

**(Abstract)**

Scheme and Syllabus of BCA Programme ( first and second semesters only )-Prepared in tune with KU-SLL-FYUGP Regulation - Approved & Implemented under Private registration Scheme of School of Lifelong Learning w.e.f. 2024 admission - Orders Issued

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**ACADEMIC C SECTION**

ACAD C/ACAD C5/24149/2024

Dated: 12.02.2025

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- Read:-1. The Minutes of the Meeting of the committee of Chairperson of BoS Computer Science (UG) and Chairperson of the FYUGP Curriculum Regulation committee held on 29/08/2024
2. U.O. No. FYUGPSC/FYSC-III/15268/2024(I) dtd:04/09/2024
  - 3 . U.O. No. FYUGPSC/FYSC-III/15268/2024 dtd:04/09/2024 and 25/11/2024
  4. ACAD C/ACAD C3/22004 /2024 Dated: 29.11.2024
  5. E-mail dtd: 20/11/2024, from the Chairperson, BoS in Computer Science (UG)
  6. The Minutes of the meeting of the Standing Committee of Academic Council held on 21/01/2025
  7. The Orders of Vice chancellor in File No. Acad C5/24054/2024 dtd.01.02.2025

**ORDER**

1. The Meeting of Chairperson of Board of Studies (BoS) Computer Science (UG) and Convenor of the FYUGP Core Committee vide paper read (1) above, recommended that the Syllabus prescribed for the Courses of the first six Semesters of FYUGP BCA Programme of Affiliated Colleges, shall be followed for the BCA Courses of three year UG Programmes as per the FYUGP Pattern under the Private Registration mode, except the 20 % Course, designed by the individual Faculty as Internal evaluation.
2. Subsequently, the Regulations of the three year Under Graduate Programmes in tune with FYUGP pattern under the Private Registration Scheme of School of Lifelong Learning of Kannur University was implemented w.e.f. 2024 admission vide paper read (2) above.
3. The List of Courses for KU-FYUGP-SLL programmes under Private Registration w.e.f. 2024 admission was approved and implemented vide paper read (3) above.
4. Further, the Scheme and Syllabus of the BCA programme, in FYUGP Regular Pattern (Affiliated Colleges) was approved vide paper read (4) above.
5. Vide paper read 5, the Chairperson, BoS in Computer Science (UG) submitted the Scheme and Syllabus of the first and second semester Courses of the BCA programme, for approval and implementation under the Private Registration Scheme of School of Lifelong Learning of the University w.e.f. 2024 admission.
6. Considering the matter, the Vice Chancellor ordered to place the Scheme and Syllabus, before the Standing Committee of the Academic Council.
7. The Standing Committee of the Academic Council, vide paper read (6) above, recommended to approve the Scheme and Syllabus of the Courses of BCA programme.
8. The Vice Chancellor, after considering the Recommendation of the Standing Committee of the

Academic Council and exercising the powers of the Academic Council, conferred under Section 11(1) Chapter III of Kannur University Act, 1996 and all other enabling provisions read together with, *approved the Scheme and Syllabus of the First and Second Semesters Courses of the BCA Programme, prepared in tune with KU SLL FYUGP Regulations 2024 and implemented the same under the Private Registration Scheme of School of Lifelong Learning of the University, w.e.f 2024 admission, subject to reporting to the Academic Council.*

9. The Scheme & Syllabus of BCA Programme (First and Second Semesters only ) under Private Registration Scheme of School of Lifelong Learning of Kannur University, applicable w.e.f. 2024 admission are appended with this U.O. & uploaded in the University website.

Orders are issued accordingly.

Sd/-

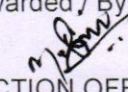
**ANIL CHANDRAN R**  
**DEPUTY REGISTRAR (ACADEMIC)**  
For REGISTRAR

To: 1. Controller of Examinations ( Though PA)  
2. The Director, School of Lifelong Learning ,Kannur University

Copy To:

1. The Chairperson, Board of Studies in Computer Science (UG)
2. PS to VC/PA to R
3. EX CI/EG I/AR-I/AR-IV/JR-2( EXAM)
4. DR/AR (Academic)
5. IT Cell/Computer Programmer
6. web Manager (for uploading in the website)
7. SF/DF/FC

Forwarded / By Order

  
SECTION OFFICER

KV



## LIST OF COURSES (Papers)

### A. SINGLE MAJOR/ MAJOR WITH MINOR/ MAJOR WITH MULTIPLE DISCIPLINE PATHWAYS

#### SEMESTER – I

#### DETAILS OF COURSES (PAPERS) & CREDITS

SI No.	Course (Semester – I)	Number of Course	Credit
1	Ability Enhancement Course – AEC – 1 ( <i>English</i> )	1	3
2	Ability Enhancement Course – AEC – 2 ( <i>Additional Language</i> )	1	3
3	**Multi Disciplinary Course – MDC - 1	1	3
4	Major (A – 1)	1	4
5	Minor (*B – 1)	1	4
6	Minor (*C – 1)	1	4
	<b>TOTAL</b>	<b>6</b>	<b>21</b>
<p>*<b>Single Major:</b> Six courses in B &amp; C can be in different disciplines. * <b>Major with Minor:</b> B &amp; C represents the same minor discipline. * <b>Major with multiple disciplines:</b> B &amp; C represents two different disciplines. ** <b>MDC</b> shall be from subject other than Major</p>			

#### I. FOUNDATION COURSES (mandatory for all candidates)

##### 1. Ability Enhancement Course – AEC (English).

One course with 3 credits for a programme

SI No.	Course (Paper)	Credit
1	KU1AECENG102 - Enriching English (For BBA/ BCA/B.Com)	3
2	KU1AECENG103 - Engaging English (For all BA Programmes)	3

##### 2. Ability Enhancement Course – AEC (Modern/ Other Language):

One course with 3 credits for a programme

SI No.	AEC – MALAYALAM - Course (Paper)	Credit
1	KU1AECMAL102 – ഭാഷാ-സാഹിത്യ പഠിപ്പിച്ചം (For all BA Programmes)	3
2	KU1AECMAL103 - സാഹിത്യവും രചനയും (For BBA/ BCA/B.Com)	3

OR

SI No.	<i>AEC – HINDI - Course (Paper)</i>	Credit
1	KU1AECCHIN102 - Sahityik Hindi (For BBA/ BCA/Bcom)	3
2	KU1AECCHIN 103 - Saral Hindi (For all BA Programmes)	3

**OR**

SI No.	<i>AEC – ARABIC - Course (Paper)</i>	Credit
1	KU1AECARB101 - Arabic for Daily Life (For all BA Programmes except Afzal-UI-Ulama)	3
2	KU1AECARB105 - Functional Arabic (For BA Afzal-UI-Ulama)	3
3	KU1AECARB102 - Arabic for Interaction (For BBA/ BCA/B.Com)	3

**OR**

SI No.	<i>AEC – URDU - Course (Paper)</i>	Credit
1	KU1AECURD101 - Nasari Shanakhath (For all BA Programmes)	3
2	KU1AECURD102 - Nasari Muthala (For BBA/ BCA/B.Com)	3

**OR**

SI No.	<i>AEC – KANNADA - Course (Paper)</i>	Credit
1	KU1AECKAN101 - Modern Kannada Poetry & Fiction (For all BA Programmes)	3
2	KU1AECKAN102 - Modern Kannada Poetry & Drama (For BBA/Bcom)	3
3	KU1AECKAN103 - Commercial Communication in Kannada (For BCA)	3

### 3. Multi Disciplinary Course – MDC – I Semester.

**One course with 3 credits for a programme**

Candidates shall choose **ONE** course as MDC from **any discipline** given below other than from their **major discipline**.

SI No.	Discipline	Name of the Course (MDC – I Semester)	Credit
1	Commerce	KU1MDCCOM100 - Personal Finance Planning	3
2	B.B.A.	KU1MDCBBA100 - Fundamentals of Management	3
3	Economics	KU1MDCECO102 - Economics for Competitive Examination	3
4	Political Science	KU1MDCPOL101 - Media and Politics	3
5	History	KU1MDCHIS102 - Understanding Social Reform Movements in Kerala	3
6	English	KU1MDCENG103 - English & Artificial Intelligence	3
7	Malayalam	KU1MDCMAL101 - നവമുദ്രയുടെ സാഹിത്യം	3
8	Kannada	KU1MDCKAN101 - Scientific literature in Kannada	3
9	Afzal-UI-Ulama	KU1MDCAFZ101 - Elementary Arabic	3
10	Journalism	KU1MDCJMC106 - Professional Journalism	3

11	Hindi	KU1MDCHIN101 - Geeto ke bol anmol	3
12	B.C.A.	KU1MDCCAP101 - Basics of IT for all <b>OR</b> KU1MDCCAP102 - Digital marketing	3

## II. Discipline Specific Course – DSC (Major/Minor) – I Semester

### (i) Major – A (I Semester): One Course with 4 credits

Sl No.	Discipline	Name of the Course (Major - A) – I Semester	Credit
1	Commerce	KU1DSCCOM100 - Management Theory & Practices	4
2	B.B.A.	KU1DSCBBA100 - Management Concepts and Principles	4
3	Economics	KU1DSCECO101 - Introductory Microeconomics *	4
4	Political Science	KU1DSCPOL101 - Foundations of Political Science *	4
5	History	KU1DSCHIS101 - Understanding History	4
6	English	KU1DSCENG101 - Poetry in English *	4
7	Malayalam	KU1DSCMAL101 - കഥയും കഥാപാത്രങ്ങളും	4
8	Kannada	KU1DSCKAN102 - Navodaya Literature	4
9	Afzal-UI-Ulama	KU1DSCAFZ101 - Essential Arabic Syntax	4
10	B.C.A.	KU1DSCCAP101 - Foundations of Computers and Programming	4

\* These courses (papers) can be opted as Minor by those who have not opted these discipline as their Major discipline.

### (ii) Minor Courses (I Semester): 2 courses with 4 credits each.

Candidates shall choose **TWO** courses as Minor from **any discipline** given below other than from their **major discipline**.

Sl No.	Discipline	Name of the Course		Credit
1	Commerce (B.Com)	1.	KU1DSCCOM101 - Accounting for Beginners	4
		2.	KU1DSCCOM104 - Modern Marketing	4
2	Business Administration (B.B.A)	1.	KU1DSCBBA101 - Managerial Economics	4
		2.	KU1DSCBBA102 - Business Statistics	4
3	Economics	1.	KU1DSCECO101 - Introductory Microeconomics*	4
		2.	KU1DSCECO103 - Economics of Tourism & Development	4

4	Political Science	1.	KU1DSCPOL101 - Foundations of Political Science*	4
		2.	KU1DSCPOL102 - Understanding Indian Constitution	4
5	History	1.	KU1DSCSCHIS102 - Economic History of Modern India (1600 to 1857)	4
		2.	KU1DSCSCHIS103 – Understanding the Modern World	4
6	English	1.	KU1DSCENG101 - Poetry in English*	4
		2.	KU1DSCENG103 - Life Writings	4
7	Malayalam	1.	KU1DSCMAL103 - ഇന്ത്യൻ ഇതര ഭാഷാ സാഹിത്യ പരിചയം	4
		2.	KU1DSCMAL104 – സ്ത്രീ- അനുഭവമെഴുത്ത്	4
8	Kannada	1.	KU1DSCKAN103 - Navodaya Poetry	4
		2.	KU1DSCKAN104 - Travel Writings in Kannada	4
9	Afzal-Ul-Ulama	1.	KU1DSCAFZ102 - Classical Prose in Arabic	4
		2.	KU1DSCAFZ103 - Reading Arabic Literature - I	4
10	Journalism	1.	KU1DSCJMC103 - Film Appreciation	4
		2.	KU1DSCJMC104 - News Media & Democracy	4
11	Computer Application (B.C.A.)	1.	KU1DSCCAP103 – Essential IT Tools	4
		2.	KU1DSCCAP105 - Fundamentals of Web Development	4

\* These courses (papers) can be opted as Major by those who have not opted these discipline as their Minor discipline.

