K.M.G. COLLEGE OF ARTS AND SCIENCE
(AUTONOMOUS)

Approved by the Government of Tamil Nadu
Permanently Affiliated to Thiruvalluvar University, Vellore.
Recognized under Section 2(f) and 12(B) of the UGC Act 1956
Accredited by NAAC (2nd Cycle) with (CGPA of 3.24/4) 'A' Grade

DEPARTMENT OF ARTIFICIAL INTELLIGENCE

B.Sc., ARTIFICIAL INTELLIGENCE

SYLLABUS
(CHOICE BASED CREDIT SYSTEM)

Under

LEARNING OUTCOMES-BASED CURRICULUM

FRAMEWORK (LOCF)

(Effective for the Batch of Students Admitted from 2024-2025)

PREFACE

Artificial intelligence or AI is the science that deals with the development of machines capable of thinking like a human brain. It focuses on the stimulation of human thought and behaviour in machines including learning from data, reasoning, and self correction. With the advent of technologies and applications (apps) that can gratify our wishes and cravings at the touch of our fingertips, BSc Artificial Intelligence has become a sought after course that offers excellent opportunities in the upcoming field of artificial intelligence and machine learning.

In pursuit of the Higher Education Department Policy Note 2022-23 Demand 20, Section 1.4, Tamil Nādu State Council for Higher Education took initiative to revamp the curriculum. On 27 July 2022, a meeting was convened by the Member-Secretary Dr. S.Krishnasamy enlightening the need of the hour to restructure the curriculum of both Undergraduate and Post-graduate programmes based on the speeches at the Tamil Nādu Legislative Assembly Budget meeting by the Honourable Higher Education Minister Dr K. Ponmudy and Honourable Finance Minister Dr. P. Thiagarajan. At present there are three different modes of imparting education in most of the educational institutions throughout the globe. Outcome Based Education, Problem Based Education, and Project Based Education.

Now our Honourable Higher Education Minister announced Industry Aligned Education. During discussion, Member Secretary announced the importance of question papers and evaluation as envisaged by the Honourable Chief Secretary to Government Dr, V. IraiAnbu. This is very well imbedded in Revised Bloom's Taxonomy forms three learning domains: the cognitive (knowledge), affective(attitude), and psychomotor (skill). This classification enables to estimate the learning capabilities of students.

Briefly, it is aimed to restructure the curriculum as student-oriented, skill-based, and institution industry- interaction curriculum with the various courses under "Outcome Based Education with Problem Based Courses, Project Based Courses, and Industry Aligned Programmes" having revised Bloom's Taxonomy for evaluating students skills. Three domains:

(i)Cognitive Domain
(Lower levels: K1: Remembering ; K2: Understanding ; K3: Applying; Higher levels: K4: Analysing ; K5: Evaluating; K6: Creating)
(ii) Affective Domain
(iii) Psychomotor Domain

ABOUT THE COLLEGE

The College was founded in the new millennium 2000 by the vision of late Shri.K.M.Govindarajan fondly known as Iyah, with a mission to offer higher education in the fields of Arts and Science to the needy and the poor middle class students of this area and make them fully employable and economically self-reliant. With a humble beginning of launching an elementary school named Thiruvalluvar Elementary School in the year 1952, Iyah groomed it into a Higher Secondary School and later into a college. Education was his soul and breath. The college has grown into a full-fledged educational hub offering 12 graduate programmes, 8 post graduate programmes, 5 M.Phil research programmes and 4 Ph.D programmes. The college has been accredited with 'A' grade by NAAC in 2nd cycle and recognized under section 2(f) & 12(B) of the UGC act 1956. The College is permanently affiliated to Thiruvalluvar University. The College is also acquired the status of Autonomous from the academic year 2024-2025. The College is an associate member of ICT Academy and registered member of NPTEL and Spoken Tutorials of IIT Bombay. The college is also a member of INFLIBNET and NDL.

VISION OF THE COLLEGE

Empower young men and women by educating them in the pursuit of excellence, character building and responsible citizen.

