Design.

Unit – IV: Development of MIS: Development of long rage plans of the MIS. Ascertaining the class of information, determining the Information requirement, Development and implementation of the MIS, Management of quality in the MIS, organization for development of the MIS, MIS: the factors of success and failure.

Unit – V: Decision Support System (DSS): Concept and Philosophy, DSS: Deterministic Systems, Artificial intelligence(AI) System, Knowledge based expert system(KBES), MIS & the role of DSS, Transaction Processing System(TPS), Enterprise Management System(EMS), Enterprise Resource Planning (ERP) System, Benefits of ERP, EMS & ERP

Suggested Readings:

1. Management Information System, Jawadekar W S
2. Managing with information, Kanter, Jerome
3. Management Information System, Louden & Louden
4. Information system for Modern Management, Murdick& Ross, R.claggetti

BBA-306: INCOME TAX LAW & PRACITCE

Unit – I: Basic Concept: Income, Agriculture Income, Casual Income, and Assessment Year. Previous Year. Gross Total Income, Total Income, Person, Tax Evasion, Avoidance and Tax Planning

Unit – II: Charge: Scope of Total Income, Basis of Residence and Tax Liability, Income which does not form part of Total Income.

Unit – III: Heads of Income: Income from Salaries, Income from House Properties.

Unit – IV: Heads of Income: Profit and Gains of Business or Profession, Including Provisions relating to specific business, Capital Gains, Income from other sources.

Unit – V: Aggregation of Income, Set off and Carry forward of losses, deduction from gross total Income.

Suggested Readings:

1. Mehrotra, H.C.:-Income Tax Law and Account
2. Chandra Mahesh and Shukla D.C.:- Income Tax Law and Practice
3. Agarwal, B.K.:- Income Tax
4. Jain, R.K.:-Income Tax
5. Prasad, Bhagwati:-Income Tax Law and Practice

COURSE CONTENT FOR SEMESTER – IV

BBA-401: CONSUMER BEHAVIOUR

Unit – I: Consumer Behaviour: Nature, characteristics, Scope, Relevance & Application; Importance of consumer behaviour in marketing decisions; Consumer Vs Industrial Buying Behaviour

Unit – II: Determinants of Consumer Behaviour: Role of Motivation; Personality and Self Concept; Attention and Perception; Consumer Learning; Consumer Attitudes- Formation and Change; Consumer Values and Lifestyles

External Determinants of Consumer Behaviour: Influence of Culture and Sub Culture; Social Class; Reference Groups and Family Influences; Basic models of consumer behaviour

Unit – II: Consumer Decision Making Process: Problem Recognition- methods of problem solving; Pre-Purchase search influences- information search; alternative evaluation and selection; outlet selection and purchase decision; Post Purchase Behaviour; Situational Influences; Cognitive Dissonance.
Diffusion of Innovation: Definition of innovation, product characteristics influencing diffusion, resistance to innovation, adoption process

Unit – IV: Consumer Involvement: Role of Consumer Involvement; Customer Satisfaction; Consumer behaviour- interdisciplinary approach

Unit – V: Researching Consumer Behaviour: Online Customer Behaviour; Diversity of Consumer Behaviour; Role of Consumer Behaviour in Marketing Strategy

Suggested Readings:

1. Consumer Behaviour by Leon G. Schiffman& Leslie L. Kanuk, Prentice Hall Publication 2.
2.Consumer Behaviour – Buying, Having, and Being by M R Solomon, Pearson Prentice Hall
3. Consumer Behaviour – Building Marketing Strategy by D. I. Hawkins and J. B. Roger, Tata McGraw Hill
4. Consumer Behaviour by R.D.Blackwell, P.W. Miniard,&J.F. Engel, Cengage Learning

5.Consumer Behaviour in Indian Perspective Suja. R. Nair

6.Consumer BehaviourSchifman&Kanuk

7.Consumer Behaviour Louden &Bitta

8.Consumer BehaviourBennet&Kasarjian

BBA-402: FINANCIAL MANAGEMENT

Unit – I: Introductory: Concept of Financial management, Finance functions, objectives of financial management- Profitability vs. shareholder wealth maximization. Time value of Money-Compounding & Discounting.

Unit – II: Capital Structure Planning: capitalization Concept, basis of capitalization, consequences and remedies of over and under capitalization. Determinants of Capital structure, Capital structure theories, Financial& Operating leverage.