## SEMESTER – II

### DETAILS OF COURSES (PAPERS) & CREDITS

Sl No.	Course (Semester – II)	Number of Course	Credit
1	Ability Enhancement Course – AEC – 3 (English)	1	3
2	Ability Enhancement Course – AEC – 4 (Additional Language)	1	3
3	Multi Disciplinary Course – **MDC - 2	1	3
4	Major (A – 2)	1	4
5	Minor (*B – 2)	1	4
6	Minor (*C – 2)	1	4
	<b>TOTAL</b>	<b>6</b>	<b>21</b>
<p>*<b>Single Major:</b> Six courses in B &amp; C can be in different discipline.  * <b>Major with Minor:</b> B &amp; C represents the same minor discipline.  * <b>Major with multiple disciplines:</b> B &amp; C represents two different disciplines.  ** <b>MDC</b> shall be from subject other than Major</p>			

**I. FOUNDATION COURSES (mandatory for all candidates)**

**1. Ability Enhancement Course – AEC (English)**

**One course with 3 credits for a programme.**

SI No.	Course (Paper)	Credit
1	KU2AECENG106 - English for Career (For BBA/ BCA/B.Com)	3
2	KU2AECENG107 - English through Culture (For all BA Programmes)	3

**2. Ability Enhancement Course – AEC (Modern/ Other Language).**

**One course with 3 credits for a programme**

SI No.	AEC – MALAYALAM - Course (Paper)	Credit
1	KU2AECMAL105 - ആഖ്യാനവും ആവിഷ്കാരവും (For all BA Programmes)	3
2	KU2AECMAL106 - ഭാഷാസാഹിത്യവ്യവഹാരങ്ങൾ (For BBA/ BCA/Bcom)	3

**OR**

SI No.	AEC - HINDI - Course (Paper)	Credit
1	KU2AECHIN 105 - Gadya Vividha (For BBA/ BCA/B.Com)	3
2	KU2AECHIN 106 - Satrangi Dharti (For all BA Programmes)	3

**OR**

SI No.	AEC – ARABIC - Course (Paper)	Credit
1	KU2AECARB105 - Basic Skills in Arabic (For all BA Programmes <i>and</i> BA Afzal-UI-Ulama)	3
2	KU2AECARB106 - Essential Skills in Arabic (For BBA/ BCA/B.Com)	3

**OR**

SI No.	AEC – URDU - Course (Paper)	Credit
1	KU2AECURD104 - Urdu Shayari (For all BA Programmes)	3
2	KU2AECURD106 - Urdu Nasar - O – Nazm (For BBA/ BCA/B.Com)	3

**OR**

SI No.	AEC – KANNADA - Course (Paper)	Credit
1	KU2AECKAN104 - Medieval Kannada Literature (For all BA Programmes)	3
2	KU2AECKAN105 - Modern Kannada Prose (For BBA/BCom)	3
3	KU2AECKAN106 - Computer Application in Kannada (For BCA)	3

**3. Multi Disciplinary Course – MDC – II Semester**

**One course with 3 credits for a programme**

Candidates shall choose **ONE** course as MDC from **any discipline** given below other than from their **major discipline**.

SI No.	Discipline	Name of the Course (MDC – II Semester)	Credit
1	Commerce	KU2MDCCOM102 - Fundamentals of Entrepreneurship	3

2	<b>B.B.A.</b>	KU2MDCBBA100 -E-Commerce	3
3	<b>Economics</b>	KU2MDCECO104 - Economics of Startup & Entrepreneurship	3
4	<b>Political Science</b>	KU2MDCPOL102 - Environmental Politics	3
5	<b>History</b>	KU2MDCHIS106 - History of Indian National Movement	3
6	<b>English</b>	KU2MDCENG106 - Popular Narratives	3
7	<b>Malayalam</b>	KU2MDCMAL102 - ചലച്ചിത്ര ആസ്വാദനം	3
8	<b>Kannada</b>	KU2MDCKAN102 - Kannada film appreciation	3
9	<b>Afzal-UI-Ulama</b>	KU2MDCAFZ102 - Arabic for Communication	3
10	<b>Journalism</b>	KU2MDCJMC112 – PR Management	3
11	<b>Hindi</b>	KU2MDCHIN102 - Anudit Malayalam Sahitya	3
12	<b>B.C.A.</b>	KU2MDCCAP103 - Python Programming for all <b>OR</b> KU2MDCCAP104 - Introduction to Data Science	3

## II. Discipline Specific Course – DSC (Major/Minor)– II Semester

### (i) Major – A (II Semester): One Course with 4 credits

Sl No.	Discipline	Name of the Course (Major – A – II Semester)	Credit
1	<b>Commerce</b>	KU2DSCCOM105 - Financial Accounting	4
2	<b>B.B.A.</b>	KU2DSCBBA101 - Fundamentals of Accounting	4
3	<b>Economics</b>	KU2DSCECO106 - Introductory Macroeconomics *	4
4	<b>Political Science</b>	KU2DSCPOL104 - Indian Constitution: An Introduction *	4
5	<b>History</b>	KU2DSCHIS107 - An Introduction to World Civilizations	4
6	<b>English</b>	KU2DSCENG106 - Prose in English*	4
7	<b>Malayalam</b>	KU2DSCMAL105 - കവിതയും കവിതാവായനയും	4
8	<b>Kannada</b>	KU2DSCKAN105 - Progressive Literature in Kannada	4
9	<b>Afzal-UI-Ulama</b>	KU2DSCAFZ104 - Grammar & Morphology	4
10	<b>B.C.A.</b>	KU2DSCCAP106 - Programming With C and C++	4

\* These courses (papers) can be opted as Minor by those who have not opted these discipline as their Major discipline.



**(ii) Minor (II Semester): 2 courses with 4 credits each.**

Candidates shall choose **TWO** courses as Minor from **any discipline** given below other than from their **major discipline**.

Sl No.	Discipline	Name of the Course		Credit
1	Commerce (B.Com)	1.	KU2DSCCOM106 - Modern Business Environment	4
		2.	KU2DSCCOM110 - Quantitative Techniques for Business Decisions	4
2	Business Administration (B.B.A)	1.	KU2DSCBBA103 - Business Environment	4
		2.	KU2DSCBBA106 - Emerging Applications in Management	4
3	Economics	1.	KU2DSCECO106 - Introductory Macroeconomics *	4
		2.	KU2DSCECO108 - Demography	4
4	Political Science	1.	KU2DSCPOL104 – Indian Constitution: An Introduction *	4
		2.	KU2DSCPOL106 - Ideas & Concepts in Political Science	4
5	History	1.	KU2DSCHIS108 - Economic History of Modern India (1858 - 1947)	4
		2.	KU2DSCHIS109 - Understanding Contemporary World History	4
6	English	1.	KU2DSCENG106 - Prose in English *	4
		2.	KU2DSCENG110 - Contemporary Literatures	4
7	Malayalam	1.	KU2DSCMAL106 - ഇന്ത്യൻ സാഹിത്യ പരിചയം	4
		2.	KU2DSCMAL107 - സ്ത്രീ-യാത്രയെഴുത്ത്	4
8	Kannada	1.	KU2DSCKAN107 - Modern Kannada Literature	4
		2.	KU2DSCKAN108 - Regional Writings in Kannada	4
9	Afzal-Ul-Ulama	1.	KU2DSCAFZ105 - Arabic Literature in India	4
		2.	KU2DSCAFZ106 - History of Classical Arabic Literature	4
10	Journalism	1.	KU2DSCJMC110 - Online Journalism	4
		2.	KU2DSCJMC111 - News writing for Print Media	4
11	B.C.A.	1.	KU2DSCCAP108 - Cyber security and Ethics	4
		2.	KU2DSCCAP109 - Introduction to Database Management System	4

\* These courses (papers) can be opted as Major by those who have not opted these discipline as their Minor discipline.

## **B. DOUBLE MAJOR PATHWAY**

### **LIST OF COURSES (Papers) FOR BA ARABIC & ISLAMIC HISTORY/ BA URDU & ISLAMIC HISTORY**

#### **SEMESTER – I**

#### **DETAILS OF COURSES & CREDITS**

SI No.	Course (Semester – I)	Number of Course	Credit
1	Ability Enhancement Course – AEC – 1 (English)	1	3
2	Ability Enhancement Course – AEC – 2 (Additional Language)	1	3
3	Major (A – 1)	1	4
4	Major (A – 2)	1	4
5	Major (B – 1)	1	4
6	Multi Disciplinary Course – MDC – 1 (*B)	1	3
	<b>TOTAL</b>	<b>6</b>	<b>21</b>

\* MDC shall be from Major B (Islamic History)

#### **I. FOUNDATION COURSES (Mandatory for all candidates)**

##### **1. Ability Enhancement Course – AEC (English): One Course with 3 Credits**

SI No.	Course (Paper)	Credit
1	KU1AECENG103 - Engaging English	3

##### **2. Ability Enhancement Course – AEC (Modern/ Other Language): One Course with 3 credits**

SI No.	AEC – MALAYALAM - Course (Paper)	Credit
1	KU1AECMAL102 - ഭാഷാ -സാഹിത്യ പരിചയം	3

**OR**

SI No.	AEC – HINDI - Course (Paper)	Credit
1	KU1AECHIN103 - Saral Hindi	3

**OR**

SI No.	AEC – ARABIC - Course (Paper)	Credit
1	KU1AECARB101 - Arabic for Daily Life	3

**OR**

SI No.	AEC – URDU- Course (Paper)	Credit
1	KU1AECURD101 - Nasari Shanakhath	3

**OR**

SI No.	AEC – KANNADA - Course (Paper)	Credit
1	KU1AECKAN101 - Modern Kannada Poetry & Fiction	3

3. **Multi Disciplinary Course – MDC – I Semester (From Major –B -Islamic History):** One course with 3 credits

Any one course from the following

Sl No.	Discipline	Name of the Course (MDC – I Semester)	Credit
1	<b>Islamic History</b>	KU1MDCISH101 - Islamic Finance & Banking <i>OR</i> KU1MDCISH102 – Gulf Migration in Kerala: Dynamics, Impacts & Challenges	3

**II. Discipline Specific Course – DSC – I Semester**

**i. Major – A (I Semester): Arabic or Urdu. 2 courses with 4 credits each**

- 2 courses (papers ) in Arabic for BA Arabic & Islamic History
- 2 courses (papers ) in Urdu for BA Urdu & Islamic History

