Mandatory Disclosures

The following information shall be given in the information Brochure besides being hosted on the Institution's official Website. The onus of the authenticity of the information lies with the Institution ONLY and not on AICTE.

1. Name of the Institution Address including Telephone, Mobile, E-Mail	**KARNATAKA STATE OPEN UNIVERSITY** Mukthagangothri Mysore 570006 Telephone: 0821-2500083 Mobile Number: 9845528357 Email: ksoumba7@gmail.com
2. Name and address of the Trust/ Society/ Company and the Trustees Address including Telephone, Mobile, E-Mail	STATE UNIVERSITY Mukthagangothri Mysore 570006 Telephone: 0821-2519943 Mobile Number: 9845528357 Email: ksoumba7@gmail.com
3. Name and Address of the Vice Chancellor/ Principal/Director Address including Telephone, Mobile, E-Mail	Prof. VIDYASHANKAR S Mukthagangothri Mysore 570006 Telephone: 0821-2416600 Mobile Number: 9844259968 Email: vcksou-19@ka.gov.in
4. Name of the affiliating University	KARNATAKA STATE OPEN UNIVERSITY
5. Governance • Members of the Board and their brief background • Members of Academic Advisory Body • Frequently of the Board Meeting and Academic Advisory Body • Organizational chart and processes • Nature and Extent of involvement of Faculty and students in academic affairs/improvements • Mechanism/ Norms and Procedure for democratic/ good Governance	 List Enclosed As per Enclosure -1 List Enclosed As per Enclosure-3 Once in two Months Enclosed As per Enclosure-3 All the faculty members introduce new programmes, develop syllabus though Board of studies, develop self-Learning Material, Engage classes in Personal Contact Programme, Value Assignment, Participate in Question Paper Setting, Board of Examiners meetings and term end valuation. Students get self-learning material, study on their own, attend contact programmes/counselling classes, listen audio classes and watch videos, Write assignment, refer library books and write term end examinations. Transparent Governance system is followed. All of Academic Council Meeting and Board of Management Meeting proceedings are published in the website. The University is subjected to RTI. Files are developed for every aspects and proper approvals are taken

• Student Feedback on Institutional Governance/ Faculty performance • Grievance Redressal mechanism for Faculty, staff and students • Establishment of Anti Ragging Committee • Establishment of Online Grievance Redressal Mechanism • Establishment of Grievance Redressal Committee in the Institution and Appointment of OMBUDSMAN by the University • Establishment of Internal Complaint Committee (ICC) • Establishment of Committee for SC/ST • Internal Quality Assurance Cell	Good- Taken Regularly Complaints are addressed through appropriate committees Not Applicable for Distance Education Established Established Complaints are addressed through appropriate committees Established Centre for Internal Quality Assurance is established as UGC (ODL & OL) Guidelines 2020
6. Programmes • Name of Programmes approved by AICTE • Name of Programmes Accredited by NBA For each Programme the following details are to be given Preferably in Tabular form):	MBA, Online MBA, MCA (Extension OL) MBA (OL) and MCA (ODL) Nil

Name	**Number of seats**	**Duration**	**Cut off marks/rank of admission during the last three years**	**Fee (as approved by the state government)**	**Placement Facilities**	**Campus placement in last three years with minimum salary ,maximum salary and average salary**
MBA	10000	2 Years	50% (45% for SC/ST/ Cat-1) Min 25 marks in CET	Rs 50,000 for whole programme	Placement Cell is established in the university	Not Applicable to distance education
MCA	10000	2 Years	-	Rs 50,000 for whole programme	Placement Cell is established in the university	Not Applicable to distance education

MBA ONLINE	10000	2 Years	-	Rs 50,000 for whole programme	Placement Cell is established in the university	Not Applicable to distance education

Name and duration of Programme(s)having Twinning and Collaboration with Foreign University(s) and being run in the same Campus along with status of their AICTE approval. If there is Foreign Collaboration, give the following details:	NIL
7. Faculty Course/Branch wise list Faculty members: • Permanent Faculty • Assistant Professor (Contract Basis) • Adjunct Faculty • Permanent Faculty: Student Ratio Number of Faculty employed and left during the last three years Course/Branch wise list Faculty members: • Permanent Faculty • Assistant Professor (Contract Basis) • Adjunct Faculty • Permanent Faculty: Student Ratio	MBA Programme 5 2 NIL Not Applicable to distance education NIL Note: Adequate faculty available as per UGC ODL and OL Regulations 2020 MCA Programme 6 1
8. Profile of Vice Chancellor/ Director/ Principal/Faculty	List Enclosed as per Enclosure 4
9. Fee • Details of Fee, as approved by State Fee Committee, for the Institution • Time schedule for payment of Fee for the entire Programme • No. of Fee waivers granted with amount and name of students • Number of scholarship offered by the Institution, duration and amount • Criteria for Fee waivers/scholarship • Estimated cost of Boarding and Lodging in Hostels • Any other fee please specify	Rs 50,000 for whole programme Annual Fee payment 2 months' time Fee exemption for SC/ST Students 15% Discount for Women BPL card holders Nil As above Not Applicable NIL

10. Admission • Number of seats sanctioned with the year of approval • Number of Students admitted under various categories each year in the last three years • Number of applications received during last two years for admission under Management Quota and number admitted • Admission Procedure' • Mention the admission test being followed, name and address of the Test Agency/State Admission Authorities and its URL (website) • Number of seats allotted to different Test Qualified candidate separately (AIEEE/ CET (State conducted test/ University tests/ CMAT/ GPAT)/ Association conducted test etc.) **Calendar for admission against Management/vacant seats:**	10000 (201-22) List Enclosed (Enclosure 5) No Management quota Online Admission Online Admission through qualifying Entrance Exam and minimum stipulated marks for MBA Degree for MCA **Common Entrance Exam Conducted by Karnataka State Open University** Not Applicable No Management Seats
11. Criteria and Weightages for Admission • Describe each criterion with its respective weightages i.e. Admission Test, marks in qualifying examination etc. • Mention the minimum Level of acceptance, if any • Mention the cut-off Levels of percentage and percentile score of the candidates in the admission test for the last three years	MBA 1. Minimum 50 % (45% in case of SC/ST/Cat-1) marks in undergraduate programme 2. Qualifying in the Entrance exam conducted by University Min 20 for 100 MCA Degree
12. List of Applicants	Not Applicable
13. Results of Admission Under Management seats/Vacant seats	Not Applicable
14. Composition of selection team for admission under Management Quota with the brief profile of members (This information be made available in the public domain after the admission process is over)	Not Applicable
15. Information of Infrastructure and Other Resources Available • Number of Class Rooms and size of each • Number of Tutorial rooms and size of each • Number of Laboratories and size of each Number of Drawing Halls with capacity of each • Central Examination Facility, Number of rooms and capacity of each • Online examination facility (Number of Nodes, Internet bandwidth, etc.) • Number of Computer Centres with capacity of each • Barrier Free Built Environment for disabled and elderly persons • Occupancy Certificate • Fire and Safety Certificate • Hostel Facilities	List Enclosed (Enclosure-6) List Enclosed (Enclosure-6) Not Applicable List Enclosed (Enclosure-6) 5 Centres with 75 systems Provisions made Available

• Library	
• Number of Library books/ Titles/ Journals available(Programme-wise)	Available Available
• List of online National/ International Journals subscribed	
• E- Library facilities	
• National Digital Library(NDL) subscription details	
• Laboratory and Workshop	Computer Lab
• List of Major Equipment/Facilities in each Laboratory/Workshop	Not Applicable Not Applicable
• List of Experimental Setup in each Laboratory/Workshop	Not Applicable
• Computing Facilities	
• Internet Bandwidth	1 GBPS
• Number and configuration of System	
• Total number of system connected by LAN	500
• Total number of system connected by WAN	500
• Major software packages available	Language /lab Ms office /Windows,
• Special purpose facilities available (Conduct of online Meetings/Webinars/Workshops, etc.)	
• Facilities for conduct of classes/courses in online mode (Theory & Practical)	State of Art Building with 2000 seating capacity and One AC Hall with 500 seating Capacity
• Innovation Cell	Video Recoding facility
• Social Media Cell	Audio Recording facility
• Compliance of the National Academic Depository (NAD), applicable to PGCM/ PGDM Institutions and University Departments	Will be established shortly Complied with NAD Yes
List of facilities available	Big ground
• Games and Sports Facilities	Programs and competitions arranged regularly
• Extra-Curricular Activities	skill Development training given to all students
• Soft Skill Development Facilities	
Teaching Learning Process	Yes
• Curricula and syllabus for each of the Programmes as approved by the University	Enclosed List No 7
• Academic Calendar of the University	Sample Enclosed No 8
• Academic Time Table with the name of the Faculty members handling the Course	
• Teaching Load of each Faculty	One Course per Semester i.e 8 Subjects per Year
• Internal Continuous Evaluation System and place	20 Marks consisting of Seminar and Assignment for 10 marks each
• Student's assessment of Faculty, System in place	Yes
• For each Post Graduate Courses give the following:	
• Title of the Course	MBA
• Curricula and Syllabi	Enclosed List No 7 Not Applicable

Laboratory facilities exclusive to the Post Graduate Course • Special Purpose • Software, all design tools in case • Academic Calendar and framework	
16. List of Research Projects/ Consultancy Works . • Number of Projects carried out, funding agency, Grant received • Publications (if any) out of research in last three years out of masters projects • Industry Linkage • MoUs with Industries (minimum(10))	2 Projects granted from ICSSR New Delhi, Total Grants Received 14 lakhs Initiated Initiated
17. LoA and subsequent EoA till the current Academic Year	Enclosed List No 9
18. Accounted audited statement for the last three years	Enclosed List No 10
19. Best Practices adopted, if any	Enclosed List No 11

Note: Suppression and/or misrepresentation of information shall invite appropriate penal action. The Website shall be dynamically updated with regard to Mandatory Disclosures Important Instructions:

- Avoid putting personal information in public domain.
- The mandatory disclosure should be available freely to view/download to the public without any restrictions.
- LoA/EoA letters (since inception) should form part of the mandatory disclosure and complete mandatory disclosure document should be converted into a single PDF file and the URL (web-link) to be entered in the AICTE portal (under attachments tab).

Enclosure-1

Board of Management Members as per KSOU ACT

BOARD OF MANAGEMENT

Sl. No.	Members	Position
1	The Vice Chancellor, KSOU	Chairman
2	Secretary in charge of Higher Education, Govt. of Karnataka	Member
3	Secretary to Finance Department, Govt. of Karnataka	Member
4	Vice-Chancellor of any of the Universities in the State of Karnataka (Nominated by the Pro-Chancellor by rotation)	Member
5	Dean (Academic), KSOU	Member
6	Five distinguished persons from the educational, scientific and administrative fields nominated by the Pro-Chancellor	Members
7	Two Members of the Karnataka Legislative Assembly (Elected from among themselves)	Members
8	Two Members of the Karnataka Legislative Council (Elected from among themselves)	Members
9	The Registrar, KSOU	Secretary

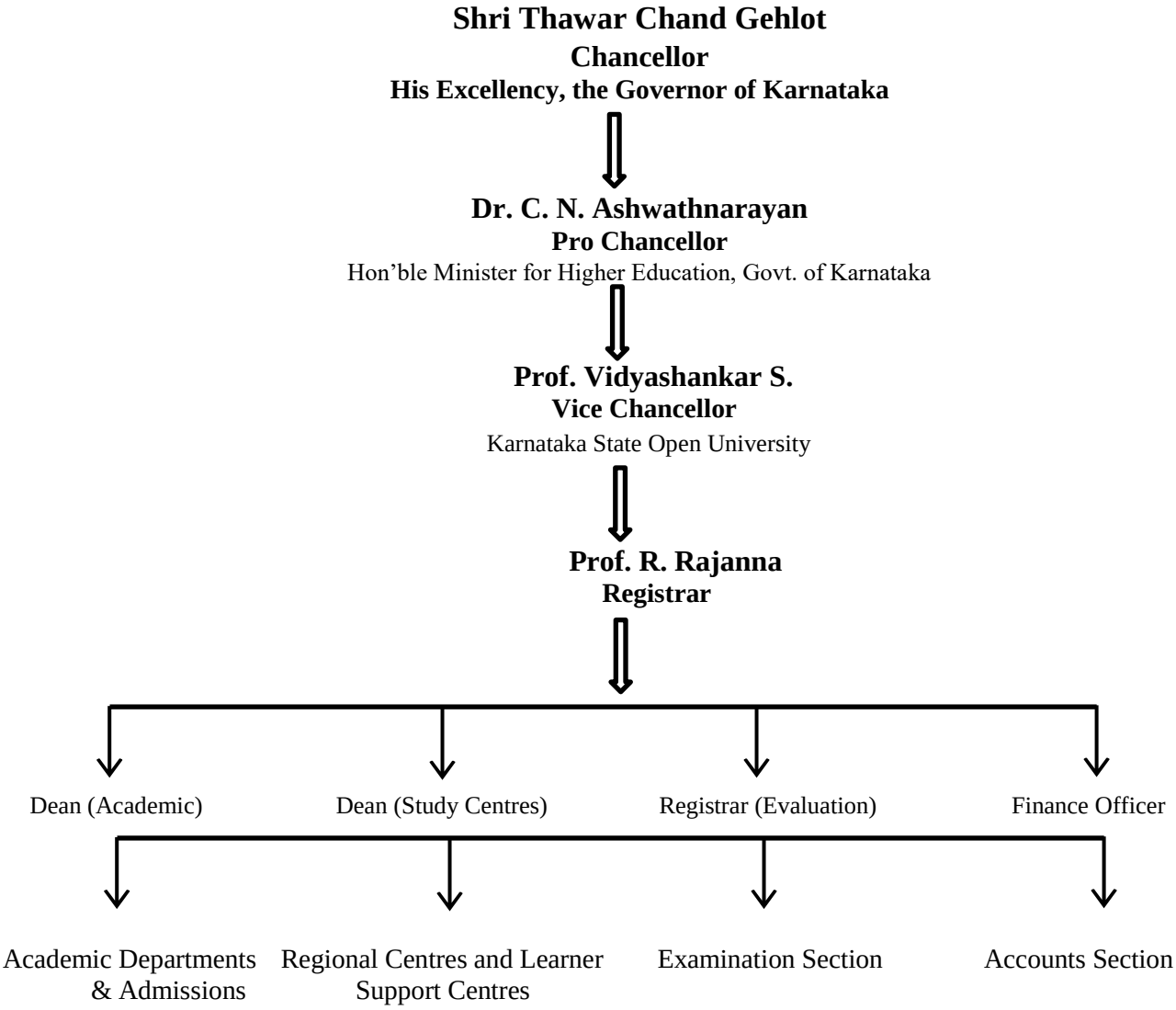
Enclosure-2

Details of Academic Council

Prof. Vidyashankar S Hon'ble Vice Chancellor and Chairman Academic Council KSOU, Mysuru	**Prof. R Rajanna** Registrar and Member Secretery Academic Council KSOU, Mysuru
Prof. Kamble Ashok Dean(academic) and Member Academic Council KSOU, Mysuru	**Dr. A Khader Pasha** Finance Officer and Member Academic Council KSOU, Mysuru
Prof. Praveena K B Registrar(Evaluation) and Member Academic Council KSOU, Mysuru	**Dr. Shanmuka** Dean(Study Centres) Member Academic Council KSOU, Mysuru.
Dr. Lakshmi N Head o the Department, Department of Studies and Research in Education Member Academic Council KSOU, Mysuru	

Enclosure-3

ORGANIZATION STRUCTURE



Enclosure-4

BRIEF BIODATA

HON'BLE VICE CHANCELLOR PROF. VIDYASHANKAR S.

TEACHING EXPERIENCE : 29 Years

RESEARCH EXPERIENCE : 16 Years

PATENTS:

- International Patents
  - ♣ No. of International Patents (Received PCT Report): 1
- Indian Patents
  - ♣ No. of Indian Patents Applied : 10
  - ♣ No. of Indian Patents Sanctioned : 2
  - ♣ No. of Indian Patents Published : 3

RESEARCH SCHOLARS UNDER GUIDANCE

- No. of Ph. D Scholars Awarded with Degree : 4
- No. of Ph. D Scholars Guiding : 3

NO. OF RESEARCH PUBLICATIONS

No. of International Journal: 9

No. of International Conference: 2

No. of National Conference: 3

POSITIONS HELD AT UNIVERSITY AND NATIONAL LEVELS

- **Former Member, Executive Council** Nominated by UGC, Visvesvaraya Technological University, Belagavi.
- **Member, Planning Board,** Nominated by UGC, K. L. E. University, Belagavi
- **Former Member, Governing Council,** Nominated by UGC, Karnataka Chitrakala Parishath, Bangalore.
- **Former Treasurer,** Indian Society for Technical Education (ISTE), New Delhi

Profile of the Head of the Department

Profile of Faculty Members

Name:	Dr. Savitha P. 
Date of Birth:	01-03-1982
Unique ID:	
Education Qualification:	B.Sc., MBA, Ph.D.,
Work Experience • Teaching • Research • Industry • Others	 11 Years 1 Year
Area of Specification	Finance
Course taught at Diploma/Post Diploma/Under Graduate/Post Graduate/Post Graduate Diploma Level	Marketing Management, Finance, Human Resource Management, Security Analysis and Portfolio Management
Research Guidance (Number of Students) • No of papers published in National / International Journals / Conferences • Master (Completed / On going) • Ph.D (Completed / On going) * Projects Carried out * Patents (Filed and Granted) * Technology Transfer * Research Publications (No. of Papers published in National / International Journals / Conferences Research Publications (No. of Papers published in National / International Journals / Conferences. * No of books published with details (Name of the book, Publisher with ISBN, year of publication, etc	 - 50 04 --- Not yet --- 09 ---

Name:	Dr Rajeshwari H 
Date of Birth:	10-05-1974
Unique ID:	---
Education Qualification:	BE., MBA., Ph.d.,
Work Experience • Teaching • Research • Industry • Others	 17 8 4 ---
Area of Specification	Operations, Marketing
Course taught at Diploma/Post Diploma/Under Graduate/Post Graduate/Post Graduate Diploma Level	Statistics and Optimization Techniques, MIS, Services Marketing, Operations & Quality Management
Research Guidance (Number of Students) • No of papers published in National / International Journals / Conferences • Master (Completed / On going) • Ph.D (Completed / On going) * Projects Carried out * Patents (Filed and Granted) * Technology Transfer * Research Publications (No. of Papers published in National / International Journals / Conferences Research Publications (No. of Papers published in National / International Journals / Conferences. * No of books published with details (Name of the book, Publisher with ISBN, year of publication, etc	 01 10 4 1 --- --- 18 1. E-Governance in India concepts and cases, Lambert publications, Germany- 978-3-659 -44201-8, 2013

Name:	Dr. Chinnaiah P.M. 
Date of Birth:	10-04-1988
Unique ID:	
Education Qualification:	MBA, Ph.D., PGDT
Work Experience • Teaching • Research • Industry • Others	10 Years
Area of Specification	Finance
Course taught at Diploma/Post Diploma/Under Graduate/Post Graduate/Post Graduate Diploma Level	Business Environment, People Management, Advanced Corporate Finance, International Financial Management
Research Guidance (Number of Students) • No of papers published in National / International Journals / Conferences • Master (Completed / On going) • Ph.D (Completed / On going) * Projects Carried out * Patents (Filed and Granted) * Technology Transfer * Research Publications (No. of Papers published in National / International Journals / Conferences Research Publications (No. of Papers published in National / International Journals / Conferences. * No of books published with details (Name of the book, Publisher with ISBN, year of publication, etc	- 40 Nil Nil Nil Nil 09 Nil

Name:	Siraj Basha R. 
Date of Birth:	20-07-1985
Unique ID:	
Education Qualification:	MBA, NET (Ph.D)
Work Experience • Teaching • Research • Industry • Others	 11 Years 1 Year
Area of Specification	Marketing
Course taught at Diploma/Post Diploma/Under Graduate/Post Graduate/Post Graduate Diploma Level	Organization Behaviour, Marketing Management, Sales and Distribution Management, Business Marketing
Research Guidance (Number of Students) • No of papers published in National / International Journals / Conferences • Master (Completed / On going) • Ph.D (Completed / On going) * Projects Carried out * Patents (Filed and Granted) * Technology Transfer * Research Publications (No. of Papers published in National / International Journals / Conferences Research Publications (No. of Papers published in National / International Journals / Conferences. * No of books published with details (Name of the book, Publisher with ISBN, year of publication, etc	 40 --- 10 Papers Conference

Name:	Prof. Mahadevamurthy C. 
Date of Birth:	20-07-1971
Unique ID:	drmdmurthy@gmail.com
Education Qualification:	M.Com., MBA, PGDHRM, PGDMM, PGDHE, Ph.D., UGC-PDF, FRSA, D.Litt
Work Experience • Teaching • Research • Industry • Others	 24 23 - -
Area of Specification	Accounting, Finance, Entrepreneurship
Course taught at Diploma/Post Diploma/Under Graduate/Post Graduate/Post Graduate Diploma Level	Accounting, Research Methods, Entrepreneurship. International Business Derivatives, Institutional Finance
Research Guidance (Number of Students) • No of papers published in National / International Journals / Conferences • Master (Completed / On going) • Ph.D (Completed / On going) * Projects Carried out * Patents (Filed and Granted) * Technology Transfer * Research Publications (No. of Papers published in National / International Journals / Conferences Research Publications (No. of Papers published in National / International Journals / Conferences. * No of books published with details (Name of the book, Publisher with ISBN, year of publication, etc	 4 50 06 1-Major Research Project 85 3

Name:	Dr. Shamanth. N 
Date of Birth:	04-04-1986
Unique ID:	
Education Qualification:	MBA, M.Com, Ph.D.
Work Experience • Teaching • Research • Industry • Others	 03 Years 06 Years 06 Years
Area of Specification	Finance
Course taught at Diploma/Post Diploma/Under Graduate/Post Graduate/Post Graduate Diploma Level	Financial Management, Business Statistics, Computer Applications in Commerce & Management and Financial Accounting
Research Guidance (Number of Students) • No of papers published in National / International Journals / Conferences • Master (Completed / On going) • Ph.D. (Completed / On going) * Projects Carried out * Patents (Filed and Granted) * Technology Transfer * Research Publications (No. of Papers published in National / International Journals / Conferences * No of books published with details (Name of the book, Publisher with ISBN, year of publication, etc	 04 --- 04

Name:	Dr. Harsha. M B 
Date of Birth:	04-04-1982
Unique ID:	
Education Qualification:	MBA, Ph.D.,
Work Experience • Teaching • Research • Industry • Others	5.6 Years 4 Year
Area of Specification	Human Resource Management
Course taught at Diploma/Post Diploma/Under Graduate/Post Graduate/Post Graduate Diploma Level	Human Resource Management, International Human Resource Management, Organizational Behaviour.
Research Guidance (Number of Students) • No of papers published in National / International Journals / Conferences • Master (Completed / On going) • Ph.D (Completed / On going) * Projects Carried out * Patents (Filed and Granted) * Technology Transfer * Research Publications (No. of Papers published in National / International Journals / Conferences Research Publications (No. of Papers published in National / International Journals / Conferences. * No of books published with details (Name of the book, Publisher with ISBN, year of publication, etc	-04 --- Not yet 04 ---

Profile of the Teaching Faculties of Computer Science Department

Name: SUNEETHA

Designation: Assistant Professor

Contact number: 9480326709

Date of Birth: 25/06/1972

Email-ID: suneetha.ksou@ka.gov.in ; suneethaycm@gmail.com

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1. Education:

- Pursuing Ph.D Computer Science and Technology under the supervision of Prof. Mohan Kumar, Professor, MCA Department, PES college of Engineering, Mandya
- MSc Computer science (1993-1995) from University of Mysore.
- SLET exam cleared in the year 1997.
- PG Diploma in Higher Education (PGDHE) cleared in 2014.

2. Professional Experience:

- From Jan 2013 to till date- serving as Assistant Professor, Department of ComputerScience, KSOU, Mysore.
- March 2007 to Jan 2013 – Served as Assistant Professor, Department of ComputerScience, Yuvaraja's college, University of Mysore, Mysore.
- July 2006 to March 2007 – Served as Assistant Professor, Govt. boy's college (autonomous), Mandya.

3. Professional Recognition

- Guided several MSc CS project works.
- Involved in Skill Development Teaching for both UG and PG.

4. Research Recognition

- Published papers in International Journals, National and International ConferenceProceedings
- Presented papers in National and International Conferences, SymposiumsandWorkshops.
- Rapporteur for Daily conference Newsletter at Sustainable Rural Development through Governmental Programmes- Vision and Action , Department of Studies and Research in Economics, KSOU, Mysore.

5. Academic/ Membership in Professional bodies

- Served as a member of Board of Examiners and Board of Studies (PG) KarnatakaState Open University and various other colleges.

6. Areas of Interest:

6.1 Academic Interest

Computer Organization, Microprocessor, Data structure and Algorithms, Data Base Management Systems, operates system, Data Warehousing and Data Mining, Pattern Recognition, Image Processing, cloud computing, computer networks.

6.2 Research Interest:

Image and Video Processing, Pattern Recognition, Computer Vision

7. Administrative posts held :

- Working as ICT coordinator and IT Director
- Worked as Faculty advisor for Yuvaraja's college Ladies hostel.
- Worked as coordinator for career oriented programme in computer networking atYuvaraja's college
- Working as chairperson of the department

Dr. Sumati Ramakrishna Gowda,

BE(CS&E).,MSc(IT).,MPhil(CS).,Ph.D.,

ADDRESS:

BOS-Chairperson

Assistant Professor, DoS in Computer Science,
KARNATAKA STATE OPEN UNIVERSITY,
MUKTHAGANGOTHRI, MYSORE, INDIA

Mobile: 9743363293/8660436969

Email: 1)sumatiksou@gmail.com, **2)** sumathirgowda.ksou@ka.gov.in

Residential Address: #121, 7th Cross, 3rd Main, Janatha Nagar,

T.K. Layout, Mysore-570 009.

Religion: Hindu **Category**

:General Merit

Passport Number:F9467436

EDUCATION:

Degree	Year	Institution/ place	University	Field / Speciality
BE(CS & E) Bachelor of Engineering in Computer Science and Engineering.	**1996**	National Institute Engineering, Mysore .	**University of Mysore, Mysore.**	**Computer Science**
M.Sc (IT) Master of Science in Information Technology	**2005**	Study Center-Reliance, Mysore .	**Karnataka State Open University,Mysore.**	**Information Technology**

MPhil(CS) Master of Philosophy in Computer Science, Madurai - 2006-2007	**2007**	Study Center-TTL College, Mysore	**Madhurai Kamaraj University, Madhurai**	**Computer Science**
Ph.D in Computer	**2016**	Salem	**Vinayaka Missions University, Salem.-**	**Computer Science**
KSET-Examination	**6th December 2015**	University of Mysore, Mysore		**Computer Science**

Teaching Experience : Fifteen years in Karnataka State Open University, Mukthagangothri,Mysore-570 006 . Since **February 2001 till date.**

EMPLOYMENT HISTORY:

1. **Assistant Professor and Chairperson:** Department of Computer Science, KarnatakaState Open University, Mukthagangotri, Mysore, Karnataka State, India:**February , 2001- till date .**

Karnataka State Open University was inspired by the concept of open learning and distance education, also providing Computer Science and IT education to a host of students at different levels.

- Supervise 80 to 100-students programme; Institute devoted to Open Distance Learning in**Master of Science in Computer Science-MSc(CS),** Post Graduate Diploma in Computer Application-**PGDCA,** Diploma in Computer Application- **DCA.**
- Teach graduate level courses.

- Teach Post Graduate level courses .

Serving the University- Since **February 2001-03/02/2001 till 09/05/13** worked as followson contract basis.

- Programmer cum Teaching Assistant for Information technology and ComputerScience Department during February 2001.
- Guest Lecturer(from **07/06/2002**till **09/05/2013**) for Information Technology andComputer Science Department for Teaching and Co-ordinating the Diploma in Information Technology-DIT Course.
- After launching MSc(CS) in the year 2010 under the department of Information Technology and Computer Science Department , the department was splint into Computer Science and Information Technology and since then worked as a Guest Lecturer and Co-ordinator for MSC(CS) till 09/05/13 under Computer Science Department .

From 10/05/2013 till date – Serving the University as an Assistant Professor for the Department of Computer Science and from February 2015 -2017 as the Chairperson , ofthe department.