Unit – III: Management of Fixed Capital: Cost of Capital, Nature & Scope of Capital budgeting-payback NPV, IRR and ARR methods and their practical applications. Analysis of risk & uncertainty.

Unit – IV: Management of Working Capital: Concepts of working Capital, Approaches to the financing of current Assets determining capital (with numerical problems) Management of different components of working capital.

Unit – V: Management of Earning: Concept & relevance of Dividend decision. Dividend Models-Walter, Gordon's, MM Hypothesis. Dividend policy-determinants of dividend policy.

Suggested Readings:

1. Financial Management;S.N. Maheshwari
2. Financial Management; Khan & Jain
3. Financial Management; M.Pandey
4. Financial Management; Dr.A.K. Garg

BBA-403: PRODUCTION & OPERATON MANAGEMENT

Unit – I: Nature & Scope of Production Management, Functions of Production Management, Production Systems, responsibilities of Production manager. Production Planning & Control (PPC), Objectives of PPC.

Unit – II: Types of manufacturing Systems: Intermitted & Continuous Systems etc, Product design & development.

Unit – III: Plant Location & Plant layout. Introduction to method study and work study.

Unit – IV: Materials Management & Inventory Control: Purchasing Economic lot quality/Economic order quantity (EOQ), Lead time, Reorder level. Brief of ABC analysis, Stock Keeping. Quality

Unit – V: Control: Quality, Quality assurance, Quality Circles, TQM, JIT, Statistical Quality Control

Suggested Readings:

1.Production Operation management B.S.Goel

2.Production&. Operation Management Buffa

3.Production & Operation Management S.N Chany

BBA-404: SALES & DISTRIBUTION MANAGEMENT

Unit – I: Sales Management :- Evolution of sales function- Objectives of sales management positions - Functions of Sales executives- Relation with other executives

Unit – II: Sales Organization and relationship: Purpose of sales organization - Types of sales organization structures - Sales department external relations Distributive Network relations.

Unit – III: Salesmanship: Theories of personal selling, Types of Sales executives, Qualities of sales executives, prospecting, pre-approach and post-approach- Organizing display, showroom & exhibition

Unit – IV: Distribution network Management, Types of Marketing Channels, Factors affecting the choice of channel, Types of middleman and their characteristics, Concept of physical distribution system Sales

Unit – V: Force Management, Recruitment and Selection, Sales Training, Sales Compensation

Suggested Readings:

1. Sales Management -Cundiff, Still, Govoni
2. Salesmanship &Publicity -Pradhan, Jakate, Mali
3. Sales Management -S.A. Chunawalla

BBA-405: RESEARCH METHODOLOGY

Unit – I: Introduction – Meaning of Research; Objectives of Research; Types ofResearch; Research Process; Research Problem formulation, various problems encountered by researchers

Unit – II: Methods of Data Collection, Research Design; Features of a Good design; Different Research Designs ; Measurement in Research; Construction of Questionnaire.

Unit – III: Sampling Design- Census & Sample Surveys; Steps in Sampling Design; Typesof Sample designs-Probability & Non Probability sampling.

Unit – IV: Processing & Analysis of Data- Processing operations; problems in processing; types of analysis Hypothesis Testing-Chi-square test, Z test, t-test, f-test. Elementary Knowledge of SPSS.

Unit – V: Presentation-; Graphs; charts. Report writing; Layout of Research report; Types of Reports; Mechanism of writing a Research report; Precaution For writing report, Oral report, Formulation of business problems in research, Writing a research paper

Suggested Readings:

1. Research Methodology;C.R. Kothari
2. Research Methods; Patrick McNeill
3. Research Process; Gary Bouma

BBA-406: ENTREPRENEURSHIP & SMALL BUSINESS MANAGEMENT

Unit – I: Introduction : concept of entrepreneurship, theories of entrepreneurship traits of entrepreneur , Different types of entrepreneurs, problems faced by entrepreneurs.

Unit – II: Entrepreneurial Development, Role and functions of measure support institutions such as SIB,CSIO,SSDO,SISIs etc., EDPs and Role of Women Entrepreneurs

Unit – III: Concept, definition, and framework of Small Business, Social benefits and incentives for small industry in India; application for registration and organizational structure of a small business.