Sl No.	Discipline	Name of the Course - (Major - A) – I Semester	Credit
1	<b>Arabic</b>	KU1DSCARS101 – Essential of Arabic Language	4
		KU1DSCARS102 – Classical Arabic Prose	4
2	<b>Urdu</b>	KU1DSCURD101 – Drama Aur Khaka	4
		KU1DSCURD102 – Shustha Urdu	4

**ii. Major B (I Semester):Islamic History: One course with 4 credits**

- One course (paper) in ‘Islamic History’ for both ‘BA Arabic & Islamic History’ and ‘BA Urdu & Islamic History’.
- Any one course from the following

Sl No.	Discipline	Name of the Course - (Major - B) – I Semester	Credit
1	<b>Islamic History</b>	KU1DSCISH102 – Exploring IT & Artificial Intelligence in Islamic History & Culture <i>OR</i> KU1DSCISH101 – Islamic History as a Social Science Discipline	4

## **SEMESTER – II**

### **DETAILS OF COURSES & CREDITS**

Sl No.	Course (Semester – II)	Number of Course	Credit
1	Ability Enhancement Course – AEC – 3(English)	1	3
2	Ability Enhancement Course – AEC – 4(Additional Language)	1	3
3	Major (A – 3)	1	4
4	Major (B – 2)	1	4

5	Major (B – 3)	1	4
6	*Multi Disciplinary Course – MDC – 2 (A)	1	3
	<b>TOTAL</b>	<b>6</b>	<b>21</b>

\*

MDC shall be from Major A (Arabic or Urdu)

## I. FOUNDATION COURSES (Mandatory for all candidates)

### 1. Ability Enhancement Course – AEC (English):

One course with 3 credits

SI No.	Course (Paper)	Credit
1	KU2AECENG107 - English Through Culture	3

### 2. Ability Enhancement Course – AEC (Modern/ Other Language): One course with 3 credits

Candidates shall choose any **ONE** course from any **ONE** language from the following as Ability Enhancement Course – AEC (Modern/Other Language)

SI No.	AEC – MALAYALAM - Course (Paper)	Credit
1	KU2AECMAL105 - ആഖ്യാനവും ആവിഷ്കാരവും	3

OR

SI No.	AEC – HINDI - Course (Paper)	Credit
1	KU2AECCHIN 106 - Satrangi Dharti	3

OR

SI No.	AEC – ARABIC - Course (Paper)	Credit
1	KU2AECARB105 - Basic Skills in Arabic	3

OR

SI No.	AEC – URDU - Course (Paper)	Credit
1	KU2AECURD104 - Urdu Shayari	3

OR

SI No.	AEC – KANNADA - Course (Paper)	Credit
1	KU2AECKAN104 - Medieval Kannada Literature	3

### 3. Multi Disciplinary Course – MDC – II Semester: One course with 3 credits. (MDC shall be from the respective Major A discipline)

i. Candidates registered for ‘B.A Arabic & Islamic History’ shall select the following course in Arabic as their Multi Disciplinary Course (MDC from Major - Arabic).

SI No.	Discipline	Name of the Course (MDC – II Semester)	Credit
1	Arabic	KU2MDCARS105 – Arabic for non Native Speakers – Part 2	3

ii. Candidates registered for ‘B.A Urdu & Islamic history’ shall select the following course in Urdu as their Multi Disciplinary Course (MDC from Major –Urdu )

SI No.	Discipline	Name of the Course (MDC – II Semester)	Credit
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1	Urdu	KU2MDCURD102 - Tharjama	3
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## II. Discipline Specific Course – DSC – II Semester

### i. Major – A (Arabic or Urdu) (II Semester): One course with 4 credits

- One course (paper) in Arabic for BA Arabic & Islamic History
- One course (paper) in Urdu for BA Urdu & Islamic History

Sl No.	Discipline	Name of the Course - (Major - A) – II Semester	Credit
1	Arabic	KU2DSCARS104 – Fundamental skill in Arabic	4
2	Urdu	KU2DSCURD103 - Masnavi, Marsiya aur Rubayi	4

### ii. Major – B (Islamic History) (II Semester): 2 courses with 4 credits each.

(For all candidates registered for BA Arabic/Urdu & Islamic History)

Candidates registered for ‘BA Arabic & Islamic History’ and ‘BA Urdu & Islamic History’ shall register for the following two courses in Islamic History.

Discipline	Name of the Course - (Major - B) – II Semester	Credit
Islamic History	KU2DSCISH103 – Ancient Arabia & Arabs	4
	KU2DSCISH104 – Arab world in the new era	4

**KANNUR UNIVERSITY**

**BOARD OF STUDIES COMPUTER SCIENCE –UG**

**CURRICULUM SYLLABUS**

**OF**

**Three Year Undergraduate Program as per the  
FYUGP Pattern Under the Private Registration  
Scheme of the School of Lifelong Learning 2024 (KU-  
SLL-FYUGP-REGULATIONS 2024)**

***BACHELOR OF COMPUTER APPLICATION***  
***(BCA)***

**UNDER THE CHOICE BASED CREDIT AND  
SEMESTER SYSTEM (CBCSS)**

**W.E.F 2024 ADMISSION ONWARDS**

## PROGRAMME OUTCOME

<b>PO1</b>	<b>Critical Thinking and Problem-Solving-Apply critical thinking skills to analyze information and develop effective problem-solving strategies for tackling complex challenges.</b>
<b>PO2</b>	<b>Effective Communication and Social Interaction-Proficiently express ideas and engage in collaborative practices, fostering effective interpersonal connections.</b>
<b>PO3</b>	<b>Holistic Understanding-Demonstrate a multidisciplinary approach by integrating knowledge across various domains for a comprehensive understanding of complex issues.</b>
<b>PO4</b>	<b>Citizenship and Leadership-Exhibit a sense of responsibility, actively contribute to the community, and showcase leadership qualities to shape a just and inclusive society.</b>
<b>PO5</b>	<b>Global Perspective-Develop a broad awareness of global issues and an understanding of diverse perspectives, preparing for active participation in a globalized world.</b>
<b>PO6</b>	<b>Ethics, Integrity and Environmental Sustainability-Uphold high ethical standards in academic and professional endeavors, demonstrating integrity and ethical decision-making. Also acquire an understanding of environmental issues and sustainable practices, promoting responsibility towards ecological well-being.</b>

## PROGRAMME SPECIFIC OUT COMES

<b>PSO 1:</b>	<b>Apply computer science knowledge to solve diverse real-world Challenges</b>
<b>PSO 2:</b>	<b>Design and implement robust software solutions using diverse programming languages and design tools</b>
<b>PSO 3:</b>	<b>Utilize advanced techniques for data storage, retrieval, and manipulation across varied computing environments</b>
<b>PSO 4:</b>	<b>Critically evaluate and apply information technology tools and methodologies with ethical consideration</b>
<b>PSO 5:</b>	<b>Engage in interdisciplinary research to address complex computer science challenges</b>
<b>PSO 6:</b>	<b>Implementation of professional engineering solutions for the betterment of society keeping the environmental context in mind, be aware of professional ethics and be able to communicate effectively.</b>
<b>PSO7:</b>	<b>Demonstrate lifelong learning and adaptability in response to evolving technology trends</b>



## SEMESTER – I

COURSE CODE	COURSE TYPE	COURSE NAME	CREDIT
		<b>MAJOR</b>	
KU1DSCCAP101	DSC	FOUNDATION OF COMPUTERS AND PROGRAMMING	4(3T+1P)
<b>MINOR FOR OTHER PROGRAMMES</b>			
KU1DSCCAP103	DSC	ESSENTIAL IT TOOLS	4(3T+1P)
KU1DSCCAP105	DSC	FUNDAMENTALS OF WEB DEVELOPMENT	4(3T+1P)
<b>MDC FOR OTHER PROGRAMMES</b>			
KU1MDCCAP101	MDC	BASICS OF IT FOR ALL	3
KU1MDCCAP102	MDC	DIGITAL MARKETING	3

## SEMESTER - II

COURSE CODE	COURSE TYPE	COURSE NAME	CREDIT
		<b>MAJOR</b>	
KU2DSCCAP106	DSC	PROGRAMMING WITH C AND C++	4(3T+1P)
<b>MINOR FOR OTHER PROGRAMMES</b>			
KU2DSCCAP108	DSC	CYBER SECURITY AND ETHICS	4(3T+1P)
KU2DSCCAP109	DSC	INTRODUCTION TO DATABASE MANAGEMENT SYSTEM	4(3T+1P)
<b>MDC FOR OTHER PROGRAMMES</b>			
KU2MDCCAP103	MDC	PYTHON PROGRAMMING FOR ALL	3
KU2MDCCAP104	MDC	INTRODUCTION TO DATA SCIENCE	3

## Instructions

- I. The following consolidated scheme is followed for the evaluation of all 3 credit and 4 credit courses

Course	Credit		Mark		L		P		
	L	P	L	P	CCA	ESE	CCA	ESE	Total marks
4 Credit	4	0	100	0	30	70	0	0	100
	3	1	75	25	25	50	10	15	100
	Credit		Mark		L		P		
	L	P	L	P	CCA	ESE	CCA	ESE	Total marks
3 Credit	3	0	75	0	25	50	0	0	75
	2	1	50	25	15	35	10	15	75

*L–Lecture/ Theory, P–Practical/ Practicum components,*

*CCA–Continuous Comprehensive Assessment, ESE – End Semester Evaluation.*

- II. Duration of ESE Theory examination: For 70 marks: 2 hours. For 50 marks: 1.5 hours.
- III.
- For the course having 4 credit with practical, ESE for 1.5 hours for 50 marks shall be conducted by the Controller of Examinations. ESE Practical examination for 15 marks also shall be conducted by the Controller of Examinations.( Total 65 )
  - Continuous comprehensive assessment (CCA) for 25 marks on theory part shall be based on Test Paper( 15 marks) and Assignment/Viva/Seminar( 10 marks) . 10 marks on practical part shall be based on the continuous evaluation of Lab activities. Continuous comprehensive assessment for 35 ( 25+ 10) marks shall be awarded by the faculty handling practical classes based on the above components.
- IV.
- In the case of course having 4 credit without practical, ESE of 2 hour duration for 70 marks shall be conducted by the Controller of Examinations. Continuous Comprehensive Assessment (CCA) for 30 marks shall be based on Assignment as provided in clause 13.2 of the regulations.
  - In the case of course having 3 credit without practical, ESE of 1.5 hour duration for 50 marks shall be conducted by the Controller of Examinations. Continuous Comprehensive Assessment (CCA) for 25 marks shall be based on Assignment as provided in clause 13.2 of the regulations.

V. Continuous comprehensive assessment marks awarded shall be communicated to Controller of Examinations by the Centre Coordinator along with the mark sheet duly signed by the faculty concerned.

### Semester-1

#### KU1DSCCAP101: FOUNDATIONS OF COMPUTERS AND PROGRAMMING

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	DSC	100-199	KU1DSCCAP101	4 (3T+1P)	5

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	2	-	35	65	100	1.5 Hrs

**Course Description:** To introduce students to the foundations of computing, programming and problem-solving. It aims to train the student to the basic concepts of the C-programming language. This course involves a lab component which is designed to give the student hands-on experience with the concepts.