2. ***University of Mysore, Mysore, India– Served as Programming Assistant during July 1999 – December 2000.***

Worked as a Programming Assistant in the Computer Section that handles the payroll,administrative and office automation activities of the University.

Programming Assistant

- Studying and understanding the office administrative processes to identify possible tasks forautomation.
- Designing and creating databases and designing of front end forms for user data entry and generated reports for department heads
- **Courses Taught**- Office Automation-(MS-Word, MS-Excel and Power Point), Page

Maker, DTP, Internet, Networking etc. During 20th July 1999 till 23rd December 2000 for **Teaching andNon Teaching** employees of **University of Mysore,Mysore.**

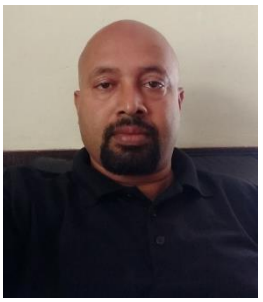
PUBLICATIONS:

1. Research paper published -**Secure Routing Schema for Manet with Probabilistic Node to Node forwarding**IJCSI International Journal of Computer Science Issues,Vol. 10, Issue 3, No 1, May 2013 **ISSN (Print): 1694-0814 |**

2. Research paper published **–"Review of Security Approaches in Routing Protocol in Mobile Adhoc Network"** IJCSI International Journal of Computer Science Issues, Vol. 10, Issue 1, No 2, January 2013. **ISSN (Print): 1694-0784**

3. Research Paper Published-**SMBP: Framework for Surveillance of Malicious Behaviour Pattern in Mobile Adhoc Network** Volume 3, Issue 11, November 2013 International Journal of Advanced Research in Computer Science and Software EngineeringAvailable online at: www.ijarcsse.com

Dr. D.M. Mahesha



MCA, PhD.

Assistant professor

Dept of Computer Science Karnataka State Open university Mukthagangothri Mysuru-570006mahesha.dm@ka.gov.in

+919901249102 /0821-2500071

EDUCATION:

PhD: [Computer Science]
PRIST University Thanjavur, Tamilnadu, India
Topic: Classification and Retrieval of Tri-Lingual Scripts

MCA: [Computer Science]

Bangalore University, Bangalore, Karnataka, India

KSET: [Computer Science]

Qualified in Karnataka state Eligibility test (2015) accredited by UGC, which is mandatory for any faculty position in Universities.

FIELD OF RESEARCH:

- Text recognition in image processing.

Professional Experience.

- May. 2013 to till date – Assistant Professor, Dept. of Studies inComputer Science, Karnataka State Open University, Mysore.
- 2011 to 2013 – Lecturer (Temporary), Dept. of Studies in ComputerScience, Karnataka State Open University, Mysore.
- 2004-2005- Lecturer (Temporary), University of Mysore.

Professional Recognition.

- Identified as a Special Officer for Examination at Karnataka stateOpen University Mysore.
- Identified as a Nodal Officer for Website and E-Governance Govt ofKarnataka at Karnataka state Open University Mysore.

Research Recognition

- Have been identified as an Editorial Board Member of IJAIA Journal(International Journal of Artificial Intelligence & Applications)

Academic / Membership in Professional bodies.

- Life member of Indian Science congress (ISCA). (Membership No:L-25208)
- Served as a Chairman and Member, Board of Examiners (PG) and Board of Examiners (UG) in Computer Science, Information Technology in Karnataka State Open University Mysore, Mysore.

Areas of interest.

- Academic interest Analysis and Design of Algorithms, Data structures, Data Base Management Systems, Software Engineering, Visual technologies, Artificial intelligence, Image Processing. Software Testing.

Research Interest.

- Object recognition, Feature extraction, retrieval, Image segmentation, Character recognition, Document image analysis,Text classification.

Workshops/ Symposiums / Conferences /Orientation and Refresher courses attended.

- One-day National Conference on "**Information Literacy and Higher Education inDigital Environment"** held on March 30th 2011 at KSOU, Mysore.
- Two days' Workshop on **"Development of Self Learning Material"**on June 2nd and 3rd 2011 at KSOU, Mysore.
- Three days International Conference on "**Open and Distance Learning in Global Environment- Issues and Challenges**" from September 21-23rd 2011 at KSOU, Mysore.
- Participated in **Three Day's Faculty Development Programme** in the subject **Computer Science** from 16th to 18th February 2012 at Karnataka State Open University, Mysore in collaboration with Vision Group on Science & Technology, *Government of Karnataka,* Bangalore- 560 001 and Infosys, Mysore. Karnataka, India.
- One-day National Level workshop on **"Modern Trends in research Methodology"** Organized by the SBRR Mahajana college Mysore.
- Two days' Workshop on "**Self Learning Material Development**" held from October 7th - 8th 2013 at Karnataka State Open University, Mysore. Karnataka, India.
- Participated 102nd Orientation Programme on 28-12-2013 to 24-01- 2014 at UGC Academic Staff College University of Mysore. India

- Science and technology for **Education and Healthcare** organized by JSS College and KSTA&JSS 21-2-14 to 22-2-14. Ooty Road Mysore. Karnataka, India.

- Three days' National level workshop on **"Mathematics behind Machine Learning**" from August 21-23rd 2014 at Sri Jayachamarajendra College of Engineering, Mysore. Karnataka, India.

- One-day National conference on **"Human Rights-A National and positive Edict"** has been organizing committee member held on 3rd Feb 2015 at Karnataka State Open University, Mysore. Karnataka, India.

- One-day Workshop on "Technology **In Higher Education**" Organized by University of Mysore, Mysore in association with Karnataka Jnana Aayoga (K a r n a t a k a Knowledge Commission), Govt. of Karnataka. Held on February 7th2015 at Senate Bhavan, Manasagangothri, University of Mysore, and Mysore. Karnataka, India.

- One-day National Conference Accelerating Gross enrollment ratio in education-issues andchallenges at KSOU 14th May 2015.

- 103rd Indian science congress held at university of university, Manasagangotri, Mysore on 3rd-7th January 2016.

- Two-day National Conference on "Emerging Trends in Computer Science and Technology" held at St. Philomena's College(Autonomous) Mysore on February 17-18,2016 organized by the Department of Computer Science

- One week TEQIP Sponsored workshop on Digital Image Processing Basics to Recent Trends on 13th-17th June 2016 at Sri Jayachamarajendra College of Engineering, Mysore. Karnataka, India.

- Three day Faculty development programme on Network simulator-2 held from 17th-19th August 2017, organized by the Department of computer science and engineering, Vidyavardaka college of Engineering, Mysuru,karnataka, India.

- Participated Refresher Course on 01-03-2018 to 21-03-2018 at UGC Academic Staff College University of Mysore. India.

- Participated in 5-Day Online Faculty Development Programme on "**Data Visualization using Tableau**" conducted by the Department ofComputer Applications during **8-12 June 2020**. DAYANANDA SAGAR COLLEGE OF ARTS, SCIENCE AND COMMERCE Bangalore.

- Participated in the online 5 days' online faculty development programme on Artificial intelligence on Data science, from **10th June 2020 to 14th June 2020,** Organized by Department of Information technology, Oriental Institute of Science and Technology, Bhopal.

- Participated in the online AICTE recognized faculty development programme on **Applications on IOT** 16-06-2020 to 20-06-2020 at Computer Science and Engineering Department NITTTR, Chandigarh.

- Participated **State Level WEBINAR on "ICT Initiatives in ODL System"** held on 11/07/2020**,** organized by ICT Cell, KARNATAKA STATE OPEN UNIVERSITY, MYSURU**.**

- participated in the Five Day Faculty Development Programme on **"ResearchTrendsand Challenges in Computer Science"** held at Vidyavardhaka College of Engineering, Mysuru from **13-07-2020** to**17-07-2020** organized by the Department of Computer Science &Engineering

- Participated One-day workshop on "**Choice based credit system**" on5-11-2020, organized by Karnataka state Open University Mysore.

- Participated in Seven days' state level faculty development program on "**Research trends in physical sciences"** Organized by NIE first grade college Mysuru from 15-01-2021 to 22-01-2021.

LIST OF PUBLICATIONS:

BOOKS:

1. II/BA/B. Com, of KSOU, Mysore. **FCA** (Fundamentals of Computer Application) one Block written and published by Registrar KSOU, Mysore. 2014.

2. DCA-Diploma in Computer Application- **INTERNET&WEBDESIGN** -Two unitsand publishedby Registrar KSOU, Mysore. 2014.

3. PGDCA-Post Graduate Diploma in Computer Application First Semester -**PROGRAMMING IN"C**"- Two units and published by Registrar KSOU, Mysore. 2014.

4. PGDCA-Post Graduate Diploma in Computer Application First Semester – **Operating System**- one units and published by Registrar KSOU, Mysore.

PAPERS PUBLISHED:

1. **K-means Clustering for Document Analysis in Indian Bilingual Documents**, International Journals of Advanced Research in Computer Science and Software Engineering (IJARCSSE), Vol. 5, issue 12, pp. 639-643,December 2015.

2. **an approach for script identification in printed trilingual documents using textural features**, International Journal of Artificial Intelligence and Applications (IJAIA), Vol. 7, No.5, pp. 31-49, September 2016.

3. **K-D Indexing in Printed Trilingual Documents**, International Journals of Advanced Research in Computer Science and Software Engineering (IJARCSSE), Vol. 7, issue 1, pp. 165-172, December 2017.

4. **Segmentation of Tri-Lingual Documents**, International Journals of Advanced Research in Computer Science and Software Engineering (IJARCSSE), Vol. 7, issue 2, pp. 103-111, February 2017.

5. **Textural Features in Script Identification for Printed Bilingual Documents,** International Journal of Computer Engineering and Applications, (IJCEA), Volume XII, Issue I, pp. 264-281, Jan. 18,

Smt.Bhavya D.N
BE.,MTech.,(PhD).

Assistant professor

Dept of Computer Science Karnataka State
Open University Mukthagangothri Mysuru-
570006

bhavyadn.ksou@ka.gov.in, bhavyavijay.dn@gmail.comMob- 8722384750/0821-2500071

EDUCATION:

(PhD):[Computer Science]: pursuing
Mysore University Mysore, India
Topic: Fusion strategies for multimodal Biometric system

BE:[Computer Science]
VisvesvarayaTechnologicalUniversity,Belagavikarnataka, India

MTech:[Computer Science]

VisvesvarayaTechnologicalUniversity,Belagavikarnataka, India

KSET:[Computer Science]

Qualified in Karnataka state Eligibility test accredited by UGC.

FIELD OF RESEARCH:

- Biometrics, Pattern Recognition and Machine learning.

Professional Experience.

- May. 2013 to till date – Assistant Professor, Dept. of Studies in Computer Science, Karnataka State Open University, Mysore.
- 2012 to 2013 – Lecturer (Temporary), Dept. of Studies in Computer Science, Karnataka State Open University, Mysore.
- 2010 to 2011 Part time lecturer,Dept. of Studies in Computer Science, Govt. engineering college K.R.pet
- 2008 to 2010 Govt. Diploma CollegeK.R.Pet, Computer science Department Part time lecturer.

Academic / Membership in Professional bodies.

- Served as a BOS Member in Computer Science, Information Technology in Karnataka State Open University Mysore, Mysore.
- Working as a BOE Chairman and served as a BOS Member, Board of Examiners (PG)

and Board of Examiners (UG) in Computer Science, Information Technology in Karnataka State Open University Mysore, Mysore.

Areas of interest.

- Academic interest Computer Architecture, Computer Networks, Computer Graphics,Internet Technologies, DBMS, programmingconcepts using C and Image Processing.

Research Interest.

- Object recognition, Feature extraction, retrieval, Image segmentation, Character recognition, Document image analysis,Text classification.
- Multimodal biometric system, Pattern Recognition, Computer Vision and Machine Learning.

Workshops/ Symposiums / Conferences /Orientation and Refresher courses attended.

- Participated in **Three day's Faculty Development Programme** in the subject **Computer Science** from 16th to 18th February 2012 at Karnataka State Open University, Mysore in collaboration with Vision Group on Science & Technology, *Government of Karnataka,* Bangalore- 560 001 and Infosys, Mysore. Karnataka, India.

- Two days Workshop on "**Self Learning Material Development**" held from October 7th - 8th 2013 at Karnataka State Open University, Mysore. Karnataka, India.
- Participated 102nd Orientation Programme on 28-12-2013 to 24- 01- 2014 at UGC Academic Staff College University of Mysore. India

- Three days National level workshop on **"Mathematics behind Machine Learning**" from August 21-23rd 2014 at Sri Jayachamarajendra College of Engineering, Mysore.Karnataka, India.

- One day National conference on **"Human Rights-A National and positive Edict"** has been organizing committee member held on 3rd Feb 2015 at Karnataka State Open University, Mysore. Karnataka, India.

- One day National conference Accelerating Gross enrollment ratio in education-issues and challenges at KSOU 14th May 2015.

- 103rd Indian sciencecongress held atuniversity of university,Manasagangotri, Mysore on 3rd-7th January 2016.

- Two day National Conference on "Emerging Trends in Computer Science and Technology" held at St. Philomena's College(Autonomous) Mysore on February 17-18,2016 organized by the Department of Computer Science

- Workshop on "Statistics and probability" on October 15-16th,2016at Maharaja Institute of Technology, Mysuru.
- Faculty development programmeon "computational Linear Algebra on 7th-11th December 2016 at Sri Jayachamarajendra College of Engineering, Mysore.Karnataka, India.
- One day Workshop on Latex at Department of computer Science university of Mysore on 11-03-2017
- Three day Faculty development programme on Network simulator-2 held from 17th-19th August 2017, organized by the Department of computer science and engineering, Vidyavardaka college of Engineering, Mysuru,karnataka, India.
- Participated Refresher Course on 01-03-2018 to 21-03-2018 at UGC Academic Staff College University of Mysore. India

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2. DCA- Diploma in Computer Application- **INTERNET&WEBDESIGN** - Two units and published by Registrar KSOU,Mysore. 2014.
3. PGDCA-Post Graduate Diploma in Computer Application First Semester - **PROGRAMMING IN "C**"- Two units and published by Registrar KSOU, Mysore. 2014.
4. PGDCA-Post Graduate Diploma in Computer Application First Semester – **Operating System**- Two units and published by Registrar KSOU.

PAPERS PUBLISHED:

1. **Segmentation of Tri-Lingual Documents**, International Journals of Advanced Research in Computer Science and Software Engineering (IJARCSSE), Vol. 7, issue 2, pp. 103-111, February 2017.
2. **Textural Features In Script Identification For Printed Bilingual Documents,**International Journal of Computer Engineering and Applications, (IJCEA),Volume XII, Issue I, pp. 264-281, Jan. 18,

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Dr. Naveen Kumar C.G.

M.Sc. [IT], MCA, MBA, Ph.D

Assistant Professor,

Dept of Computer Science,

Karnataka State Open University Mukthagangothri,

Mysuru-570006

Email: navecg@gmail.com / dr.naveencg.ksou@gmail.com

Date of Birth: 01.04.1982

Area of Specification: Computer Networks & Cloud Computing

Course Taught: Computer Networks / C Programming / OOP with C++ / Web Programming / Operating System / Computer Organization

Work Experience:

- Teaching: 13 Years
- Research: 5 Years

Research Papers:

- **Patents (Filed and Granted)**: 1

- **Research Publications**: 8

No of books published with details: 1

- “Advanced Cryptographic Technique to Secure Cloud Environment” International Lambert Academic Publishing, ISBN - 978-620-4-73121-6.

Enclosure-5

Number of Students admitted under various categories each year in the last three years

YEAR	NO. OF STUDENTS – MBA (ODL)			
	GM	SC	ST	Total
2019-20	484	82	20	586
2020-21	1322	197	67	1586
2021-22	1212	253	75	1540

MCA and ONLINE MBA IS NOT YET STARTED

Enclosure-6

ROOM DETAILS

Number of Class Rooms/ Tutorial Rooms/Exam Halls and size of each

Sl No	No of Rooms	Size	Remarks
1	15	90 sq mts 60 each	Science Building
2	5	75 Sq mts 50 each	Hamsa and manasa Block
3	2	384 Sq Mts 300 seats	Nala building
4	2	400 seats each	Canteen Building
5	1	918 Sq Mts 200 seats	Ganga Building

State of art building for examination section 'Pareksha Bhavan' with 2379 sq mts, plinth area and 11895 sq mts built up area with 47 rooms with confidential rooms and meeting halls

• Number of Tutorial rooms and size of each

Enclosure-7 A

CURRICULUM

MASTER OF BUSINESS ADMINISTRATION

MBA

(CBCS-SEMESTER SCHEME)

KARNATAKA STATE OPEN UNIVERSITY

Mukthagangothri, Mysuru 570 006

1. INTRODUCTION

The Department of Studies and Research in Management was established in the year 1997 under the umbrella of Karnataka State Open University (KSOU) with a view to impart quality management education for the budding leaders who could share the national as well as global responsibilities. The necessary skills of a manager are at the core concepts of the Department. The Department had conceptualized the industrial, entrepreneurial, and research leadership. The Department stitch programmes on the basis of market requirement and industry academic interaction. At present the department is offering 3 specializations viz, Finance, Marketing, and People Management (HR). The Department is facilitated with highly qualified and experienced teaching faculties. Board of Studies (BOS) comprises reputed academicians in the field, industrialists & entrepreneurs from various institutions throughout Karnataka to enrich the quality content syllabus.

The students of MBA are highly benefited with the guidance and special lecture by the eminent industrialists and entrepreneur. The MBA is globally recognized brand that can open doors to a new opportunities from diverse industries.

The Department of Management comes under the purview of School of Commerce and Management. The Department offers Master of Business Administration (MBA), Post Graduate Diploma in Business Administration (PGDBA), and Post Graduate Diploma in Marketing Management (PGDMM).

The Department has been achieving a high percentage of results. The students who completed MBA degree from KSOU have seen in very good positions in various organizations of national and international reputations.

The faculty members who have acquired the knowledge and skills do provide Counseling and Guidance for the students. They also provide guidance for the students to face competitive exams and prepare themselves for further studies.

2. PROGRAMME: MASTER OF BUSINESS ADMINISTRATION

The Master of Business Administration Program is specifically designed for a target clientele comprising practising managers in corporate companies, executives in public enterprises, others in mid managerial cadres and other graduates who could not pursue a Master's Degree program in Management for various reasons. The Karnataka State Open University's M.B.A. Program is a tightly scheduled and highly structured; client cantered program that aims at developing in Management. The curriculum based on the feedback from the best programs available in the market, aims at enriching and sharpening managerial skills of participants even while helping to keep abreast with the state-of –art technology and appreciate the recent innovations in the discipline .The program aims at developing in the participants a comprehensive cognitive perspective and pragmatic approach to problems through exposure to a variety of structured and unstructured learner-cantered activities like demonstrations expository presentation, video films groups/panel discussion, syndicated symposia simulation games workshops. In short the programs will develop in participants a variety of managerial skills that will lend a new edge and force to their own

repertoire of skill, attitudes and attributes to handle myriads of challenges in the ever changing scenario of modern management in a developing economy like ours. The program also offers the much needed channels for upward mobility among practising's mangers at their own workplaces.

The MBA program of KSOU has been designed strictly in tune with the policies laid down by UGC/AICTE. This program caters to the need of the executives, professionals and also others who are evincing interest to Work in the corporate sector

The MBA Programme in Karnataka State Open University is offered under 7 Specialization namely

A: Finance

B: Marketing

C: Human Resource

D: Operations

E: Tourism

F: Corporate Law

G: IT

2.1 MISSION AND OBJECTIVES

a. Mission:

- Quality Higher Education drives the learners to be responsible citizens in competitive world.
- Quality education creates moral and ethical values of the learners in the society.
- Need based education imparted enhances the civic values.
- Quality education sharpens the capacity building of the personnel in any organization.

b. Objectives:

- To impart knowledge and managerial skills that enable them to apply core business principles and thereby provide innovative and creative solutions to organisational problems and utilise opportunities;
- To enhance the learners' soft skills including inter-personal and intra-personal skills;
- To prepare the candidates to exhibit effective leadership and collaborative skills for making decisions to accomplish objectives;
- To enable the learner to analyse and to comprehend the global, ethical, socio-economical, technical and political context of modern business;
- To provide business simulation exercises in the required areas, which enables the learners to experience the practical organizational environment;
- To accelerate the holistic approach of learner.

3. DELIVERY MECHANISM

The delivery mechanism followed in this University is different from that of conventional Universities. The Open University system is more learners oriented, and is geared to cater to the needs of motivated students assuming that the student is an active participant in the teaching-learning process. Instruction to student is imparted through various modes such as print, audio and supported by face to face communication during week-end counselling/PCP. The University follows multi-channel approach for instruction.

It comprises proportionate combination of:

* Printed Self-Learning Material.
* Audio programs transmitted through Radio.
* Face-to-Face counselling at learners support centres by academic counsellors.

a. **Medium of Instruction:** English

b. **Mode of Instruction**

SLM takes the role of a teacher in distance education system. The study material provided to you along with this programme guide are called self-learning material as it facilitates learning on your own. The lessons are simple and easy to understand. The SLM have been divided into blocks and units. Each block has one credit value which means you have to devote 30 hours of study for one block, be it studying, discussing with counselors, attending classes, writing assignment and so on.

Objectives are given in the beginning of each unit which tells what is expected of you by learning that unit. Check your progress questions are given in content so that you can measure your progress while studying the material. Try to answer this questions which make the SLM self-evaluating. References are given at the end of each unit which gives you sources for furtherance of your study.

c. **Duration of Programme:** The duration of the programme is Two years. However additional two years (N+2) would be provided to complete the programme.

3.1 LEARNING OUTCOMES

- Effective Management skills.
- Better job opportunities in corporate level.
- Mastery over budget at different levels right from home to international level.
- Knowledge of contemporary economic issues such as BRICS, black money, GST, Demonetization, Hawala transaction, Illegal funding of support to terrorism and naxalism. etc...

5.2 MBA Programme Structure

The study of MBA Program consists 24 Courses with Compulsory Project Report, spread over four semesters.

First Semester			
Sl. No.	**Course Code**	**Course Title**	**Credits**
1.	MBHC-1.1	Management and Organisational Behaviour	04
2.	MBHC-1.2	Managerial Economics	04
3.	MBHC-1.3	Accounting for Managers	04
4.	MBHC-1.4	Statistics and Optimization Techniques	04
5.	MBHC-1.5	Legal Aspects of Business	04
6.	ELM 01	Open Elective: Disaster Management	02
Second Semester			
7	MBHC-2.1	Information Technology forManagers	04
8	MBHC-2.2	Corporate Finance	04
9	MBHC-2.3	Marketing Management	04
10	MBHC-2.4	Human Resource Management	04
11	MBHC-2.5	Managerial Communication andResearch Methods	04
12	ELM 02	Open Elective: E-Commerce	02
Third Semester			
13	MBHC-3.1	Entrepreneurship and SmallBusiness	04
14	MBHC-3.2	Strategic Management	04

15	SEC-3	Tools of TQM	02
Elective – A: Finance			
16A	MBSC-3.1A	Financial Markets and Institutions	04
17A	MBSC-3.2A	Advanced Corporate Finance	04
18A	MBSC-3.3A	Security Analysis and Portfolio Management	04
Elective – B: Marketing			
16B	MBSC-3.1B	Advertising and Sales Promotions	04
17B	MBSC-3.2B	Rural Marketing	04
18B	MBSC-3.3B	Consumer Behaviour and Marketing Research	04
Elective – C : Human Resource			
16C	MBSC-3.1C	Strategic Human Resource Development	04
17C	MBSC-3.2C	Industrial Relations	04
18C	MBSC-3.3C	Performance Appraisal andCompensation Management	04
Elective – D: Operations*			
16D	MBSC-3.1D	Operations Research and Analytics	04
17D	MBSC-3.2D	Supply Chain Management	04
18D	MBSC-3.3D	Material and Purchase Management	04
Elective – E : Tourism*			
16E	MBSC-3.1E	Tourism Development	04
17E	MBSC-3.2E	Tourism Sales and Marketing	04
18E	MBSC-3.3E	Hospitality Management	04

Elective – F : Corporate Law*			
16F	MBSC-3.1F	Corporate Law	04
17F	MBSC-3.2F	Insurance Law	04
18F	MBSC-3.3F	Intellectual Property Rights	04
Elective – G : IT*			
16G	MBSC-3.1G	Database Management System	04
17G	MBSC-3.2G	Business Intelligence and Analytics	04
18G	MBSC-3.3G	E-commerce	04
Fourth Semester			
19	MBHC-4.1	Quality and Operations Management	04
20	MBHC-4.2	International Business	04
21	SEC-4	Statistical Tools for Management	02
Elective- A: Finance			
22A	MBSC-4.1A	Strategic Financial Management	04
23A	MBSC-4.2A	International Financial Management	04
24A	MBSC-4.3A	Derivatives	04
Elective- B: Marketing			
22B	MBSC-4.1B	Retailing and Supply Chain Management	04
23B	MBSC-4.2B	Business Marketing	04
23B	MBSC-4.3B	International Marketing	04
Elective- C: People Management			
22C	MBSC-4.1C	Knowledge Management	04
23C	MBSC-4.2C	International Human Resource Management	04
24C	MBSC-4.3C	Labour Legislation	04
Elective – D: Operations*			
22D	MBSC-4.1D	Strategic Operations Management	04
23D	MBSC-4.2D	World Class Manufacturing	04
24D	MBSC-4.3D	Global Operations Management	04

*. The titles are tentative

1.7

Elective – E : Tourism*			
22E	MBSC-4.1E	Travel Agency Management	04
23E	MBSC-4.2E	Eco-tourism and Sustainable Development	04
24E	MBSC-4.3E	Global Tourism	04
Elective – F : Corporate Law*			
22F	MBSC-4.1F	Law of Banking	04
23F	MBSC-4.2F	International Trade Law	04
24F	MBSC-4.3F	Corporate Taxation Law	04
Elective – G : IT*			
22G	MBSC-4.1G	Software Project Management	04
23G	MBSC-4.2G	Information Security	04
24G	MBSC-4.3G	Big Data Analytics using R	04
Project Report (100 Marks)			04
Viva (50)Marks			02

SYLLABUS

MBA

COURSE - 01: MANAGEMENT AND ORGANISATIONAL BEHAVIOUR

BLOCK I: Management Concepts:

Unit 1: Process of Management

Unit 2: Trends in Management

Unit 3: Levels of Managements

Unit 4: Leadership

BLOCK II: Functions of Management

Unit 5: Planning

Unit 6: Organizing

Unit 7: Directing and Staffing

Unit 8: Controlling

BLOCK III: Organisational Behaviour

Unit 9: Introduction to Organizational Behavior

Unit 10: Individual Behavior

Unit 11: Personality

Unit 12: Group Behavior

BLOCK IV: Organisational Change

Unit 13: Introduction to Organizational Change

Unit 14: Organizational Development

Unit 15: Organizational Culture

Unit 16: Organizational Conflict

Course: 02 – MANAGERIAL ECONOMICS

BLOCK - I: Introduction to Managerial Economics

Unit-1: Introduction to Managerial Economics

Unit-2: Demand Analysis

Unit-3: Elasticity of demand

Unit-4: Demand estimation and Forecasting

BLOCK II: Production and Cost Analysis:

Unit-5: Theory of Production

Unit-6: Economies of Scale, Scope and Learning Curve

Unit-7: Theory of Cost

Unit-8: Cost- Volume-Profit Analysis

BLOCK III: Market Structures

Unit-9: Market structures

Unit-10: Equilibrium of Firm and Industry, Output decision Under Perfect competition

Unit-11: Equilibrium of Firm and Industry, Output decision Under Simple Monopoly

Unit-12: Equilibrium of Firm and Industry, Output decision Under Monopolistic Competition

BLOCK IV: NATIONAL INCOME

Unit-17: Gross Domestic Product and Inflation

Unit-18: Macro Economics

Unit-19: National Income and Business Cycle

Unit-20: Micro Economics

COURSE -03: ACCOUNTING FOR MANAGERS

BLOCK -I: INTRODUCTION TO ACCOUNTING

Unit-1: Introduction to Accounting

Unit-2: Accounting Process and Accounting Equation

Unit-3: Recording, Classifying and Summarizing Business Transactions

Unit-4: Preparation of Final Accounts of Sole Proprietorship

BLOCK- II: ANALYSIS AND INTERPRETATION OF FINANCIAL STATEMENTS

Unit-5: Techniques of Financial Statement Analysis

Unit-6: Ratio Analysis

Unit-7: Fund Flow Statement

Unit-8: Cash Flow Statement (Accounting Standard)

BLOCK- III: COST ACCOUNTING

Unit-9: Elements of Costs , Classification Of Costs and Preparation Of Cost sheet

Unit-10: Cost Accounting Systems: Job Costing ,Process Costing, Control Costing and Service Costing (Theory Only)

Unit-11: Marginal Costing and use Of Break Even Analysis Decision Making

Unit-12: Budget and budgetary Control

BLOCK- IV: CONTEMPORARY ACCOUNTING

Unit-13: Accounting Standards

Unit-14: Human Recourse Accounting

Unit-15: Responsibility Accounting

Unit-16: Forensic Accounting.