MISSION OF THE COLLEGE

Offer higher education in the fields of Arts, Science & Management to the needy and make them fully self-dependent.

QUALITY POLICY OF THE COLLEGE

KMG Students achieve the best learning results and personal growth with modern education that equip them for working life and a changing society to become deserving citizens.

ABOUT THE DEPARTMENT

The Department of Artificial Intelligence was established in the year 2023 with a view to fulfill the dynamic needs of corporate world in the field of Artificial Intelligence and Machine Leaning.

The department is well equipped with all basic and latest resources. The department comprises of well qualified and dedicated faculty members.

The Department runs the following courses.

UG Course

o B.Sc., Artificial Intelligence

VISION OF THE DEPARTMENT

To develop young professionals from rural area in the field of Artificial Intelligence and Machine Leaning contributing globally to the benefit of industry and society.

MISSION OF THE DEPARTMENT

- Developing practically trained skilled professionals to meet the demands of the corporate world.

- Developing professionals with high ethical values and ability to solve real-life problems.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

1. Professional Excellence: Graduates will demonstrate competency and excellence in their chosen fields of study, applying theoretical knowledge to practical situations effectively.

2. Character Development: Graduates will exhibit strong moral and ethical character, upholding values of integrity, honesty, and respect for others in both personal and professional endeavors.

3. Leadership and Citizenship: Graduates will emerge as responsible leaders and active citizens, contributing positively to their communities and society at large through their actions and initiatives.

4. Continuous Learning: Graduates will engage in lifelong learning and professional development activities, adapting to evolving technologies, methodologies, and societal needs.

5. Self-Dependency and Entrepreneurship: Graduates will possess the skills and mindset necessary to be self-reliant and entrepreneurial, capable of creating opportunities for themselves and others through innovation and initiative.

6. Effective Communication and Collaboration: Graduates will demonstrate proficiency in communication skills, both verbal and written, and exhibit the ability to collaborate effectively with diverse teams and stakeholders.

7. Global Perspective: Graduates will have a broad understanding of global issues and perspectives, demonstrating cultural sensitivity and adaptability in multicultural environments.

PROGRAM OUTCOMES (POs)

On successful completion of the programme, the students will be able to:

POs	Graduate Attributes	Statements
PO1	Disciplinary Knowledge	Acquire detailed knowledge and expertise in all the disciplines of the subject.
PO2	Communication Skills	Ability to express thoughts and ideas effectively in writing, listening and confidently Communicate with others using appropriate media
PO3	Critical Thinking	Students will develop aptitude Integrate skills of analysis, critiquing, application and creativity.
PO4	Analytical Reasoning	Familiarize to evaluate the reliability and relevance of evidence, collect, analyze and interpret data.
PO5	Problem Solving	Capacity to extrapolate the learned competencies to solve different kinds of non-familiar problems.
PO6	Employability and Entrepreneurial Skill	Equip the skills in current trends and future expectations for placements and be efficient entrepreneurs by accelerating qualities to facilitate startups in the competitive environment.
PO7	Individual and Team Leadership Skill	Capability to lead themselves and the team to achieve organizational goals and contribute significantly to society.
PO8	Multicultural Competence	Possess knowledge of the values and beliefs of multiple cultures and a global perspective.
PO 9	Moral and Ethical awareness/reasoning	Ability to embrace moral/ethical values in conducting one's life.
PO10	Lifelong Learning	Identify the need for skills necessary to be successful in future at personal development and demands of work place.

PROGRAM SPECIFIC OUTCOMES (PSOs)

On successful completion of the B.Sc., Artificial Intelligence, the students will be able to:

PSOs	Statements
PSO1	To learn, select, apply and create the theoretical knowledge of AI and Data Analytics along with practical knowledge to manage and solve societal problems
PSO2	Develop data analytics and data visualization skills, skills pertaining to knowledge acquisition, knowledge representation and knowledge engineering, and hence be capable of coordinating in projects.
PSO3	Evolve AI based efficient domain specific processes for effective decision making in several domains such as business and governance domains.