**Course Prerequisite:** NIL

**Course Outcomes:**

CO No.	Expected Outcome	Learning Domain

		s
1	Understand the basic concepts and fundamental knowledge in the field of COMPUTER APPLICATIONS	U /R
2	Comprehend the different types of number system	U /R
3	Understand the principles and terminology of digital logic.	U
4	Develop efficient algorithms for solving a problem.	A
5	Write the program on a computer, edit, compile, debug, correct, recompile and run it.	A, An, C

*\*Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)*

### Mapping of Course Outcomes to PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	3	2		2			
CO2	3						
CO3	2	2					
CO4	2	3		2			
CO5	3	3				2	2

### COURSE CONTENTS

#### Contents for Classroom Transaction:

M E	MODUL E	U NIT	DESCRIPTION	HOURS
	<b>MODULE 1: Building blocks of Computers</b>			

<b>1</b>		<p><b>Generation and classification of Computers:</b> Super, Mainframe, Mini, Personal Computer, Work stations, Parallel machines.</p> <p><b>Basic Computer Organization:</b> Von Neumann Model</p> <p><b>Hardware:</b> Central Processing Unit (CPU), Primary memory and Secondary Storage devices, I/O devices.</p> <p><b>Software:</b> System Software and Application Software, Operating System (definition and functions only)</p>	<b>18</b>
	2	<p><b>Computer Languages-</b> Machine language, Assembly Language and High-Level Language</p> <p><b>Language Translators-</b> Compiler, Interpreter and Assembler</p>	
	3	<p><b>Basic concept of networking:</b> LAN, WAN, Internet and its working</p>	
	4	<p><b>Artificial Intelligence:</b> Types of Learning, Applications of AI, Different types of AI Problems (Basic ideas only)</p>	

<b>2</b>	<b>MODULE 2: Number Systems &amp; Boolean Algebra</b>		<b>19</b>
	1	Weighted and Non - Weighted Codes, Positional, Binary, Octal, Hexadecimal, Binary Coded Decimal (BCD), Gray Codes, Alphanumeric codes, ASCII, EBCDIC, Conversion between bases	
	2	Signed arithmetic, 1's, 2's complement representation	
	3	Logic gates AND, OR, NOT, NAND, NOR, XOR	
	4	Fundamental concepts of Boolean Algebra Logic Circuits, Conversion from expression to logic Circuits	
<b>MODULE 3: Introduction to Algorithms and C Programming</b>			
1	Introduction to algorithmic concepts using flowcharts and pseudocode		

3	2	<p>Concept of Structured Programming</p> <p>The language of C: Phases of developing and executing a computer program using C.</p> <p>Standard input and output library, header file “stdio.h”</p>	20
	3	<p>Data concepts in C: Character set, Constants, literals, Variables, identifier, Keywords, Datatypes, Variables, Declaration of Variables</p> <p>Operators, Expressions and operator precedence in C</p>	
	4	<p>Simple C programs</p> <p>Syntax Errors - Run-Time Errors - Logical Errors</p>	
<b>MODULE 4: Control Structures and Arrays</b>			18
4	1	Decision Making statements: if, if-else, if-else-if, Nested if and switch	
	2	<p>Loop control statements - Entry controlled loop (for, while), Exit controlled loop (do-while)</p> <p>Jump statements: goto, break. Continue</p>	
	3	One dimensional array: declaration and initialization, integer and character array	
	4	Two dimensional array: declaration and initialization	

**Assessment Rubrics:**

End Semester Evaluation		<b>65</b>
Theory		<b>50</b>
Practical		<b>15</b>
CCA		<b>35</b>
Continuous Evaluation (Theory)		<b>25</b>
a)	TestPaper-1	12
b)	Assignment	5
c)	Viva/seminar	8

Continuous Evaluation (Practical)		<b>10</b>
a)	Lab Skills and Punctuality	3
b)	OBSERVATION BOOK	2
c)	Test	5
Total		<b>100</b>

### Lab Exercises

#### Cycle 1

- 1) Hardware familiarisation and PC assembling
- 2) OS installation
- 3) Familiarise network devices, Set up and configure computer network
- 4) Familiarise AI tools
- 5) Familiarise writing and presentation tools

#### Cycle 2

- 1) Setting up a Linux Environment: Work in Linux environments and to be able to compile and run C programs.
- 2) Basic Linux commands

#### Cycle 3

##### Basic Arithmetic and I/O

- i) Write a C program that prints a welcome message ii) Print the size of data types - int, float, bool, char and double on your device and understand the maximum value limits of data types.
- iii) Write a C program that accepts a distance in inches and prints the corresponding value in cms. Note that 1 inch = 2.54 cm iv) Write a C program to evaluate  $a-b+c*3$
- v) Write a program to convert Fahrenheit To Celsius vi) Given the initial price, discount in percentage and tax in percentage on a computer and pendrive, calculate the bill after buying both the products. Restrict output to 2 decimal places

##### Decision making and Loops

- i) Write a program to input three numbers and find the largest.
- ii) Write a program to take a number as input from the user and find the factorial.

iii) Given marks of the course for a student, follow the below grading scheme and print the corresponding grade as output.

Constraints:  $0 \leq \text{marks} \leq 100$  and  $\text{marks} \in \mathbb{R}$

86 - 100: A+

71 - 85: A

56 - 70: B+

41 - 55: B

26 - 40: C

0 - 25: F

iv) Write a program to take 2 numbers from the user and perform the following operations. i) addition ii) subtraction iii) multiplication iv) division v) modulus. Handle the cases like division by zero and other invalid input cases. (Use switch)

v) Write a program to print the roots of a quadratic equation. Restrict output to 3 decimal places

vi) Write a program which takes an integer  $n$  as input denoting a year and outputs whether the year is a leap year or not. The program should print "Leap year" if it is a leap year and "Not a leap year" otherwise. (Leap year is exactly divisible by 4. However if it is a century year then the year must be divisible by 400 to be a leap year)

vii) Write a program that takes as input an integer  $n$ . The program should print the  $n^{\text{th}}$  Fibonacci number.

viii) Write a program to take an integer as input and output whether it is a prime number or not.

ix) Write a C program to take a number as input and check if it is a perfect number or not. A perfect number is equal to the sum of all its factors except itself. For example,  $(28 = 1 + 2 + 4 + 7 + 14)$

x) Write a C program that accepts a positive integer and prints out the sum of the digits of this number.

xi) Write a program to take a 4 digit number as input from the user and reverse the number. Check whether the number is palindrome.

xii) Write a program to evaluate the sum of different arithmetic series

xiii) Write a C program that takes a positive integer  $n$  and prints different patterns



## Arrays and Strings

- i) Given an array of n numbers and find average
- ii) Given an array of numbers, output the second largest element in the array ii) Count frequency of an element in an array
- iii) Perform linear search iv) Given a 2D array of size  $n \times n$  as input, write a program to perform matrix addition and multiplication
- iv) Converting a positive integer number ( $n > 0$ ) from one base (input Base) to another base (output Base) ( $2 \leq \text{input Base}$ ,  $\text{output Base} \leq 10$ ). Input number should be validated before converting to make sure the number uses only digits allowed in the input base?

### **A. END SEMESTER EXAMINATION (ESE): 65 (50+15)**

1. ESE theory examination of 1 ½ hour duration for 50 marks shall be conducted by the Controller of Examinations.
2. The End Semester practical examinations for 15 marks shall be conducted by the Controller of Examinations.

### **B. CONTINUOUS COMPREHENSIVE ASSESSMENT (CCA): 35 (25+10)**

3. Continuous comprehensive assessment for 35(25+10) marks shall be awarded by the faculty handling practical classes based on the above components.
4. Continuous comprehensive assessment marks awarded shall be communicated to Controller of Examinations by the Centre Coordinator along with the mark sheet duly signed by the faculty concerned.

## KU1DSCCAP103: ESSENTIAL IT TOOLS

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	DSC	100-199	KU1DSCCAP103	4 (3T+1P)	5

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	2	-	35	65	100	1.5Hrs

**Course Description:** This course aims to impart skills related to e-mail creation, using google services, document processing, spreadsheet handling and creating attractive presentations.

**Course Prerequisite:** NIL

**Course Outcomes:**

CO No.	Expected Outcome	Learning Domains
1	Explain and apply the proficiency in using Google Drive, Docs, Sheets, Slides, and Forms to create, collaborate, and manage documents efficiently in the Google Workspace suite.	U,A
2	Develop proficiency in Microsoft Word to create, format, and edit documents effectively.	U, A
3	Create, analyse, and manipulate spreadsheet data.	U, A, C
4	Develop effective presentation skills using Microsoft PowerPoint	U, E

*\*Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)*

### Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3	3					2
CO 2	3	3		2			2
CO 3	2	3				2	2
CO 4	3	3				2	2

### COURSE CONTENTS

#### Contents for Classroom Transaction:

<b>M O D U L E</b>	<b>U N I T</b>	<b>DESCRIPTION</b>	<b>HOURS</b>
<b>1</b>	<b>MODULE 1: Creating a google account and accessing related services</b>		
	1	Overview of Information Technology and its Tools: Basic concepts and terminology related to IT tools and their role in supporting business operations and personal productivity.	18
	2	Google Essentials:  Introduction to Google Services Overview of Google Workspace,  Creating and managing a Google account, Navigating the Google interface	

	3	Gmail for Communication: Managing emails in Gmail, Organizing and labelling emails, Using filters and settings effectively	
	4	Google Drive for File Management, Uploading and organizing files in Google Drive, Collaborative document editing and sharing, Version history and document recovery	
	5	Google Calendar for Time Management: Creating events and appointments Managing multiple calendars, Integrating Google Calendar with other services	

	<b>MODULE 2: Document Processing Techniques</b>		
<b>2</b>	1	Text Creation and manipulation, Document Creation, Editing Text, Text  Selection, Cut, Copy and Paste, Font, Color, Style and Size selection, Alignment of Text, Undo & Redo, AutoCorrect, Spelling & Grammar, Find and Replace.	19
	2	Table Manipulation, Insert & Draw Table, changing cell width and height, Alignment of Text in cell, Delete / Insertion of Row, Column and Merging & Splitting of Cells, Border and Shading, Mail Merge, Table of Contents, Indexes, Adding Comments, tracking changes, Macros,  Creating Headers, Footers, and Page Numbers	
	3	Formatting the Text, Creating and using user defined Styles, Paragraph  Indentation, Bullets and Numbering, change case, Header & Footer,  Page Setup, Page Layout, Borders, Using the Help, Watermark, Print Preview, Printing of Documents, PDF file and Saving a Document as PDF file.	
	4	Referencing and Citations, Document Security and Protection	

	5	Google Docs for Document Creation: Creating and formatting documents in Google Docs, Real-time collaboration features, Inserting media and links	
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	<b>MODULE 3: Introduction to Spreadsheets</b>		
<b>3</b>	1	Concept of Cell Address: [Row and Column] and selecting a Cell, Entering Data [text, number, date] in Cells, Page Setup, Printing of Sheet, Saving Spreadsheet, Opening and Closing	20
	2	Manipulation of Cells & Sheet, Modifying / Editing Cell Content, Formatting Cell (Font, Alignment, Style), Cut, Copy, Paste & Paste Special, Changing Cell Height and Width, Inserting and Deleting Rows, Column, AutoFill, Sorting & Filtering, Freezing panes	
	3	Formulas, Functions  a) Formulas for Numbers  b) AutoSum functions  c) Logical Functions  d) Text Functions  e) Statistical Functions  f) Date & Time Functions	
	4	Creating Charts and Graphs, Working with Large Datasets - Filtering & Sorting, Data Analysis Tools (e.g., PivotTables), Creating Macros and Automation	

	5	Google Sheets for Data Management: Introduction to Google Sheets for spreadsheets, Data entry, formatting, and basic formulas, Collaborative data analysis and sharing	
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	<b>MODULE 4: Creating presentations</b>		
4	1	Creating a Presentation Using a Template, Creating a Blank Presentation, Inserting & Editing Text on Slides, Inserting and Deleting Slides in a Presentation, Saving a Presentation	18
	2	Inserting Table, Adding Pictures, Inserting Other Objects, Resizing and Scaling an Object Creating & using Master Slide.	
	3	Choosing a Set Up for Presentation, Playing a Slide Show, Transition and Slide Timings, Automating a Slide Show, Providing Aesthetics to Slides & Printing	
	4	Enhancing Text Presentation, Working with Color and Line Style, Adding Movie and Sound, Adding Headers, Footers and Notes, Printing Slides and Handouts	
	5	Google Slides for Presentations: Creating and designing, presentations in Google Slides, Collaborative editing and commenting, Adding multimedia elements	

**Essential Readings:**

1. "Microsoft Office 2019 Step by Step": by Joan Lambert and Curtis Frye:
2. Google Apps for Seniors: A Practical Guide to Google Drive Google Docs, Google Sheets, Google Slides, and Google Forms: By Scott La Counte
3. Introduction to Information Technology" by Pearson Education
4. <https://workspace.google.com/learning-center/>

**Software:**

- Access to a computer with word processing and spreadsheet software (e.g., Microsoft Word and Excel, Google Docs and Sheets) is required. .