COURSE - 04: STATISTICS AND OPTIMIZATION TECHNIQUES

BLOCK I: INTRODUCTION TO STATISTICS

Unit-1: Meaning, scope, importance and limitations, applications of inferential statistics in managerial decision-making

Unit-2: Analysis of data: sources of data, collection, classification, tabulation and depiction of data**.**

Unit-3: Measures of Central tendency: Arithmetic, weighted, geometric mean, Harmonic mean, median and mode**.**

Unit-4: Measures of Dispersion: Range, Quartile deviation, Mean deviation, Standard deviation, variance, Co-efficient of variation, Skewness and Kurtosis**.**

BLOCK II: CORRELATION

Unit-5: Significance, types, Correlation Methods of correlation analysis: Scatter diagrams

Unit-6: Karl Pearson's correlation co-efficient, Rank correlation coefficient

Unit-7: Regression: **Regression analysis**: meaning, advantage of regression analysis, difference between correlation & regression analysis

Unit-8: regression equations, standard error and Regression coefficients

BLOCK III: INTRODUCTION TO PROBABILITY AND OPERATIONS RESEARCH

Unit-9: Binomial Poison and Normal – Simple problems applied to business. Probability Distribution, Discrete random variable

Unit-10: Binominal, Poisson probability distribution, Normal distribution

Unit-11: Operations Research , Scope, Phases, Models, Uses and Limitations

Unit-12: Game theory, Pay off- Types of Games, Pure and Mixed strategies

BLOCK IV: APPLICATION OF OPERATION RESEARCH IN BUSINESS DECISION MAKING

Unit-13 - Decision making environment, various criteria used for decision making, Decision tree analysis,

Unit-14 - Network scheduling using PERT and CPM, Construction of network,

Unit-15 - Different time Estimates, Probability of project completions

Unit-16 - Project Costing

COURSE -05: LEGAL ASPECTS OF BUSINESS

BLOCK-I: Law of Contract

Unit-1: Basics of law of contract

Unit-2: Legality of contract, discharge of contract and remedies

Unit-3: Contract of indemnity

Unit-4: Contract agency

BLOCK - II: Sale of Goods, Partnership and Negotiable Instruments Act: Sale of Goods Act 1930

Unit-5: sale of goods act, 1930 (Part-I)

Unit-6: sale of goods act, 1930 (Part-II)

Unit-7: Indian Partnership act, 1932

Unit-8: Negotiable Instruments act, 1881

BLOCK - III: Company's Act, 2013

Unit-9: company –nature and incorporation

Unit-10: share capital

Unit-11: Company governance

Unit-12: revisiting incorporation and legal control

BLOCK - IV: Information Technology Act – 2000

Unit-13: Salient features of information Technology Act,2000

Unit-14: Digital signature and electronic signature

Unit-15: Electronic governance

Unit-16: Citifying authorities, cyber appellate Tribunal under the IT act 2000

COURSE - 06: DISASTER MANAGEMENT

BLOCK I:

Unit 1: Introduction to Disaster Management

Unit 2: Natural and Manmade Disasters

Unit 3: Disaster Prepardness

Unit 4: Role and Responsibilities of Central and State Governments

BLOCK II:

Unit 5: Role of Information, Education, communication and Training

Unit 6: Technologies for Disaster Management

Unit 7: Disaster Mitigation

Unit 8: Disaster Management in India

SECOND SEMESTER

COURSE - 07: INFORMATION TECHNOLOGY FOR MANAGERS

BLOCK I: MANAGEMENT INFORMATION SYSTEM

Unit-1: Meaning and definitions, Concept of Data and information, Data life cycle,

Unit-2: Information systems, Classifications, Data processing, Analysis and interpretation of data at various levels,

Unit-3: Types of Information System

Unit-4: Role of MIS in organization and Decision making

BLOCK II: PLANNING AND IMPLEMENTING THE INFORMATION SYSTEM

Unit-5: System Planning, System Analysis,

Unit-6: System Development Life Cycle, Types, stages

Unit-7: Flow chart, Decision tables

Unit-8: Testing and maintenance of information system

BLOCK III: DESIGN AND DEVELOPMENT OF INFORMATION SYSTEM:

Unit-9: Database development, Input and output design

Unit-10: Data and information flow, Front end and back end software

Unit-11: Data warehousing and data mining, Knowledge management

Unit-12: Data security, Cybercrime and privacy issues, Ethical issues for an IT manager

BLOCK IV: APPLICATION OF INFORMATION SYSTEM:

Unit-13: HRIS, Accounting Information System

Unit-14: Financial Information system, Marketing Information system, PIMS

Unit-15: Enterprise resource planning, Customer Relationship Management

Unit-16: Supply Chain Management, E- Business

COURSE - 08: CORPORATE FINANCE

BLOCK I: Introduction to Business Finance

Unit-01: Introduction to Corporate Finance

Unit-02: Value Creation and Agency Problem

Unit-03: Time Value of Money

Unit-04: Capital Markets

BLOCK II: Capital Budgeting

Unit-05: Introduction to capital Budgeting

Unit-06: Capital Budgeting Process

Unit-07: Estimation of Cash Flows

Unit-08: Capital Budgeting Techniques

BLOCK III: The Cost of Capital:

Unit-09: Introduction to Cost of Capital

Unit-10: Cost of Specific Source of capital

Unit-11: The Weighted Average Cost of Capital (WACC)

Unit-12: The Weighted Marginal Cost of Capital

BLOCK IV: Capital Structure and Dividend Decisions:

Unit-13: Introduction to Capital Structure

Unit-14: Capital Structure Theories

Unit-15: Leverages –Operating, Financial and Combined and Combined leverage

Unit-16: Dividend Decision

COURSE -09: MARKETING MANAGEMENT

BLOCK I: Concepts of Marketing:

Unit-01: Introduction to Marketing

Unit-02: Marketing Management

Unit-03: Marketing Concepts

Unit-04: Trends in Marketing

BLOCK II: Market Analysis and Consumer Behaviour

Unit-05: Marketing Planning

Unit-06: Consumer Behaviour

Unit-07: Marketing Research

Unit-08: Market Segmentation

BLOCK III: Product and Pricing Decision:

Unit-09: Concept of a Product, Major Product decision- Product Line and Product Mix

Unit-10: Branding Life Cycle, New Product Development

Unit-11: Product Life Cycle, New Product development

Unit-12: Pricing Decisions – Factors affecting Price Determination, Pricing Methods and Techniques, Pricing Policies and Strategies

BLOCK IV: Distribution and Promotional Strategies:

Unit-13: Distribution and Promotional Strategies

Unit-14: Direct Marketing- Retail marketing

Unit-15: Wholesaling

Unit-16: Promotion decision

COURSE - 10: HUMAN RESOURCE MANAGEMENT

BLOCK -I: Human Resource Management

Unit-1: Introduction to Human resource management

Unit-2: stress management

Unit-3: Time Management

Unit-4: Career Opportunities in Human resource Management

BLOCK -II: HR Strategies

Unit-5: Introduction to HR strategies

Unit-6: Job analysis and job description

Unit-7: Recruitment

Unit-8: Selection

BLOCK -III: Training and Development

Unit-9: Organizational Learning

Unit-10: Employee training

Unit-11: Performance management and Appraisal

Unit-12: Career Development

BLOCK -IV: Compensation and benefits

Unit-13: Introduction to compensation and benefits

Unit-14: Compensation plan

Uniit-15: Government policy and statutory benefits

Unit-16: Job satisfaction, rewards and commitment

COURSE – 11: MANAGERIAL COMMUNICATION AND RESEARCH METHODS

BLOCK- I: Introduction to Communication:

Unit-01 – Introduction to Communication

Unit-02 – Communication Process

Unit-03 – Barriers to Communication

Unit-04 – Modern Methods of Communication

BLOCK- II: Oral and Written Communication

Unit-05 – Oral Communication

Unit-06 – Letter Writing

Unit-07 – Effective Report Writing

Unit-08 – Presentation and Negotiations Skills

BLOCK- III: Research Methodology

Unit-09 – Introduction to Research

Unit-10 – Research Process and Business Research

Unit-11 – Selection and Formulation of research Problem

Unit-12 – Research Design

BLOCK- IV: Methods of Data Collection and tools of Data Analysis

Unit-13 – Sampling

Unit-14 – Methods and Tools of Data Collection

Unit-15 – Processing of Data, Analysis of Data: Simple and Advanced Statistical Techniques and Their Uses

Unit-16 – Testing of Hypothesis and Research Report Writing

COURSE – 12: E-COMMERCE

Block-1: E-commerce and its Technological Aspects

Block-2: Electronic Data Interchange

III SEMESTER

COMMON PAPERS

COURSE -13: ENTERPRENEURIAL DEVELOPMENT AND SMALL BUSINESS

BLOCK -I: Entrepreneur and Entrepreneurship:

Unit 1: Introduction to Entrepreneurship

Unit 2: Theories of Entrepreneurship

Unit 3: Creativity and Innovation

Unit 4: Entrepreneurship Development Programme

BLOCK -II Promotion of Ventures:

Unit 5: Environmental Analysis

Unit 6: Establishment of New Business

Unit 7: Industrial Estates

Unit 8: Marketing Analysis

BLOCK -III Micro, Small and Medium Enterprises and Institutional Support to Entrepreneurs:

Unit 9: Micro, Small and Medium Enterprises

Unit 10: Policy Initiatives for Micro, Small and Medium Enterprises

Unit 11: Sickness, revival and Rehabilitation of Micro Small and medium Enterprises

Unit 12: Institution Supporting Entrepreneurs

BLOCK- IV Rural Women and Social Entrepreneurship:

Unit 13: Rural Entrepreneurship

Unit 14: Women Entrepreneurship

Unit 15: Industrial Policy and Entrepreneurship Development

Unit 16: Social Entrepreneurship

COURSE - 14: STRATEGIC MANAGEMENT

BLOCK -I: Basics of Strategic Management

Unit 1: Introduction to Strategy

Unit 2: Introduction to Strategic Management

Unit 3: Strategic Planning, Strategic Decision Making and Competitive Advantage

Unit 4: Strategic Management Process

BLOCK -II: Strategy Formulation, analysis and choice

Unit 5: Introduction to Strategic Formulation

Unit 6: Strategic Intent, Vision and Mission

Unit 7: Environmental Analysis

Unit 8: Industry Analysis

BLOCK -III: Strategic Implementation

Unit 9: Issues in Strategic Implementation

Unit 10: Procedural implementation

Unit 11: Leadership style

Unit 12: Functional issues

BLOCK -IV: Strategic Evaluation

Unit 13: Guiding and Evaluation of Strategies and Establishing Strategic Controls

Unit 14: Operational control system

Unit 15: Monitoring performance and evaluating deviations, challenges of strategy implementation

Unit 16: Role of corporate governance

COURSE - 15: TOOLS OF TQM

BLOCK 1: Total quality Management

Unit 1- Total quality framework. Need and significance benefits

Unit 2- Quality circles, small group activities, QC Tools

Unit 3- Documentation for ISO

Unit 4- Internal quality audit

BLOCK 2: TOOLS of TQM

Unit 1- Stratification, cluster analysis, Pareto principle

Unit 2- Cause and effect diagram, check sheet

Unit 3- Histogram, scatter diagram, control charts

Unit 4- Affinity diagram, matrix diagram, arrow diagram

ELECTIVE A – FINANCE

COURSE - 16 A: FINANCIAL MARKETS AND INSTITUTIONS

BLOCK -I: Overview of Indian Financial System:

Unit 1: Reserve Bank of India

Unit 2: Commercial banks in India

Unit 3: Non-Banking Financial Companies

Unit 4: Regulatory Framework of Banking Sector

BLOCK -II: Capital Markets:

Unit 5: Overview of Capital Market

Unit 6: Stock Market

Unit 7: Foreign Direct Investment and Foreign Portfolio Investment

Unit 8: Investors Protection and SEBI Guidelines

BLOCK -III: Money Market:

Unit 9: An Overview of Money Market

Unit 10: Money Market Instruments

Unit 11: Recent Development in Money Market

Unit 12: Prevention of Money Laundering

BLOCK -IV: Financial & Banking Institutions:

Unit 13: Financial Institutions

Unit 14: Fund Flow Analysis

Unit 15: Management of Commercial Banks

Unit 16: Reforms in Banking Sectors

COURSE -17A: ADVANCED CORPORATE FINANCE

BLOCK -I: Capital Budgeting

Unit 1: Introduction to Capital Budgeting

Unit 2: Cash Flow Estimation

Unit 3: Measuring Risk and Return in Capital Budgeting

Unit 4: Capital Budgeting Under Special Cases

BLOCK -II: Valuation and Financing Decisions in an Ideal Capital Market

Unit 5: Modigliani and Miller's propositions on the Irrelevance of Capital Structure

Unit 6: M&M Irrelevance of Dividend Policy and Capital Asset Pricing Model

Unit 7: The Binomial Pricing Model

Unit 8: The Valuation of Options and the Pricing of Corporate Debt and Equity Securities

BLOCK -III: Separation of Ownership and Control, Principal – Agent Conflicts, and Financial Policies:

Unit 9: Real World Factors and Violation of Ideal capital Market Assumption

Unit 10: Separation of Ownership and Control

Unit 11. Extended Stake Holders Conflict of Interest

Unit 12: Agency Conflicts

BLOCK -IV: Information Asymmetry and the Markets for Corporate Securities:

Unit 13: Introduction to Information Asymmetry

Unit 14: Valuation of Equity under Information Asymmetry

Unit 15: Capital Structure, Dividend Policy and Information Asymmetry

Unit 16: Information Asymmetry and Agency Problem

COURSE 18A: SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

BLOCK -I: INVESTMENT

Unit-1: Introduction to Investment management

Unit-2: Issue Market and Stock Exchanges

Unit-3: Risk& Return

Unit-4: Security Analysis

BLOCK - II : PORTFOLIO THEORY

Unit-5: Portfolio Risk and Return

Unit-6: Capital Market Theory - Content of Capital Market Theory,

Unit-7: Capital Asset Pricing Model - Capital Asset Pricing Model, **Unit-8:** Efficient Capital Markets

BLOCK-III: BOND AND EQUITY VALUATION

Unit-9: Basics of bond

Unit-10: Bond Prices and Yields

Unit-11: Term Structure of Interest Rate and Bond

Unit-12: Equity Valuation, Performance Evaluation Models

BLOCK-IV: PORTFOLIO MANAGEMENT

Unit-13: Risk and portfolio Analysis

Unit-14: Market Portfolio and Portfolio Selection

Unit-15: Portfolio Investment Process

Unit-16: Portfolio Evaluation and Diversification

ELECTIVE B – MARKETING

COURSE -16B: ADVERTISING AND SALES PROMOTIONS

BLOCK -I: Advertising

Unit 1: Introduction of Advertising

Unit 2: Functions of Advertising

Unit 3: Integrated Marketing Communication

Unit 4: Communication Process

BLOCK -II: Advertising Campaign Planning:

Unit 5: Campaign Planning

Unit 6: Advertising Budget

Unit 7: Advertising Message Development

Unit 8: Advertising Programme

BLOCK -III: Advertising Agency:

Unit 9: Types of Advertising Agency

Unit 10: Functions of Advertising Agency

Unit 11: Government Role in Advertising Agency

Unit 12: Compensation System in Advertising Agency

BLOCK IV: Advertising Media Planning, Evaluation and Control

Unit 13: Advertising Media Planning and Types

Unit 14: Media planning Process and Evaluation

Unit 15: Advertising effectiveness and Sales Promotion

Unit 16: Personal Selling and Trends in Advertising

COURSE -17B: RURAL MARKETING

BLOCK I: RURAL MARKETING- AN OVERVIEW

Unit 1: Fundamentals of Rural Marketing

Unit 2: Rural Marketing Finance and Rural Marketing Mix

Unit 3: Market Segmentation

Unit 4: Marketing Research and RMIS

BLOCK II: AGRICULTURAL MARKETING

Unit 5: Rural Marketing

Unit 6: risk Factors

Unit 7: Role and Function of Rural Marketing and Development

Unit 8: Rural Industries Cottage

BLOCK III: RURAL MARKET REGULATION

Unit 9: Indian Rural Market

Unit 10: Rural Market Model

Unit 11: Regulated Market

Unit 12: Standardization, Grading of Agricultural and Allied Produce

BLOCK IV: CHANNELS OF DISTRIBUTION

Unit 13: Distribution System in Rural Marketing

Unit 14: FMCG Sector in Rural Market

Unit 15: Role of Advertising in Rural Market

Unit 16: Trends in Rural Marketing

COURSE -18B: CONSUMER BEHAVIOUR AND MARKETING RESEARCH

BLOCK -I: INTRODUCTION

Unit-1: Definition, Significance, Nature, Application of Consumer behaviour in Marketing,

Unit-2: Individual determinants, Motivation, Personality and Self-concept. Consumer
Perception, Consumer Learning, Consumer Attitude Formation and change,

Unit-3: Environmental Influences on Consumer Behaviour,.

Unit-4: Consumer decision making process

BLOCK -II: CONSUMER BEHAVIOUR

Unit-5: Theories of Consumer Behaviour Gestalt approach, Cognitive theory, Psychological field, Blackbox Models,

Unit-6: Models of consumer behaviour, Howard Seth Model, Nicosia Model, EKB Model, EBM Model.

Unit-7: A study of Indian consumers, Rural and Urban Consumer Behaviour, Living standards, measuring characteristics of BOP consumers, Case study.

Unit-8: Analysing Consumer Behaviour

BLOCK -III: MARKETING RESEARCH

Unit-9 : Definition, Objectives, applications, limitations

Unit-10: Marketing Information System

Unit-11: Types of marketing research

Unit-12: Applications of Marketing Research in Business Case study

BLOCK -IV: BUYER BEHAVIOUR

Unit-13: Online Buyer behaviour

Unit-14: Group Dynamics, Opinion Leadership

Unit-15: Cross cultural and Global Consumer behaviour

Unit-16: Buyer behaviour implications to marketing, Case study

ELECTIVE C – HUMAN RESOURCE MANAGEMENT

COURSE -16C: STRATEGIC HUMAN RESOURCE DEVELOPMENT

BLOCK 1: Human Resource Development

Unit 1: Introduction to Human Resource Development

Unit 2: HRD- Macro and Micro Level

Unit 3: Role and Competencies of HRD Professional

Unit 4: Performance Management System

BLOCK 2: HRD Process

Unit 5: Human Resource Development Process

Unit 6: Development of Human Capital

Unit 7: Assessing HRD Needs

Unit 8: Training Methods

BLOCK 3: Career Planning and Development

Unit 9: Career Planning

Unit 10: Career Planning Process

Unit 11: Manpower Planning

Unit 12: Career Planning and Development

BLOCK 4: Evaluation of HRD and Globalisation

Unit 13: Human Resource Evaluation and Development

Unit 14: Organization Development and Change Management

Unit 15: Globalization and HRD Programmes

Unit 16: HRIS and HRD Audit

COURSE -17C : INDUSTRIAL RELATIONS

BLOCK -I: INTRODUCTION

Unit-1: Industrial Relations – An Overview – Part -1:

Unit-2: : Industrial Relations – An Overview - Part – 2

Unit-3: Industrial Relations – An Overview

Unit-4: Approach's to Industrial Relations

BLOCK -II: TRADE UNION

Unit-5: Major Issues in Trade Union Act 1926

Unit-6: Trade Union and Related

Unit-7: Problems of Trade Unions

Unit-8: Negotiation Skills

BLOCK -III: INDUSTRIAL DISPUTES AND COLLECTIVE BARGAINING

Unit-9: Introduction to Industrial Disputes

Unit-10: Industrial Disputes – Preventive

Unit-11: The Industrial Disputes Act 1947 Part – I Settlement

Unit-12: Industrial Disputes Act, 1947 – Part- II

BLOCK -IV: GRIEVANCE PROCEDURE AND DISCIPLINE MANAGEMENT AND WPM

Unit-13: Collective the modules Bargaining

Unit-14: Collective Bargaining / Agreements

Unit-15: Grievance Management - Meaning

Unit-16: Grievance Procedure and Indiscipline, Discipline Management, Labour Welfare Work, Workers Participation in Management (WPM)

Case study is compulsory for all

COURSE -18C: COMPENSATION MANAGEMENT AND PERFORMANCE APPRAISAL

BLOCK -I: Introduction to compensation & benefits:

Unit-1: Basics of Compensation Management

Unit-2: Employee Benefits

Unit-3: Incentives

Unit-4: Compensation and benefits: Laws and Regulations

BLOCK -II: Performance appraisal:

Unit-5: Basics of Performance Appraisal

Unit-6: Steps in appraising performance

Unit-7: Methods of Performance Appraisal

Unit-8: Modern Methods of Performance Appraisal

BLOCK -III: Wage payment system and theories of Motivation and wages

Unit-9: Development of Payment system

Unit-10: Basic concepts and types of compensation

Unit-11: Theories Motivation

Unit-12: Theories of Wages

BLOCK -IV: Wage Legislation and wage payment System

Unit-13: Wage legislation

Unit-14: Wage survey

Unit-15: Wage structure

Unit-16: Wage payment system

ELECTIVE –D: OPERATIONS

Course-SC-3.1D: OPERATIONS RESEARCH AND ANALYTICS

BLOCK-I Linear and Integer Programming

Unit-1: Linear programming problems – Graphical method,

Unit 2: Simplex method, Degeneracy,

Unit 3: Big M Method, Concept of Duality in LPP, **Unit 4:** Integer Programming Problem

BLOCK II SHOP FLOOR TECHNIQUES

Unit 5: Sequencing Problems

Unit 6: Jobs through three machines, processing two jobs through machines and jobs through machines,

Unit 7: Traveling salesman problem

Unit 8: Replacement Theory

BLOCK-III SIMULATION & PROCESS CONTROL

Unit 9: Statistical Quality Control Techniques – Control Charts-Distribution Curve,

Unit 10: Markov Chain and Markov Analysis

Unit 11: Simulation

Unit 12: Simulation Monte-Carlo Method

BLOCK -IV: BUSINESS ANALYTICS

Unit 13: Meaning types and application of Business Analytics,

Unit 14: Data: Data Collection, Data Management

Unit 15: Introduction to Data Mining,

Unit 16: Application of Business Analysis

COURSE NAME : SUPPLY CHAIN MANAGEMENT

COURSE- SC-3.2 D

BLOCK I: INTRODUCTION

Unit-1: Concept of Supply Chain Management (SCM

Unit-2: SCM Models, Logistic Management, Evolutions of SCM

Unit-3: Framework for Supply Chain Solution

Unit-4: Supply Chain Strategies, Strategic Sourcing,

BLOCK II: SUPPLY CHAIN PLANNING AND PURCHAISNG

Unit -5: Supply Chain Planning

Unit -6: Planning Demand

Unit- 7: Purchasing and Supply Chain Decisions, Managing Inventory in Supply Chain

Unit- 8: Building a long-term relationship with vendors, Supplier relationship management (SRM).

BLOCK III: PROCUREMENT, ORDER PROCESSING AND INFORMATION SYSTEMS

Unit- 9: Customer Order Cycle

Unit-10: Logistics Information System:

Unit-11: Supply Chain Re-engineering, Customer Relationship Management, Supply Chain Performance Management

Unit-12: Supply Chain and CRM- Linkage

BLOCK IV: MODERN SUPPLY CHAIN MANAGEMENT

Unit-13: Reverse Supply Chain and Agro Supply Chain, Transportation strategies in Supply Chain

Unit-14: Cloud based supply chain, Lean Supply Chain

Unit-15: Block Chain Technology

Unit-16: Supply Chain Finance, Global Supply Chain Management

Course-SC-3.3D: MATERIAL AND PURCHASE MANAGEMENT

BLOCK I: INTRODUCTION

Unit 1: Introduction of Materials in Manufacturing Organization

Unit 2: Materials Management Organization

Unit 3: Materials Planning and

Unit 4: Relationship of Materials Planning with Production Programs and Sales

BLOCK II: ORGANIZING FOR MATERIALS MANAGEMENT

Unit 5: Organizational Variation within Materials Management

Unit 6: Store Management

Unit 7: Spare Part Management

Unit 8: Integrated Management Information Systems for Materials Management

BLOCK III: PURCHASING MANAGEMENT

Unit 9: Functions of Purchasing Department

Unit 10: Purchasing Policy and Procedure - Purchasing Policies

Unit 11: Classification of Purchasing Goods

Unit 12: Forms of Purchasing Organization

BLOCK 4: VENDOR DEVELOPMENT AND INVENTORY MANAGEMENT

Unit 13: Need for Vendor

Unit 14: International Purchasing

Unit 15: Nature and Importance of Inventory

Unit 16: Inventory Control Systems

ELECTIVE E – TOURISM

COURSE NAME : TOURISM DEVELOPMENT

COURSE- SC-3.1 E

BLOCK -I : AN OVER VIEW OF TOURISM

Unit-1 : Components of Tourism

Unit-2 : An Overview of Tourism Development in Europe-UK, France, Switzerland, Italy

Unit-3 : Tourism Development in Karnataka

Unit-4 : Tourism Industry in India

BLOCK II: TOURISM DEVELOPMENT – AN INTEGRATED APPROACH

Unit-5 : Mass Tourism

Unit-6 : Tourism Economics

Unit-7 : Stake Holders in Tourism Development

Unit-8 : Destination Planning and Development

BLOCK III: TOURISM RESEARCH

Unit-9 : Tourist Behaviour

Unit-10 : Information Technology in Tourism

Unit-11 : Tourism Research

Unit-12 : Statistical Measurement of Services

BLOCK IV: TOURISM PLANNING AND POLICIES

Unit-13 : Tourism Planning and Development

Unit-14 : Types of Planning

Unit-15 : Tourism Planning in India

Unit-16 : Tourism Development in Southeast Asia

COURSE NAME : TOURISM SALES AND MARKETING

COURSE- SC-3.2 E

BLOCK -I TOURISM MARKETING – GENERAL

Unit-1 : Tourism Sales – Nature, Strategy & Sales Force

Unit-2 : Evolution of Tourism Marketing

Unit-3 : Features of Tourism Marketing

Unit-4 : Gatt-Rounds-Gats-Purpose-Service

BLOCK -II DISTRIBUTION CHANNEL AND ENVIRONMENT

Unit-5 : Consumer Behaviour

Unit-6 : Channels of Distribution

Unit-7 : Marketing Environment

Unit-8 : Marketing Information System and Research

BLOCK -III MARKET SEGMENTATION AND MARKETING MIX

Unit-9 : Marketing Segmentation

Unit-10 : Marketing Mix

Unit-11 : Advertising

Unit-12 : Marketing Planning and Control

BLOCK -IV MARKETING STRATEGIES

Unit-13 : Tourism Events and Attractions

Unit-14 : Tourism Direct and Indirect Marketing

Unit-15 : Marketing Tourist Destinations Visitors Attractions and Hotel Accommodation

Unit-16 : Case Studies of Successful Marketing

COURSE NAME : HOSPITALITY MANAGEMENT

COURSE- SC-3.3 E

BLOCK -I GROWTH OF HOSPITALITY INDUSTRY

Unit-1 : The Hospitality Industry

Unit-2 : Growth and classification of Hotels

Unit-3 : Introduction to the Catering Industry

Unit-4 : Organizational Structure and Job Description of Food and Beverage Department

BLOCK -2 RESTAURANT

Unit-5 : The Concept of Professionalism in Hotels

Unit-6 : The Restaurant

Unit-7 : The Menu

Unit-8 : Restaurant Procedure

BLOCK -3 FRONT OFFICE AND HOUSEKEEPING OPERATION

Unit-9 : Front Office Organization

Unit-10 : Job Description of front office personnel

Unit-11 : Housekeeping Layout

Unit-12 : Competencies of housekeeping, types of guest room

BLOCK -4 HOTEL OPERATING CONCEPTS

Unit-13 : Kitchen Operation

Unit-14 : Duties and Responsibilities of front office personnel

Unit-15 : Successful hotel Business Operating Concepts

Unit-16 : Hotel Guest Relationship

ELECTIVE : F CORPORATE LAW

COURSE- SC-3.1 F

BLOCK -I

Unit-1 : Introduction of Company Reconstruction

Unit-2 : Meaning of Amalgamation & Merger

Unit-3 : Meaning of Takeovers

Unit-4 : Valuation of Business

Unit -5 : Reconstruction of Sick Industrial Companies

BLOCK -II

Unit-1 : Legal Provisions of Amalgamation & Merger

Unit-2 : Approval for Amalgamation & Merger

Unit-3 : Financial Accounting in Amalgamation & Merger

Unit-4 : Procedure & Documentation of Amalgamation & Merger

Unit-5 : Demerger

BLOCK -III

Unit-1 : Takeovers of Unlisted & closely head Companies

Unit-2 : Funding for Takeovers

Unit-3 : Bailout Takeovers

Unit-4 : Financial reconstruction

Unit-5 : Buyback Shares

BLOCK -IV

Unit-1 : Winding up

Unit-2 : Winding up through Courts

Unit-3 : Voluntary winding up

Unit-4 : Consequences of winding up

Unit-5 : Offences & penalties for defaults

INSURANCE LAW

COURSE- SC-3.2 F

BLOCK -1

Unit-1 : History of Life Insurance

Unit-2 : Insurance regulatory and Development Authority Act-1999

Unit-3 : Insurance Act-1938

Unit-4 : Provident Society

Unit-5 : Administration of Insurance Business

BLOCK -2

Unit-1 : Insurance Brokers

Unit-2 : Insurance Agents

Unit-3 : Web Aggregators

Unit-4 : Liaising Agencies

Unit-5 : Public Liability Insurance Act - 1991

BLOCK -3

Unit-1 : Theories of Insurance

Unit-2 : Principles of insurance contract

Unit-3 : Life Insurance

Unit-4 : Life Insurance Claims

Unit -5 : Miscellaneous Insurance

BLOCK -4

Unit-1 : Fire Insurance

Unit-2 : Marine Insurance

Unit-3 : Voyage

Unit-4 : Motor Vehicle Insurance

Unit-5 : Miscellaneous Insurance

INTELLECTUAL PROPERTY RIGHTS

COURSE- SC-3.3 F

BLOCK -1

Unit-1 : Overview of the concept of property

Unit-2 : Historical perspective of Patent Law.