Unit –IV: Transformation of Idea into Reality :Project classification ,identification and selection, Project formulation and Project Appraisal plant Lay out

Unit – V: Organizational locations, steps in starting a small industry, incentives and subsidies available, export possibilities. Teething problem in setting small units: location, technology, marketing, recoveries, labour and planning

Suggested Readings:

1. Entrepreneurship Development; Vasant Desai
2. Entrepreneurship Development; Shobha Singh Khanka
3. Entrepreneurship - Strategies and Resources ; Mark Dollinger
4. Entrepreneurship – Small Business Approach by Charles E. Bamford

BBA-407: COMPUTER ORIENTED PRACTICAL & VIVA VOCE

Broad frame work is being given here however Instructor/Trainer/Faculty /Expert will havefreedom to design his /her program e in such manner so that effective learning will take place.

Course Objectives:

This course offers a good practical understanding of basics of Information Technology. The students will proficiency in the use of personal computers, specifically in the use of spreadsheets and database packages will enhance. The curriculum is so designed as to provide required expertise in the use of personal computer as an effective management tool.

Unit I : Network: Services and its classification : Knowledge management using internet search engines, techniques to use search engine effectively: *practical* use of *MS Office, MS Word, MS Excel, MS PowerPoint, MS Paint etc.* web page designing using any software: application of computers in project management: features, capabilities and limitation of project management software (with reference to popular software viz.ms-project), Official use of Blogs, Facebook, LinkedIn, Twitter, Poster making using canwa

Unit II: Digitization: Digital signature, e-Governance, Application of Digital Financial Services, Basics of E- mail, Electronic payment system, Digital signature, Mobile app based operations, Modern functions of smart phones, Android phone applications etc.

Unit III: Mobile computing & its application: Introduction, issues in mobile computing, overview of wireless telephony: cellular concept, GSM: air-interface, channel structure, location management, CDMA, GPRS.

Unit IV: Online Transaction and Trading: Understand the E-Commerce and E-Commerce Transition in India Recognize the benefits and limitations of E-Commerce Analyze different E-Commerce business models Understand E-Marketing and E-CRM

Unit V: Network security & its application: Application security (Database, E-mail and Internet), Data Security Considerations Backups, Archival Storage and Disposal of Data, Security Technology- Firewall and VPNs, Intrusion Detection, Access Control*. Security Threats-Viruses, E-mail viruses, Macro viruses,* Network and Security Threats to E-Commerce Electronic Payment System, e- Cash, Credit/Debit Cards. Digital Signature, public Key Cryptography.

Recommended Books:

1. P.K. Sinha : Fundamental of Computers, BPB Publishers.
2. Leon & A. Leon: Internet for Everyone, Leon Tech World.
3. Curtin, Foley, Sen & Martin: Information Technology, Tata McGraw Hill.
4. Ron Masfield : MS-Office, TechPublication.
5. V.K. Jain: Information Technology ,Atlantis.
6. D. Anfinson& K. Quamme: Information Technology Essentials, Pearson Education

COURSE CONTENT FOR SEMESTER – V

BBA-501:ARITHMATIC APTITUDE

Unit – I: Ratio & Proportion, Logarithm, Simple Interest, Compound Interest, Profit & Loss, true Discount, Partnership, Permutation & Combination.

Unit – II: Problem on Age, Problem on Numbers, Calendar, Clock, Time & Work, Time & Distance Area. Sets, Function & Relation

Unit – III:H.C.F., L.C.M., Decimal Fraction, Problem on Trains, Boat & Stream Syllogism Direction Tests, Seating Arrangements.

Unit – IV: Data Interpretation :Description of Data, Tabulation, Bar Diagrams, Pie Chart, Line Graph, Sequence& series, Number Series.

Unit – V: Probability, Definitions of Probability, Mutually Exclusive Events, Equally Likely Events, Favourable & Unfavourable Events, Joint Events.

Suggested Readings:

1. R.S. Aggarwal - Quantitative Aptitude for Competitive Examinations.
2. Arun Sharma - Quantitative Aptitude for CAT.
3. Arihant Publications - Fast Track Objective Arithmetic.
4. R.D. Sharma - Mathematics Class 11th and 12th.
5. Sarvesh K. Verma- Quantitative Aptitude Quantum CAT Common Admission Tests.

BBA-502: APTITUDE REASONING

Unit – I : Emotional & Social Intelligence, Critical Thinking, Non-Verbal Reasoning, Verbal reasoning, Series, Data Structures

Unit – II: Blood Relations, Venn Diagram, Word Formation, Matrix, Puzzle, Coding-Decoding, logical sequences, Proposition, Direction Sense, Sets &subsets.