**Suggested Readings:**

- Look for that are your (e.g., Word etc.).
- Consider - some video others based Choose for you.

<b>End Semester Evaluation</b>		<b>65</b>
<b>Theory</b>		<b>50</b>
<b>Practical</b>		<b>15</b>
<b>CCA</b>		<b>35</b>
<b>Continuous Evaluation (Theory)</b>		<b>25</b>
<b>a)</b>	<b>TestPaper-1</b>	<b>12</b>
<b>b)</b>	<b>Assignment</b>	<b>5</b>
<b>c)</b>	<b>Viva/ Case study</b>	<b>8</b>
<b>Continuous Evaluation (Practical)</b>		<b>10</b>

online resources compatible with software version 2021, Excel 2023, your learning style resources offer tutorials, while focus on text-explanations. what works best

**Assessment Rubrics:**

a)	<b>Lab Skills and Punctuality</b>	<b>3</b>
b)	<b>Observation Book</b>	<b>2</b>
b)	<b>Test</b>	<b>5</b>
<b>Total</b>		<b>100</b>

**A. END SEMESTER EXAMINATION (ESE): 65 (50+15)**

1. ESE theory examination of 1 ½ hour duration for 50 marks shall be conducted by the Controller of Examinations.
2. The End Semester practical examinations for 15 marks shall be conducted by the Controller of Examinations.

**B. CONTINUOUS COMPREHENSIVE ASSESSMENT (CCA): 35 (25+10)**

3. Continuous comprehensive assessment for 35(25+10) marks shall be awarded by the faculty handling practical classes based on the above components.
4. Continuous comprehensive assessment marks awarded shall be communicated to Controller of Examinations by the Centre Coordinator along with the mark sheet duly signed by the faculty concerned.

**KU1DSCCAP105: FUNDAMENTALS OF WEB DEVELOPMENT**

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	DSC	100-199	KU1DSCCAP105	4 (3T+1P)	5



Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	2	-	35	65	100	1.5 Hrs

**Course Description:**

This course will cover the creation of Web pages and sites using HTML, CSS, and graphical applications as well as the client and server architecture of the Internet and related web technologies.

**Course Prerequisite: NIL**

**Course Outcomes:**

CO No.	Expected Outcome	Learning Domains
1	Understand different components in web technology and WWW	U, A
2	Design interactive Web pages	U, A
3	Understand HTML Forms and CSS Styling	U, A
4	Understand HTML Frames and its applications	U, A, E
5	Develop skills to design a web page using HTML	A, An, E

**\*Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)**

**Mapping of Course Outcomes to PSOs**

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3			3			
CO 2	3			3			

CO 3	3	3					
CO 4	3	3					
CO 5	3	3		3			3

### COURSE CONTENTS

**Contents for Classroom Transaction:**

M O D U L E	U N I T	DESCRIPTION	HOURS
		<b>MODULE 1: Introduction to Web Development Basics</b>	
<b>1</b>	<b>1</b>	Introduction to Internet	<b>19</b>
		a) Evolution of the Internet	
		b) World Wide Web	
		c) Web Browsers, URL, http	
	<b>2</b>	Web Basics	
		a) Static Vs Dynamic web pages	
		b) Client-Side Scripting versus Server-Side Scripting	
	<b>3</b>	W3C & Web hosting	
		a) World Wide Web Consortium (W3C)	
		b) Web hosting, types of web hosting, Free hosting	
<b>4</b>	Domain Name Registration		
		<b>MODULE 2: HTML</b>	
		Introduction to HTML	

2	1	a) Creating HTML document	20
		b) Tags & attributes, syntax of tag	
		c) Starting and ending tag, tag without end, building a webpage	
	2	Text formatting	
		a) Division	
		b) Paragraphs & heading	
	3	c) Physical style tags, text alignment, fonts	
		Hyperlink and loading images	
		a) Linking to other web pages	
	4	b) Images and <img> tag	
		c) Line breaks, comments	
	4	List: types of list, nested list	

<b>MODULE 3: HTML Tables and Forms</b>			
3	1	HTML Tables: creating a table, table tags and attributes, formatting the table: width, height, align, border, padding & spacing, col span & row span	18
	2	HTML Forms: Form elements (input, select, text area, button, data list), Input types (text, password, submit, radio, checkbox, date, email, number)	
	3	Input type attributes (value, read only, disabled, max length, autocomplete, list, min, max, placeholder)	
	4	HTML5 form validation (required and pattern attribute of input type)	

<b>MODULE 4: HTML Frames and CSS</b>			
	1	Frames: <frame>tag, frame attributes: src, name, frameborder and scrolling	

4	2	Frameset tag and its important attributes, <iframe>, <noframe>
	3	Applying style to HTML using CSS: Inline, internal and external CSS
	4	CSS Colours, Fonts, Borders, padding, Applying style using class and id attribute
<b>LAB EXERCISE</b>		
<p><b>1. Creation of static web pages using HTML</b>  Create a university web site containing 6 html pages (student, department, contact, home, placement, alumni). Use Frames, Hyperlinks to link one page to other, embed images and videos, tables to display faculty profile. Also use Heading and paragraph tags, lists</p> <p><b>2. Create a form containing at least the following:</b></p> <ol style="list-style-type: none"> <li>a. A text area</li> <li>b. a radio button</li> <li>c. data list</li> <li>d. dropdown</li> <li>e. option to upload a file</li> </ol> <p><b>3. Creation and usage of CSS</b>  Create and include CSS for the university web site containing 6 html pages designed using HTML.</p> <p>Add the following styles to the previously created webpage</p> <ul style="list-style-type: none"> <li>• Add a table and provide inline styling for &lt;th&gt;</li> <li>• Provide a background image</li> </ul> <p><i>NB: Programs listed here acts as reference. You may include more programs for conducting lab experiments.</i></p>		

**Essential Readings:**

1. Internet and World Wide Web How to program, P.J. Deitel& H.M. Deitel Pearson
2. An Introduction to WEB Design and Programming –Wang-Thomson **Technologies**, Black Book, Dream tech Press
3. Internet & World Wide Web How to Program, 5/e – Paul J Deitel, Harvey M Deital, Abbaey Deital
4. Julie C. Meloni, HTML and CSS in 24 Hours, Sams Teach Yourself (Updated for HTML5 and CSS3), Ninth Edition

**Suggested Readings:**

1. Mastering HTML, CSS & Javascript Web Publishing Paperback, 2016 - by Laura Lemay, Rafe Colburn & Jennifer Kyrnin, BPB Publications
2. HTML & CSS: The Complete Reference, Fifth Edition - Thomas a Powell, Tata McGraw Hill

**Assessment rubrics**

End Semester Evaluation		<b>65</b>
Theory		<b>50</b>
Practical		<b>15</b>
CCA		<b>35</b>
Continuous Evaluation (Theory)		<b>25</b>
a)	TestPaper-1	12
b)	Assignment	5
c)	Viva/seminar	8
Continuous Evaluation (Practical)		<b>10</b>
a)	Lab Skills and Punctuality	3
b)	OBSERVATION BOOK	2
c)	Test	5
Total		<b>100</b>

**KU1MDCCAP101: BASICS OF IT FOR ALL**

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
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1	MDC	100-199	KU1MDCCAP101	3 (3T+0P)	3
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Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	0		25	50	75	1.5hrs

**Course Description:** This course is intended for students with little or no background in information technology. This course introduces students to major areas of COMPUTER APPLICATIONS discipline. It covers the concepts of working principle of computer, basics of operating system, networks, number system, problem solving and security.

**Course Prerequisite:** NIL

**Course Outcomes:**

CO No.	Expected Outcome	Learning Domains
1	Discuss the basic concepts and fundamental knowledge in the field of COMPUTER APPLICATIONS	U
2	Comprehend the different types of number system	U
3	Develop problem solving skills	U/A
4	Understand the basics of data communication and network	U
5	Understand the basic concepts of cyber Security	U

**\*Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)**

### Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
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CO 1	3					
CO 2	2					
CO 3	2	3				
CO 4	2			2		2
CO 5	2			3		2

## COURSE CONTENTS

### Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1	<b>MODULE TITLE: Introduction to Computer</b>		12
	1	History, Generations of Computer	
		Basic block diagram, Functions of various components of computer	
		Hardware, Software, Types of software	
	2	Basic Computer Organization: Von Neumann Model	
		Operating System, Functions of OS	
2	3	<b>Number Systems</b> : Weighted and Non - Weighted Codes, Binary, Decimal, Octal, Hexadecimal, Binary Coded Decimal (BCD), Gray Codes, Alphanumeric codes, ASCII	
		Conversion of bases, 1's, 2's complement representation	
2	<b>MODULE TITLE: Introduction to Programming</b>		16
	1	Procedure oriented language, Object oriented language	
	2	Computer Languages, Machine language, Assembly Language and High-Level Language	
	3	Language Translators, Compiler, Interpreter and Assembler	
	4	Flowchart, Algorithm	

	<b>MODULE TITLE: NETWORKING ESSENTIALS</b>		
<b>3</b>	1	Fundamental computer network concepts	16
	2	Types of computer networks	
		Network layers , TCP/IP model	
		Wireless Local Area Network, Ethernet, WiFi	
3	Network Routing, Switching, Network components		
	<b>MODULE TITLE</b>		
<b>4</b>	1	An Overview of Computer Security	16
		Security: Vulnerabilities, Attacks, and Countermeasures	
		Cryptography, Basic Techniques, Cryptanalysis	
		Digital Signatures	
	2	Applications of COMPUTER APPLICATIONS	
		AI, Types of Learning, Applications of AI, Different types of AI Problems (Basic ideas only)	