Unit-3 : Universally recognized technical requirements of patents

Unit-4 : Rights of patentees – Assignment, Licensing, Compulsory Licensing Scope of governmental intervention

Unit-5: Patenting of Life form & Plant verities

BLOCK -2

Unit-1 : Meaning of Copyright, its nature, scope, content and duration

Unit-2 : Protection of copyright in international regime

Unit-3 : Copyright and allied rights: Copyright in computer software, Performer's and Broadcasters' right

Unit-4 : Infringement of copyright, Criminal & Civil remedies, Fair us doctrine.

Unit-5 : Authorship, ownership, Assignment & Licensing, Moral Rights, Sound Recordings, Video Films

BLOCK -3

Unit-1: Purpose of protecting trademarks

Unit-2 : International conventions

Unit-3 : Philosophy and theories of protection : Distinctive trademarks, descriptive trademarks, deceptive trademarks

Unit-4 : Infringement of trademarks

Unit-5 : Procedure of registration of trade mark

BLOCK -4

Unit-1 : Introduction and overview of geographical indications

Unit-2 : Registration of geographical indications,

Unit-3 : Types of goods of offered protection under GI Act

Unit-4 : Confidential information

Unit-5 : Trade secrets and employment contact

Elective –G: Information Technology (IT)

Course-SC-3.1G: DATABASE MANAGEMENT SYSTEM

BLOCK-I: INTRODUCTION TO DATABASE SYSTEMS, ENTITY RELATIONSHIP, AND DATA MODELS

Unit – 1: Introduction

Unit – 2: Data Modeling

Unit – 3: Data Models

Unit – 4: Relational Model

BLOCK -II: COMMERCIAL QUERY LANGUAGES, DATABASE DESIGN, FILE ORGANIZATION, TRANSACTION PROCESSING

Unit – 5: Commercial Query Languages

Unit – 6: Database Design

Unit – 7: File Organization, Indexing and Hashing

Unit – 8: Transaction Processing

BLOCK-III: CONCURRENCY CONTROL, RECOVERY, QUERY PROCESSING AND OPTIMIZATION, ADVANCED DATABASE APPLICATIONS

Unit – 9: Concurrency Control

Unit – 10: Database Backup and Recovery

Unit – 11: Query Processing and Optimization

Unit – 12: Advanced Database Applications

BLOCK-IV: DISTRIBUTED DATABASES, OBJECT ORIENTED DATABASE DESIGN, IMPLEMENTING SECURITY IN DATABASES, CASE STUDY

Unit – 13: Distributed Databases

Unit – 14: Object Oriented Database Design

Unit – 15: Implementing Security in Databases

Unit –16 : Case Study on Popular Database Package Oracle

Course-SC-3.2G: BUSINESS INTELLIGENCE AND ANALYTICS

BLOCK 1:

Unit 1: Business Intelligence an Introduction

Unit 2: Business Intelligence Essentials

Unit 3: Business Intelligence Types

Unit 4: Architecting the Data

BLOCK 2:

Unit 5: Introduction to Data Mining

Unit 6: Data Mining Techniques

Unit 7: Introduction to Data Warehousing

Unit 8: Different Ways of Data Warehousing

BLOCK 3:

Unit 9: Knowledge Management

Unit 10: Data Extraction

Unit 11: Business Intelligence Life Cycle

Unit 12: Business Intelligence User Model

BLOCK 4: Tableau for Visual Data Analytics

Unit 13: Introduction to Tableau

Unit 14: Connecting your Data

Unit 15: Data Visualization

Unit 16: Calculations with Tableau

Course-SC-3.3G: E-COMMERCE

BLOCK 1: FUNDAMENTALS OF E-COMMERCE

Unit 1: Introduction to E-commerce

Unit 2: Types of E- Commerce

Unit 3: E-Commerce Infrastructure

Unit 4: Internet and Web

BLOCK 2: CONSTRUCTION OF E-COMMERCE PRESENCE

Unit 5: E-commerce presence

Unit 6: E-commerce security

Unit 7: E-commerce payment systems

Unit 8: E-commerce Business Strategies

BLOCK 3: E-COMMERCE - MARKETING

Unit 9: E-commerce Marketing and Advertising

Unit 10: Social, Mobile and Local Marketing

Unit 11: Ethics, Laws and E-commerce

Unit 12: Online media

BLOCK 4: E-COMMERCE SERVICES AND RETAILING

Unit 13: Online Communities

Unit 14: E-commerce retailing

Unit 15: E-commerce services

Unit 16: B2B E-Commerce

MBA 4th SEMESTER SYLLABUS

COURSE – 19: QUALITY AND OPERATIONS MANAGEMENT

BLOCK - 1: BASICS OF OPERATIONS MANAGEMENT

Unit - 1: Introduction to Operations Management

Unit - 2: Types of Production System

Unit - 3: World Class Manufacturing Production Strategy

Unit - 4: Advances in Production Management

BLOCK - 2: PRODUCTION PLANNING

Unit - 5: Product and Process Design

Unit - 6: Plant Location and Layout

Unit - 7: Forecasting and Production Planning and Control

Unit - 8: Materials Management

BLOCK - 3: MANUFACTURING AND CONTROL

Unit - 9: Productivity and Time Study

Unit - 10: Just-in – Time and Kanban System

Unit - 11: Material and Maintenance Management

Unit - 12: Production Planning and Control

BLOCK - 4: TOTAL QUALITY MANAGEMENT

UNIT - 13: Total Quality Management- Introduction

Unit - 14: Quality Costs

Unit - 15: Bench Marking and BPRE

Unit - 16: Quality Gurus of TQM

COURSE – 20: INTERNATIONAL BUSINESS

BLOCK -1: INTRODUCTION TO INTERNATIONAL BUSINESS

Unit - 1: International Business : An Over View

Unit - 2: Modes of Entry into International Business

Unit - 3: Internationalization and Multinational Corporations Managerial Implications

Unit - 4: Role of MNCs in Developing Countries

BLOCK -2: INTERNA TIONAL BUSINESS ENVIRONMENT

Unit - 5: An Overview of Political, Social and Cultural, Legal and Technological Environment

Unit - 6: Economic Environment

Unit - 7: Regional Trade Blocks

Unit - 8: World Trade and Protectionism

MODULE-3: THEORIES OF INTERNATIONAL BUSINESS AND BILATERAL AND MULTILATERAL TRADE LAWS

Unit - 9: Mercantilism Theories

Unit - 10: International Trade Theories

Unit – 11: GATT/ WTO and International Liberalisation

Unit - 12: Ministerial Conference of SAARC

BLOCK -4: GLOBAL TRADING ENVIRONMENT

Unit - 13: Globalization and its Impact on Indian Industry, Globalization and Internal Reform Process

Unit - 14: EXIM Policy, Government Support, Export Incentives, Export Credit

Unit - 15: Insurance and Marine Insurance

Unit - 16: Foreign Direct Investment (FDI)

Course- SEC-4 STATISTICAL TOOLS FOR MANAGEMENT

Students shall download free R Software and learn following

BLOCK -1: R PROGRAMME

Unit 1: Overview of R Studio, installing R, Introduction to Basics of R, data frames, R Script, working directories

Unit 2: indexing and slicing data frames, creating matrix, operations on matrix, merging and importing data,

Unit 3: data types and factors, lists and its operations, plotting histogram and pie chart, bar chart, scatter plot

Unit 4: GGplot2, aesthetic mapping, data manipulation using dplyr package, pipe operator conditional statements , functions

BLOCK 2: FRONT ACCOUNTING

Unit 5: Front accounting 2.4.7, overview, installation

Unit 6: Banking and general ledger in front accounting, journal entry and balance sheet

Unit 7: Items and inventory, taxes and bank accounting

Unit 8: Sales, placing sales orders, purchase and reports

ELECTIVE: A: FINANCE

COURSE NAME: STRATEGIC FINANCIAL MANAGEMENT

COURSE- SC-4.1 A

BLOCK -I: STRATEGIC FINANCING DECISIONS:

Unit-1: Introduction to Strategic Financial Management

Unit-2: Financial Planning and Analysis

Unit-3: Capital Structure, Dividend Policy and Financial Innovations

Unit-4: Financial Engineering and Challenges in Strategic Financial Management

BLOCK -II: PRIVATE EQUITY AND VENTURE CAPITAL

Unit-5: Rudiments of Valuing and Financing a Venture

Unit-6: The Stages of Venture Development and Financing

Unit-7: Venture Capital Firms

Unit-8: The Role of Staging and VC Monitoring In Resolving Principal – Agent Conflicts

BLOCK -III: MERGERS, ACQUISITIONS, TAKEOVERS, AND BUYOUTS

Unit-9: Basic Concepts of Mergers and Acquisitions

Unit-10: Mergers and Acquisitions

Unit-11: Takeovers and Buyouts

Unit-12: Legal and Procedural Aspects

BLOCK- IV: FINANCIAL DISTRESS AND RESTRUCTURING :

Unit-13: Basics Financial Distress and Restructuring

Unit-14: Divesture and Financial Restructuring

Unit-15: Corporate and Distress

Unit-16: Failures in Merger/Acquisition/Joint Ventures , Liquidation and Winding up, Financial Distress, Turnaround Strategies

ELECTIVE : A : FINANCE

COURSE NAME : INTERNATIONAL FINANCIAL MANAGEMENT

COURSE- SC-4.2 A

BLOCK - 1: INTERNATIONAL FINANCIAL ENVIRONMENT

Unit -1: Global Financial Markets and Recent Development

Unit -2: Interest Rates in Global Money Markets, The Balance Of Payments - Importance And Structure

Unit -3: International Monetary System-IMF Functions Funding Methods, SDRS and Exchange Rate Regimes

Unit -4: Foreign Direct Investment, Foreign Institutional Investors and Private Equity

BLOCK - 2: FOREIGN EXCHANGE MARKET

Unit - 5: Functions and Structure Of Foreign Exchange Market

Unit - 6: Foreign Exchange Transactions

Unit - 7: Foreign Exchange Market in India

Unit - 8: Spot and Forward Rates

BLOCK - 3: FOREIGN EXCHANGE EXPOSURE

Unit - 9: Types of Transaction Exposure

Unit - 10: Exchange Rates - Determination Of Exchange Rates

Unit - 11: Interest Rate Parity (IRP) And Purchasing Power Parity (PPP) Theory

Unit - 12: Exchange Rate Forecasting

BLOCK - 4: FOREIGN EXCHANGE RISK MANAGEMENT

Unit - 13: Measurement of Transaction Exposure, Translation Exposure And Economic Exposure

Unit - 14: Hedging Strategies for Currency Risk: Contractual And Non-Contractual Hedging

Unit - 15: Forwards, Futures, Swaps and Money Market Operations

Unit - 16: Multinational Cost of Capital and Capital Structure

COURSE - SC-4.3A : DERIVATIVES

BLOCK - 1: INTRODUCTION TO DERIVATIVES

Unit - 1: Derivatives : An Overview

Unit - 2: Financial Derivatives In India

Unit - 3: Regulatory Authorities And Derivative Exchanges In India **Unit - 4:** Participants In Derivatives Market

BLOCK - 2 : FORWARDS TO FORWARDS AND FUTURES

Unit - 5: Introduction to Forwards and Futures

Unit - 6: Trading In Forwards and Futures

Unit - 7: Using Futures for Hedging

Unit - 8: Stock Index Futures

BLOCK - 3: FORWARDS AND FUTURES

Unit - 9: Call Options Bounds

Unit - 10: American Options

Unit - 11: Put Options Bounds

Unit - 12: Options Combinations

BLOCK - 4 : VALUATIONS MODELS

Unit - 13: Principles of Options Pricing

Unit - 14: Options Pricing - Put/Call Parity

Unit - 15: Binomial Model

Unit - 16: Black-Scholes Option Pricing Model

ELECTIVE : B

COURSE NAME : RETAILING AND SUPPLY CHAIN MANAGEMENT

COURSE- SC-4.1 B

BLOCK -I: INTRODUCTION

Unit-1 : An overview of global retailing, challenges, opportunities, Impact on environment on retail,

Unit-2 : Retailing in India , emerging trends , an overview of major players.

Unit-3 : Retail formats, retailing decision, retailing life cycle.

Unit-4 : Retail planning, retail shop management.

BLOCK -II: RETAILING

Unit-5 : Retail shopper's behaviour Managing retail business, retail organization and operation management

Unit-6 : Retail Information systems, Merchandise management, Retail pricing. branding aspects in retailing

Unit-7: Problems in retailing, challenges, prospects, Threat of organized retails to unorganized retailing. FDI in retail sector,

Unit-8 : Customer Management in retailing Location, Layout, Index of retail saturation

BLOCK -III: SUPPLY CHAIN

Unit 9 : Supply chain fundamentals, evolution, Decision phases, Enablers, drivers of supply chain performance,

Unit 10: Strategic sourcing, out sourcing, MOB, Supplier development, **Unit 11:** Supply chain network, distribution strategy, network and design, **Unit 12 :** Planning demand, inventory and supply.

BLOCK -IV: SUPPLY CHAIN MANAGEMENT

Unit 13: Supply chain integration building partnership and trust, **Unit 14:** Supply Chain restructuring Supply Chain process.

Unit 15: IT in supply chain Reverse supply chain, Agro supply chain.

Unit 16: RFID Dimensions of customer value , customer management. **Case Study Compulsory for each module**

ELECTIVE : B

COURSE NAME : BUSINESS MARKETING

COURSE- SC-4.2 B

BLOCK 1: Introduction to Business Marketing

Unit 1: Fundamentals of Industrial Marketing

Unit 2: Classification of Industrial Goods

Unit 3: Industrial Marketing Environment

Unit 4: Industrial Market Segmentation

BLOCK 2: Organizational Buying

Unit 5: Characteristics of Organizational Buying

Unit 6: Models of Buyer Behavior

Unit 7: Industrial Buying

Unit 8: Value Analysis

BLOCK 3: Strategy Formulation in Industrial market

Unit 9: Strategic Planning

Unit 10: Analysis Industrial Product

Unit 11: Product Design

Unit 12: Industrial Services

BLOCK 4: Distribution Channels and Promotion of Industrial Goods

Unit 13: Distribution Channels and its Function

Unit 14: Logistic Management

Unit 15: Meaning, Objectives of Promotion and Sales Promotion

Unit 16: Advertisement and its evaluation

COURSE NAME: INTERNATIONAL MARKETING

COURSE- SC-4.3 B

BLOCK -I: INTRODUCTION

Unit-1: Introduction

Unit-2: Basic Modes of Entry, International Marketing decisions.

Unit-3: History of India exports, Balance of payment

Unit-4: An overview of current scenario of international trade India's international trade Case Study

BLOCK -II: INTERNATIONAL MARKETING ENVIRONMENT

Unit-5: Political Environment, International Economic

Unit-6: Economic environment and legal environment Socio cultural environment Trading environment, Tariff and non-Tariff Barriers..

Unit-7: Economic Integration and regional blocs, NAFTA, LAFTA, ASEAN, SAARC, EU Cartels. Multinational Companies,

Unit-8: An overview of Multinational companies in India, TNCs.100% EOU, SEZ, EPZ, Export houses Case Study.

BLOCK -III: INTERNATIONAL MARKETING MIX

Unit-9 : International Product, International product life cycle,

Unit-10: International Pricing, Methods of determining pricing in international market, Transfer Pricing, INCOTERMS.

Unit-11 : Promotion International product promotion exhibitions personnel selling, sales team management.

Unit-12 : Distribution intermediaries in distribution and related issues Case Study

BLOCK -IV: INTERNATIONAL MARKETING IN INDIA

Unit-13 : Export Documentation, regulations, licences. Institutional support in India, EXIM Bank, ECGC,

Unit-14 : Banks, pre and post shipment credit, Export promotion, EPC.

Unit-15 : Policy support , EXIM policy , Foreign trade policy,

Unit-16 : Trends in India's foreign trade, International services. Case Study.

COURSE NAME : KNOWLEDGE MANAGEMENT

COURSE- SC-4.1 C

BLOCK- I: INTRODUCTION

Unit-1: Introduction to Knowledge Management

Unit-2: Knowledge Management

Unit-3: Knowledge Management Process

Unit-4: Knowledge Application and System

BLOCK -II: STRATEGIC KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL CULTURE:

Unit-5: Models of Knowledge Management & its Phases of Development

Unit-6: Strategic Framework of Knowledge Management

Unit-7: Organisational Culture for Knowledge Management

Unit-8: Knowledge Sharing

BLOCK -III: KNOWLEDGE ECONOMY AND TALENT MANAGEMENT SYSTEMS

Unit-9: Principles of Knowledge Management

Unit-10: Earning Organizations and Knowledge

Unit-11: Insight to Knowledge Management

Unit-12: Strategy- Issues and Challenges in Knowledge Management, Talent, Management- An Introduction, Performance Management

BLOCK -IV: TALENT PLANNING

Unit-13: Succession Management Process

Unit-14: Talent Development Budget-Value Driven Cost Structure

Unit-15: Contingency Plan for Talent

Unit-16: Building Talent Leadership Coaching - Talent Management **,**Talent Management and Social Media, Retaining Talent and Strategies .

ELECTIVE : C : HRM

COURSE NAME : INTERNATIONAL HUMAN RESOURCE MANAGEMENT

COURSE- SC-4.2 C

BLOCK - 1: INTRODUCTION TO IHRM

Unit - 1: An Over View To IHRM

Unit - 2: Internationalisation of HRM

Unit - 3: Culture and Employee Management Issues

Unit - 4: The Challenges of International Human Resources Management

BLOCK - 2: Strategies for International Growth

Unit - 5: Exploiting Global Integration

Unit - 6: Mastering Expatriate

Unit - 7: Becoming Locally Responsive

Unit - 8: Challenges of Localization

BLOCK - 3: Recruitment, Selection And Staffing In International Context

Unit - 9: Recruitment of Managers

Unit - 10: Different Approaches to Multinational Staffing Decisions

Unit - 11: Recruitment Methods

Unit - 12: Selection Criteria and Techniques

BLOCK - 4: Performance Management

Unit - 13: A Conceptual Background

Unit - 14: Performance Management Cycle And Model

Unit - 15: Performance Management Of Expatriates

Unit - 16: International Performance Management - Issues And Challenges

ELECTIVE : C

COURSE NAME : LABOUR LEGISLATION

COURSE- SC-4.3 C

Block - I: INTRODUCTION

Unit - 1: Introduction to Labour Legislation

Unit - 2: Classification of Labour Laws

Unit - 3: Indian Constitution and Protection of Labour

Unit - 4: Overview of Labour Legislation In India

Block - II: LABOUR POLICY AND ADMINISTRATION

Unit - 5: Overview of Labour Policy and Administration

Unit - 6: Labour Law Administrative Machinery (Central And State)

Unit - 7: International Labour Organisation

Unit - 8: International Labour Organisation And Indian Labour Legislation

BLOCK - III: FACTORIES ACT 1948 AND RELATED LEGISLATION

Unit - 9: The Factories Act, 1948

Unit - 10: Welfare Measures And Other Measures

Unit - 11: Law Relating To Wages

Unit - 12: The Payment Of Bonus Act, 1965

BLOCK - IV: OTHER RELATED LEGISLATION

Unit - 13: Industrial Employment Act, 1946

Unit - 14 : ESI Act, 1948

Unit - 15: Equal Remuneration Act, 1976 and Contact Labour Act, 1970

Unit - 16 : Critical Evaluation Of Working Of Labour Legislation in India

Course -SC-4.1D: STRATEGIC OPERATIONS MANAGEMENT

BLOCK 1: MANUFACTURING STRATEGIES

Unit 1: The traditional batch manufacturing environment. - New Manufacturing Era - Business Challenges of the New Manufacturing Era –

Unit 2: Necessity for Fundamental Changes in Manufacturing - And Service - Business Strategy and Global Competitiveness - Competitive Priorities –

Unit 3: Competing in New Manufacturing Era - Operating Environment of The New Manufacturing Era Business - Generic Manufacturing Strategies for New Manufacturing Era

Unit 4: Value analysis- -Process planning and routing-Pre requisite information needed for process planning- Steps in process planning- capabilities in a multi-product system.

BLOCK-2 OPERATIONS PLANNING AND CONTROL

Unit 5: Objectives and benefits of planning and control-Functions of production control- Product planning- -

Unit 6: Production Control Systems-Loading and scheduling-Master Scheduling-Scheduling rulesGantt charts-Perpetual loading-Basic scheduling problems -– Flow production scheduling- Batch production scheduling-Product sequencing –

Unit 7: Production Control systems-Periodic batch control-Material requirement planning Kanban – Dispatching-Progress reporting and expediting- Manufacturing lead time-Techniques for aligning completion times and due dates.

Unit 8: Managing Strategy, Competitive strategy, Make or Buy

BLOCK-3 OPERATIONS STRATEGY

Unit 9: The Richardson, Taylor and Gordon framework, Translating strategy into operational effectiveness

Unit 10: Implementing operations strategy, Outsourcing

Unit 11: Modern manufacturing methods, automation, ERP, nanotechnology

Unit 12: Mechatronics, Internet of things, Industry 4.0, Machine learning

BLOCK -4 – JAPANEESE MANUFACTURING TECHNIQUES

Unit 13: Integrated Manufacturing systems, Small machines

Unit 14: Just in Time Technology-Lean manufacturing,

Unit 15: Tayota Production System, Kanban System-

Unit 16: JIT in Services-Value Analysis

COURSE -SC-4.2D: WORLD CLASS MANUFACTURING

BLOCK-1 WORLD CLASS MANUFACTURING

Unit 1: WCM Basics

Unit 2: Quality in World-Class Manufacturing

Unit 3: World class Excellent.

Unit 4: Quality Management

BLOCK 2: SYSTEM FOR WORLD CLASS MANUFACTURING SYSTEM

Unit 5: Global Quality Improvement Methods

Unit 6: Case studies on leading Indian companies towards world class manufacturing

Unit 7: Group Technology, Focused Factories and Cellular Manufacturing

Unit 8: Total Productive Maintenance

BLOCK-3 TOOLS OF TQM

Unit 9 : Maintenance Management, Types, Advantages, Reliability

Unit 10: TQM framework- Obstacles to TQM- TQM models- TQM in services

Unit 11: Tools for Process improvement- Process capability- Process mapping- Process Design

Unit 12: Five why techniques- kaizen- Radar Chart Earned Value Management

BLOCK-4: TECHNIQUES OF QUALITY

Unit 13: Adding value to the organization

Unit 14: Taguchis Quality loss Function, Robust Design, Design of Experiments,

Unit 15: SIX SIGMA, Zero Defects, , FMS, Rapid Prototyping , 3 M,

Unit 16: Leading Indian Companies engaged in world Class Manufacturing, Examples from different parts of World

Course -SC-4.3D: GLOBAL OPERATIONS MANAGEMENT

BLOCK-1: Introduction to Global Operations

Unit 1: Meaning, Scope, Significance, Advantages and limitations of global operations

Unit 2: Location and production decisions –Facility reallocations - Multinational Companies

Unit 3: Role of technology in international operations. Ethical issues in global operations

Unit 4: MNCs, Future of global operations, global services- global transportation –

Block 2: Global Operations strategy -

Unit 5: Global Operations strategy, global mergers and acquisitions global network-

Unit 6: Aviation and marine transportation- Issues, Ease of Operations

Unit 7: International product design, development, International product life cycle, **Unit 8:** International branding, Reverse engineering,

Block 3: Global New product Development

Unit 9: International promotion, Pricing, Exporting, Exporting procedures, technology transfer

Unit 10: International sourcing, Single sourcing and Multi sourcing, 'Global Procurement,

Unit 11: counter trade, MFA, Importing for Exporting,

Unit 12: Role of international organizations in international trade, Challenges for developing countries,

Block 4: Global Logistics

Unit 13: Government Support for international operations, Global Services, providing services abroad-Challenges

Unit 14: International distribution, factors affecting distributions, International cargo, international transit insurances,

Unit 15: international supply chain management, Regulations, **Unit 16:** International flow of information,

Case Studies from Different parts of World.