Unit – III : Analogy, Classification, Calendars, Cubes and Clocks, Syllogisms, Logical sequences statement conclusion, Syllogistic reasoning, Data Arrangement ,Family Tree ,Binary Logic, Seating Arrangement

Unit – IV: Similarities and Differences, Space visualization, Spatial orientation, Problem solving, Analysis, Judgment, Decision making

Unit – V: Visual memory, Discrimination, Observation, Arithmetical reasoning and figural classification, Arithmetic number series,Tables & Pie Charts, Data Sufficiency, Bars & Line Graphs

Suggested Readings:

1. R.S. Aggarwal -A Modern Approach to Logical Reasoning

2. Arun Sharma -How to Prepare for Logical Reasoning for the CAT

3. Peeyush Bharadwaj -Analytical and Logical Reasoning for CAT & Other Management Exams

BBA-503 GENERAL BUSINESS AWARENESS

UNIT I: International Organizations (IMF, World Bank, IMO etc): Major world organizations including economic organizations like WTO, IMF, and WB are important. Various political global groupings like UN and regional groups like ASEAN, SAARC, etc. are also important**.** One can expect regarding headquarters, chairpersons, functions of the organization or any other major reform/ event that took place (pertaining to the organization).
Business Awareness : Company, chair persons, board members, CEO, MDs, company v/s Industry, profession, logos of companies, branding, company and its product, companies and their origin, basic structure of a company, entrepreneurs, trademarks, globalisation, liberalisation
Current Affair and General Knowledge: Population Census ,Important Books and their writers, First sports achievement for India and the world like first Olympic, first Asian Game, etc., State Animals and Symbols, Awards and their importance, Name of the Scientist who got Noble prize for important discoveries, Important Days

UNIT II: Geography: General questions from geographical features from India and across the world. Questions on theoretical aspects of Geography.
History: Vedic culture, Name of the Kings who built, important ancient Temples and Institutions and historic monuments, contribution of Indian continent to world in ancient time.

UNIT III: Everyday Science: Application of science rather than theoretical aspects of Physics and Chemistry. Further, expect questions on technologies involved in communication, IT, space etc. Questions are generally of the School level.

UNIT IV: Economy: Questions from theoretical as well as practical aspects of Indian and World Economy, with a special focus on India's macroeconomic indicators, like inflationary trends, GDP etc.

UNIT V: Constitution & Polity: Working of the Indian Political System e.g. political parties, pressure groups etc. Also, as far as the constitution is concerned, further, features of major social schemes launched by the central government recently, Institution of President, the governor, PM, then CM, Parliament and then State Legislature, Supreme Court and then High court, speaker of the house.
Current Business Development: Latest events and developments in the business world especially Indian subcontinent as mergers, takeovers, and new product launch etc.

Suggested Readings:

1. Latest Business news papers and magazines
2. Economic Times
3. Business world magazines
4. Financial Express
5. Business Today

BBA-504: GENERAL ENGLISH

Unit – I: Active and Passive Voice, Cloze Tests, Commonly Misspelled Words, Comprehension, Direct & Indirect Speech.

Unit – II: Editing, Error Spotting, Fill in the Blanks, Grammar, Idioms and Phrases, Jumble Words, Jumbled up sentences.

Unit – III: Multiple Meaning /Error Spotting, Miscellaneous, One word Substitution, Paragraph Completion, Passage Making.

Unit – IV: Phrase Substitution, Reading Comprehension, Sentence Correction, Sentence Framing, Sentence Improvement.

Unit – V: Spelling Test, Spotting Errors, Synonyms & Antonyms, Verbal Ability, Vocabulary.

Suggested Readings:

1. S.P. Bakshi : Objective General English
2. R.S. Agarwal : Objective General English
3. S.C. Gupta : General English for Competitive Exams

BBA-M-1: RURAL MARKETING

Unit: I Definition of Rural Marketing, Indian Rural Market, Environment: Population and its locations, occupation pattern, expenditure pattern, infrastructure facilities.

Unit II: The Rural Consumer: Characteristics, factors influencing his purchase decision, Rural demand: Nature, types of requirements, hierarchy of markets and rural market index, Problems in rural marketing.

Unit III: Marketing of Agriculture Inputs: Consumable inputs and durable inputs: Marketing of Consumables and Durables: Composition of Products, Price, distribution, promotion, product redesign or modification needs.