Correlation Rubrics:

High	Moderate	Low	No Correlation
3	2	1	-

Mapping of PSOs with POs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
PSO1	3	3	3	3	3	3	2	-	-	2
PSO2	3	2	3	3	3	3	2	1	-	2
PSO3	3	3	3	3	3	3	2	2	3	3

K.M.G. COLLEGE OF ARTS AND SCIENCE
(AUTONOMOUS)
Subject and Credit System- B.Sc., Artificial Intelligence
(Effective for the Batch of Students Admitted from 2024-2025)

Semester	Part	Category	Course Code	Course Title	Ins.Hrs/ Week	Credit	Internal	External	Total
							Maximum Marks		
SEMESTER - I	I	Language	AULT10 / AULU 10	General Tamil - I / Urdu - I	6	3	25	75	100
	II	English	AULE10	English I	6	3	25	75	100
	III	Core – 1	AUCAI11	Programming for Problem Solving	5	5	25	75	100
	III	Core – 2	AUCPAI15	Practical - Problem Solving using C Lab	5	5	25	75	100
	III	Elective-I (Choose any One)	AUEMA12A	Statistical Methods and its applications	4	3	25	75	100
			AUEMA12C	Resource Management Techniques					
	IV	Skill Enhancement	AUSAI13	Introduction to HTML	2	2	25	75	100
	IV	Foundation Course	AUFAI14	Office Automation	2	2	25	75	100
				Semester Total	**30**	**23**			
SEMESTER – II	I	Language	AULT20 / AULU 20	General Tamil - II / Urdu - II	6	3	25	75	100
	II	English	AULE20	English II	6	3	25	75	100
	III	Core - 3	AUCAI21	Python Programming	5	5	25	75	100
	III	Core – 4	AUCPAI25	Practical II – Python Programming Lab	5	5	25	75	100
	III	Elective-II (Choose any One)	AUEMA22B	Numerical Methods	4	3	25	75	100
			AUEMA22D	Discrete Mathematics					
	IV	Skill Enhancement - 2	AUSAI23	Understanding Internet	2	2	25	75	100
	IV	Skill Enhancement - 3	AUSAI24	PHP Programming	2	2	25	75	100
				Semester Total	**30**	**23**			

SEMESTER - III	I	Language	AULT30 / AULU 30	General Tamil - III / Urdu - III	6	3	25	75	100
	II	English	AULE30	English III	6	3	25	75	100
	III	Core - 5	AUCAI31	Artificial Intelligence	5	5	25	75	100
	III	Core – 6	AUCPAI35	Practical III - Artificial Intelligence Lab	5	5	25	75	100
	III	Elective-III (Choose any One)	AUEAI32A	IOT and its Applications	3	3	25	75	100
			AUEAI32B	Introduction to Data Science					
	IV	Skill Enhancement - 4	AUSAI33	Skill Enhancement Course SEC-IV Software Engineering	1	1	25	75	100
	IV	Skill Enhancement - 5	AUSAI34	Skill Enhancement Course SEC-V Operating System Design	2	2	25	75	100
	IV	Compulsory	AUES30	Environmental Studies	2	2	25	75	100
				Semester Total	**30**	**24**			
SEMESTER - IV	I	Language	AULT40 / AULU 40	General Tamil - IV / Urdu - IV	6	3	25	75	100
	II	English	AULE40	English IV	6	3	25	75	100
	III	Core - 7	AUCAI41	R Programming	5	5	25	75	100
	III	Core – 8	AUCPAI45	Practical III – R Programming Lab	5	5	25	75	100
	III	Elective-IV (Choose any One)	AUEAI42A	Data Mining	4	3	25	75	100
			AUEAI42B	Cloud Computing					
	IV	Skill Enhancement - 6	AUSAI43	Software Project Management	2	2	25	75	100
	IV	Skill Enhancement - 7	AUSAI44	Data Communication and Networking	2	2	25	75	100
				Semester Total	**30**	**23**			