ELECTIVE : E : TOURISM

COURSE NAME : TRAVEL AGENCY MANAGEMENT

COURSE- SC-4.1 E

BLOCK -1 UNDERSTANDING TRAVEL AGENCIES

Unit-1 History of Travel Agencies

Unit-2 Organization and Job Structure

Unit-3 Types of Ownership

Unit-4 Functions of Travel Agency

BLOCK -2 TRAVEL AGENCY BUSINESS

Unit-5 Linkages with Principal Suppliers

Unit-6 Setting Up A Travel Agency

Unit-7 Organization and Associations of Travel Agents

Unit-8 Travel Formalities

BLOCK -3 UNDERSTNADING TOUR OPERATORS

Unit-9 Types of Tour Operators – Tour Packaging

Unit-10 Tourist Guides

Unit-11 Guiding in Various Settings

Unit-12 Itinerary Planning, Tour Costing and Praising

BLOCK -4 TRAVEL TRADE

Unit-13 Travel Agency Marketing

Unit-14 Tourist Accommodation

Unit-15 Safety and Security Guidelines for Adventure Tour Operator

Unit-16 Global Distribution System

ELECTIVE : E : TOURISM

COURSE NAME : ECO-TOURISM AND SUSTAINABLE DEVELOPMENT

COURSE- SC-4.2 E

BLOCK -1 ECO – TOURISM

Unit-1 Relationship of Tourism and Environment

Unit-2 Eco Tourism Resources

Unit-3 Eco Tourism in Karnataka

Unit-4 Carrying Capacity

BLOCK -2 SUSTAINABLE DEVELOPMENT

Unit-5 Sustainable Tourism and Development

Unit-6 Role of World Tourism Organisation

Unit-7 Economic impacts

Unit-8 Socio Cultural Impacts of Tourism

BLOCK -3 TOURISM IMPACTS AND SUSTAINABLE DEVELOPMENT

Unit-9 Wildlife and Sustainable Tourism Development

Unit-10 Wildlife Sanctuaries in India

Unit-11 Problems of Sustainable Tourism

Unit-12 Sustainable Tourism in the New Millennium

BLOCK -4 ECO-TOURISM POLICY & ENVIRONMENTAL PROTECTION

Unit-13 Ecotourism Policy and Legislation

Unit-14 Global Code of Ethics for Tourism

Unit-15 Green Hotels of Ecotels

Unit-16 Role of Various Organizations in Sustainable Tourism Development

ELECTIVE : E : TOURISM

COURSE NAME : GLOBAL TOURISM

COURSE- SC-4.3 E

BLOCK -1 GLOBAL TOURISM GENERAL

Unit-1 : Introduction

Unit-2 : Global Tourism Towards an Integrated Approach

Unit-3 : Role of ethics in Global Tourism

Unit-4 : How India can Become Global Tourist Destination

BLOCK -2 GROWTH OF GLOBAL TOURISM

Unit-5 : Tourism Growth and Trends

Unit-6 : Tourism Marketing – Global Tourism

Unit-7 : International Tourism and Sustainable Development

Unit-8 : Tourism Developing Countries

BLOCK -3 CHALLENGES OF GLOBAL TOURISM

Unit-9 : International Tourism-The Global Tourism Industry

Unit-10 : Cross Cultural

Unit-11 : International Tourism-Challenges in Prospective

Unit-12 : Island Tourism

BLOCK -4 SELECTED DESTINATIONATIONS

Unit-13 : Tourism Destination of some selected European countries

Unit-14 : Tourist Destinations of Selected Destinations of Asian Countries

Unit-15 : Tourist Destinations of U.S.A. and Other Countries

Unit-16 : Tourist Destinations of Selected African Countries

LAW OF BANKING

COURSE- SC-4.1 F

BLOCK -1

Unit-1 : The Architecture of Indian Finance Sector

Unit-2 : Commercial Banks and their Functions

Unit-3 : Banking as a Business of Borrowing and Lending

Unit-4 : Banker as Borrower

Unit -5 : Miscellaneous Aspects of Banking

BLOCK -2

Unit-1 : Regulating Banks

Unit-2 : The Central Bank as Regulator

Unit-3 : Law of banking Regulation

Unit-4 : NBFCS and their Regulation

Unit-5 : NBFCS and their regulation, consumer protection act and IBA code for banking practice

BLOCK -3

Unit-1 : Law and Practice of Negotiable instrument

Unit-2 : Negotiable instrument-Law and Procedure

Unit-3 : Negotiable instruments Law and Procedure

Unit-4 : Negotiable instruments Law and Procedure

Unit-5 : Banker and Customer Relationship

BLOCK -4

Unit-1 : Loans and Advances

Unit-2 : Securities for Bankers Loan

Unit-3 : Enforcement of security interprets Act 2002

Unit-4 : The Banking Ombudsman Scheme

Unit-5 : The modern Aspects of Banking

INTERNATIONAL TRADE LAW

COURSE- SC-4.2 F

BLOCK -1

Unit-1 : World trade organization and economic theories

Unit-2 : World trade organization as an international institution

Unit-3 : GATT and Trade in goods

Unit-4 : Trade remedies and the WTO

Unit -5 : Trade agreements

BLOCK -2

Unit-1 : Technical barriers to trade

Unit-2 : General agreement on trade in services (GATS)

Unit-3 : Trade related aspects of intellectual property (TRIPS)

Unit-4 : Agreement on Agriculture

Unit-5 : WTO in 21st century

BLOCK -3

Unit-1 : Transnational commercial laws

Unit-2 : International sales

Unit-3 : International carriage of goods

Unit-4 : International payments

Unit-5 : International commercial arbitration

BLOCK -4

Unit-1 : Law and policy of expert-import trade in India

Unit-2 : Liberalization of trade and exim policy

Unit-3 : Special economic zones

Unit-4 : Customs law

Unit-5 : Foreign investment

CORPORATE TAXATION LAW

COURSE- SC-4.3 F

BLOCK -1

Unit-1 : Concept of Taxation

Unit-2 : Constitutional provisions relating to taxes

Unit-3 : Basic concepts of Income Tax

Unit-4 : Heads of income – Tax free Incomes

BLOCK -2

Unit-5 : Returns - Types of returns

Unit-6 : Income tax Authorities

Unit-7 : Advance ruling

Unit-8 : Assessment of Business organizations

Unit-9 : Combination of companies

BLOCK -3

Unit-10 : Introduction to indirect taxes

Unit-12 : Customs Duties

Unit-13 : Cascading effects of sales taxes

Unit-14 : Service Tax

Unit-15 : Transfer pricing

BLOCK -4

Unit-16 : International Taxation

Unit-17 : Tax treaties

Unit-18 : OECD and UN models of tax treaties

Unit-19 : Tax Planning and Management

Unit-20 : Tax planning in respect of amalgamation, merger, demerger and acquisitions

Elective –G: Information Technology (IT)

COURSE -SC-4.1G: SOFTWARE PROJECT MANAGEMENT

BLOCK 1:

Unit 1: Introduction To Project Management

Unit 2: Project Planning

Unit 3: Scope Management

Unit 4: Project Scheduling

BLOCK 2:

Unit 5: Cost Estimation Principles and Importance

Unit 6: Cost Estimation Models

Unit 7: Quality Management Characteristics and Importance

Unit 8: Quality Management Tools and Case Study

BLOCK 3:

Unit 9: Human Resources Management

Unit 10: Case Study and Issues Involved

Unit 11: Planning and Reporting

Unit 12: Case Study Description

BLOCK 4:

Unit 13: Risk Management And Case Study

Unit 14: Procurement Procedures

Unit 15: Case Study Description

Unit 16: Planning, Execution And Closing

COURSE -SC-4.2G: Information Security

BLOCK I

Unit 1: Information Security

Unit 2: Security Services, Mechanism and Attacks

Unit 3: Physical and System Security

Unit 4. Internet and Web Security

BLOCK II

Unit 5. Network Security Fundamentals

Unit 6. IT Acts and Cyber Laws

Unit 7 Introduction to Cyber Security

Unit 8: Cyber Security Vulnerabilities and Cyber Security Safeguards

BLOCK III

Unit 9: Awareness.

Unit 10: Securing Web Application, Services and Servers

Unit 11: Intrusion Detection and Prevention

Unit 12: Cryptography and Network Security.

BLOCK IV

Unit 13: Overview of Firewalls.

Unit 14: Cyberspace and The Law Introduction,

Unit 15: Cyber Forensics

Unit 16: Investigating Information-Hiding

COURSE -SC-4.3G: BIG DATA ANALYTICS USING R

BLOCK I

Unit 1: Understanding Big Data

Unit 2: Business Motivations and Drivers for Big Data Adoption

Unit 3: Big Data Adoption and Planning Considerations

Unit 4: Enterprise Technologies and Big Data Business Intelligence

BLOCK II

Unit 5: Big Data Storage Concepts

Unit 6: Big Data Processing Concepts

Unit 7: Big Data Storage Technology

Unit 8: Big Data Analysis Techniques

BLOCK III

Unit 10: Business Values

Unit 11: Inside Cloud Computing

Unit 12: Cloud Service Administration

BLOCK IV

Unit 13: Cloud Computing Technology- Introduction

Unit 14: Accessing the Cloud- Introduction

Unit 15: Data Management- Introduction

Unit 16: Information Storage in Cloud Computing

1.6.3 SCHEME OF EXAMINATION

The Evaluation conducted each semester consists of Internal Assessment and Term End Examination. The Internal Assessment consists of Assignment of 10 marks and seminar presentation for 10 marks in each paper.

M.B. A. Ist SEMESTER

Course Code	Credits	IA Marks	Theory		Aggregate for Pass
			Max. Marks	Min. Marks	
MBHC-1.1	4	20	80	32	40
MBHC-1.2	4	20	80	32	40
MBHC-1.3	4	20	80	32	40
MBHC-1.4	4	20	80	32	40
MBHC-1.5	4	20	80	32	40
ELM 01	2	10	40		

M.B. A. IInd SEMESTER

Course Code	Credits	IA Marks	Theory		Aggregate for Pass
			Max. Marks	Min.Marks	
MBHC-2.1	4	20	80	32	40
MBHC-2.2	4	20	80	32	40
MBHC-2.3	4	20	80	32	40
MBHC-2.4	4	20	80	32	40

MBHC-2.5	4	20	80	32	40
ELM 02	2	10	40		

M.B. A. III[rd] SEMESTER

Course Code	Credits	IA Marks	Theory		Aggregate for Pass
			Max.Marks	Min. Marks	
MBHC-3.1	4	20	80	32	40
MBHC-3.2	4	20	80	32	40
SEC-3	2	20	80	32	40
MBSC-3.1A/B/C/D/E/F/G	4	20	80	32	40
MBSC-3.2A/B/C/D/E/F/G	4	20	80	32	40
MBSC-3.3A/B/C/D/E/F/G	4	20	80	32	40

(Course MBHC-3.1, MBHC-3.2 and SEC-3 are common subjects for all the learners of Third semester. MBSC-3.1A/B/C/D/E/F/G, MBSC-3.2A/B/C/D/E/F/G and MBSC-3.3A/B/C/D/E/F/G are electives: A-Finance, B- Marketing and C- Human Resource Management, D – Operations, E – Tourism, F - Corporate Law, G - Informati on Tech nology (IT))

M.B. A. IV[th] SEMESTER

Course Code	Credits	IA Marks	Theory		Aggregate for Pass
			Max. Marks	Min. Marks	
MBHC-4.1	4	20	80	32	40
MBHC-4.2	4	20	80	32	40
SEC-4	2	20	80	32	40
MBSC-4.1A/B/C/D/E/F/G	4	20	80	32	40
MBSC-4.2A/B/C/D/E/F/G	4	20	80	32	40
MBSC-4.3A/B/C/D/E/F/G	4	20	80	32	40
Project	4	-	100	40	40
VIVA	2	-	50	20	20

(Course MBHC-4.1, MBHC-4.2 and SEC-4 are common subjects for all the learners of fourth semester. MBSC-4.1A/B/C/D/E/F/G, MBSC-4.2A/B/C/D/E/F/G and MBSC-4.3A/B/C/D/E/F/G are electives: A-

Finance, B- Marketing and C- Human Resource Management, D – Operations, E – Tourism, F - Corporate Law, G - Information Technology (IT))

Question Paper Pattern

MBHC-1.2

First Semester M.B.A Degree Examination, August 2022
(CBCS Scheme)
Course : MANAGERIAL ECONOMICS

Time: 3 Hours Max. Marks : 80

Section– A

Answer **any five** sub-questions. **Each** question sub-question carries **(5×3=15)**

a.

b.

c.

d.

e.

f.

g.

Section – B

Answer **any four** questions. **Each** question carries **5** marks. **(4×5=20)**

1.

2.

3.

4.

5.

6.

Section – C

Answer **any three** questions. **Each** question carries **10** marks. **(3×10=30)**

7)

8)

9)

10)

11)

Section – D

Case (Compulsory) : **(1×15=15)**

12) The following table gives the information regarding the units produced, total revenue and total cost of production of a toy factory. Complete the table.

Units of Output (Rs).	**Total Revenue (Rs.)**	**Total Cost**	**Total Profit**	**Marginal `Cost**	**Marginal Revenue**	**Marginal Profit**
250	1,000	752				
251	1.004	753				
252	1,008	755				
253	1.012	758				
254	1,016	762				
255	1,020	767				
256	1,024	773				
257	1,028	780				

MBHC-2.1

Second Semester M.B.A Degree Examination, January 2022
(CBCS Scheme)
Course : INFORMATION TECHNOLOGY FOR MANAGERS

Time: 3 Hours Max. Marks : 75

Section– A

Answer **all** sub-questions. **Each** question carries **two** marks. **(5×3=15)**

a.

b.

c.

d.

e.

Section – B

Answer **any four** questions of the following. **Each** question carries **10** marks. **(4×5=20)**

1.

2.

3.

4.

5.

Section – C

Answer **any three** questions. **Each** question carries **15** marks. **(3×15=45)**

6)

7)

8)

9)

10)

MBHC-3.1

Third Semester M.B.A Degree Examination, September 2022
(CBCS Scheme)
Course: ENTREPRENEURIAL AND SMALL BUSINESS
(Compulsory)

Time: 3 Hours Max. Marks : 80

Section– A

Answer **any five** sub-questions. **Each** question sub-question carries 3 Marks **(5×3=15)**

a.

b.

c.

d.

e.

f.

g.

Section – B

Answer **any four** questions. **Each** question carries **5** marks. **(4×5=20)**

1.

2.

3.

4.

5.

6.

Section – C

Answer **any three** questions. **Each** question carries **10** marks. **(3×10=30)**

7)

8)

9)

10)

11)

Section – D

12) Case study **(1×15=15)**

MBHC-4.1

IV Semester M.B.A Degree Examination, January 2022
(CBCS Scheme)
Course: QUALITY AND OPERATIONS MANAGEMENT
(Compulsory)

Time: 3 Hours Max. Marks : 75

Section– A

Answer **any five** sub-questions. **Each** question sub-question carries **(5×3=15)**

a.

b.

c.

d.

e.

f.

g.

Section – B

Answer **any four** questions. **Each** question carries **5** marks. **(4×5=20)**

1.

2.

3.

4.

5.

6.

Section – C

Answer **any three** questions. **Each** question carries **10** marks. **(3×10=30)**

7)

8)

9)

10)

11)

Section – D

12) Case (Compulsory) : **(1×15=15)**

Note: The question papers of all courses are available in the University website. (www.karnatakastateopenuniveristy.in)

Enclosure-7A

CURRICULUM

KARNATAKA STATE OPEN UNIVERSITY

Mukthagangothri, Mysuru 570 006

Choice Based Credit System (CBCS) Scheme

Detailed Syllabus

of

Master of Computer Applications

MCA Course

SEMESTER-I

SL.NO	COURSE CODE	SUBJECT CODE	SUBJECT TITLE	TEACHING HOURS/WEEK			CREDITS	EXAM HOURS	CIE	SEE	TOTAL
				L	T	LAB					
1	**20MCA11**	CPT 1.1	PROBLEM SOLVING USING C	04	-	-	04	**03**	20	80	**100**
2	**20MCA12**	CPT 1.2	ADVANCED DATA STRUCTURES AND ALGORITHMS	04	-	-	04	**03**	20	80	**100**
3	**20MCA13**	CPT 1.3	OPERATING SYSTEMS	04	-	-	04	**03**	20	80	**100**
4	**20MCA14**	SPT 1.4	DISCRETE MATHEMATICAL STRUCTURES AND STATISTICS	04	-	-	04	**03**	20	80	**100**
5	**20MCA15**	SPT 1.5	ADVANCED DATA BASE MANAGEMENT SYSTEMS	04	-	-	04	**03**	20	80	**100**
6	**20MCA16**	CPP 1.6	DATA STRUCTURE LAB	-	-	04	02	**03**	10	40	**50**
7	**20MCA17**	CPP1.7	LINUX PROGRAMMING LAB	-	-	04	02	**03**	10	40	**50**
8	**20MCA18**	SPP 1.8	ADVANCED. DBMSLAB	-	-	04	02	**03**	10	40	**50**
TOTAL CREDITS							**26**			**TOTAL MARKS**	**650**
TOTAL CONTACT HOURS /WEEK							**32**				

CPT: Core Paper Theory,

SPT: Special paper Theory,

CPP: Core Paper Practical,

Special paper Practical

OEPT: Open Elective Paper Theory, OEPP: Open Elective paper Practical

SEMESTER-II

SL. NO	COURSE CODE	SUBJECT CODE	SUBJECT TITLE	TEACHING HOURS/WEEK			CREDITS	EXAM HOURS	CIE	SEE	TOTAL
				L	T	LAB					
1	20MCA21	CPT 2.1	ADVANCED SOFTWARE ENGINEERING	04	-	-	04	**3**	20	80	100
2	20MCA22	CPT 2.2	ADVANCED JAVA PROGRAMMING	04	-	-	04	**3**	20	80	100
3	20MCA23	CPT 2.3	ELECTIVE 1	04	-	-	04	**3**	20	80	100
4	20MCA24	OEPT2.4	INTERNET TECHNOLOGY	04	-	-	04	**3**	20	80	100
5	20MCA25	SPT 2.5	DATA MINING AND DATA WAREHOUSING	04	-	-	04	**3**	20	80	100
6	20MCA26	CPP 2.6	JAVA PROGRAMMING LAB	-	01	02	02	**3**	10	40	50
7	20MCA27	SPP 2.7	DATA MINING LAB	-	01	02	02	**3**	10	40	50
8	20MCA28	OEPP 2.8	IT LAB	-	01	02	02	**3**	10	40	50
		TOTAL CREDITS					**26**	**TOTAL MARKS**			**650**
		TOTAL CONTACT HOURS /WEEK					**29**				

ELECTIVE 1	
20MCA231	**ARTIFICIAL INTELLIGENCE**
20MCA232	**CLOUD COMPUTING**
20MCA233	**BIG DATA ANALYTICS**
20MCA234	**Ad hoc Networks**

SEMESTER-III

SL.NO	COURSE CODE	SUBJECT CODE	SUBJECT TITLE	TEACHING HOURS/WEEK			CREDITS	EXAM HOURS	CIE	SEE	TOTAL
				L	T	LAB					
1	20MCA31	CPT 3.1	FINITE AUTOMATA AND FORMAL LANGUAGES	4	-	-	4	**3**	20	80	100
2	20MCA32	CPT 3.2	COMPUTER NETWORKS	4	-	-	4	**3**	20	80	100
3	20MCA33	CPT 3.3	PYTHON PROGRAMMING	4	-	-	4	**3**	20	80	100
4	20MCA34	SPT 3.4	ELECTIVE 2	4	-	-	4	**3**	20	80	100
5	20MCA35	OET 3.5	ADVANCED WEB PROGRAMMING	4	-		4	**3**	20	80	100
6	20MCA36	CPP 3.6	PYTHON PROGRAMMING LAB	-		4	2	**3**	10	40	50
7	20MCA37	OEPP 3.7	ADVANCED WEB PROGRAMMING LAB	-	-	4	2	**3**	10	40	50
8	20MCA38	CPP 3.8	MINI PROJECT	-		4	2	**3**	10	40	50
	TOTAL CREDITS						**26**	**TOTAL MARKS**			**650**
	TOTAL CONTACT HOURS /WEEK						**32**				

ELECTIVE 2	
20MCA341	LINEAR ALGEBRA AND PROBABILITY DISTRIBUTION
20MCA342	MACHINE LEARNING
20MCA343	IOT
20MCA344	DEEP LEARNING

SEMESTER-IV

SL.NO	COURSE CODE	SUBJECT CODE	SUBJECT TITLE	TEACHING HOURS/ WEEK			CREDITS	EXAM HOURS	CIE	SSE	TOTAL
				L	T	LAB					
1.	20MCA61	CPP 6.1	RESEARCH METHODOLOGY	4	-	-	4	**03**	20	80	100
2.	20MCA62	CPP 6.2	DISSERTATION/ MAJOR PROJECT (DURING 4TH SEMESTER 12 WEEKS)	-	-	-	12	**03**	100	200	300
TOTAL CREDITS							**16**	**TOTAL MARKS**			**400**

I SEMESTER

SUBJECT NAME:PROBLEM SOLVING USING C			
SUBJECT CODE	**20MCA11**	**CIE MARKS**	**20**
NO. OF HOURS/WEEK:	**04**	**SEE MARKS**	**80**
TOTAL HOURS:	**52**	**CREDITS**	**04**

Block-1: ***14 Hours***

Algorithms and Flowcharts

The meaning of algorithms, Flowcharts and their need, Writing algorithms and drawing flowcharts for simple exercises like finding biggest of three numbers, to find roots of given quadratic equation, to find the biggest and smallest of given set of numbers and such other simple examples Introduction to programming in C, Constants, Variables and Data Types Character set, C tokens, keywords & identifiers, structure of C program, executing a C program. Constants, variables, data types, declaration of variables, declaration of storage classes, assigning values to variables defining symbolic constants, declaring a variable as constant, declaring a variable as volatile, overflow and underflow of data. Operators and Expressions Arithmetic operators, relational operators, logical operators, assignment operator, increment and decrement operator, conditional operator, bitwise operators, comma operator, special operators, arithmetic expressions, evaluation of expressions, precedence of arithmetic operators, type conversions in expressions, operator precedence and associability, mathematical functions

Block -2: ***10 Hours***

Managing Input and Output Operations

The scanf() &printf() functions for input and output operations, reading a character, writing a character, (the getchar() &putchar() functions) , the address operator(&), formatted input and output using format specifiers, Writing simple complete C programs.

Control Statements Decision making with if statement, simple if statement, the if..else statement, nesting of if..else statements, the else..if ladder, the switch statement, the ? : operator, the goto statement, the break statement, programming examples Loop Control Structures The while statement, the do. while statement, the for statement, nested loops, jumps in loops, the continue statement, programming examples**.**

Block -3: ***10 Hours***

Arrays

The meaning of an array, one dimensional and two-dimensional arrays, declaration and initialization of arrays, reading, writing and manipulation of above types of arrays, multidimensional arrays, dynamic arrays, programming examples. Character Arrays and Strings Declaring and initialing string variables, reading string from terminal, writing string to screen, arithmetic operations on characters, putting strings together, comparison of two strings, string handling functions, table of strings, other features of strings, programming examples**.**

Block – 4: ***10 Hours***

User Defined Functions

Need for user defined functions, a multi-function program, elements of User defined functions, defining functions, return values and their types, function calls, function declaration, category of functions, no arguments and no return values, arguments but no return values, arguments with return values, no arguments with return value, functions that return multiple values, nesting of functions, recursion, passing arrays to functions, passing string to functions, programming examples. Structures and Unions Defining a structure, declaring structure variables, accessing structure members, structure initialization, copying and comparing structure variables, operations on individual members, array of structures, structures within structures, structures and functions, Unions, size of structures, programming examples.

Block-5: ***8Hours***

Pointers

Understanding pointers, accessing the address space of a variable, declaring and initialization pointer variables, accessing a variable through its pointer, chain of pointers, pointer expressions, pointers and arrays, pointer and character strings, array of pointers, pointer as function arguments, functions returning pointers, pointers to functions, pointers and structures, programming examples.

Text Books:

1. Behrouz A Forouzan and Richard F Gilbert, Structured Programming Approach in C, 2nd Edition, Thomson, 2001.
2. V Raja Raman, Computer Programming in C, Prentice Hall India, 2000. Chapters: 1.1, 1.3, 2.1, 2.3, 3.1, 3.2, 3.3.

SUBJECT NAME: ADVANCED DATA STRUCTURES AND ALGORITHMS			
SUBJECT CODE	**20MCA12**	CIE MARKS	20
NO OF HOURS/WEEK:	04	SEE MARKS	80
TOTAL HOURS:	52	CREDITS	04

Course Learning Objectives: This course will enable students to:

- Familiarize the knowledge of various types of data structures, operationsandalgorithms
- sorting and searching operations.
- Use the concepts of Stack, Queue, Lists, Trees, Hashing, Searching and Sorting
- Techniques
- Build solutions for real world problems using concepts of data structures
- Know the importance of designing efficient algorithm
- Know various possible algorithm design techniques/methods
- Analyze the algorithm and understand its performance

Course Outcome (CO): At the end of this course, the students will be able to

CO1: Acquire knowledge of

- Various types of data structures, operations and algorithms
- Sorting and searching

operationsCO2: Analyze the

performance of

- Stack, Queue, Lists, Trees, Hashing, Searching and Sorting techniques

CO3: Implement all the applications of Data structures in a high-level language

CO4: Design and apply appropriate data structures for solving computing problems

CO5: Classify problems as P, NP or NP Complete

CO6: Implement algorithms using various design strategies and determine their order of growth.

Block-1: ***12 Hours***

Introduction to algorithm, Properties of algorithm, Notation for Programs, Some simple examples.

Space complexity, Time Complexity, Asymptotic Notation, Practical Complexities, Performance Measurement of simple algorithms,

Analyzing Control Structures, Using a barometer, Supplementary examples, Average Case Analysis, Amortized Analysis, Solving recurrences.

Searching algorithms, linear search, Conventional sort, selection sort, insertion sort, binary search based insertion sort and their complexities.

Block -2: ***10 Hours***

Concept of Data structure and its importance: Relationship with algorithm, Classification of data structure, abstract data type / data object (ADT).

Stack, stack as ADT, recursion, expression evaluation, Queue, queue as ADT, queue applications, realization of stack and queues based on sequential allocation, associated algorithms and their time analysis.

Linked list, some general linked list operations: Singly linear, circular and doubly linked list, associated algorithms and their time analysisApplications of linked lists: Polynomial operations, Dictionary Construction; Sparse matrix multiplication, associated algorithms and their time analysis

Block -3: ***10 Hours***

Introduction, Fundamentals of the Analysis of Algorithm Efficiency: Notion of Algorithm, Fundamentals of Algorithmic Problem Solving, Important Problem Types, Fundamental data Structures. Analysis Framework, Asymptotic Notations and Basic efficiency classes, Mathematical analysis of Recursive and Non-recursive algorithms.

Block -4:10 Hours

Brute Force: Selection Sort and Bubble Sort, Sequential Search, Exhaustive search and String Matching.

Divide-and-Conquer

Merge sort, Quicksort, Binary Search, Binary tree Traversals and related properties, Multiplication of
large integers.

Block -5:10 Hours

Decrease-and-Conquer

Insertion Sort, Depth First and Breadth First Search, Topological sorting, Algorithms for Generating
Combinatorial Objects: generating permutations.

Greedy Technique

Prim's Algorithm, Kruskal's Algorithm, Dijkstra's Algorithm, Huffmann Trees.The students will have to answer 5 full questions, selecting one full question from eight questions

Text Books:

1. Anany Levitin: Introduction to the Design and Analysis of Algorithms, Pearson Education, 2nd
Edition.(Chapters 1.1-1.4, 2.1-2.4, 3.1, 3.2, 3.4, 4.1-4.5, 5.1-5.4, 7.1-7.3, 8.1, 8.2, 8.4, 9.1-9.4,

11.1,11.3, 12.1-12.2)

Reference Books:

1. Coremen T.H., Leiserson C.E., and Rivest R.L.: Introduction to Algorithms, PHI 1998.
2. ***Horowitz E., Sahani S., Rajasekar S.: Computer Algorithms, Galgotia***

SUBJECT NAME: OPERATING SYSTEMS			
SUBJECT CODE	**20MCA13**	CIE MARKS	20
NO OF HOURS/WEEK:	04	SEE MARKS	80
TOTAL HOURS:	52	CREDITS	04

Course Outcome:

- Understand the principles and methods for resource-analysis for embedded- and real-time systems.
- Acquire good knowledge of the relevant mechanisms and methods in operating systems and hardware that have influence on real-time aspects, principles and methodsfor design and construction of embedded- and real-time systems.

Course Content:

Block – 1 ***10Hours***

Introduction to OS and RTOS: Architecture of OS (Monolithic, Microkernel, Layered, Exo-kernel and Hybrid kernel structures), Operating system objectives and functions, Virtual Computers, Interaction of O. S. & hardware architecture, Evolution of operating systems, Batch, multi programming. Multitasking, Multiuser, parallel, distributed & real –time O.S.

Block – 2 ***08Hours***

Process Management of OS/RTOS: Uniprocessor Scheduling: Types of scheduling, scheduling algorithms: FCFS, SJF, Priority, Round Robin, UNIX Multi-level feedback queue scheduling, Thread Scheduling, Multiprocessor Scheduling concept, Real Time Scheduling concepts.

Block – 3 ***12Hours***

Process synchronization and concurrency: Principles of Concurrency, Mutual Exclusion H/W Support, software approaches, Semaphores and Mutex, Message Passing, Monitors, Classical Problems of Synchronization: Readers-Writers Problem, Producer Consumer Problem, Dining Philosopher problem. Deadlock: Principles of deadlock, Deadlock

Prevention, Deadlock Avoidance, Deadlock Detection, An Integrated Deadlock Strategies.