Unit IV: Marketing of Agricultural Produce, Formation of Cooperative marketing and processing societies, marketing of rural / cottage industry / artisan products

Unit V: Rural Marketing Strategies: Rural Market Segmentation, Strategies on product, price, promotion and distribution.

Suggested Readings:

1 PradeepKashyap Rural Marketing-2 edition Pearson education
2. Jha, S.M. & Singh, L.P.: Marketing Management in Indian Perspective, Himalaya, Bombay
3.Velayudhan – Rural Marketing (Sage)
4. Mathur- Rural Marketing (Excel Books)
5. Philip Kotler: Marketing Management.

BBA-M-2: SERVICE MARKETING

UNIT-1:INTRODUCTION TO SERVICES MARKETING: Introduction: Definition, Characteristics and Classification of Services, Difference between Product and Services marketing, Paradigms in Services Marketing, Present Marketing Environment, Services Marketing Mix: Understanding the 7 P's OF SERVICE MARKETING &UPCOMING CONCEPTS, Difficulties & Challenges in Service Marketing

UNIT- 2 UNDERSTANDING CONSUMER BEHAVIOR AND SERVICE DESIGN: Strategies for Services Marketing: Segmentation, Targeting &Positioning, Differentiation. Understanding Consumer Behaviour: Services vis-à-vis goods, Consumer Behaviour in Services, Customer Expectations and Perceptions of Services .

UNIT- 3 DELIVERING, PRICING AND MANAGING SERVICE PROMISE (7 hrs): Service Development Design & Standards: New Service Development Process Service Standards, Demand and Capacity Management in Delivering Services: Role of Employees and Customers in service delivery; Quality in Service marketing

UNIT- 4SERVICE PROCESS: Service process – Blue printing – Physical evidence. Pricing of Services: Pricing Considerations and Strategies, Revenue Management, Managing Service Promise: Role of Advertising, Personal Selling, Sales Promotion, Publicity and Public Relations in service marketing

UNIT- 5 SERVICE PERFORMANCE: Evaluating Success of Service Offering: Service quality and measurement, Complaint handling, Recovery management, Service Guarantees. Role of CRM, The Gaps Model Of Service Quality, Latest issues in service marketing with reference to Uber, Ola, OYO, Swiggy, Zomato.

Suggested Readings:

1.Services Marketing, Zeithaml Valerie and Mary Jo Bitner, Gremler&Pandit, Tata McGraw Hill.
2. Services Marketing, Lovelock, Christopher. PrenticeHall.
3. Services Marketing, Nargundkar, Rajendra. Tata McGraw Hill.
4. The Essence of Services Marketing, Adrian Payne. PHI.
5. Services Marketing, Ravi Shankar. Excel Publishing

BBA-F-1:CORPORATE DIRECT TAX AND INDIRECT TAX

Unit-I: Income Tax Act 1961-special provisions relating to assessment of companies only.

Unit- II: Concept of tax planning, tax avoidance and tax evasions, tax planning for new business with reference to location, nature and form of business.

Unit-III: Introduction of Indirect tax, definition and nature, Basis for changing indirect tax, constitutional framework of indirect tax before GST, structure of GST, slab of GST,GST council, GST Network.

Unit-IV: Levy and collection of GST: Taxable event – supply of goods and services, place of supply, within state, interstate, import and export, time of supply, valuation for GST- Valuation rules, excess tax, refund, TDS, registration of GST.

Unit-V: Custom law: introduction levy and collection, taxable event, valuation of import and export, refund & recovery.

Suggested Readings:

1. GST- Made Easy; ArpitHaldiya
2. GST- Work Contract and Other Construction Contract; SudeeptaBhattacharjee

BBA-F-2: FINENCIAL INSTITUTIONS AND INVESTMENT MANAGEMENT

Unit I: Overview of Capital Market: Market of securities, Stock Exchange and New Issue Markets – their nature, structure, functioning and limitations; Trading of securities: equity and debentures/ bonds. Regulatory Mechanism: SEBI and its guidelines.

Unit II: Portfolio Analysis and Selection: Portfolio concept, Portfolio risk and return, Selection of Portfolio: Capital market theorem, CAPM (Capital Asset Pricing Model) and Arbitrage Pricing Theory. Portfolio Management and Mutual Fund Industry

Unit III: DFIs in India - IDBI, ICICI, IFCI, NABARD, RRBs, State Level Institutions; NBFCs – Their status, types, working and strategies for commercial viability ; Insurance organizations – Their status , types, working and strategies for commercial viability.