**Essential Readings:**

1. Digital Fundamentals, 11th edition Published by Pearson (July 14, 2021) © 2015 Thomas L. Floyd
2. . Goel, Anita (2010). Computer fundamentals. Pearson Education India
3. Forouzan, B. A., &Fegan, S. C. New York: “Data communications and networking”, McGraw-Hill Higher Education, 2007.
4. Kernighan, Brian W (2011). *D is for Digital: What a well-informed person should know about computers and communications*. CreateSpace Independent Publishing Platform

**Assessment Rubrics:**



Evaluation Type		Marks
ESE		50
CCA		25
a)	Test Paper	12
b)	Assignment/ Book- Article Review	5
c)	Seminar/ Viva -Voce	8
<b>Total</b>		<b>75</b>

In the case of course having 3 credit without practical, ESE of 1.5 hour duration for 50 marks shall be conducted by the Controller of Examinations. Continuous Comprehensive Assessment (CCA) for 25 marks shall be based on Assignment as provided in clause 13.2 of the regulations

#### KU1MDCCAP102: DIGITAL MARKETING

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	MDC	100-199	KU1MDCCAP102	3 (3T+0P)	3

Learning Approach (Hours/ Week)	Marks Distribution	Duration of
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Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	ESE (Hours)
3	0	-	25	50	75	1.5 Hrs

**Course Description:**

In today's digital age, mastering the art of digital marketing is crucial for businesses to thrive. This course provides a comprehensive understanding of the core principles and strategies involved in promoting a brand or product online. Students will explore various digital channels, gain hands-on experience with essential tools, and develop the skills to create and manage effective digital marketing campaigns

**Course Prerequisite: NIL**

**Course Outcomes:**

CO No.	Expected Outcome	Learning Domains
1	Analyze the digital marketing landscape and its impact on consumer behavior.	U, An
2	Develop and implement a comprehensive digital marketing strategy aligned with business objectives.	U, A
3	Utilize various digital channels (SEO, SEM, Social Media, Email Marketing) to reach target audiences effectively.	U, E
4	Create engaging content that resonates with target audiences and drives conversions.	U, A, C
5	Measure and analyze campaign performance using key metrics and data insights.	U, An

**\*Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)**

### Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3			2		2	2
CO 2	2	3					2
CO 3	3		2	3		2	2
CO 4	2			3		3	3
CO 5				2	2	3	2

#### Contents for Classroom Transaction:

M O D U L E	U N I T	DESCRIPTION	HOURS
		<b>MODULE 1: Foundations of Digital Marketing</b>	
<b>1</b>	1	Introduction to Digital Marketing - Terminology & Landscape Overview	<b>14</b>
	2	Understanding Customer Behavior in the Digital Age	
	3	Developing a Buyer Persona and Targeting Strategies	
	4	Setting SMART Goals and Measuring Success in Digital Marketing	

		<b>MODULE 2 : Content Marketing &amp; SEO</b>	
<b>2</b>	1	Content Strategy & Development - Creating Engaging Content Across Channels	<b>14</b>
	2	Search Engine Optimization (SEO) Principles - Optimizing Websites for Search Visibility	

3	Keyword Research & Content Planning for Improved Ranking
4	Content Marketing Platforms and Tools

<b>MODULE 3: Social Media Marketing &amp; Paid Advertising</b>		
<b>3</b>	1 Social Media Marketing Strategies - Building Brand Communities on Key Platforms	16
	2 Engaging Content Creation for Social Media Channels	
	3 Paid Advertising Fundamentals - Introduction to PPC (Pay-Per-Click) Advertising	
	4 Social Media Advertising Platforms and Campaign Management	

<b>MODULE 4: Email Marketing &amp; Analytics</b>		
<b>4</b>	1 Effective Email Marketing Strategies - Building Email Lists and Segmentation	16
	2 Crafting Compelling Email Campaigns - Design & Copywriting Techniques	
	3 Email Marketing Automation Tools and Best Practices	
	4 Data Analysis for Digital Marketing - Key Performance Indicators (KPIs) & Tracking Tools	

**Assessment Rubrics:**

<b>Evaluation Type</b>	<b>Marks</b>
------------------------	--------------

ESE		50
CCA		25
a)	Test Paper	12
b)	Assignment/ Book- Article Review	5
c)	Seminar/ Viva -Voce	8
<b>Total</b>		<b>75</b>

### KU2DSCCAP 106: PROGRAMMING WITH C AND C++

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
2	DSC	100-199	KU2DSCCAP106	4 (3T+ 1P)	5

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	2		35	65	100	1.5 Hrs

**Course Description:** This course intends to impart basic and advanced programming skills in C and C++.

**Course Prerequisite:** KU1DSCCAP101: Foundations of Computers and Programming

**Course Outcomes:**

CO No.	Expected Outcome	Learning Domains
1	Decompose a problem into functions and design programs using divide and conquer approach	
2	Discuss fundamental aspects of problem solving and programming concepts in C/ C++ like procedural, structural and object-oriented programming.	
3	Describe the Object-Oriented Paradigm	
4	Apply C++ features such as class, objects, constructors, destructors, inheritance and polymorphism in program design and implementation.	
5	Analyse given problem statement and develop systematic solutions and create basic program designs in C/ C++	

**\*Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)**

#### Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3	2					
CO 2	3	2		2			
CO 3	2						
CO 4	2	3		2			
CO 5	3	3				2	2

#### COURSE CONTENTS

**Contents for Classroom Transaction:**

<b>M O D U L E</b>	<b>U N I T</b>	<b>DESCRIPTION</b>	<b>HOURS</b>
		<b>MODULE 1: Strings, Functions and structures in C</b>	
<b>1</b>	1	Strings - Character Arrays, String input and output. Standard string functions (strlen, strcpy, strcat, strcmp, strstr)	15
	2	2D Arrays - declaration, initialisation, Matrix addition, multiplication, transpose	
	3	Functions: function prototype, function definition, Invoking a function (call by value), formal parameters, actual parameters, Arrays as Function Parameters	
	4	Recursion and Storage classes in C	
		<b>MODULE: Advanced Programming concepts in C</b>	
<b>2</b>	1	Structure and Union	15
	2	Pointers: declaration, initialization, accessing variable and arrays through pointers. Pointer as function argument (call by reference)	
	3	File: Defining a file, opening and closing a file, File handling functions (getc, putc, fscanf, fprintf, feof(), fread(), fwrite()) Random access to files: In built file handling functions (rewind (), fseek(), ftell())	
	4	Dynamic Memory Allocation (malloc, calloc, free)	
	5	Pre-processor directives in C (#include, #define) and Command line arguments	
		<b>MODULE: Introduction to Programming in C++</b>	
<b>3</b>	1	Basic concepts of OOP – Encapsulation, Polymorphism, Inheritance Comparison of OOP and Procedure Oriented Programming Structure of C++ Program, Input output statements in C++	15
	2	Defining a class, define member functions, Scope of class and its member, use of access specifiers (private, public and protected), Creating Objects	

	3	Constructor: Default constructor, parameterized constructor, Destructors	
	4	Inline functions, Friend function Dynamic memory allocation operators in C++: new, delete	

	<b>MODULE: Pointers, Inheritance and Polymorphism in C++</b>		
<b>4</b>	1	Pointers to objects, this pointer	15
	2	Base class and derived classes - Abstract classes, Pointers to derived class Types of Inheritance -- single, multiple, multilevel, Hierarchical, Hybrid Inheritance	
	3	Polymorphism – Function overloading, operator overloading Run time polymorphism -- Virtual function, Pure Virtual function, Function Overriding	
	4	Testing and debugging techniques in C++	

	<b>Teacher Specific Module</b>		
	<i>The following exercises may be conducted as lab experiments</i>		
<b>5</b>	<b>Strings</b>		15
	<ol style="list-style-type: none"> <li>Write a menu driven program to perform following string operations using string handling functions.  Operations: Find length of a string, Concatenate two string, String comparison, string copy, substring</li> <li>Write a C program to find the length of a string without using string library functions.</li> <li>Write a C program to count number of words in a string</li> <li>Write a C program to check the occurrence of a character in a string</li> <li>Write a program to check whether the string is a Palindrome without using string library functions.</li> </ol>		
	<b>2-Dimensional Array</b>		
	<ol style="list-style-type: none"> <li>Write a menu driven program to perform matrix addition, multiplication, transpose</li> <li>Illustrate 2D character array. Write a C program to read and display an array of Strings</li> </ol>		



### **Functions and Recursion**

1. Write a function to find factorial of a number
2. Write a recursive function to print the n<sup>th</sup> Fibonacci number
3. Write a recursive program to count the number of digits of a positive integer number?

### **Pointer**

1. Write a function to swap two numbers using pointers
2. Develop a program using pointers to compute the sum of all elements stored in an array of n real numbers
3. Write a C program to print the elements of an array in reverse order using pointers.
4. Pass array in function. Write a function to perform linear search.

### **Structure**

1. Create a structure named Complex to represent a complex number with real and imaginary parts. Write a C program to add and multiply two complex numbers.

### **File and Command line argument**

1. Write a program to read N students roll number, name from the keyboard and then write it to a student file. Also copy the contents into another file.
2. Read file name as command line argument. Check whether the correct number of arguments is passed in the command line and also check whether the file exists. If the file exists, count the number of words, characters and the number of lines in the file.

### **Object Oriented programming**

#### **Class and Objects**

1. Write a program to define a class Car with attributes like brand, model, and year. Write member functions for the following.
  1. To read data members.
  2. To display car details Create three Car objects with different attributes and display details of each one.
2. Write a program to define a class Book with the private members : BookID, BookName, BookPrice and total\_cost() to calculate total cost for n number of copies where n is passed as an argument. Write public members
  1. To input book details
  2. Display book details
  3. To input no. of copies required and display Total cost to be paid Create 3 Book objects and calculate

Total cost to be paid for each purchase.

3. Write a program to create a Rectangle class with two private data members: length and width. Create a default constructor that initialises both members to 0 and a parameterised constructor. Create two different objects of class Rectangle using these different types of constructors and display their values using a member function. Write a destructor that prints a message when an object is destroyed.

**Inline functions, Friend function, Function overloading, Operator overloading.**

1. Write a c++ program to find area of circle, square, rectangle and triangle using inline functions
2. Write a c++ program to find area of circle, square, rectangle and triangle using function overloading
3. Write a C++ program to implement a telephone bill class with Name, Address, Tel. No., No. of calls as data members. Compute the amount to be paid if the charges per call is Rs. 2/- using friend function
4. Write a program to define a class Time having private members hours, minutes and seconds. Write member functions
  1. To input values to data members
  2. To display Time in Hour:minute:second format.
  3. To find sum of two Time objects using friend function.
5. C++ program to illustrate the use of unary operator overloading, increment ++ operator overloading
6. Perform matrix addition using operator overloading

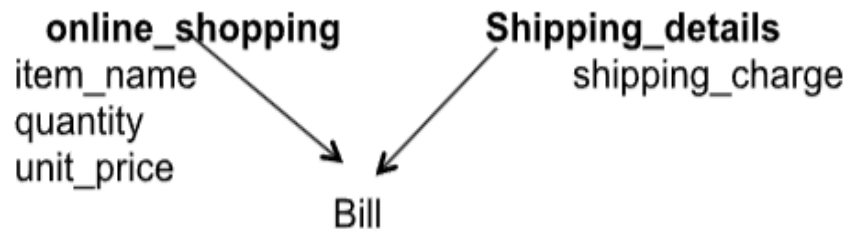
**Inheritance, Virtual function**

1. Create a base class Person with data members name and age, and a member function display(). Derive a class Student from Person that adds a data member roll\_number and a member function showDetails(). Demonstrate single inheritance by creating an object of the Student class and calling both base and derived class functions.
2. Write a program to create a base class BankAccount with attributes like

account\_number and balance, and functions deposit() and withdraw().