Block – 4 ***12Hours***

Memory and I/O Management: Memory Management requirements, Memory partitioning: Fixed, dynamic, partitioning, Buddy System Memory allocation Strategies (First Fit, Best Fit, Worst Fit, Next Fit), Fragmentation, Swapping, Segmentation, Paging, Virtual Memory, Demand paging, Page Replacement Policies (FIFO, LRU, Optimal, clock), Thrashing, Working Set Model.

Block – 5 ***10Hours***

I/O Management and Disk Scheduling: I/O Devices, Organization of I/O functions, Operating System Design issues, I/O Buffering, Disk Scheduling (FCFS, SCAN, C-SCAN,SSTF),Diskcaches.RTOSApplicationDomains: ComparisonandstudyofRTOS:VxworksandμCOSCasestudies:RTOSforImageProcessing–EmbeddedRTOSforvoiceoverIP–**R**TOSforfault Tolerant Applications – RTOS for Control Systems.

Reference Books:

1. Wayne Wolf, **"**Computers as Components: Principles of Embedded Computing system Design,**"** 2/e, KindlePublishers,2005.
2. Tanenbaum,**"**Modern Operating Systems,**"** 3/e, Pearson Edition, 2007.
3. Jean J Labrosse,**"** Embedded Systems Building Blocks Complete and Ready-to-use Blocks in C,**"** 2/e,1999.
4. C.M. Krishna and G. Shin, "Real Time Systems," McGraw-Hill International Edition, 1997.

SUBJECT NAME: DISCRETE MATHEMATICAL STRUCTURES AND STATISTICS			
Subject code	**20MCA14**	CIE Marks	20
No of Hours/Week:	4	SEE Marks	80
Total Hours:	52	Credits	04

Course Learning Objectives: This course (18MCA23) will enable students to:

- Familiarize the logical notation to define and reason about fundamental
- Mathematical concepts such as sets, relations, functions and integers.
- Use elementary combinatorial processes such as per mutations and combinations.
- Understand probabilities and distributions for simple combinatorial processes,and statistical methods for correlation and regression.

Course Outcome (CO):At the end of this course, the students will be able to

CO1: Use the logical notation to define and reason about fundamental mathematical concepts Such as sets, relations, functions and integers.

CO2: Calculate numbers of possible outcomes of elementary combinatorial processes such as Permutations and combinations.

CO3: Calculate probabilities and distributions for simple combinatorial processes; calculate Expectations.

CO4: Apply statistical methods for correlation and regression. Fitting a curve to a discrete data.

Block-1: 12Hours Fundamentals of Logic

Basic connectives and truth tables, logical equivalence, laws of logic, logical implication rules ofinference. Quantifier's Propositional logic, equivalences, predicates and quantifiers, rules of inference,

introduction to proofs, proof methods.

Block-2: ***10Hours***

Sets Theory and Probability

Sets and subsets, set operations, laws of set theory, counting and Venn diagrams. A first word onProbability, axioms of probability, conditional probability, Bayes' theorem.

Block-3: ***10Hours***

Fundamentals of Counting and Properties of Integers

The rules of Sum and Product, Permutations and Combinations, the Binomial theorem, MathematicalInduction, Recursive definitions: Fibonacci and Lucas numbers

Block-4: ***10Hours***

Random variables and Probability Distributions

Concept of a random variable discrete probability distributions, Continuous probability distributions, Mean, Variance and Covariance of random variables. Binomial and Poisson distributions, Exponentialand Normal distributions with mean, variables and problems.

Block-5: ***10Hours***

Statistical methods and Curve Fitting

Correlation, coefficient of correlations, lines of regression-principle of least square. Rank correlation.

Curve Fitting- Graphical method, Principle of least square- to fit a straight line and parabola. Fitting ofOther curves of the form y = axb y = aebxxyn = b

Text Books:

1. Discrete and Combinatorial Mathematics by Ralph P. Grimaldi and B V Ramana, 5th edition,Pearson, 2011.(Chapters: 1.1 to 1.3 4.1, 4.2, 2.1 to 2.5, 3.1 to 3.6)
2. Probability and Statistics for Engineers and Scientists by Walpole Myers Ye Pearson Education, Eighth edition.(Chapters: 3.1–3.3, 4.1 to 4.4, 5.3, 5.6, 6.2 to 6.4, 6.6,6.7)
3. Higher Engineering Mathematics by Dr. B. S. Grewal, Khanna publishers, 40th edition (Chapters: 25.12 to 25.16, 24.1 to 24.6)

Reference Books:

1. Discrete Mathematics and its Applications by Kenneth H Rosen, 7th edition, (Indian adaptationby Kamala Krithivasan), Tata McGraw Hill, 2011.
2. Discrete Mathematical Structures with Applications to Computer Science byJ.P. Tremblay andR.Manohar, McGraw-Hill.
3. Probability and Statistics for Engineers by Richard A. Johnson and C. B. Gupta, Pearson Education.

SUBJECT NAME: ADVANCED DATA BASE MANAGEMENT SYSTEMS			
Subject code	**20MCA15**	CIE Marks	10
No of Hours/Week:	04	SEE Marks	40
Total Hours:	52	Credits	02

Block-1: ***12 Hours***

Introduction Purpose of Database system, Characteristics of database approach, Advantages of using DBMS, Data Abstraction, Data Models, Instances and schema, Data independence, Database Languages, Database Manager, Database Administrator, Database UsersData Modeling Entity sets, attributes and keys, Relationships, Database modeling using entity, Type role and structural constraints, Weak and Strong entity types, Entity-Relationship Diagram, Design of an E-R Database schema, Object modeling, Specialization and generalization, Enhanced entity-relationship (EER).Data Model Classification of data models, Hierarchical models - basic concepts, Network model - basic concepts, DBTG CODASYL model, Relational model. Comparison of different models Relational ModelRelational model -basic concepts, Enforcing Data Integrity Constraints, Relational-Algebra Operations, Extended Relational Algebra Operations, Relational Calculus, Assertion and Triggers, views.

Block-2: ***10 Hours***

Commercial Query Languages Introduction to SQL, Basic queries in SQL, Advanced queries in SQL, Functions in SQLAggregation, Updates in SQLs, Views in SQL, Embedded SQL and 4GLs, Procedural extension to SQL, Introduction to Query-by-example(QBE).Database DesignDatabase design process, Relational database design, Anomalies in a database, Functional dependencies, minimal covers, Normal forms, First Normal Form, Second Normal Form, Third Normal Form, Boyce-Codd Normal Form, Reduction of an E-R schema to Tables. File Organization, Indexing and HashingOverview of file organization techniques, Secondary storage devices, Operations in files, Heap files and sorted files, Indexing and Hashing- Basic concepts, Static Hashing, Dynamic Hashing and Extendible hashing, Single level ordered indexes, Multi-level indexes, Other types of indexes: B-Tree index files, B^+- Tree index files, Bitmap index,Hash Index. Buffer management Transaction Processing Desirable properties of transactions, Implementation of atomicity and durability, Concurrent executions, Schedules and recoverability, Serializability of schedules, concurrency control, Serializability algorithms, Testing for Serializability.

Block-3: ***10 Hours***

Data Warehousing and Data Mining: Data Warehouse Architecture, Data Warehouse Implementation, Mining Methods, Mining Various Kinds of Association Rules. Data Mining: Data Mining Applications, Social Network Analysis.

Block-4: ***10 Hours***

Big Data: Introduction to principles and practice of systems that improve performance through experience. Topics include statistical learning framework, supervised and unsupervised learning, performance evaluation and empirical methodology; design tradeoffs. Introduction to the Big Data problem. Current challenges, trends, and applications Algorithms for Big Data analysis. Mining and learning algorithms that have been developed specifically to deal with large datasets Technologies for Big Data management. Big Data technology and tools, special consideration made to the Map Reduce paradigm and the Hadoop ecosystem

Block-5: ***10 Hours***

Information Retrieval and Search Engines: Architecture of search engine, Ranking and Evaluation; CRAWLS AND FEEDS: Crawling the Web, Directory Crawling, Conversion Problem, Storing the Documents, Detecting Duplicates. Processing text: Text Statistics, Document Parsing, Document Structure and Markup, Link analysis, Information Extraction, Internationalization; RANKING WITH INDEXES: Inverted indexes, Compression, Entropy and Ambiguity, Delta Encoding, Bit-aligned codes, Auxiliary Structures, Index Construction, Query Processing.

Reference

1. “Professional NOSQL” by Shashank Tiwari, 2011, WROX Press The Definitive guideto MongoDB, The NoSQL Database for Cloud and Desktop Computing, by Eelco Plugge, Tim Hawkins, Peter Membrey Apress 2010 "NoSQL Handbook” by Mathias Meyer, 2011 Paper planes.
2. MongoDB: The Definitive Guide, 2nd Edition, by Kristina Chodorow 2013 Silberschatz, Korth and Sudharshan Andreas Meister Otto-von-GuerickeUniversity Magdeburg
3. G. Somasundaram, Alok Shrivastava (Editors): Information Storage andManagement: Storing, Managing & Protecting Digital Information in Classic, Visualized and Cloud

Environments, 2 nd edition, EMC Education Services, Wiley- India, 2009. ISBN 978-1- 1180-9483-9

4. Jiawei Han and Micheline Kamber, Data Mining, Concepts and Techniques, Morgan Kaufmann Publisher, II Edition, 2006.

5. Machine Learning, Tom Mitchell. ISBN-10: 0070428077 | ISBN-13: 978- 0070428072 | Editi993on: 1 (optional).

SUBJECT NAME: DATA STRUCTURE LAB			
Subject code	**20MCA16**	CIE Marks	10
No of Hours/Week:	04	SEE Marks	40
Total Hours:	52	Credits	02

Detailed Syllabus Laboratory

Experiments:

1. Write a program to convert a prefix notation to postfix notation.
2. Write a program to Evaluate a given postfix expression and its values for the variables
3. Write a program to simulate the working of circular queue providing the followingoperations–Insert, Delete and Display.
4. Write a program to Demonstrate recursion, Generate Fibonacci sequence, Solve Towersof Hanoi Problem.
5. Write a program to simulate the working of a linked list providing the following operations: Insert at the beginning/end; Insert at the position; Display list
6. Write a program to simulate the working of a circular linkedlist providing the following operations Delete from the beginning/end; Delete a given element; Display list
7. Write a program to simulate the working of a dequeue
8. Write a program to simulate the working of a double linked list to implement stack.
9. Write a program to create a binary tree and implement the tree traversal techniques ofinorder, preorder and post order.
10. Write a program to implement quick sort
11. Write a program to implement the search techniques of Linear Search; Binary Search
12. Write a program to create a class called STACK using an array of integers. Implement the following operations by overloading the operators '+' and '--': s1 = s1 + element; where s1 is an object of the class STACK and element is an integer to be pushedon the top of the stack s1 = --s1; where s1 is an object of the class STACK. '-

‘operator pops the element.

13. Handle the STACK empty and full conditions. Also display the contents of the stack after each operation, by overloading the << operator.
14. Write a program to create a class called QUEUE with member functions to add an element and to delete an element from the queue. Using the member functions, implement a queue of integers. Demonstrate the operations by displaying the contents ofthe queue after every operation.

SUBJECT NAME: LINUX PROGRAMMING LAB			
Subject code	**20MCA17**	CIE Marks	10
No of Hours/Week:	04	SEE Marks	40
Total Hours:	52	Credits	02

Objectives:

- To write shell script programs to solve problems.
- To implement some standard Linux utilities such as ls.cp etc using system calls.
- To develop network based applications.

Recommended Systems/Software Requirements:

Intel based desktop PC with minimum of 166 MHZ or faster processor with at least 64 MB RAM and 100MB free disk space. Fedora OS.

List of programs

1. Write a shell script that accept a file name starting and ending line numbers asarguments and display all the lines between given line no:
2. Write a shell script that delete all lines containing a specified word.
3. Write a shell script that displays a list of all the files in the current directory.
4. Write a shell script that receives any number of file names as arguments checks if everyargument supplied is a file or a directory and reports accordingly. Whenever the argumentis a file or directory.
5. Write a shell script that accept a list of file names as arguments count and report the occurrence of each word. 12
6. Write a shell script to find the factorial of giveninteger
7. Write a shell script that list the all files in a directory. 4
8. Write awk script to find the number of characters, words and lines in a file? 16 linkedlist respectively.
9. Write a C Program that makes a copy of a file using standard I/O and system calls?
10. Implement in C the following Unix commands using system calls A) cat B)mv 5
11. Write a C program to emulate the Unix ls-l command?

12. Write a C program to list for every file in a directory, its inode number and file name.?
13. Write a C Program that demonstrates redirection of standard output to a file .EX:ls>f1.?
14. Write a C program to create a child process and allow the parent to display "parent"and the child to display "child" on the screen
15. Write a C program to create a child process and allow the parent to display "parent"and the child to display "child" on the screen.
16. Write a C program to create a Zombie process.
17. Write a C program that illustrates how an orphan is created
18. Write a program that illustrates how to execute two commands concurrently with acommand pipe.
19. Write C programs that illustrate communication between two unrelated processesusingnamed pipe.
20. Write a C program to create a message queue with read and write permissions to write3 messages to it with different priority numbers?

SUBJECT NAME: ADVANCED DBMS LAB			
Subject code	**20MCA18**	CIE Marks	10
No of Hours/Week:	04	SEE Marks	40
Total Hours:	52	Credits	02

DBMS Lab Experiments:

Instructions for the Exercises:

Draw ER diagram based on given scenario with various Constraints. Create Relational Database Schema based on the above scenario using Mapping Rules. Perform the given queries using any RDBMS Environment. Suitable tuples have to be entered so that queries are executed correctly. The results of the queries may be displayed directly.

1. Create the following tables with properly specifying Primary keys, Foreign keys and solve the following queries.

   BRANCH(Branchid,Branchname,HOD)

   ,STUDENT(USN,Name,Address,Branchid,sem)

   BOOK(Bookid,Bookname,Authorid,Publisher,Branchid)

   AUTHOR(Authorid,Authorname,Country,age)

   BORROW(USN,Bookid,Borrowed_Date) Queries:

   a) List the details of Students who are all Studying in 2nd sem MCA.
   b) List the students who are not borrowed any books.
   c) Display the USN, Student name, Branch_name, Book_name, Author_name ,Books_Borrowed_Date of 2nd sem MCA Students who borrowed books.
   d) Display the number of books written by each Author.
   e) Display the student details who borrowed more than two books.
   f) Display the student details who borrowed books of more than one Author.
   g) Display the Book names in descending order of theirnames.
   h) List the details of students who borrowed the books which are all published bythe same Publisher.

2 Design an ER-diagram for the followingscenario, Convert thesame into a relational model and then solve the following queries. Consider a Cricket Tournament "ABC CUP" organized by an organization. In the tournament there are many teams are contesting each having a Teamid,Team_Name, City, a coach. Each team is uniquely identified by using Teamid. A team can have many Players and a captain. Each player is uniquely identified by Playerid, having a Name, and multiple phone numbers,age. A player represents only one team. There are many Stadiums to conduct matches. Each stadium is identified using Stadiumid, having a stadium_name,Address (involves city,area_name,pincode).A team can play many matches. Each match played between the two teams in the scheduled date and time in to record in the database. For each match man_of_the match award given to aplayer.

Queries:

a) Display the youngest player (in terms of age) Name, Team name, age in which hebelongs of the tournament.
b) List the details of the stadium where the maximum number of matches were played.
c) List the details of the player who is not a captain but got the man of the match award atleast in two matches.
d) Display the Team details who won the maximum matches. 5 Display the team namewhere all its won matches played in the same stadium.

3. Consider the following Scenario and design an ER-Diagram, map the designed ER- diagram into a Relational model. Consider an organization "ABC" having many employees. An employeeworks for one department. Each employee identified by using Empid, having Name, address (described as House_no, city, district, state, pin code**)** and more than one phone numbers. Department identified by using Dno, having Dname, Dlocation. Each Department having a manager . Each department having many employees. There are many Projects , each project is controlled by the department. Each Project uniquely identified by Pno,having Project_name, Project_location. An employee works on many Projects. Number of

hours per week worked on each project by an Employee also needs to be recorded in the database . A project is worked by many employees. Each employee supervised by the supervisor. Employee having many dependents. Dependents having the dependent name, gender, age, address. Dependents are identified by Empid. T1(Empid, Emp_Name,city, district, state, pin_code, phoneno, Dno,Dname,Dlocation, Dept_mgr_id, Pno, Project_name, Project_location, Number_of_Hours,Supervisor_Empid, Dependent_name, gender, address)

Deduce the above Relation T1 into the 3NF and then solve the following queries.

Queries:

a) Display the details of the employees who are working on both the projects havingproject no 5 and 10.
b) Display the details of employees having at least two dependents.
c) Display the project name on which a greater number of employees are working.
d) Retrieve the employees who do not have any dependents.
e) Display the Employee details whose total number of hours per week working on various projects ismaximum than all other employees. 6. create a view to display the number of employees working in each department.

4 Design an ER-diagram for the following scenario, Convert the same into a relational model, normalize Relations into a suitable Normal form and then solve the following queries. A country can have many Tourist places. Each Tourist place is identified by using tourist_place_id, having a name, belongs to a state, Number of kilometers away from the capital city of that state, history. There are many Tourists visits tourist places every year. Each tourist is identified uniquely by using Tourist_id, having a Name, age, Country and multiple emailids. A tourist visits many Tourist places, it is also required to record the visted_date in the database. A tourist can visit a Tourist place many times at different dates. A Tourist place can be visited by many tourists either in the same date or at different dates.

Queries:

a) List the state name which is having maximum number of tourist places.
b) List details of Tourist place where maximum number of tourists visited.
c) List the details of tourists visited all tourist places of the state “KARNATAKA”.
d) Display the details of the tourists visited at least one tourist place of the state, but visited all states tourist places. 5 Display the details of the tourist place visited by the tourists ofall country.

5. Design an ER-diagram for the following scenario, Convert the same into a relational model, normalize Relations into a suitable Normal form and then solve the following queries.

A country wants to conduct an election for the parliament. A country having many constituencies. Each constituency is identified uniquely by Constituency_id, having the Name, belongs to a state, Number_of_voters. A constituency can have many voters. Each voter is uniquely identified by using Voter_id, having the Name, age, address (involves Houseno, city,state,pincode). Each voter belongs to only one constituency. There are many candidates contesting in the election. Each candidates are uniquely identified by using candidate, having Name, phone no, age, state. A candidate belongs to only one party.There are many parties. Each party is uniquely identified by using Party_id, having Party_Name,Party_symbol. A candidate can contest from many constituencies under a same party. A party can have many candidates contesting from different constituencies. No constituency having the candidates from the same party. A constituency can have many contesting candidates belongs to different parties. Each voter votes only one candidate of his/her constituencty.

Queries: List the details of the candidates who are contesting from more than one constituencies which are belongs to different states.

a) Display the state name having maximum number of constituencies.
b) Create a stored procedure to insert the tuple into the voter table by checking the voter age. If voter’s age is at least 18 years old, then insert the tuple into the voter else display the “Not an eligible voter msg” .

c) Create a stored procedure to display the number_of_voters in the specified constituency Where the constituency name is passed as an argument to the stored procedure. 5 Createa TRIGGER to UPDATE the count of "

d) Number_of_voters" of the respective constituency in "CONSTITUENCY" table, AFTER inserting a tuple into the "VOTERS" table. Note 1: In the practical Examination each student has to pick one question from a lot of all the 5 questions. Note2: Change of program is not permitted in the Practical Examination.

SEMESTER-II

SUBJECT NAME: ADVANCED SOFTWARE ENGINEERING			
Subject code	**20MCA21**	CIE Marks	20
No of Hours/Week:	04	SEE Marks	80
Total Hours:	52	Credits	04

Course Outcome:

At the end of this course, the students will be able to

CO1: Categorize problems based on their characteristics and practical importance. CO2: Apply the correct process models for software development.

CO3: Apply the techniques, skills, and modern engineering tools necessary for engineering practice.

CO4: Define, formulate and analyze a problem as per the testing techniques.

CO5: Apply new Generation of Software Engineering Technology to Meet Current and Future Industrial Challenges of Emerging Software Trends

Block -1: ***12hours***

Overview Introduction

Professional Software Development Attributes of good software, software engineering diversity, IEEE/ ACM code of software engineering ethics, case studies Software Process & Agile Software Development Software Process models: waterfall, incremental development, reuses oriented, Process activities; Coping with change, The rational Unified process. Agile methods, Plan-driven and agile Development, Extreme Programming, Agile project management, Scaling agile methods.

Block -2: ***10hours***

Requirements Engineering Functional and non-functional requirements:

The software requirements document, Requirements specification, Requirements engineering processes, Requirement elicitation and analysis, Requirements validation, Requirements management Component-based software engineering Components and component model, CBSE process, Component composition.

Block -3: ***10hours***

System Modeling, Architectural Design Context models, Interaction models, Structural models, Behavioral models, Model-driven engineering, Software architecture: the role of software architecture, architectural views, component and connector view, Architectural styles for C&C view, Documenting architectural design

Block -4: ***10hours***

Design and implementation Design:

Design concepts, Function oriented design, detailed design, verification, matrix (Complexity matrix for function-oriented design) Distributed Software engineering Distributed system issues, Client-server computing, Architectural patterns for distributed systems, Software as a service.

Block -5: ***10hours***

Planning a software Project

Process planning, Effort estimation, Project scheduling and staffing, Software configuration management plan, Quality plan, Risk Management, Project monitoring plan.

Software Testing

Testing fundamentals, Black-box testing, White-box testing, Testing process.

Text Books:

1. Ian Sommerville: Software Engineering, 9th edition, Person Education Ltd, 2011. 2. Pankaj Jalote: Software Engineering, Wiley India Pvt Ltd (2010) (Chapters-:4, 6.1)

SUBJECT NAME: ADVANCED JAVA PROGRAMMING			
Subject code	**20MCA22**	CIE Marks	20
No of Hours/Week:	4	SEE Marks	80
Total Hours:	52	Credits	04

Course Outcome

- 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 securityissues in code.
- Document a Java program using Javadoc.
- Use a version control system to track source code in a project.

Course Content

Block – 1 ***12Hours***

Introduction to Java: Origin and features of Java. Java Program Structure, Java Tokens, Java statements, Java Virtual machine, Command Line Parameters, Java Variables and Data Types, Operators, Decision Making, Branching and looping statements.

Classes, Objects and Methods used in Java: Class fundamentals, Methods, Constructors, Overloading, Inheritance, Interfaces, One- and two-dimensional arrays, Vectors, Strings, Wrapper Classes.

Block – 2 ***12Hours***

Java Packages: API packages, system packages, naming conventions, creating and accessing a package, adding a class to a package, hiding classes.

Multi-threads Programming: Java thread Model, Main Thread, creating a Thread, Creating Multiple Threads, Extending the thread class, Stopping and blocking a thread, Life cycle of a thread, Managing Errors and Exceptions.

Block – 3 ***10Hours***

Applet Programming: Introduction, how applet differ from application, Applet life cycle, Applet tag, passing parameters to applet. Abstract Windows Toolkit: Components, Container, Panel, Label, Button, Checkbox, Checkbox Group, Choice, List, Text Field, Text Area, Scrollbars.

Block – 4 ***08Hours***

Graphics Programming: The Graphics class, Lines and Rectangles, Circles and Ellipses, Drawing Arcs, Drawing Polygons, Line Graphs, Using Control Loops in Applets.

Block – 5 ***10Hours***

Managing Input/output Files in Java: Stream Classes, Byte Stream Classes, Character Stream Classes, Creation of Files, Reading/Writing characters, Reading/Writing Bytes, Handling Primitive Data Types, Concatenating and Buffering Files, Random Access Files.

Networking: Internet Address, TCP/IP Client Sockets, TCP/IP Server Sockets, URL, URL Connection, JDBC connectivity

Reference Books

1. Programming with Java – A PRIMER by - E.Balagurusamy, Tata McGraw-Hill 3rd Edition

2. The Complete Reference - Java-2 by- Patrick Naughton and Herbert Scheldt Published by Tata McGraw-Hill India.
3. The Complete Reference – J2EE by - Jim Keogh, published by Tata McGraw-Hill

ELECTIVE-I

SUBJECT NAME:ARTIFICIAL INTELLIGENCE			
Subject code	**20MCA231**	CIE Marks	20
No of Hours/Week:	04	SEE Marks	80
Total Hours:	52	Credits	04

Course Outcome

- Explain what constitutes "Artificial" Intelligence and how to identify systems with Artificial Intelligence.
- Explain how Artificial Intelligence enables capabilities that are beyond conventional technology, for example, chess-playing computers, self-driving cars, robotic vacuum cleaners.
- Use classical Artificial Intelligence techniques, such as search algorithms, minimax algorithm, neural networks, tracking, and robot localization.
- Ability to apply Artificial Intelligence techniques for problem-solving.
- Explain the limitations of current Artificial Intelligence techniques.

Course Content

Block – 1 ***12 Hours***

INTRODUCTION TO Al AND PRODUCTION SYSTEMS:

Introduction to AI-Problem formulation, Problem Definition -Production systems, Control strategies, Search strategies. Problem characteristics, Production system characteristics - Specialized productions system-Problem solving methods –Problem graphs, Matching, Indexing and Heuristic functions -Hill Climbing-Depth first and Breath first, Constraints satisfaction –Related algorithms, Measure of performance and analysis of search algorithms.

Block – 2 *10 Hours*

REPRESENTATION OF KNOWLEDGE:Game playing –Knowledge representation, Knowledge representation using Predicate logic, Introduction to predicate calculus, Resolution, Use of predicate calculus, Knowledge representation using other logic-Structured representation of knowledge.

Block – 3 *10 Hours*

KNOWLEDGE INFERENCE: Knowledge representation -Production based system, Frame based system. Inference –Backward chaining, Forward chaining, Rule value approach, Fuzzy reasoning –Certainty factors, Bayesian Theory-Bayesian Network-Dempster –Shafer theory.

Block – 4 ***10 Hours***

PLANNING AND MACHINE LEARNING:Basic plan generation systems –Strips -Advanced plan generation systems –K strips -Strategic explanations -Why, Why not and how explanations. Learning-Machine learning, adaptive Learning.

Block – 5 *10 Hours*

EXPERT SYSTEMS Expert systems –Architecture of expert systems, Roles of expert systems –Knowledge Acquisition –Meta knowledge, Heuristics. Typical expert systems –MYCIN, DART, XOON, Expert systems shells.

Text books

1. Kevin Night and Elaine Rich, Nair B., "Artificial Intelligence (SIE)", Mc Graw Hill-2008. (Units-I,II,VI & V)
2. Dan W. Patterson, "Introduction to AI and ES", Pearson Education, 2007. (Unit-III).

Reference books

1. Peter Jackson, "Introduction to Expert Systems", 3rd Edition, Pearson Education.

SUBJECT NAME:CLOUD COMPUTING			
Subject code	**20MCA232**	CIE Marks	20
No of Hours/Week:	4	SEE Marks	80
Total Hours:	52	Credits	04

Course Outcome:

- Define Cloud Computing and memorize the different Cloud service and deployment models.
- Describe importance of virtualization along with their technologies.
- Use and Examine different cloud computing services.
- Analyze the components of open stack & Google Cloud platform and understand Mobile Cloud Computing.
- Design & develop backup strategies for cloud data based on features.

Course Content

Block-1 ***12 Hours***

Introduction to Cloud Computing: Eras of computing, The vision of Cloud Computing, Defining a cloud, A closer look, Cloud computing reference model, Historical developments: Distributed systems, Virtualization, Web 2.0; Service oriented computing; Utility oriented computing.

Block-2 ***10 Hours***

Architectures for parallel and distributed computing: Parallel Vs Distributed computing, Elements of distributed computing, Technologies for distributed computing.

Block-3 ***10 Hours***

Virtualization: Introduction, Characteristics of virtualized environments, Taxonomy of virtualization techniques, Virtualization and cloud computing, Pros and cons of virtualization, Technology examples: Xen: Para virtualization, VmWare: Full virtualization,

Microsoft Hyper –V.

Block-4 ***10 Hours***

Cloud computing architecture: Introduction, Cloud reference model: Architecture, IaaS, PaaS, SaaS, Types of Clouds: Public, Private, Hybrid and Community clouds, Economics of the cloud, Open challenges.

Block-5 ***10 Hours***

Cloud Tools and Applications: Aneka PaaS; Open stack: Introduction to open stack; Components of open stack; Amazon web services; Google AppEngine; Microsoft Azure; Scientific applications: Healthcare; Biology; Geo-Science, Business and Consumer applications: ARM & ERP; Productivity; Social networking.