Unit IV: Leasing and Hire Purchase: Industry. Size and scope. Parties involved, Evaluation of Lease transaction, Types of lease and their implications, Hire purchase and lease - differences and implications for the business. Consumer Credit and Plastic Money – concept, working uses of each.

Unit V: **Mutual Funds :**Concept, Types, Significance of Mutual Funds, NAV, Evolution & Growth of Mutual Funds, Role of Registrar, Underwriter according to SEBI guidelines.

Suggested Readings:

1)Fabozzi - Foundations of Financial Markets and Institutions (Pretice hall, 3rd Ed.)
2)Parameswaran- Fundamentals of Financial Instruments (Wiley India)
3) Khan M Y - Financial Services (Tata McGraw Hill, 1998)
4) Machiraju H R - Indian Financial System (Vikas, 2004)
5) Bhole L M - Financial Institutions and Markets (Tata McGraw-Hill, 3rd edition, 2003)
6) Srivastava ,R.M& Nigam Divya - Management of Financial Institutions (Himalaya, 2003)
7) Gurusamy R - Financial Services & Markets (Thomson,
8) Ranganatham - Security Analysis and Portfolio Management (Pearson Education, 2st Ed.)
9) Chandra P - Investment Analysis and Portfolio Management (Tata McGraw Hill, 2008)

BBA-601: STRATEGIC MANAGEMENT & BUSINESS POLICY

Unit – I: Nature & importance of Business Policy, Development & Classification of Business Policy; Mechanism or Policy making.

Unit – II: Responsibilities & tasks of Top Management: objectives of Business Characteristics, Classification, Types of objectives and their overall Hierarchy, Setting of objectives, Key areas involved.

Unit – III: Corporate Planning; Concept of long term planning, Strategic Planning, Nature, Process & Importance.

Unit – IV: Corporate Strategy: Concept, Components, Importance, and Strategy Formulation: Concept, Process & Affecting Factors. Strategy Evaluation: Process, Criteria, Environmental Analysis, Resource Analysis

Unit – V: Porter's Five Forces Model**,** Concept of Synergy: Types, Evaluation of Synergy. Capability Profiles, Synergy as a Component of Strategy & its relevance

Suggested Readings:

1.AzharKazmi Business Policy
2.Peter F. Drucker Management Task & Responsibilities
3.IgorAnsoff Corporate Strategy
4.Gluek&Jaunch Corporate Strategy
5.Hatton& Hatton Strategic Management
6.Christian, Anderson, Bower Business Policy
7.McCarthy, IninChiello, Curran Business Policy & Strategy
8.AzharKazmi Business Policy

BBA-602: OPERATION RESEARCH

Unit – I: Nature, Definition & characteristics of operations research, Methodology of **O**R, Models in OR; OR & managerial Decision making, OR techniques.

Unit – II: Linear programming: Introduction, Advantages of Linear Programming, Applications areas of Linear Programming. LPP-problem formulation, Graphic Method, Simplex Method (including Big M method)

Unit – III: Transportation-North West Corner Rule, Method of matrix Minima & VAM Methods, Degenerating, MODI Method. Assignment Problems

Unit – IV: Decision making under Uncertainty-Criteria of Maximax, Maximin, Minimax Regret, Decision making under Risk-Criteria of EMV & EOL, Decision Tree approach & its applications.

Unit – V: PERT & CPM-Introduction, Network Analysis, Time Estimates in Network Analysis, Critical Path Method; Programme Evaluation & Review Technique.

Suggested Readings:

1. Operation Research; V.K. Kapoor
2. Operation Research; S.D. Sharma
3. Operation Research - An Introduction;HamdyA.Taha

BBA-603: FUNDAMENTAL OF E-COMMERCE

Unit – I: E-Commerce: Introduction, meaning and concept; Needs and advantages ofe-commerce; Traditional commerce; Types of E-Commerce, Basic requirements of E-Commerce.

Unit – II: Internet: Concept & evaluation, Characteristics of Internet: email, WWW. Ftp, telnet, Intranet & Extranet, Limitation of internet, Hardware & Software requirement of Internet, searches Engines.

Unit – III : Customer relationship with business via e-commerce Electronic Payment Systems: E-Cash, e-cheque, credit cards, debit cards, smart cards, E-Banking, Manufacturing information systems.