III	Core – 9	AUCAI51	Machine Learning	4	3	25	75	100
III	Core – 10	AUCPAI55	Machine Learning Lab	4	3	25	75	100
III	Core – 11	AUCAI52	Relational Data Base Management System	4	3	25	75	100
III	Core – 12	AUCPAI56	Practical: RDBMS Lab using Oracle	3	3	25	75	100
III	Core – 13	AUCPAI57	Project with Viva voce	5	4	25	75	100
III	Elective IV (Choose any One)	AUEAI53A	Natural Language Processing	4	3	25	75	100
		AUEAI53B	Cryptography					
		AUEAI53C	Quantitative Aptitude					
III	Elective V (Choose any One)	AUEAI54A	i)Software Testing	4	3	25	75	100
		AUEAI54B	ii) Simulation and Modeling					
		AUEAI54C	iii) Artificial Neural Networks					
IV	Compulsory	AUVE50	Value Education	2	2	25	75	100
IV	Compulsory	AUIAI58	Internship / Industrial Training (Summer vacation at the end of IV semester activity)	-	2	100	-	100
			Semester Total	**30**	**26**			

SEMESTER - V

III	Core – 14	AUCAI61	CC14 –Tensor Flow	4	3	25	75	100
III	Core – 15	AUCPAI66	CC15 – Tensor Flow Lab	4	3	25	75	100
III	Core – 16	AUCAI62	CC16 - Deep Learning	5	3	25	75	100
III	Core – 17	AUCPAI67	CC17- Deep Learning Lab	5	3	25	75	100
III	Elective-VII	AUEAI63A	Robotics and its Applications	5	3	25	75	100
		AUEAI63B	Agile Project Management					
		AUEAI63C	Mobile Adhoc Networks					
III	Elective-VIII	AUEAI64A	Big Data Analytics	5	3	25	75	100
		AUEAI64B	Financial Analytics					
		AUEAI64C	Virtual Reality Technology					
IV	Skill Enhancement - 8	AUSAI65	Ethical Hacking	2	2	25	75	100
IV	Compulsory	AUEA60	Extension Activity	-	1	100	-	100
			Semester Total	**30**	**21**			

SEMESTER - VI

Consolidated Semester wise and Component wise Credit distribution

Parts	Semester-I	Semester-II	Semester-III	Semester-IV	Semester-V	Semester-VI	Total Credits
Part-I	3	3	3	3	-	-	12
Part-II	3	3	3	3	-	-	12
Part-III	13	13	13	13	22	18	92
Part-IV	4	4	5	4	4	3	24
Part-V	-	-	-	-	-	-	-
Total	23	23	24	23	26	21	**140**

*Part I, II, and Part III components will be separately taken into account for CGPA calculation and classification for the under graduate programme and the other components. IV, V has to be completed during the duration of the programme as per the norms, to be eligible for obtaining the UG degree.

COURSE DESCRIPTORS

Title of the Course	Programming for Problem Solving	Hours/Week	05
Course Code	AUCAI11	Credits	05
Category	Core-1	Year & Semester	I & I
Prerequisites	Basics of Computer Science	Regulation	2024

Objectives of the course:

➢ Recognize the need for programming languages and problem solving techniques

➢ Apply memory management concepts and function based modularization

➢ Recognize the bugs in the C program

➢ Develop simple C programs to illustrate the applications of different data types such as arrays, pointers, functions.