Textbooks:

1. RajkumarBuyya, Christian Vecchiola, and ThamaraiSelci, Mastering Cloud Computing, Tata McGraw Hill, New Delhi, India, 2013.

References:

1. Cloud Computing for Dummies by Judith Hurwitz, R.Bloor, M. Kanfman, F.Halper(Wiley India Edition).
2. Cloud Computing: A Practical Approach by J.Vette, Toby J. Vette, Robert Elsenpeter (Tata McGraw Hill).

Subject Name: BIG DATA ANALYTICS			
Subject code	**20MCA233**	CIE Marks	20
No of Hours/Week:	04	SEE Marks	80
Total Hours:	52	Credits	04

OBJECTIVES:

- To know the fundamental concepts of big data and analytics.
- To explore tools and practices for working with big data
- To learn about stream computing.
- To know about the research that requires the integration of large amounts of data.

Course content

Block 1 **12 Hours**

Getting an Overview of Big Data: What isBig Data? History of Data, Management – Evolution of Big Data, Structuring Big Data, Types of Data, Elements of Big Data, Volume, Velocity, Variety, Veracity, Big Data Analytics, Careers in Big data, Advantages of Big Data Analytics, Future of Big Data.

Exploring the Use of Big Data in Business Context: Use of Big Data in Social Networking, Business Intelligence, Marketing, Product Design and Development, Use of Big Data in Preventing Fraudulent Activities, Preventing Fraud Using Big Data Analytics, Use of Big Data inRetailIndustry,UseofRFIDDatainRetail.

Block2 **(10 Hours)**

Introducing Technologies for Handling Big Data: Distributed and Parallel Computing

for Big Data, How data models and computing models are different, Introducing Hadoop, HDFS and MapReduce, How does Hadoop Function? Cloud Computing and Big Data, Cloud Services for Big Data, In-Memory Computing Technology for BigData

Understanding Hadoop Ecosystem: Hadoop Ecosystem**,** Hadoop Distributed File System, HDFS Architecture, Concepts of Blocks in HDFS Architecture, Name Nodes and Data Nodes, Features of HDFS, MapReduce, Hadoop Yarn, Introducing HBase, HBase Architecture, Regions, Storing Bigdata with HBase, Interacting with the Hadoop Ecosystem, HBase in Operation – Programming with HBase, Combining HBase and HDFS, REST and Thrift, Data Integrity in HDFS, Features of HBase ,hive, Pig and Pig Latin, Sqoop, Zookeeper, Flume, Oozie

Block 3 **10 Hours**

Understanding Big Data Technology Foundations:

Exploring the Big Data Stack, Data Sources Layer, Ingestion Layer, Storage Layer, Physical InfrastructureLayer,PlatformManagementLayer,SecurityLayer,MonitoringLayer,Analytics Engine,VisualizationLayer,BigDataApplications,VirtualizationandBigData,Virtualization Approaches, Server virtualization, Application Virtualization, Network Virtualization,ProcessorandMemoryVirtualization,DataandStorageVirtualization,Managing Virtualization with Hypervisor.

Storing Data in Databases and Data Warehouses: RDBMS and Big Data, CAP Theorem, Issues with the Relational Model, Non-Relational Database, Issues with the Non-Relational Model, Polyglot Persistence, Integrating Big Data with Traditional Data Warehouses, Big Data Analysis and Data Warehouse, Changing Deployment Models in Big Data Era

Block4 ***012Hours***

Understanding MapReduce Fundamentals and HBase: The MapReduce Framework. Exploring the Features of MapReduce. Working of MapReduce. Exploring Map and Reduce Functions. Techniques to Optimize MapReduce Jobs. Hardware/Network Topology, Synchronization, File System. Uses of MapReduce. Role of HBase in Big Data Processing. Characteristics of HBase.

Understand Hadoop YARN Architecture: Limitations of MapReduce, Advantages of YARN, YARN architecture: Resource manager, application manager, Integration of Resource Manager and Application Manager. Working of YARN. YARN schedulers: Capacity and Fail Scheduler. Backward compatibility with YARN

Block5 ***08Hours***

Exploring Hive: Introducing Hive, Getting Started with Hive, Hive services, Hive Variables, Hive Properties, Hive Queries, Data Types in Hive, Built-In Functions in Hive, Hive DDL, Creating Databases, Viewing a Database, Dropping a Database, Altering Databases, Creating Tables, Creating a Table Using the Existing Schema, Dropping Tables, Altering Tables, Using Hive DDL Statements, Data Manipulation in Hive, Loading Files into Tables, Inserting Data into Tables, Update in Hive, Delete in Hive, Using Hive DML Statements, Data Retrieval Queries, Using the SELECT Command, Using the WHERE Clause, Using the GROUP BY Clause, Using the HAVING Clause, Using the LIMIT Clause, Executing HiveQL Queries, Using JOINS in Hive, Inner Joins, Outer Joins, Cartesian Product Joins, Map-Side Joins, Joining TablesNoSQL: Introduction to NoSQL, why NoSQL, Characteristics of NoSQL. Types of NoSQL models: key value Data model, Column-oriented data model, document data model, graph databases. Schema less database, materialized views, Distributed models: CAP theorem.

Text Books:

1. BIG DATA Black Book ,D T Editorial Services, Dreamtech press 2016 Edition

Reference Books:

1. Big Data, Anil Maheshwari, Mc Graw Hill
2. NoSQL For Mere Mortals, Dan Sullivan, Addison Wisley Pearson

SUBJECT NAME: Ad hoc Networks			
Subject code	**20MCA234**	CIE Marks	20
No of Hours/Week:	4	SEE Marks	80
Total Hours:	52	Credits	04

Ad hoC Networks Credit-4

BLOCK- I Introduction: Fundamentals of wireless communication technology, the electromagnetic spectrum radio propagation, characteristics of wireless channels, modulation techniques, multiple access techniques, wireless LANs, PANs,WANs, and MANs, Wireless Internet.

BLOCK II Introduction to adhoc/sensor networks: Key definitions of adhoc/ sensor networks, unique constraints and challenges, advantages of ad-hoc/sensor network, driving applications, issues in adhoc wireless networks, issues in design of sensor network, sensor network architecture, data dissemination and gathering. MAC Protocols : Issues in designing MAC protocols for adhoc wireless networks, design goals, classification of MAC protocols, MAC protocols for sensor network, location discovery, quality, other issues, S-MAC, IEEE 802.15.4.

BLOCK III Routing Protocols: Issues in designing a routing protocol, classification of routing protocols, table-driven, on-demand, hybrid, flooding, hierarchical, and power aware routing protocols.

BLOCK IV: QoS and Energy Management : Issues and Challenges in providing QoS, classifications, MAC, network layer solutions, QoS frameworks, need for energy management, classification, battery, transmission power, and system power management schemes.

Text Book

1. C. Siva Ram Murthy, and B. S. Manoj, "AdHoc Wireless networks ", Pearson Education - 2008.

Reference Book

1. Feng Zhao and Leonides Guibas, "Wireless sensor networks ", Elsevier publication - 2004. 2. Jochen Schiller, "Mobile Communications", Pearson Education, 2nd Edition, 2003. 3. William Stallings, "Wireless Communications and Networks", Pearson Education - 200

10 hours

SUBJECT NAME:INTERNET TECHNOLOGY			
Subject code	**20MCA24**	CIE Marks	20
No of Hours/Week:	4	SEE Marks	80
Total Hours:	52	Credits	04

Block -1: ***10 Hours***

Web Fundamentals Internet, WWW, Web Browsers and Web Servers, URLs, MIME, HTTP, Security, the Web Programmers Toolbox. Evolution of the Web, Peak into the History of the Web, Internet Applications, Networks, TCP/IP, Higher Level Protocols, Important Components of the Web, Web Search Engines, Application Servers

Block -2: ***12 Hours***

Introduction to XHTML and CSS Basic syntax, Standard structure, Basic text markup, Images, Hypertext Links. Lists, Tables, Forms, Frames, syntactic differences between HTML and XHTML.

Cascading Style Sheets: Introduction, Levels of style sheets, Style specification formats, Selector forms, Property value forms, Font properties, List properties, Color, Alignment of text, The box model, Background images, The and tags, Conflict resolution.

Block -3: ***10 Hours***

The basics of JavaScript Overview of JavaScript, Object orientation and JavaScript, general Syntactic characteristics, Primitives, operations, and expressions, Screen output and keyboard input, Control statements, Object creation and modification, Arrays, Functions, Constructors, Pattern matching using regular expressions, Errors in scripts

JavaScript and XHTML Documents The JavaScript Execution Environment, The Document Object Model, Elements Access in Java Script, Events and Event Handling, Handling Events from Body Elements, Handling Events from Text Box and password Elements, The DOM2 Model, The navigator Object, Dom Tree Traversal and Modification.

Block -4: ***10 Hours***

Dynamic Documents with JavaScript: Introduction, Positioning Elements, Moving Elements, Element Visibility, Changing Colors and Fonts, Dynamic Content, Stacking Elements, Locating the Mouse Cursor, Reacting to a Mouse Click, Slow Movement of Elements, Dragging and Dropping Elements

Introduction to XML Introduction, Syntax of XML, XML Document Structure, Document type definitions, Namespaces, XML schemas, displaying raw XML documents, XML documents Displaying with CSS, XSLT style sheets, XML processors, Web services.

Block -5: ***10 Hours***

Perl and CGI Programming Origins and uses of Perl, Scalars and their operations, Assignment statements and simple input and output, Control statements, Fundamentals of arrays, Hashes, References, Functions, Pattern matching, File input and output; Examples.
Using Perl for CGI Programming: The Common Gateway Interface; CGI linkage; Query string format; CGI.pm Block; a survey example; Cookies.

Text Books:

1. Robert W. Sebesta: Programming the World Wide Web, 4thEdition, Pearson education,

2012. (Chapters 1, 2, 3, 4, 5, 6, 7, 8, 9).

2. M. Srinivasan: Web Programming Building Internet Applications, 3rd Edition, WileyIndia, 2009. (Chapter 1) .

Reference Books:

1. Jeffrey C Jackson: Web Technologies –A Computer Science Perspective Pearson Education, 7 Impressions, 2012. Chris Bates: Web Technology Theory and Practice, Pearson Education, 2012.
2. Internet Technology and Web Design, Instructional Software Research and Development (ISRD) Group, Tata McGraw-Hill, 2011RajKamal Internet and Web Technologies, McGraw Hill Education.

SUBJECT NAME:DATA MINING AND DATA WAREHOUSING			
SUBJECT CODE	**20MCA25**	CIE MARKS	20
NO OF HOURS/WEEK:	4	SEE MARKS	80
TOTAL HOURS:	52	CREDITS	04

Objectives:

- Learn the concept of Data warehousing and OLAP and Understand storage and retrievaltechnique of data from DATA CUBE.
- Study different types of data and different preprocessing techniques.
- Understand various Association algorithms and its applications.
- Learn how to apply different Classification technique and to evaluate different types ofclassifiers.
- Distinguish different clustering techniques and their

Block -1: ***12hours***

Data warehousing and OLAP:(10hours)

Data Warehouse basic concepts, Data Warehouse Modeling, Data Cube and OLAP: Characteristics of OLAP systems, Data Cube Implementations, Data Cube operations, Implementation of OLAP and overview on OLAP Software.

Block -2: ***10hours***

Data Mining and its Applications:

Introduction, what is Data Mining, Motivating Challenges, Data Mining Tasks, Which technologies are used for data mining, Kinds of pattern that can be mined, Data Mining Applications, Data Preprocessing, Data cleaning, data integration, data reduction and data transformation.

Block-3: ***10hours***

Association Analysis: Basic Concepts and Algorithms:

Frequent Item set Generation, Rule Generation, Compact Representation of Frequent Item sets,

Alternative methods for generating Frequent Item sets, FP Growth Algorithm, Evaluation of Association Patterns

Block-4: ***10hours***

Classification:

Methods, improving accuracy of classification

Basics, General approach to solve classification problem, Decision Trees, Rule Based Classifiers,

Nearest Neighbor Classifiers. Bayesian Classifiers, Estimating Predictive accuracy of classification methods, improving accuracy of classification methods, Evaluation criteria for classification methods, Multiclass Problem.

Block-5: ***10hours***

Clustering Techniques

Overview, features of cluster analysis, Types of Data and Computing Distance, Types of Cluster Analysis Methods, Partitional Methods, Hierarchical Methods, Density Based Methods, Quality and Validity of Cluster Analysis.

Reference Books:

1. Jiawei Micheline Kamber, 'Data Mining Concepts and Techniques', Morgan Kauf Mann Publishers.
2. George M. Marakas, 'Modern Data Warehousing, Mining and Visualization', Pearson Education,2003.
3. W.H. Inmon, 'Building the Data Warehouse', Wiley dreamtech, 3rd Edition.
4. Mastering Data Mining – Michael J.A. Berry & Gordon S. Linoff (Wiley Pub.).
5. Data Warehousing (Pearson Ed.) – Sam Anahory& Dennis Murray.

SUBJECT NAME: JAVA PROGRAMMING LAB			
Subject code	**20MCA26**	CIE Marks	10
No of Hours/Week:	04	SEE Marks	40
Total Hours:	52	Credits	02

Detailed Syllabus:

1. ***Programs on classes and objects***
2. **Programs on Inheritance**
3. ***Programs on abstract class and inner class***
4. **Programs on interfaces**
5. ***programs on packages***
6. **programs on string and string buffer classes**
7. ***Programs on Collections***
8. **programs on exception handling**
9. ***programs on IO streams***
10. **Programs on Multithreading**

SUBJECT NAME: DATA MINING LAB			
Subject code	**20MCA27**	CIE Marks	10
No of Hours/Week:	4	SEE Marks	40
Total Hours:	52	Credits	02

List of Programs:

1. Data Exploration and visualization with R
2. Regression with R
3. Classification with R
4. Data Clustering with R
5. Association Rule Mining with R.

SUBJECT NAME: INFORMATION TECHNOLOGY LAB			
Subject code	**20MCA28**	CIE Marks	10
No of Hours/Week:	4	SEE Marks	40
Total Hours:	52	Credits	02

1. Create an XHTML page that provides information about your department. Your XHTML page must use the following tags:

a) Text Formatting tags

b) Horizontal rule

c) Meta element

d) Links

e) Images

f) Tables

(Use of additional tags encouraged).

2. Develop and demonstrate the usage of inline, external and internal style sheet using CSS. Use XHTML page that contains at least three paragraphs of text, listed elements and a table with fourrows and four columns.

3. Develop and demonstrate a XHTML file that includes JavaScript script for the following problems: a) Input: A number n obtained using prompt Output: The first n Fibonacci numbers

b) Input : A number n obtained using prompt Output : A table of numbers from 1 to n and their squares using alert

4. Write a JavaScript program to generate n number of random numbers and store them in an array. Sort the generated numbers in ascending order using array sort method. Develop separate functions to find mean and median of numbers that are in the array. Display the results with appropriate messages.

5. Create a XHTML document that describes the form for taking orders for popcorn. Text boxes are used at the top of the form to collect the buyer's name and address. These are placed in a borderless table to force the text box align vertically. A second table to collect actualorder.

Each row of this table names a product, displays the price, and uses text box with size 2 to collect the quantity ordered using <td> tag. The payment method is input by the user through one of four radio buttons. Provide provision for submission of order and clear the order form.

6. a) Develop and demonstrate, a HTML document that collects the USN (the valid format is : A digit from 1 to 4 followed by two upper-case characters followed by two digits followed by three upper-case characters followed by two digits; (no embedded spaces are allowed) from theuser. Use JavaScript that validate the content of the document. Suitable messages should be display in the alert if errors are detected in the input data. Use CSS and event handlers to make your document appealing. b) Modify the above program to get the current semester also (restricted to be a number from 1 to 6).

7. Develop and demonstrate a HTML file which includes JavaScript that uses functions for the following problems: a. Parameter: A string Output: The position in the string of the left-most vowel. b. Parameter: A number Output: The number with its digits in the reverse order.

8. Develop and demonstrate a HTML5 page which contains a) Dynamic Progressive bar.

SEMESTER-III

SUBJECT NAME: FINITE AUTOMATA AND FORMAL LANGUAGES			
Subject code	**20MCA31**	CIE Marks	20
No of Hours/Week:	4	SEE Marks	80
Total Hours:	52	Credits	04

Block-1: ***10 Hours***

Introduction to Finite Automata:

Introduction to Finite Automata, The central concepts of Automata theory, Determata, Regular Expressions: An application of finite automata;

Finite automata with Epsilon-transitions;Regular expressions;

Finite Automata and Regular Expressions; Applications of Regular Expressions.

Block-2 ***10 Hours***

Regular Languages, Properties of Regular Languages:

Regular Languages, Properties of Regular Languages: Regular languages; Proving languages not to be regular languages; Closure properties of regular languages; Decision properties of regular languages; Equivalence and minimization of automata.

Block3 ***10 Hours***

Context-Free Grammars and Language:

Context-Free Grammars And Languages: Context-free grammars; Parse trees; Applications; Ambiguity in grammars and Languages. Definition of the Pushdown automata; the languages of a PDA; Equivalence of PDA's and CFG's; Deterministic Pushdown.

Block4 ***10 Hours***

Pushdown Automata:

Definition of pushdown automation,equivalence of PDA's and CFGS

Properties of Context-Free Languages.

Properties of context-free language forms for CFGS, the pumping CFGS, closure properties of CFGS.

Block5: ***12 Hours***

Introduction to Turing Machine:

Problem that computer cannot solve the turningmachine, programming technique for turning machine; Extension to the basic turning machine, turning machine and computer.

Undecidability:

A language that is not recursively enumerable, anundeniable problem that is RE posts correspondence problem other undecidable problem

Text Books:

1. Finite Automata and Formal Languages: A Simple Approach by A.M. Padma Reddy.
2. Formal Languages and Automata Theory by K.V.N. Sunitha,Publisher(s): Pearson Education India.

SUBJECT NAME: COMPUTER NETWORKS			
Subject code	**20MCA32**	CIE Marks	20
No of Hours/Week:	04	SEE Marks	80
Total Hours:	52	Credits	04

Block -1: ***10 Hours***

Introduction to Computer Networks and Physical Layer Networking Devices, Classification of Computer Networks, Network Protocol Stack (TCP/IP and ISO-OSI), Network Standardization and Examples of Networks. Data Transmission Concepts, Analog and Digital Data Transmission, Transmission Impairments and Channel Capacity, Guided and Wireless transmission, communication media, Digital modulation techniques (FDMA,TDMA,CDMA) and mobile telephone systems (1G,2G,3G and 4G).

Block -2: ***10 Hours***

Data Link layer Data link layer design issues, Error Detection and Correction Codes, Data Link Protocols and Sliding window protocols.

Medium Access Sub Layer the Channel Allocation Problem, Multiple access protocols and Examples: Wireless LAN, Bluetooth.

Block -3: ***10 Hours***

Network Layer Network Layer Design issues, Routing algorithms, Congestion Control Algorithms, Quality of Service, Internetworking and The Network Layer in the Internet.

Block -4: ***10 Hours***

The Transport Layer the Transport Service, Elements of Transport Protocols, Congestion Control, The Internet Transport Protocol: UDP, The Internet Transport Protocols – TCP, Performance Issues.

Block -5: ***12 Hours***

The application Layer DNS: Domain Name Space, Domain Resource Records, Domain Name Servers. Electronic mail: SMTP, The World Wide Web: Static and dynamic web pages, web applications, HTTP, mobile web. Streaming audio and Video: Digital audio and video, streaming stored and line media, real-time conferencing, Content Delivery: content and internet traffic, server forms, web proxies, content delivery networks, peer-to-peer networks.

Text Books:

1. "Computer Networks" by Andrew S Tanenbaum, David J Wetheral, 5th Edition, Pearson 2012(Chapter 1, 2.2, 2.3, 2.5, 2.7, 3.1, 3.2, 3.3, 3.4,4.1, 4.2, 4.4, 4.6) Chapter 5, Chapter 6 (excluding 6.7), Chapter 7.

SUBJECT NAME: PYTHON PROGRAMMING			
Subject code	**20MCA33**	CIE Marks	20
No of Hours/Week:	04	SEE Marks	80
Total Hours:	52	Credits	04

Block -1: ***10 Hours***

Installing Python, Simple program using Python, Expressions and Values, Variables and Computer Memory, error detection, multiple line statements, designing and using functions, functions provided by Python, Tracing function calls in memory model, omitting return statement. Working with Text: Creating Strings of Characters, Using Special Characters in Strings, Creating a Multiline String, Printing Information, Getting Information from the Keyboard.

Block -2: ***10 Hours***

A Boolean Type , Choosing Statements to Execute, Nested If Statements , Remembering the Results of a Boolean Expression Evaluation , A Modular Approach to Program Organization, Importing Blocks , Defining Your Own Blocks, Testing Code Semi automatically Grouping Functions Using Methods: Blocks, Classes, and Methods , Calling Methods the Object-Oriented Way, Exploring String Methods, Underscores.

Block -3: ***10 Hours***

Storing Collections of Data Using Lists: Storing and Accessing Data in Lists, modifying Lists, Operations on Lists, Slicing Lists, Aliasing, List Methods, Working with a List of Lists. Repeating Code Using Loops: Processing Items in a List, Processing Characters in Strings, Looping Over a Range of Numbers, Processing Lists Using Indices, Nesting Loops in Loops, Looping Until a Condition Is Reached, Repetition Based on User Input, Controlling Loops Using Break and Continue Reading and Writing

Block -4: ***10 Hours***

Files: Kinds of files, Opening a File, Techniques for Reading Files, Files over the Internet, Writing Files, and Writing Algorithms that Use the File-Reading Techniques, Multiline Records. Storing Data Using Other Collection Types: Storing Data Using Sets, Storing Data Using Tuples, Storing Data Using Dictionaries, Inverting a Dictionary, Using the In Operator on Tuples, Sets, and Dictionaries, Comparing Collections.

Block -5: ***12 Hours***

Collection of New Information Object-Oriented Programming: Understanding a Problem Domain, Function "Is instance," Class Object, and Class Book , Writing a Method in Class Book, Plugging into Python Syntax: More Special Methods ,Creating Graphical User interface: Building a Basic GUI, Models, Views, and Controllers, Customizing the Visual Style Introducing few more Widgets, Object-Oriented GUIs, Keeping the Concepts from Being a GUI Mess.

Text Books:

1. Practical Programming: An introduction to Computer Science Using Python,second edition, Paul Gries, Jennifer Campbell, Jason Montojo, The PragmaticBookshelf.
2. Learning with Python: How to Think Like a Computer Scientist Paperback – Allen Downey , Jeffrey Elkner, 2015

Reference Books:

1. Introduction to Python for ComputationalScience and Engineering (A beginner's guide), Hans Fangohr. Exploring Python, Timothy A. Budd, Mc Graw Hill Education Python for Informatics: Exploring Information, Charles Severance. Learning Python, Fourth Edition, Mark Lutz, O'Reilly publication.

ELECTIVE 2

SUBJECT NAME: LINEAR ALGEBRA AND PROBABILITY DISTRIBUTION			
Subject code	**20MCA341**	CIE Marks	20
No of Hours/Week:	04	SEE Marks	80
Total Hours:	52	Credits	04

Course Outcome

- Understand the concept and applications of vector spaces, subspaces and linearindependence.
- Understand various inner products and able to perform various inner productoperations.
- Explore the applicability of general Liner Transformations, Linear operators,Composition of operators and linear transformations.
- Understand the basics of probability theory and its applications

Course Content

Block-1: ***10 hours***

Vector Spaces: General Vector Spaces, Subspaces, Linear Independence, Basis and Dimension, Span, Some Fundamental Theorems, Row Space, Column Space, Nullspace, Rank and Nullity, Four Fundamental Spaces,

Block-2: ***11 hours***

Inner Product Spaces: General Inner Products, Euclidean and Weighted Inner Product, Length, Distance, Norm, Angle and Orthogonally in Inner Product Spaces, Caucy-Schwarz Inequality, Orthogonal Complement, Orthonormal Bases, Gram-Schmidt Procedure, QR-decomposition.

Block-3: ***10 hours***

Linear Transformations: General Liner Transformations, Linear operators, Composition of operators and linear transformations, Kernel and Range, Dimension theorem for Linear

Transformation, Inverse Linear Transformations, Matrices of General Linear Transformations, Matrices of Compositions and LinearTransformations.

Block-4 ***10 hours***

Probability Theory: Basics of Probability theory, Discrete Random Variablesand Probability Distributions, Mean and Variance, Moments of a Discrete Random Variable, Uniform Distribution, Binomial Distribution, Poisson Distribution, Functions of Random Variables, Continuous Random Variables and Probability Distributions

Block-5 ***11 hours***

STANDARD PROBABILITY DISTRIBUTIONS:

Uniform (discrete/continuous)- mean, variance, **moment generating function(**mgf), Bernoulli (mean, variance, mgf), binomial (mean, variance, mgf), Poisson (mean, variance, mgf), Geometric, exponential (mean, variance, mgf, lack of memory property). gamma- one and two parameter(s)(mean, variance, mgf)Concept of sampling and sampling distributions, Concept of, Statistic(s) and standard error(s). Mean and variance of sample mean when sampling is from a finite population. Chi-square distributions, Student's t distribution.

Text Books/References:

1. Howard Anton and Chris Rorres, "Elementary Linear Algebra", John Wiley and Sons, 9th Edition,2008.
2. Douglas C. Montgomery and George C. Runger, "Applied Statistics and Probability for Engineers", John Wiley and Sons, 3rd Edition,2003.
3. Goon A. M., Gupta M. K., and Dasgupta B.(2005). Fundamentals of Statistics, Vol. II, 8thedition, World Press, Kolkata.
4. Gupta S. C. and Kapoor V. K.(2002). Fundamentals of Mathematical Statistics,11th edition, Sultan Chand and Sons.

5. Hogg R. V., Mckean J. W., and Craig A. T.(2014). Introduction to Mathematical Statistics, 6th edition, Pearson Education Inc.
6. R.S.N. Pillai, Bagavathi(2010). STATISTICS- Theory and Practice, S.Chand publications.
7. Miller, I. and Miller, M.(2014). Mathematical Statistics, 8th edition, Pearson Education Inc.

SUBJECT NAME:MACHINE LEARNING			
Subject code	**20MCA342**	CIE Marks	20
No of Hours/Week:	04	SEE Marks	80
Total Hours:	52	Credits	04

Course Outcome

- Gain knowledge about basic concepts of Machine Learning.
- Identify machine learning techniques suitable for a given problem.
- Solve the problems using various machine learning techniques
- Design and implement machine learning solutions to classification, regression, and clustering problems; and be able to evaluate and interpret the results of the algorithms.

Block-1 ***12 Hours***

Introduction, Machine learning definition, importance of machine learning, machine learning framework, types of machine learning, relation to other fields, examples of machine learning applications, designing a learning system, issues in machine learning.

Block-2 ***10 Hours***

Introduction to Supervised Learning, Decision tree-based classifier, Bayesian theory-based classifier, Neural network-based classifier, Nearest neighbor classifier,

Block –3 ***10 Hours***

Support vector classifier, performance evaluation. Introduction to Unsupervised Learning, Clustering methods,

Block –4 ***10 Hours***

Criteria functions for clustering, Similarity measures, Component analysis, Low dimensional analysis and multidimensional scaling.

Block -5 ***10 Hours***

Additional topics, Reinforcement learning, Genetic algorithms, Analytical learning, Ensemble of classifiers, Design and analysis of machine learning experiments.

Reference Books

1. Machine Learning: a Probabilistic Perspective by Kevin Patrick Murphy, MIT Press, March2014.
2. Introduction to Machine Learning by Alex Smola and S.V.N. Viswanathan, Cambridge UniversityPress.
3. Understanding Machine Learning: From Theory to Algorithms by Shai Shalev-Schwartz and ShaiBen-David
4. Published 2014 by Cambridge University Press.

SUBJECT NAME: INTERNET OF THINGS(IOT)			
Subject code	**20MCA343**	CIE Marks	20
No of Hours/Week:	4	SEE Marks	80
Total Hours:	52	Credits	04

OBJECTIVES:

- To understand the fundamentals of Internet of Things
- To learn about the basics of IOT protocols
- To build a small low cost embedded system using Raspberry Pi
- To apply the concept of Internet of Things in the real world scenario.

Block-1: ***10 Hours***

M2M to IoT Introduction: The Vision-Introduction, From M2M to IoT, M2M towards IoT-the global context, Ause case example.