Unit – IV:EDI introduction, networking infrastructure of EDI, Functions & Components of EDI File types of EDI.

Unit – V: Security issues of e-commerce: Firewall, E-locking, Encryption; Cyber laws-aims salient provisions; PKI (Public key infrastructure)

Suggested Readings:

1. Frontiers of E-CommerceRaviKalkota, TMH
2. O, Brien JManagement Information System, TMH
3. Oberoi, Sundeep E-Security and You, TMH
4. Young, Margret Levine The complete reference to Internet, TMH
5. David Whiteley; E-Commerce: Strategy, Technologies and Applications, Mcgraw Hill Education.

BBA-604: ECONOMIC AND INDUSTRIAL LAW

Unit I: Factory act 1948: Definitions, Inspecting Staff, Provisions Regarding Health, Safety & Welfare, Hazardous Process, Working Hours of Adults & Holidays, Employment of Young Persons, Employment of Women, Annual Leave with Wages.
Workmen compensation act 1923:Definitions, Aims & Object, Determination of Amount of Compensation, Appointment & Powers of Commissioner, Latest provisions of Workmen's Compensation (Amendment) Act, 2009.

Unit II: Industrial dispute act 1947: Scope of Industry, Industrial Disputes machineries, Authorities under the Act, Procedure, Power and Duties of Authorities, Courts or Tribunal.
Minimum wages act 1948: Meaning of wage under the Act Procedure for fixing Minimum wage, Obligation of employer to pay minimum wage, Authorities and Remedies under the Act.

Unit III: Employee state insurance act 1948: Object and Scope, Definitions under the act, Benefits under the Act: Sickness benefit, Maternity Benefit, Disablement Benefit, Dependent's Benefit, Medical Benefit, Employee's State Insurance Corporation - Dispute and Claim Settlement under the Act, Latest provisions of Employee state insurance (amendment) Act, 2010

Unit IV:Employee provident fund act 1952: Employee's pension scheme and fund, Employee's deposit linked insurance scheme, administration of the schemes, Recovery of money from employer and contractor, Appellate tribunal, penalties and offences.

Unit V:Payment of gratuity act 1972: Scope of the Act Meaning of Employee, Employer, Continuous Service, etc., Conditions for Payment and Forfeiture of Gratuity, Authorities under the Act and their powers and functions.
IBC law and Arbitration

Suggested Readings:

1. Kapoor, N.D., "Element of industrial law", Sultan Chand & Sons, (2013)
2. Padhi, P.K., "Labour& Industrial laws", PHI Learning Pvt. Ltd (2012)
3. Misra, S. N., "Labour and Industrial Laws", Central Law Publications, (2014)
4. Monappa, "Industrial Relations and Labour Laws", Mcgraw Hill Education, (2012)
5. Srivastava, S. C., "Industrial Relations and Labour Laws", Vikas Publishing House, (2014)

BBA-M-3: RETAIL MANAGEMENT

Unit I: Introduction to Retailing: Concept of retailing, Functions of retailing, Terms & Definition, Retail formats and types, Retailing Channels, Retail Industry in India, Importance of retailing, changing trends in retailing.

Unit II: Understanding the Retail Consumer: Retail consumer behaviour, Factors influencing the Retail consumer, Customer decision making process, Types of decision making, Market research for understanding retail consumer.

Unit III: Retail Market Segmentation and Strategies: Market Segmentation and its benefits, Kinds of markets, Definition of Retail strategy, Strategy for effective market segmentation, Strategies for penetration of new markets, Growth strategies, Retail value chain.

Unit IV: Retail Location Selection: Importance of Retail locations, Types of retail locations, Factors determining the location decision, Steps involved in choosing a retail locations, Measurement of success of location.

Unit V: Merchandise Management: Meaning of Merchandising, Factors influencing Merchandising, Functions of Merchandising Manager, Merchandise planning, Merchandise buying, Analysing Merchandise performance.

Suggested Readings:

1. Retail Management 3rd Edition, Suja Nair, Himalaya Publishing House, Mumbai, 2008
2. Retail Management, 6th Edition, Michael Levy, Barton AWeitz and Ajay Pandit, Tata McGraw Hill Publishing Co. Limited, New Delhi.
3. Retail Management,Text and Cases2nd Edition, SwapnaPradhanTata McGraw Hill Publishing Co. Limited, New Delhi.
4. The Art of Retailing,2nd Reprint A.J Lamba,Tata McGraw Hill Publishing Co. Limited, New Delhi

BBA-M-4: DIGITAL MARKETING

UNIT-1: Introduction of Digital Marketing, Importance of Digital Marketing, General Over View of Web Concept and Hosting | Domain, Website Planning.