➢ Develop programming skills to solve real time computational problems

UNITS	Contents	COs	Cognitive Levels
UNIT-I	Introduction to Programming: Introduction to computers, Computer characteristics, Hardware vs software, Steps to develop a rogram, Software development life cycle, Structured programming, Types of programming languages, Introduction to c, Developing a c program, Console input and output functions, Error diagnostics, Debugging techniques.	C01	K1, K6
UNIT-II	Operators and Expressions: Identifiers and keywords, Data types Constants, Variables, Declarations, Expressions, Statements, Arithmetic operators, Unary operators, Relational and logical operators, Assignment operators, Conditional operator Branching, ifelse statement, switch statement, goto statement, Looping, while statement, do- while statement, for statement, Nested control structures, break statement, continue statement.	CO2	K3
UNIT-III	Arrays and Strings: Defining an array, Processing an array, Multidimensional arrays, Searching algorithm, Linear search, Sorting algorithm, Bubble sort algorithm, Strings, Defining a string Initialization of strings, Reading and writing a string, Processing the strings.	CO3	K3,K4

UNIT-IV	Functions: Functions, Overview, Defining a function, Accessing a function, Function prototypes, Passing arguments to a function Passing arrays to functions, Recursion.	CO4	K6
UNIT-V	Pointers and Structures: Fundamentals, Pointer declarations Passing pointers to functions, Pointers and one dimensional arrays, Dynamic memory allocation, Operations on pointers, Defining a structure Processing a structure, Array of structures, Structures and pointers,Self-referential structures – File handling.	CO5	K6

Recommended Text Books

1. Byron Gottfried, "Schaum's Outline of Programming with C", 3rd edition, 2016, McGraw Hill Education (India), ISBN: 9780070145900

2. Balagurusamy, E "Programming in ANSI C", 7th edition, McGraw Higher Ed, 2016, ISBN:9789339219666

Reference Books

1. Yashavant Kanetkar, "Let Us C", 15th edition, 2016, Bpb Publications, ISBN:9788183331630

2. Herbert Schildit, "The Complete Reference C", 4th edition, 2017, McGraw Hill Education(India), 2017, ISBN:978007041183

3. Beulah Christalin Latha, Anuja Beatrice, Carolin Jeeva & Anita Sofia, Fundamentals of Computing and Programming, 1st edition, Pearson, 2018

4. Sumitabha Das, "Computer Fundamentals and C Programming", 18th edition, 2018, McGraw Hill Education (India), ISBN:9789387886070

5. Stephen G. Kochan, "Programming in C", 4th edition, 2015, ISBN: 9789332554665,

Course Learning Outcomes (for Mapping with POs and PSOs)

On completion of the course the students should be able to

COs	CO Description	Cognitive Level
CO1	The Student can understand the fundamentals of computer and program development process and develop a program	K1,K6
CO2	The Student can prepare innovative solution for the problem using branching and looping statements.	K3
CO3	The Student can decompose a problem into functions and synthesize a complete program using divide and conquer approach.	K3,K4
CO4	The Student will be able to formulate algorithms and programs using arrays, pointers and structures	K6
CO5	The Student will be able to create a new application software to solve real world problems using file and structure.	K6

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3
CO1	3	2	2	2	2	2	-	-	-	2	3	2	2
CO2	3	2	2	2	2	2	-	-	-	2	3	2	2
CO3	3	2	2	2	2	2	-	-	-	2	3	2	2
CO4	3	2	3	2	2	2	-	-	-	2	3	2	2
CO5	3	2	2	2	2	2	-	-	-	2	3	3	3

COURSE DESCRIPTORS

Title of the Course	Practical - Problem Solving using C Lab	Hours/Week	05
Course Code	AUCPAI15	Credits	05
Category	Core Practical	Year & Semester	I & I
Prerequisites	-	Regulation	2024

Objectives of the course:
- ➤ Understand the need for programming to solve computational problems.
- ➤ Discover the basic programming constructs to prepare the program.
- ➤ Analyze and interpret data using array, functions and pointers
- ➤ Recognize the bugs in the C program.
- ➤ Apply problem-solving skills to real-world scenarios

List of Practical	COs	Cognitive Levels
1. Implementation of Basic C programs	CO1	K2
2. Simple computational problems using arithmetic expressions and operators	CO4	K2
3. Problem solving using branching and logical expressions	CO3	K6
4. Iterative problems using Loops, while and for loops	CO3	K3
5. Implementation of linear searching, bubble sort, and Matrix Manipulation using Arrays	CO1	K2
6. Implementation of Text Processing using Strings	CO1	K2
7. Find Square Root, numerical differentiation, numerical integration using functions and recursion.	CO2	K1
8. Implementation of basic file operations	CO5	K2