Derive two classes:

1. SavingsAccount with data member rate\_of\_interst and an additional function calculateInterest() and display it.
2. CurrentAccount which requires to maintain a minimum balance and an additional function to calculate servicecharge() and reduce it from balance and display the details. Demonstrate inheritance by performing operations on objects of both derived classes.
3. Write a c++ program to perform multiple inheritance



4. Write a C++ program to explain virtual function by creating a base class `c_polygon` which has virtual function `area()`. Two classes `c_rectangle` and `c_traingle` derived from `c_polygon` and these classes have `area()` to calculate and return the area of rectangle and triangle respectively.
5. Write a C++ program to define a class `Student` with data members `Name`, `Rollno`, and `Course`. Derive a class `Test` from `student` with data members as marks in 3 subjects. Derive a class `GraceMarks` from `student` with datamember `BonusMark`. Derive a class `result` from both `Test` and `Gracemarks` and calculate `Total marks`. Display the result with all the details. Use the concept of Virtual base class.
6. Write a program to define an abstract class `Shape` with a pure virtual function `calculateArea()`. Derive two classes, `Circle` and `Square`, that implement the `calculateArea()` function in their own way. Create an array of `Shape` pointers to store objects of both `Circle` and `Square`, and calculate the area for each shape

### Essential Readings

1. Programming in ANSI C, Balagurusamy
2. The C programming Language, Brian Kernighan and Dennis Ritchie
3. Let us C, Yeshwant Kanetkar
4. Object oriented programming in C++, Balagurusamy
5. The C++ Programming Language, Bjarne Stroustrup

### Suggested Readings:

1. Let us C ++, Yeshwant Kanetkar

### Assessment rubrics

End Semester Evaluation	<b>65</b>
Theory	<b>50</b>
Practical	<b>15</b>
CCA	<b>35</b>
Continuous Evaluation (Theory)	<b>25</b>
a) TestPaper-1	12
b) Assignment	5
c) Viva/seminar	8
Continuous Evaluation (Practical)	<b>10</b>
a) Lab Skills and Punctuality	3
b) OBSERVATION BOOK	2
c) Test	5
Total	<b>100</b>

**A. END SEMESTER EXAMINATION (ESE): 65 (50+15)**

1. ESE theory examination of 1 ½ hour duration for 50 marks shall be conducted by the Controller of Examinations.
2. The End Semester practical examinations for 15 marks shall be conducted by the Controller of Examinations.

**B. CONTINUOUS COMPREHENSIVE ASSESSMENT (CCA): 35 (25+10)**

3. Continuous comprehensive assessment for 35(25+10) marks shall be awarded by the faculty handling practical classes based on the above components.
4. Continuous comprehensive assessment marks awarded shall be communicated to Controller of Examinations by the Centre Coordinator along with the mark sheet duly signed by the faculty concerned.

**KU2DSCCAP108: CYBER SECURITY AND ETHICS**

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
2	Minor	100-199	KU2DSCCAP108	4 (4T +0 P)	4

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	

4	0	-	30	70	100	2 Hrs
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**Course Description:**

Cyber Security is the field of study that focuses on methods required to prevent computer systems and networks from leaking information, vandalizing hardware, software, or electronic data, and misdirecting the services they provide.

**Course Prerequisite: NIL**

**Course Outcomes:**

CO No.	Expected Outcome	Learning Domains
1	Students will demonstrate a comprehensive understanding of various aspects of digital security, including cybercrimes, social media privacy, end-point device security, and cyber security fundamentals	U, A
2	Students will grasp the concept of cyber security, including its associated issues and challenges	U, A
3	Students will be equipped to comprehend cybercrimes, including their characteristics, legal recourse, and procedures for reporting via available platforms	U, A
4	Students will comprehend the privacy and security implications of social media, grasp the reporting protocols for inappropriate content, recognize the legal framework surrounding online platforms, and adopt best practices for their usage.	U, A, E
5	Students will possess a comprehensive understanding of fundamental security principles concerning both computers and mobile devices.	A, An, E

*\*Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)*

**Mapping of Course Outcomes to PSOs**

	PS O 1	PSO 2	PSO 3	PS O 4	PSO 5	PSO 6	PS O 7
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CO 1	3			3			3
CO 2	3			3			2
CO 3	3			3			2
CO 4	3		2	3			3
CO 5	3		2	3			3

## COURSE CONTENTS

### Contents for Classroom Transaction:

M O D U L E	U N I T	DESCRIPTION	HOURS
<b>1</b>	MODULE 1: Introduction to Cyberspace and Web Technology		
	1	Introduction to Cyberspace	18
		a) Definition of Cyberspace	
		b) Basic concepts of computer and web technology	
		c) Architecture of Cyberspace	
	2	d) Communication in Cyberspace	
		Communication and Web Technology	
		a) Internet and World Wide Web	
		b) Advent of the Internet	
	3	c) Internet Infrastructure for Data Transfer and Governance	
d) Internet Society			
Regulation of Cyberspace			
a) Laws Governing Cyberspace			

		b) International Regulations	
		c) Data Protection and Privacy Laws	
		d) Intellectual Property Rights	
	4	Cyber security	
		a) Understanding Cyber security	
		b) Principles of Cyber security	
		c) Cyber security Challenges	
	<b>MODULE 2: Cybercrime and Cyber law</b>		
2	1	Introduction to Cyber Crimes	20
		a) Definition of cyber crimes	
		b) Types of cyber crimes	
		c) Common Cyber Crimes	
	2	Cyber Attacks	
		a) Zero-day and zero-click attacks	
		b) Social engineering attacks	
		c) Malware and ransomware attacks	
	3	Cybercriminal Modus Operandi	
		a) Methods used by cybercriminals	
		b) Reporting and Mitigation	
		c) Reporting procedures for cyber crimes d) Remedial and mitigation measures	
	4	Organizations and Cyber Security	
5	Cybercrime and offences according to Indian law		



	<b>MODULE 3: Social Media Overview and Security</b>		
<b>3</b>	1	Introduction to Social Networks	19
	2	Social Media	
		a) Types of Social Media	
		b) Social Media Features	
		c) Social Media Marketing	
	d) Social Media Privacy		
3	Challenges, Opportunities, and Pitfalls		
	4	Flagging and Reporting of Inappropriate Content	
	<b>MODULE 4: Digital Devices Security, Tools and Technologies for Cyber Security</b>		
<b>4</b>	1	Introduction to End-Point Device Security	18
		a) Mobile Phone Security	
		b) Password Policy	
	2	Security Patch Management	
	3	Data Backup	
	4	Third-Party Software Management	
	5	Cyber Security Best Practices	
	6	Host Firewall and Anti-virus	
		a) Management of Host Firewall and Anti-virus	
	b) Wi-Fi Security		

**Essential Readings:**

1. Praveen Kumar Shukla, Surya PrakashTripathi, RitendraGoel"Introduction to Information Security and Cyber Laws" Dreamtech Press.
2. Cyber Crime Impact in the New Millennium, by R. C Mishra ,Auther Press. Edition 2010.

3. Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives by SumitBelapure and Nina Godbole, Wiley India Pvt. Ltd. (First Edition, 2011)
4. Security in the Digital Age: Social Media Security Threats and Vulnerabilities by Henry A. Oliver, Create Space Independent Publishing Platform. (Pearson , 13th November, 2001)
5. Cyber Laws: Intellectual Property & E-Commerce Security by Kumar K, Dominant Publishers.
6. Network Security Bible, Eric Cole, Ronald Krutz, James W. Conley, 2nd Edition, Wiley India Pvt. Ltd.
7. Fundamentals of Network Security by E. Maiwald, McGraw Hill.

**Suggested Readings:**

1. M. Stamp, "Information Security: Principles and Practice", Wiley.
2. David J. Loundy, "Computer Crime, Information Warfare, And Economic Espionage", Carolina Academic Press

**Assessment Rubrics:**

End Semester Evaluation	<b>70</b>
Theory	<b>70</b>
CCA	<b>30</b>
Continuous Evaluation (Theory)	<b>30</b>
a) TestPaper-1	15
b) Assignment	10
c) Viva/seminar	5
<b>Total</b>	<b>100</b>

**A. END SEMESTER EXAMINATION (ESE): 65 (50+15)**

1. ESE theory examination of 1 ½ hour duration for 50 marks shall be conducted by the Controller of Examinations.
2. The End Semester practical examinations for 15 marks shall be conducted by the Controller of Examinations.

**B. CONTINUOUS COMPREHENSIVE ASSESSMENT (CCA): 35 (25+10)**

3. Continuous comprehensive assessment for 35(25+10) marks shall be awarded by the faculty handling practical classes based on the above components.
4. Continuous comprehensive assessment marks awarded shall be communicated to Controller of Examinations by the Centre Coordinator along with the mark sheet duly signed by the faculty concerned.

**KU2DSCCAP109: INTRODUCTION TO DATABASE MANAGEMENT SYSTEM**

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
2	DSC	100-199	KU2DSCCAP109	4 (3T+ 1 P)	5

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	2	-	35	65	100	1.5 Hrs

**Course Description:**

This course introduces the core principles and techniques required in the design and implementation of database systems. This course focus on relational database management systems, including

database design theory: E-R modelling, data definition and manipulation languages, database security and administration.

**Course Prerequisite: NIL**

**Course Outcomes:**

CO No.	Expected Outcome	Learning Domains
1	Understand the concept of database management system and identify its advantages over manual file keeping	U
2	Understand the need of data modelling and identify the advantages and disadvantages among the models	U
3	Able to write queries using SQL to manipulate data	A
4	Apply the knowledge of data types and other functions in data storage and retrieval	A

**\*Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)**

**Mapping of Course Outcomes to PSOs**

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3		2	2			
CO 2	3	3	2				2
CO 3	2	3					
CO 4	2	3	3			3	2

**COURSE CONTENTS**

**Contents for Classroom Transaction:**

<b>M O D U L E</b>	<b>U N I T</b>	<b>DESCRIPTION</b>	<b>HOURS</b>
<b>1</b>	<b>MODULE TITLE: Database Concepts</b>		
	1	Introduction – purpose of Database, Applications of Database, DBMS, DBMS software	18
	2	View of Data, Data Models- Hierarchical, network and relational models	
	3	Attributes, tuples, relations and domain in relational model, Simplified DBMS Structure	

	4	Database Administrator, Data Base Users	
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	<b>MODULE TITLE:</b> E-R Model, Relational Algebra and Normalization		
<b>2</b>	1	E-R model basic concepts, E-R diagram, Simple E-R diagram.	<b>18</b>
	2	Keys; Candidate key. Super key, Primary key, Foreign key	
	3	Relational algebra operations – Selection, projection, union, intersection, difference, cross product	
	4	Functional dependency, Normalization- Introduction, Normal forms – 1NF, 2NF and 3NF	

	<b>MODULE TITLE: Structured Query Language (SQL)</b>		
<b>3</b>	1	Introduction to SQL, Data Types in SQL, Database languages, Integrity Constraints- Primary key, not null, foreign key and unique.	<b>19</b>
	2	DDL Commands- Create, alter and drop	
	3	DML Commands- Insert, select, update and delete	
	4	DCL Commands- Grant and revoke	

	<b>MODULE TITLE:SQL Operators and Functions</b>		
<b>4</b>	1	SQL Operators- Arithmetic, relational and logical operators, Like operator	<b>20</b>
	2	Aggregate functions- sum(), avg(), min(), max(), count(), Character functions- length (), upper (), lower (), initcap(),	
	3	Order by clause, group by clause, having clause, sub query	
	4	View and Sequence, Join Operations- inner and outer join	

	<b>LAB EXPERIMENTS</b>		
<b>5</b>			
	<ol style="list-style-type: none"> <li>1. Draw ER diagram for Library management system</li> <li>2. Create a table <b>Student</b> with fields rollno, name, gender and mark with rollno as primary key. <ol style="list-style-type: none"> <li>a) Insert five records into the table.</li> <li>b) Display all boy students with their name.</li> </ol> </li> </ol>		

- c) Find the Average mark.
- d) Display the rollno, name and mark of a student with highest mark.
- e) Add one more field place.