UNIT-2: What is Search Engine Optimization (SEO), What is Black HAT and White HAT SEO, Importance of Search Engine Optimization (SEO), What is SEO On Page, What is SEO Off Page, What is Local SEO, How to do SEO, Importance of Google Webmaster Tool.

UNIT -3: What is Social Media Marketing, How to Promote Brand through Social Media Marketing (SMM), Importance of Social Media Marketing, How to Optimize Social Media, How Many Platform of Social Media, How to Make Business Pages or Profile on Social Media (Facebook, Twitter, Instagram, LinkedIn, Pinterest etc.) How to Create Paid Advertising on Social Media.

UNIT-4: What is Google Adwords, Importance of Google Paid Campaign, How many type of Google Advertisement, What is Search | Display | Mobile | Shopping | Video Advertisement, How to Create Paid Campaign on Google Adwords, Bing Advertisement, Tracking Performance and Measurement with Google Analytics.

UNIT-5: Email Marketing, Lead Generation, Content Marketing, Importance of Content Writing, How to Promote Brand though Content, Online Reputation Management and Review Management, Affiliate Marketing, Internet Entrepreneurship with Google Adsense, How to get Project from USA| UK| CA and other Country, How to do Freelancing, Internet Marketing Planning and Strategy.

Suggested Readings:

1. Puneet Singh Bhatia; Fundamentals Of Digital Marketing
2. Lan Dodson; The Art Of Digital Marketing
3. Damian Ryan; Understanding Digital Marketing
4. Vandana, Ahuja; Digital Marketing, Oxford University Press India (November, 2015).
5. Eric Greenberg, and Kates, Alexander; Strategic Digital Marketing: Top Digital Experts
6. Share the Formula for Tangible Returns on Your Marketing
7. Investment; McGraw-Hill Professional (October, 2013).
8. Ryan, Damian; Understanding Digital Marketing: marketing strategies for engaging the digital generation; Kogan Page (3rdEdition, 2014).

BBA-F-3: **ACCOUNTING FOR MANAGERIAL DECISION AND ANALYSIS**

Unit–I: Introduction: Nature and Scope of Cost Accounting, Cost, concepts and Classification, Methods and Techniques, Installation of Costing System.

Unit –II: Budgetary Control, Standard costing, Fund flow & Cash flow analysis.

Unit –III: Element of Cost, Assessment of Cost-Preparation of Cost Sheet and Statement of Cost. Management Accounting - Meaning, Nature, Scope, Functions Relationship of Management Accounting,

Unit–IV: Financial Accounting and Cost Accounting.Marginal Costing and Absorption Costing, ratio analysis, responsibility accounting

Unit–V:Finencial derivative: Definition, evolution and features of derivatives, Types of derivatives, futures and options market. forward contracts and forward market in India.

Suggested Readings:

1. Maheshwari S.N.: Advanced Problem and Solutions in Cost Accounting
2. Khan& Jain: Management Accounting
3. Gupta, S.P.: Management Accounting

BBA-F-4: GOODS AND SERVICE TAX

Unit- I: Introduction, indirect tax, definition & nature, Basis for changing indirect tax, constitutional frame work of indirect tax before GST. Structure of GST, GST council, GST network, Slab of GST.

Unit-II: Levy and collection of GST: Taxable event – supply of goods and services, place of supply, within state, interstate, import and export, time of supply, valuation for GST- Valuation rules, Taxability of reimbursement of expense, exemption from GST: Small supplier and composition scheme, classification of goods and service.

Unit-III: Input tax credit and value of supply: eligible and ineligible input tax credit, apportionments of credit and blocked credit, tax credit in respect of capital goods, recovery of excess tax credit. Payment of tax: refund, TDS, TCS, job work valuation procedure.

Unit-IV: Registration, tax invoice, credit and debit notes, audit GST, GST Return assessment: self assessment, summary and security: offence and penalties, appeal.

Unit-V: Custom law: introduction levy and collection, taxable event, valuation of import and export, refund & recovery.

Suggested Readings:

1. GST- Made Easy; ArpitHaldiya
2. GST- Work Contract and Other Construction Contract; SudeeptaBhattacharjee