Course Learning Outcomes (for Mapping with POs and PSOs)

On completion of the course the students should be able to

COs	CO Description	Cognitive Level
CO1	Translate given algorithms to a working and correct program	K2
CO2	Identify and correct logical errors encountered at run time	K1
CO3	Create iterative as well as recursive programs.	K6
CO4	Represent data in arrays, strings and structures and manipulate them through a program.	K2
CO5	Declare pointers of different types and use them in defining self-referential structures.	K1

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	2	-	-	-	1	3	3	2
CO2	3	3	2	2	2	2	-	-	-	1	3	2	2
CO3	3	3	2	2	2	2	-	-	-	2	2	2	2
CO4	3	3	2	2	2	2	-	-	-	1	2	2	2
CO5	3	3	2	2	2	2	-	-	-	1	2	2	2

COURSE DESCRIPTORS

Title of the Course	INTRODUCTION TO HTML	Hours/Week	2
Course Code	AUSAI13	Credits	2
Category	Skill Enhancement - 1	Year & Semester	I & I
Prerequisites	-	Regulation	2024

Objectives of the course:
- ➢ Insert a graphic within a web page.
- ➢ Create a link within a web page.
- ➢ Create a table within a web page.
- ➢ Insert heading levels within a web page.
- ➢ Insert ordered and unordered lists within a web page. Create a web page.

UNITS	Contents	COs	Cognitive Levels
UNIT-I	Introduction: Web Basics: What is Internet–Web browsers–What is Webpage–HTML Basics: Understanding tags.	CO1	K1,K2
UNIT-II	TagsforDocumentstructure(HTML,Head,BodyTag).Blockleveltextelements:Headings-paragraph(<p> tag)–Font-style elements:(bold, italic, font, small,strong, strike, big tags)	CO2	K1,K2
UNIT-III	Lists: Types of lists: Ordered, Unordered– Nesting Lists–Other tags: Marquee,HR, BR- Using Images –Creating Hyper-links.	CO3	K2
UNIT-IV	Tables: Creating basic Table, Table elements, Caption–Table and cell alignment–Row span, Col span–Cellpadding.	CO4	K6
UNIT-V	Frames: Frameset–Targeted Links–No frame–Forms: Input, Text area, Select, Option.	CO5	K1,K2,K3

Recommended Text Books

1. "Mastering HTML5 and CSS3 Made Easy", TeachUComp Inc., 2014.
2. Thomas Michaud, "Foundations of Web Design: Introduction to HTML & CSS"

Course Learning Outcomes (for Mapping with POs and PSOs)

On completion of the course the students should be able to

COs	CO Description	Cognitive Level
CO1	Knows the basic concept in HTML Concept of resources in HTML	K1,K2
CO2	Knows Design concept. Concept of Meta Data Understand the concept of save the files.	K1,K2
CO3	Understand the page formatting. Concept of list	K2
CO4	Creating Links. Know the concept of creating link to email address	K6
CO5	Concept of adding images, understanding frames and frameset	K1,K2,K3

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3
CO1	3	3	3	2	2	2	-	-	-	1	2	2	2
CO2	3	2	2	2	2	2	-	-	-	1	2	2	2
CO3	3	2	2	2	2	2	-	-	-	1	2	2	2
CO4	3	3	2	2	2	2	-	-	-	1	2	2	2
CO5	3	2	2	2	2	2	-	-	-	1	2	2	2

COURSE DESCRIPTORS

Title of the Course	**OFFICE AUTOMATION**	Hours/Week	2
Course Code	AUFAI14	Credits	2
Category	FOUNDATION	Year & Semester	I & I
Prerequisites	-	Regulation	2024

Objectives of the course:
- Understand the basics of computer systems and its components.
- Understand and apply the basic concepts of a word processing package.
- Understand and apply the basic concepts of electronic spreadsheet software.
- Understand and apply the basic concepts of database management system.
- Understand and create a presentation using PowerPoint tool.