3. Create a table **Employee** with fields empid, ename, salary, department and DOB with empid as primary key.

- a) Insert five records into table.
- b) Display the employees who got salary more than Rs. 6000 and less than 10000.
- c) Create a view named “Empview” with fields empid, ename and DOB. Display the view.
- d) Display the empid and salary of all employees in descending order of their salary.
- e) Display the name of department.

3. Create table **Loan** with fields loanno , cname, cid and bname with loanno as primary key.

- a) Insert five records into the table.
- b) Display the cname for cid=2.
- c) Add one more field amount to loan table. Update amount field.
- d) Display loanno and cname of a customer who is residing in Kunnur city.
- e) Display all information from loan table for loanno 2, 8 and 10.

4. Create a table **Department** with fields dno, ename, salary, dname and place with dno as primary key.

- a) Insert five records into the table.
- b) Rename the field place with city.
- c) Display the employees who got salary more than 10000 and less than 20000.
- d) Display the total salary of the organization.
- e) Create a view named “Eview” with field dno, ename and salary. Display the view.

5. Create a table **Book** with fields id, title, price and author with id as primary key.
  - a) Insert five records into the table.
  - b) Display the title and author of all books written by “Balaguruswami”.
  - c) Display the details of books where the second letter of their title is ‘a’.
  - d) Delete the details of book having the highest price.
  - e) Display the name of Author and number of books.
  
6. Create a table **Depositor** with fields accno, cust\_name, branch and balance with accno as primary key. Create another table **Borrower** with fields loanno and accno.
  - a) Insert five records into both tables.
  - b) Write the queries using various aggregate functions on balance field.
  - c) Display the branch and count of depositors according to their branch (use group by clause)
  - d) Display the name of customers who have an account and loan. (use inner join)
  - e) Write the queries to perform left outer and right outer join.

**Essential Readings:**

1. Database System Concepts by Abraham Silberschatz, Henry F. Korth, and S. Sudarshan
2. Fundamentals of Database Systems by RamezElmasri and Shamkant B. Navathe, 7<sup>th</sup> Edition, Pearson
3. SQL Performance Explained by Markus Winand
4. Learning SQL by Alan Beaulieu

**Assessment Rubrics:**

Evaluation Type	Marks
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End Semester Evaluation		<b>65</b>
Theory		<b>50</b>
Practical		<b>15</b>
CCA		<b>35</b>
Continuous Evaluation (Theory)		<b>25</b>
a)	Test Papers	12
b)	Assignment	8
c)	Viva/Seminar	5
Continuous Evaluation (Practical)		<b>10</b>
a)	Lab Skills and Punctuality	3
b)	Observation Book	2
c)	Test Papers	5
Total		<b>100</b>

**KU2MDCCAP103: PYTHON PROGRAMMING FOR ALL**

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
2	MDC	100-199	KU1MDCCAP103	3 (3T + 0P)	3

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	



3	0	1	25	50	75	1.5 Hrs
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**Course Description:**

This course introduces the learner to how to develop an algorithm, then progress to reading code and understanding how programming concepts relate to algorithms. This is done using Python language.

**Course Prerequisite: NIL**

**Course Outcomes:**

CO No.	Expected Outcome	Learning Domains
1	Understand Fundamentals of Computers	U, R
2	Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements.	U, A
3	Determine the methods to create and manipulate Python programs by utilizing the data structures like lists, dictionaries, tuples and sets.	U,A
4	Express proficiency in the handling of strings and functions.	U, A
5	Develop basic programs using Python	A,C

*\*Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)*

**Mapping of Course Outcomes to PSOs**

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3						
CO 2	3	2					
CO 3	2	3		2			
CO 4	2	3		2			
CO5	2	3				2	2

## COURSE CONTENTS

### Contents for Classroom Transaction:

M O D U L E	U N I T	DESCRIPTION	HOURS
		<b>MODULE 1: Introduction to Programming</b>	
1	1	Basic block diagram and functions of various components of a computer	14
	2	Basic Concepts of Problem solving in a computer (Solution Logic), Flow Charts and Algorithms	
	3	Definitions of Machine level, Assembly level and High-level programming	
	4	Language translators-Compiler, Interpreter, Assembler	
		<b>MODULE 2: Introduction to Python language</b>	
2	1	Introduction to Python and features of Python	14
	2	Python Interpreter and program execution	
	3	Python Environment Setup, Python IDE	
	4	Python variable declaration, Keywords, Indents in Python, Python input/output operations	
		<b>MODULE 3: Operators and Datatypes in Python</b>	

3	1	Arithmetic Operators, Comparison Operators, Assignment Operators, Logical Operators, Bitwise Operators.	16
	2	Membership Operators, Identity Operators, Ternary Operator, Operator precedence	
	3	Declaring and using Numeric datatypes: int, float, complex, string data type	
	4	List, Tuple, Set, Dictionary – Creating and using built-in methods of these data types	
<b>MODULE 4: Conditional and Looping Statements in Python</b>			
4	1	Conditional Statements a) If, If-else, If-elif-else, b) Nested-if	16
	2	loop control statements a) for, while, nested loops, b) Break, Continue, Pass statements	

*NB: Students may be given hands on training in basic programs using Python. Sample list of lab experiments are given below*

1. Write a program for checking the given number is positive, negative or zero
2. Write a program for checking the given number is even or odd
3. Calculate the multiplication and sum of two numbers
4. Write python program to print Hello World
5. Write a python program to get string, int, float input from user
6. Write a python program to find the length of list?
7. Write a program to create a dictionary.
8. Write a python program to create a list and print the values of it using for and while loops
9. Write a program for checking the given value is present in a list or not.
10. Write a program to find the sum of values in a set using built-in method

**Essential Readings:**

1. Computer Fundamentals Goel, Anita Pearson
2. Core Python Programming Wesley J. Chun Publisher: Prentice Hall PTR First Edition
3. Python Tutorial/Documentation [www.python.org](http://www.python.org)\_2010
4. Allen Downey, Jeffrey Elkner, Chris Meyers , How to think like a computer scientist : Learning with Python , Freely available online.2015
5. Web Resource: <http://interactivepython.org/courselib/static/pythonds>

**Suggested Readings:**

1. T. Budd, Exploring Python, TMH, 1st Ed, 2011

**Assessment Rubrics:**

Evaluation Type		Marks
End Semester Evaluation		50
Continuous Evaluation		25
a)	Test Papers	12
b)	Assignment	8
c)	Viva/Seminar	5
Total		75

**KU2MDCCAP104: INTRODUCTION TO DATA SCIENCE**

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
2	MDC	100-199	KU1MDCCAP104	3 (3T + 0P)	3

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	0	-	25	50	75	1.5 hrs.

**Course Description:**

This course introduces the fundamental concepts, techniques, and tools used in data science. Students will learn how to collect, clean, analyze, and visualize data using various programming languages and libraries. The course will cover topics such as data manipulation, exploratory data analysis, statistical modeling, machine learning, and data visualization.

**Course Prerequisite: NIL**

**Course Outcomes:**

CO No.	Expected Outcome	Learning Domains
1	Analyze data using statistical methods to draw meaningful conclusions.	U, An
2	Apply machine learning algorithms to real-world datasets for problem-solving	U, A
3	Understand data characteristics and patterns through exploratory data analysis (EDA).	U
4	Demonstrate proficiency to collect, clean, and preprocess data using Python and relevant libraries.	U, A

**\*Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)**

## Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3		3	3		3	
CO 2	3	2		2		3	2
CO 3	3		2			3	
CO 4	3	2	3	2		3	2

## COURSE CONTENTS

### Contents for Classroom Transaction:

M O D U L E	U N I T	DESCRIPTION	HOURS
	<b>MODULE 1: Introduction to Data Science</b>		
<b>1</b>	1	Overview of data science and its applications Role of data scientists and data analysts	14
	2	Introduction to data lifecycle and data-driven decision-making	
	3	Data Acquisition and Preprocessing Techniques for data collection and storage	
	4	Data cleaning, transformation, and normalization	

	<b>MODULE 2: Introduction to Python and Statistical Analysis</b>		
<b>2</b>	1	Introduction to data types, data structures, and libraries (NumPy, Pandas)	14
	2	Data cleaning and preprocessing techniques, Handling missing data and outliers	
	3	Data visualization techniques (Matplotlib, Seaborn)	
	4	Descriptive Statistics: measures of central tendency and dispersion	
	5	Inferential Statistics: hypothesis testing, confidence intervals, and regression analysis	

	<b>MODULE 3: Machine Learning Fundamentals</b>		
<b>3</b>	1	Introduction to machine learning	16
	2	Supervised Learning: Regression, Classification	
	3	Unsupervised learning: Clustering, Dimensionality Reduction	
	4	Model evaluation - metrics for assessing model accuracy, precision, recall, and F1 score	
	5	Hyperparameters and its tuning	

	<b>MODULE 4: Real World Applications and implications</b>		
<b>4</b>	1	Bias in machine learning algorithms	16
	2	Responsible AI, Explainable AI	
	3	Introduction to deep learning and neural networks	
	4	Computer Vision, Robotics	
	5	Natural Language Processing, Large Language Models	

**Essential Readings:**

1. "Introduction to Data Science", Jeffrey Stanton, Chapman and Hall/CRC in 2013.
2. "Data Science from Scratch: First Principles with Python", Joel Grus, O'Reilly Media.
3. "Python for Data Analysis", Wes McKinney, O'Reilly Media

**Suggested Readings:**

1. "Data Science for Business: What You Need to Know about Data Mining and Data- Analytic Thinking", Foster Provost and Tom Fawcett, O'Reilly Media, 1st Edition (2013)

**Assessment Rubrics:**

<b>Evaluation Type</b>		<b>Marks</b>
End Semester Evaluation		<b>50</b>
Continuous Evaluation		<b>25</b>
a)	Test Papers	12
b)	Assignment	8
c)	Viva/Seminar	5
<b>Total</b>		<b>75</b>

In the case of course having 3 credit without practical, ESE of 1.5 hour duration for 50 marks shall be conducted by the Controller of Examinations. Continuous Comprehensive Assessment (CCA) for 25 marks shall be based on Assignment as provided in clause 13.2 of the regulations