Block-2: ***10 Hours***

M2M to IoT A Market Perspective–

Introduction, Some Definitions, M2M ValueChains,IoTValue Chains, An emergingindustrial structure for IoT, The international driven global value chain and global information monopolies. M2M to IoT-An Architectural Overview– Building an architecture, Main design principlesand needed capabilities, An IoT architecture outline, standards considerations.

Block – 3: ***10 Hours***

M2M and IoT Technology Fundamentals Devices and gateways, Local and wide area networking, Data management, Business processes in IoT, Everything as a Service(XaaS), M2M and IoT Analytics, Knowledge Management

Block -4: ***10 Hours***

IoT Architecture-State of the Art Introduction, State of the art, Architecture Reference

ModelIntroduction, Reference Model and architecture, IoT reference Model

Block-5: ***12 Hours***

IoT Reference Architecture Introduction, Functional View, Information View, Deployment and Operational View, Other Relevant architectural views. Real-World Design Constraints-Introduction, Technical Design constraints-hardware is popular again, Data representation and visualization, Interaction and remote control. Industrial Automation- Service-oriented architecture-based device integration, SOCRADES: realizing the enterprise integrated Web of Things, IMC-AESOP: from the Web of Things to the Cloud of Things, Commercial Building Automation- Introduction, Case study: phase one-commercial building automation today, Case study: phase two- commercial building automation in the future.

Text Books:

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

References

1. Vijay Madisetti and Ars deepBahga, "Internet of Things (A Hands-on-Approach)", 1st Edition,VPT, 2014.

2. Francis daCosta, "Rethinking the Internet of Things: A Scalable Approach to Connecting Everything", 1st Edition, Apress Publications, 2013.

SUBJECT NAME: DEEP LEARNING			
Subject code	**20MCA344**	CIE Marks	20
No of Hours/Week:	4	SEE Marks	80
Total Hours:	52	Credits	04

Block-1: ***12 Hours***

Basics: Biological Neuron, Idea of computational units, McCulloch–Pitts unit and Thresholding logic, Linear Perceptron, Perceptron Learning Algorithm, Linear separability. Convergence theorem for Perceptron Learning Algorithm.

Block-2: ***10 Hours***

Feed forward Networks: Multilayer Perceptron, Gradient Descent, Backpropagation, Empirical Risk Minimization, regularization, autoencoders.

Deep Neural Networks: Difficulty of training deep neural networks, Greedy layerwise training.

Block-3: ***10 Hours***

Better Training of Neural Networks: Newer optimization methods for neural networks (Adagrad, adadelta, rmsprop, adam, NAG), second order methods for training, Saddle point problem in neural networks, Regularization methods (dropout, drop connect, batch normalization).

Recurrent Neural Networks: Back propagation through time, Long Short Term Memory, Gated Recurrent Units, Bidirectional LSTMs, Bidirectional RNNs

Block-4: ***10 Hours***

Convolutional Neural Networks: LeNet, AlexNet.

Generative models: Restrictive Boltzmann Machines (RBMs), Introduction to MCMC and Gibbs Sampling, gradient computations in RBMs, Deep Boltzmann Machines.

Block-5: ***10 Hours***

Recent trends: Variational Auto encoders, Generative Adversarial Networks, Multi-task Deep Learning, Multi-view Deep Learning.

Applications: Vision, NLP, Speech (just an overview of different applications in 2-3 lectures).

Textbooks

Deep Learning, IanGood fellow and Yoshua Bengio and Aaron Courville MIT Press 2016.

References

1. Neural Networks: A Systematic Introduction, Raúl Rojas, 1996.
2. Pattern Recognition and Machine Learning, Christopher Bishop, 2007

SUBJECT NAME: ADVANCE WEB PROGRAMMING			
Subject code	**20MCA35**	CIE Marks	20
No of Hours/Week:	4	SEE Marks	80
Total Hours:	52	Credits	04

Block -1: ***12 Hours***

Programming in Perl and CGI Scripting and Building Web Applications with Perl Origins and uses of Perl, Scalars and their operations, Assignment statements and simple input and output, Control statements, Fundamentals of arrays, Hashes, References, Fun, What is CGI? Developing CGI Applications actions, Pattern matching, File input and output; Examples. CGI.pmmethods, Example, Creating HTML Pages Dynamically, Using CGI. pm An Example, Adding Robustness, libwww, Carp, Cookies, uploading files, tracking users with Hidden Data, Using Relational Databases

Block -2: ***10 Hours***

Introduction to PHP and Building Web applications with PHP Origins and uses of PHP, Overview of PHP, General syntactic characteristics, Primitives, operations and expressions, Output, Control statements, Arrays, Functions, Pattern matching, Form handling, Files, Tracking users, cookies, sessions, Using databases, Handling XML

Block -3: ***10 Hours***

Introduction to Ruby and Introduction to Rails Origins and uses of Ruby, Scalar types and their operations, Simple input and output, Control statements, Arrays, Hashes, Methods, Classes, Code blocks and iterates, Pattern matching. Overview of Rails, Document requests, Processing forms, Layouts. Rails applications with Databases.

Block – 4: ***10 Hours***

Introduction to web 2.0 and Web Services What is Web 2.0?, Folksonomies and Web 2.0,

Software As a Service (SaaS), Data and Web 2.0, Convergence, Iterative development, Rich User experience, Multiple Delivery Channels, Social Networking. Web Services: SOAP, RPC Style SOAP, Document style SOAP. WSDL, REST services, JSON format, whatis JSON? Array literals, Object literals, Mixing literals, JSON Syntax, JSON Encoding and Decoding, JSON versus XML

Block -5: ***10 Hours***

Data Driven Documents: Data visualization tool for web apps

Introduction to D3: Building a Simple Subway Train Status Board, Graphing Mean Daily Plaza Traffic. Scales Axes, and Lines, Graphing Turnstile Traffic, Interaction and Transitions, Subway Connectivity, Scheduled Wait Time Distribution.

Text Books:

1. RobertW.Sebesta: Programming the Worldwide Web, 4th Edition, Pearson Education, 2012Francis Shanahan: Mashups, Wiley India, 2012
2. Mike Dewar: "Getting Started with D3": O'Reilly Media, 2012

Reference Books:

1. M.Deitel, P.J.Deitel, A.B.Goldberg: Internet & World Wide Web How to program, 3rd Edition, Pearson Education/PHI, 2004.

SUBJECT NAME:PYTHON PROGRAMMING LAB			
SUBJECT CODE	**20MCA36**	CIE MARKS	10
NO OF HOURSWEEK:	04	SEE MARKS	40
TOTAL HOURS:	52	CREDITS	02

LIST OF EXPERIMENTS:

1. Write a program to sum all the elements from n1 to n2 where n1and n2 are positiveintegers
2. Input an array of n numbers and find separately the sum of positive numbersandnegative numbers.
3. Write a program to search an element using linear search
4. Write a program to search an element using binary search.
5. Write a program to simulate stack.
6. Using a stack evaluate an arithmetic expression.
7. Write a program to multiply two matrices.
8. Write a program to find the roots of a quadratic equation
9. Write a program to insert a number in a sorted array.
10. Write a Python Program to check whether the given string is palindrome or not usingbuilt in string.

SUBJECT NAME: ADVANCED WEB PROGRAMMINGLAB			
Subject code	**20MCA37**	CIE Marks	10
No of Hours/Week:	04	SEE Marks	40
Total Hours:	52	Credits	02

1. Develop and demonstrate a XHTML file that includes JavaScript script to generate first n Fibonacci numbers.
2. Develop and demonstrate the usage of inline and external style sheet using CSS.
3. Develop and demonstrate, using JavaScript script, a XHTML document that collects the student register number (the valid format is: A digit from 1 to 4 followed by two upper- case characters followed by two digits followed by two upper-case characters followed by three digits; no embedded spaces allowed) of the user. Event handler must be included for the form element that collects this information to validate the input. Messages in the alert windows must be produced when errors are detected.

4. Develop and demonstrate, using JavaScript script, a XHTML document that contains three short paragraphs of text, stacked on top of each other, with only enough of each showing so that the mouse cursor can be placed over some part of them. When the cursor is placed over the exposed part of any paragraph, it should rise to the top to become completely visible.

5. Design an XML document to store information about a student in a college affiliated to BU.The information must include USN, Name, Name of the College, Brach, Year of Joining, and e-mail id. Make up sample data for 3 students. Create a CSS style sheet anduse it to display the document.

6. Write a Perl program to display a digital clock which displays the current time of the server.

7. Write a Perl program to insert name and age information entered by the user into a tablecreated using MySQL and to display the current contents of this table.

8. Write a PHP program to store current date-time in a COOKIE and display the 'Last visited on' date-time on the web page upon reopening of the same page.

9. Write a PHP program to read student data from an XML file and store into the MYSQL database. Retrieve and display.

10. Write a Perl program to keep track of the number of visitors visiting the web page and todisplay this count of visitors, with proper headings.

11. Write a CGI-Perl program to use a cookie to remember the day of the last login from a user and display it when run.

12. Write a Perl program to display various Server information's like Server Name, Server Software, Server protocol, CGI Revision etc.

13. Create a XHTML form with Name, Address Line 1, Address Line 2, and E-mail text fields. On submitting, store the values in MySQL table. Retrieve and display the data based on Name.

14. Write a Perl program to accept the User Name and display a greeting message randomlychosen from a list of 4 greeting message.

Note: In examination Student should execute any of the above programs.

SUBJECT NAME: MINI PROJECT LAB			
Subject code	**20MCA38**	CIE Marks	10
No of Hours/Week:	4	SEE Marks	40
Total Hours:	52	Credits	02

Develop a web application project using the languages and concepts learnt in the theory with a good look and feel effects. You can use any web technologies and frameworks and databases.

Note:

1. A team of two or three students must develop the mini project. However, duringthe examination, each student must demonstrate the project individually.
2. The team must submit a brief project report.
3. The report must be evaluated for 40 Marks. Demonstration and Viva for 40Marks.

SEMESTER-IV

Sl.No	Course code	Subject Code	Subject Title	Teaching Hours/Week			Credits	Exam Hours	CIE	SSE	Total
				L	T	Lab					
1.	20MCA61	CPP6.1	Research Methodology	04	-	-	04	**03**	20	80	100
2.	20MCA62	CPP 6.2	Dissertation/ Major Project (During 4th semester -12 weeks)	-	-	-	12	**03**	100	200	300
Total Credits							**16**	**Total Marks**			**400**

SUBJECT NAME: RESEARCH METHODOLOGY			
Subject code	**20MCA61**	CIE Marks	10
No of Hours/Week:	4	SEE Marks	40
Total Hours:	52	Credits	02

Block-1 **12 Hours**

Research Methodology: Introduction, Meaning of Research, Objectives of Research, Motivation in Research, Types of Research, Research Approaches, Significance of Research, Research Methods versus Methodology, Research and Scientific Method, Importance of Knowing How Research is Done, Research Process, Criteria of Good Research, and Problems Encountered by Researchers in India.

Block-2 **10 Hours**

Defining the Research Problem: Research Problem, Selecting the Problem, Necessity of Defining the Problem, Technique Involved in Defining a Problem, an Illustration. Reviewing the literature: Place of the literature review in research, Bringing clarity and focus to your research problem, Improving research methodology, Broadening knowledge base in research area, Enabling contextual findings, How to review the literature, searching the existing literature, reviewing the selected literature, Developing a theoretical framework, Developing a conceptual framework, Writing about the literature reviewed.

Block-3 **10 Hours**

Research Design: Meaning of Research Design, Need for Research Design, Features of a Good Design, Important Concepts Relating to Research Design, Different Research Designs, Basic Principles of Experimental Designs, Important Experimental Designs. Design of Sample Surveys: Introduction, Sample Design, Sampling and Non-sampling

Errors, Sample Survey versus Census Survey, Types of Sampling Designs.

Block-4 **10 Hours**

Data Collection: Experimental and Surveys, Collection of Primary Data, Collection of Secondary Data, Selection of Appropriate Method for Data Collection, Case Study Method. Interpretationand Report Writing: Meaning of Interpretation, Technique of Interpretation, Precaution in Interpretation, Significance of Report Writing, Different Steps in Writing Report, Layout. Types of Reports, Oral Presentation, Mechanics of Writing a Research Report, Precautions for Writing Research Reports.

Block-5 **10 Hours**

Intellectual Property (IP) Acts: Introduction to IP: Introduction to Intellectual Property (IP), different types of IPs and its importance in the present scenario, Patent Acts: Indian patent acts 1970.Design Act: Industrial Design act 2000. Copy right acts: Copyright Act1957. Trade Mark Act, 1999

Text books

1. Research Methodology: Methods and Techniques, C.R. Kothari, Gaurav GargNew Age International 4th Edition, 2018.
2. Research Methodology a step-by-step guide for beginners. (For the topic Reviewing the literature under Block 2) Ranjit Kumar SAGE Publications Ltd 3rd Edition, 2011 Study Material.
3. Intellectual property, Debirag E. Bouchoux, Cengage learning, 2013.

References

1. Research Methods: the concise knowledge baseTrochim, Atomic Dog Publishing, 2005.
2. Conducting Research Literature Reviews: From the Internet to Paper FinkAge Publications, 2009.

SUBJECT NAME: DISSERTATION/ MAJOR PROJECT			
SUBJECT CODE	**20MCA62**	CIE MARKS	100
NO OF HOURS/WEEK:	04	SEE MARKS	200
TOTAL HOURS:	**12 WEEKS DURING 4TH SEMESTER**	CREDITS	12

The candidate should carry out the project in any industry or R&D institution or educational institution under a guide/co-guide. The candidate has to present the work carried out before the examiners during the University session ending examination. The literature study may be clearly written which may be summary of existing project and highlight of what are the functionalities that are proposed to this project. Student shall indicate the different research papers, documents refereed as a part of the literature study. This is an individual project for a durationof minimum of 4 months or duration of the semester.

END

Enclosure -7

Annual Academic Calendar for MCA. Programme (Semester Scheme)

Sl. No.	Academic Activities	Date & Month
01	Last date for MCA admission	December 2022
02	Distribution of SLM (Study Material)	At the time of Admission
FIRST SEMESTER		
03	PCP / Counselling	Jan 2023
09	Examination Notification	Feb 2023
10	Submission of Assignments	Feb, 2023
11	Examination	March, 2023
12	Results	May, 2023
SECOND SEMESTER		
13	PCP/Counselling	June 2023
14	Submission of Assignments	July, 2023
15	Examination Notification	Aug , 2023
16	Examination	Sept, 2023
17	Declaration of Results	Oct, 2023
THIRD SEMESTER		
Second Year Admission – Sept/Oct 2023		
18	PCP / Counseling	Dec 2023/Jan 2024
19	Examination Notification	Feb 2024
20	Submission of Assignments	Feb, 2024
21	Examination	March, 2024
22	Results	May, 2024
FOURTH SEMESTER		
23	PCP/ counseling	June 2024
24	Submission of Assignments	July, 2024
25	Examination Notification	Aug , 2024
26	Submission of Project Report	Sept, 2024
26	Examination	Oct, 2024
27	Declaration of Results	June 2025

Enclosure -8

Accounted audited statement for the last three years

Revised Budget and Actual Income & Expenditure statement-2018-19					
Sl. No	Fund	Revised Budget estimates -2018-19	Actual Receipts	Revised Budget estimates -2018-19	Actual Expenditure
		Receipts		Expenditure	
1	General Fund	57,73,50,000	56,87,69,995	58,16,43,000	54,06,02,389
2	Examination Fund	6,65,50,000	6,59,81,494	2,96,50,000	1,36,29,648
3	Pension Fund	11,85,81,854	11,97,74,547	7,25,50,000	6,04,16,529
4	New Pension Scheme	3,00,50,000	2,43,37,216	3,01,05,000	2,43,93,245
5	ENDOWMENT	2,85,000	2,67,777	2,50,000	22,768
6	SECURITY DEPOSIT	16,50,000	16,30,057	5,000	0
7	MUKTA SANJEEVINI	48,20,000	45,51,409	50,000	0
8	SCHOLARSHIP	1,66,00,000	74,34,855	2,20,00,000	1,48,89,001
9	DISTANCE EDUCATION COUNCIL (DEC)	3,50,000	3,29,300	5,000	0
10	DEVELOPMENT GRANT	35,000	31,349	0	0
11	MISCELLANEOUS ACCOUNT	0	3,29,07,175	0	3,30,78,919
12	Dr. B.R.AMBEDKAR PEETA	1,35,000	1,20,934	1,05,000	17,129
13	MAHATMA GANDHIJI PEETA	1,30,000	1,27,414	90,000	45,000
14	RASTRA KAVI KUVEMPU PEETA	1,30,000	1,20,176	50,000	30,000
15	AKKA MAHADEVI PEETA	1,30,000	1,24,421	1,00,000	0
16	SWAMY VIVEKANANDA PEETA	1,36,000	1,31,376	2,00,000	41,000
17	NALWADI KRISHNARAJA WODEYAR Peeta	1,35,000	1,31,586	1,50,000	0
18	BABU JAGAJEEVANRAM PEETA	1,30,000	1,21,875	1,00,000	0
	Total	**81,71,97,854**	**82,68,92,956**	**73,70,53,000**	**68,71,65,628**

Revised Budget and Actual Income & Expenditure statement-2019-20

Sl. No	Fund	Revised Budget estimates -2019-20	Actual Receipts	Revised Budget estimates -2019-20	Actual Expenditure
		Receipts		Expenditure	
1	General Fund	40,03,75,000	39,10,31,593	64,54,15,000	63,65,10,906
2	Examination Fund	6,15,50,000	7,29,17,132	1,51,75,000	1,51,50,804
3	Pension Fund	7,07,05,000	7,64,96,558	7,35,00,000	7,25,17,056
4	New Pension Scheme	5,000	1,416	0	0
5	ENDOWMENT	3,58,000	3,25,024	75,000	56,196
6	SECURITY DEPOSIT	7,00,000	9,19,700	60,000	0
7	MUKTA SANJEEVINI	49,10,000	50,91,989	4,70,000	4,77,502
8	SCHOLARSHIP	1,15,00,000	1,11,58,788	1,61,45,000	1,25,74,361
9	DISTANCE EDUCATION COUNCIL (DEC)	0	2,84,672	0	0
10	DEVELOPMENT GRANT	0	28,986	0	0
11	MISCELLANEOUS ACCOUNT	-	30,492	-	0
12	Dr. B.R.AMBEDKAR PEETA	1,18,000	1,22,956	1,60,000	1,60,619
13	MAHATMA GANDHIJI PEETA	1,25,000	1,30,069	1,60,000	20,640
14	RASTRA KAVI KUVEMPU PEETA	1,98,000	1,66,044	1,60,000	1,45,665
15	AKKA MAHADEVI PEETA	1,22,000	1,27,448	1,60,000	1,60,451
16	SWAMY VIVEKANANDA PEETA	1,27,000	1,32,701	1,60,000	61,212
17	NALWADI KRISHNARAJA WODEYAR Peeta	1,30,000	1,33,418	1,60,000	1,60,283
18	BABU JAGAJEEVANRAM PEETA	1,25,000	1,24,601	1,60,000	94,760
19	BABU JAGAJEEVANRAM PEETA Govt. Grant.	12,65,000	12,50,101	2,30,000	1,95,981
	Total	**55,23,13,000**	**56,04,73,688**	**75,22,10,000**	**73,82,86,436**

Revised Budget and Actual Income & Expenditure statement-2020-21

Sl. No	Fund	Revised Budget estimates -2020-21	Actual Receipts	Revised Budget estimates -2020-21	Actual Expenditure
		Receipts		Expenditure	
1	General Fund	49,12,55,000	61,12,71,915	65,79,02,000	54,08,19,714
2	Examination Fund	9,73,10,000	8,38,24,036	6,17,10,000	3,23,35,277
3	Pension Fund	6,05,00,000	5,52,74,416	8,20,50,000	7,59,42,234
4	New Pension Scheme	3,00,10,000	2,37,01,906	3,00,70,000	2,38,85,978
5	ENDOWMENT	4,57,000	3,92,837	1,45,000	31,339
6	SECURITY DEPOSIT	14,00,000	19,11,775	75,000	1,42,631
7	MUKTA SANJEEVINI	49,50,000	30,64,101	4,80,000	1,51,331
8	SCHOLARSHIP	1,15,00,000	1,20,88,582	70,00,000	22,16,225
9	DISTANCE EDUCATION COUNCIL (DEC)	1,20,10,000	1,00,07,750	1,00,11,000	99,49,251
10	DEVELOPMENT GRANT	0	25,946	0	0
11	MISCELLANEOUS ACCOUNT	-	47,723	-	0
12	Dr. B.R.AMBEDKAR PEETA	1,15,000	1,20,695	85,000	41,194
13	MAHATMA GANDHIJI PEETA	1,30,000	1,29,351	50,000	14,197
14	RASTRA KAVI KUVEMPU PEETA	1,25,000	1,21,504	1,90,000	36,467
15	AKKA MAHADEVI PEETA	1,20,000	1,24,478	1,60,000	52,504
16	SWAMY VIVEKANANDA PEETA	1,30,000	1,31,089	1,60,000	1,10,117
17	NALWADI KRISHNARAJA WODEYAR Peeta	1,30,000	1,30,042	1,60,000	10,117
18	BABU JAGAJEEVANRAM PEETA	1,55,000	1,40,236	1,60,000	20,787
19	BABU JAGAJEEVANRAM PEETA Govt. Grant	13,80,000	13,51,935	1,30,000	2,91,639
	Total	**71,16,77,000**	**80,38,60,317**	**85,05,38,000**	**68,60,51,002**

Enclosure-9

BEST PRACTICES

Sl. No.	Domain Area/Type	Best Practices
1.	Curriculum/SLM	• Curriculum of UG has a provision of Environmental Science, Human Rights, Indian Constitution, RTI, and IT. • SLM of UG and PG is in electronic mode also. • University uploads e-resources in the website and instructs learners to access to it at free of cost. • E-resources (supplementary) is provided to the learners through mobile services. • SLM has provision of editing. The external experts edit the study material which guarantees the quality.
2.	Personal Contact Program / Week end counselling	• Personal Contact Program/Week end counselling is conducted in major canters, which highlight education of doorstep of learners. • Academic counsellors are trained by experts in KSOU which enable them to deliver academic services as per the benchmark. • In case of PG in science and management disciplines, students will be provided exposure in industry through field visit/project work. This apparently provide for hands on experience. • Skill development program conducted in various centres help enhancing the skills of the students. • Feedback is obtained on teacher's evaluation by students in a prescribed format and corrective measures are taken on the basis of analysis. • University conducts induction programme for all the students of various courses. This obviously helps students to chalk out their plan, so that they make a schedule for their studies without any hassle.
3.	Examination/Evaluation	• Examinations are conducted transparently. • Questioned Bank System followed for all courses • Feedback system adopted in case of internal assessment • Test seminar and fieldwork encouraged in internal assessment • Computerised system of entrance examination adopted and results announced within two days of examination • Internal assessment is treated as continuous assessment
4.	LSCs Activities	• LSCs established in government colleges and affiliated colleges only • The courses offered by the above colleges are considered as a basis for the allotment of courses of ksou to LSCs • LSCs manual develop and activities conducted accordingly • Periodically training programme is conducted to the academic councillors and thereby enhance their capacity building • The university invites all coordinators of all LSCs to participate

		in the training programme at ksou periodically • Attendance of the distance learner who participate in the personal contact programme or weekend classes is maintained • Proper support is extended to the visually impaired students by way of attendant in the examination • The university rams in each LSCs for the physically challenged learners
5.	Quality Assurance	• KSOU has established Centre for Internal Quality Assurance (CIQA) for overseeing, reviewing and upgrading quality aspects in academics, students services, administration etc. • The Karnataka State Open University has given more emphasis on delivery mechanism to students. Further the department of commerce has given more weightage on the development of Self Learning Material for the benefits of the student's community. • The department has recently designed the Ph.D Course work syllabus on par with global standards and benchmark. In the Ph.D coursework syllabus more thrust has been accorded on contemporary issues in Commerce.
6.	Placement	• University established a placement cell and orient the students about the carrier opportunities • Through the competitive examination centre the university train its learners to appear for competitive examinations of state/central governments etc. • University industry interface is maintained mainly to give an opportunity to its leaeners to have industrial exposures.
7.	Faculty centric	• Encourage faculty members to undergo FDP Programme periodically • Computer literacy programme is conducted to all the teachers • Traning given to the teachers about a audio/Visuals.
8.	Students Centric	• SLM both print and electronic is developed through the interactive method which is a part of student centric • Teacher evaluation by students is adopted in this case students judges the level of efficiency of teachers who deliver academic services • Learner enjoys flexibility as he has the provisions of learning at its own pace • Student is an important stake holder in the HEI, as such he play a decisive role for the overall development
9.	Use of Technology	• The University is to provide tablet (an inbuilt study material) to the students in the place of printed study material in future. • KSOU has announced to launch of Mobile application for the convenience of students about the academic activities in future.
10.	Any other	1. 25% fee concession extended to the women students under BPL. 2. Mukthasanjeevini put in place to encourage students of

		backward class to fare better. 3. Gold medals instituted course-wise which reduces disparity between ODL and conventional. 4. Model study center being established to set benchmark for rest of the institutions 5. Conservation of emery by the exploiting solar.

All India Council for Technical Education

(A Statutory body under Ministry of Education, Govt. of India)

Nelson Mandela Marg,Vasant Kunj, New Delhi-110070
Website: www.aicte-india.org

APPROVAL PROCESS 2021-22

Letter of Recommendation/NOC

F.No. South-West/2021-22/1-9508626111 Date: 07-Oct-2021

To,
The Vice Chancellor
Karnataka State Open
UniversityMysore
Mysore,
Mysore,
Mysore,
Karnataka,
580006

Sub: Letter of Recommendation Open and Distance Learning (ODL) / Online Learning (OL) 2021-22

Sir/Madam,

In terms of the provisions under the All India Council for Technical Education (Grant of Approvals for Technical Education) (1st Amendment) Regulations,2021 notified on 24th February 2021 and other notifications as applicable and published from time to time, I am directed to convey the approval to

Permanent Id	1-9508626111	**Application Id**	1-9508626111
Name of the Institution/University	KARNATAKA STATE OPEN UNIVERISTY	**Name of the Society/Trust**	Karnataka State Open University
Institution/University Address	Karnataka State Open Univesity, Mukthagangothri - 570 006 Opp. St. Joseph School Mysuru, Mysore, Mysore, Karnataka, 570006	**Society/Trust Address**	Mysore Mysore, Mysore, Mysore, Karnataka, 580006
Institution/University Type	State Government University	**Region**	South-West

To conduct following Courses in ODL mode for the Academic Year 2021-22*

Sr. No.	Program	Level	Course	Number of Seats
1	Management	POST GRADUATE	MASTER IN BUSINESS ADMINISTRATION(GENERAL MANAGEMENT)	10000
2	MCA	POST GRADUATE	MCA	10000

To conduct following Courses in OL mode for the Academic Year 2021-22*

Sr. No.	Program	Level	Course	Number of Seats
1	Management	POST GRADUATE	MBA	10000

The university shall fulfill all the norms and requirements as mentioned in the All India Council for Technical Education (Open and Distance Learning Education & Online Education) Guidelines, 2021 Notified on 3rd March, 2021 and amended from time to time.

The University shall obtain necessary approval from University Grants Commission (UGC) as per the prescribed schedule and procedure.

The Administration/ Management of the University shall strictly follow further conditions as may be specified by the Council from time to time. The Council may withdraw the recommendation, in case it observes any violation of said ODL/OL regulations, mis-representation of facts and submitting factually incorrect information to it.

Note : Recommended

Prof. Rajiv Kumar
Member Secretary, AICTE

Copy to:

1. **Secretary, University Grants Commission**

2. **The Regional Officer,**
   All India Council for Technical Education Health Centre Building
   Bangalore University Campus Bangalore - 560 009, Karnataka

3. **Guard File(AICTE)**

Note: Validity of the Course details may be verified at http://www.aicte-india.org/

**** Copy of this letter will not be communicated through Post/Email. However, provision is made in the AICTE portal for downloading letter through Authorized login credentials allotted to concerned State Secretary / DTE/ Registrar**.

Enclosure -10

Accounted audited statement for the last three years

Enclosure-11

BEST PRACTICES

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1. Act copy
2. AFFIDAVIT