UNITS	Contents	COs	Cognitive Levels
UNIT-I	**Introductory concepts:** Memory unit– CPU-Input Devices: Key Board, Mouse and Scanner. Output devices: Monitor, Printer. Introduction to Operating systems &Its features: DOS– UNIX– Windows. Introduction to Programming Languages.	CO1	K1,K2
UNIT-II	**Word Processing:** Open, Save and close word document; Editing text –tools, formatting, bullets; Spell Checker - Document formatting –Paragraph alignment, indentation, headers and footers, numbering; printing Preview, options, merge.	CO2	K1,K2, K3, K6
UNIT-III	**Spreadsheets:** Excel– opening, entering text and data, formatting, navigating; Formulas– entering, handling and copying; Charts– creating, formatting and printing, analysis tables, preparation of financial statements, introduction to data analytics.	CO3	K1,K2
UNIT-IV	**Database Concepts:** The concept of data base management system; Data field, records, and files, Sorting and indexing data; Searching records. Designing queries, and reports; Linking of data files; Understanding Programming environment in DBMS; Developing menu drive applications in query language(MS–Access).	CO4	K2
UNIT-V	**Power point:** Introduction to Power point - Features – Understanding slide typecasting & viewing slides – creating slide shows. Applying special object – including objects & pictures – Slide transition– Animation effects, audio inclusion, timers.	CO5	K1,K2, K3,K6

Recommended Text Books

PeterNorton,"IntroductiontoComputers"–TataMcGraw-Hill.

Reference Books

Jennifer Ackerman Kettel, Guy Hat-Davis, Curt Simmons, "Microsoft 2003", Tata McGrawHill.

Course Learning Outcomes (for Mapping with POs and PSOs)

On completion of the course the students should be able to

COs	CO Description	Cognitive Level
CO1	Possess the knowledge on the basics of computers and its competent	K1,K2
CO2	Gain knowledge on Creating Documents, spreadsheet and presentation.	K1,K2,K3, K6
CO3	Learn the concepts of Database and implement the Query in Database.	K1,K2
CO4	Demonstrate the understanding of different automation tools.	K2
CO5	Utilize the automation tools for documentation, calculation and presentation purpose.	K1,K2,K3,K6

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3
CO1	3	1	2	1	2	1	-	-	-	1	2	1	2
CO2	3	1	2	1	2	2	-	-	-	1	2	2	1
CO3	3	1	2	1	2	1	-	-	-	1	2	2	2
CO4	3	1	2	1	2	2	-	-	-	1	1	2	2
CO5	3	1	2	1	2	1	-	-	-	1	2	2	2

COURSE DESCRIPTORS

Title of the Course	STATISTICAL METHODS AND ITS APPLICATIONS	Hours/Week	04
Course Code	AUEAI12A	Credits	03
Category	ELECTIVE COURSE -I	Year & Semester	I & I
Prerequisites	12th Standard Mathematics	Regulation	2024

Objectives of the course:

➢ Understand basic concepts of Statistical Methods
➢ Show an understanding of measures of location
➢ Show an understanding of measures of dispersion
➢ Show an Understand about Measures of Skewness
➢ Knowledge about correlation

UNITS	Contents	COs	Cognitive Levels
UNIT-I	Introduction - scope and limitations of statistical methods - classification of data -Tabulation of data- Diagrammatic and Graphical representation of data – Graphical, determination of Quartiles ,Deciles and Percentiles	CO1	K1,K2 K3
UNIT-II	Measures of location: Arithmetic mean, median, mode, geometric mean and Harmonic mean and their properties.	CO2	K1,K2 K3
UNIT-III	Measures of dispersion: Range, Quartile deviation, mean deviation, Standard deviation, combined Standard deviation, and their relative measures	CO3	K1,K2 K3
UNIT-IV	Measures of Skewness: Karl Pearson's, Bowley's, and kelly's and co-efficient of Skewness and kurtosis based on moments.	CO4	K1,K2 K3
UNIT-V	Correlation - Karl Pearson - Spearman's Rank correlation - concurrent deviation methods. Regression Analysis:Simple Regression Equations.	CO5	K1,K2 K3,K4

Recommended Text Books
1. Fundamental of Mathematical Statistics-S.C.Gupta &V.K.Kapoor-Sultan Chand
2. Statistical Methods-Snedecor G.W.& Cochran W.G.oxford &+DII

Reference Books
1. Elements of Statistics -Mode. E.B.-Prentice Hall
2. Statistical Methods-Dr.S.P.Gupta-Sultan Chand &Sons

Website and e-learning source
https://www.simplilearn.com/what-is-statistical-analysis-article

Course Learning Outcomes (for Mapping with POs and PSOs)

On completion of the course the students should be able to

COs	CO Description	Cognitive Level
CO1	Know the basics of statistical methods	K1,K2,K3
CO2	Understanding of measures of location	K1,K2,K3
CO3	Understanding of measures of dispersion	K1,K2,K3
CO4	Understand about Measures of skewness	K1,K2,K3
CO5	Understand about correlation, concurrent deviation method	K1,K2,K3,K4

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3
CO1	3	1	3	2	2	1	1	-	-	1	2	2	1
CO2	2	1	3	1	2	-	1	-	-	1	2	2	1
CO3	3	1	3	1	2	1	1	-	-	1	2	2	1
CO4	3	1	3	2	2	-	1	-	-	1	2	2	1
CO5	3	1	3	2	2	1	1	-	-	1	2	2	1

COURSE DESCRIPTORS

Title of the Course	RESOURCE MANAGEMENT TECHNIQUES	Hours/Week	04
Course Code	AUEAI12B	Credits	03
Category	ELECTIVE COURSE –I	Year & Semester	I & I
Prerequisites	Higher Secondary Mathematics	Regulation	2024

Objectives of the course:

- ➢ To learn the basic concept of operation research theory which are frequently applied to business decision making
- ➢ To acquire the knowledge about linear programming problems
- ➢ Knowledge about simplex methods.
- ➢ To acquire knowledge about Mathematical formulation of transportation problem
- ➢ Knowledge about Mathematical formulation of transportation problem

UNITS	Contents	COs	Cognitive Levels
UNIT-I	Development of OR -Definition of OR -Modelling in OR -general methods for solving OR models -Main characteristics and phases of OR study -tools, techniques and methods –scientific methods in OR – scope of OR.	CO1	K1,K2 K3
UNIT-II	Linear programming problems-Mathematical formulation of L.P.P.-slack and surplus variables -graphical solution of L.P.P.	CO2	K1,K2 K3
UNIT-III	Simplex methods- Computational procedure- Artificial variables Technique- two phase method-Duality in linear programming	CO3	K1,K2 K3
UNIT-IV	Mathematical formulation of assignment problem,-Method for solving The assignment problem.	CO4	K1,K2 K3

UNIT-V	Mathematical formulation of transportation problem-optimal solution of T.P.-Methods for obtaining initial feasible solution-optimal solution-Degeneracy in T.P.-Unbalanced T.P	CO5	K1,K2 K3,K4

Recommended Text Books

1. Operations Research-S.D.Sharma-KedarNath Ramnath&Co-1997.Chapter1to6(all sections)

Reference Books

1.OperationsResearchGupta,ManMohan,Gandhiswarup-Sulthand-ChandPublications
2.Ackoff R.L. and Sasieni M. W," Fundamentals of Operations Research", John Wiley and sons New York 1968
3.Chames A.CooperW.andHendersenA.,"IntroductiontoLinearProgramming",WileyandSons New York
4.Srinath L.S,"PERT and CPM principles and applications ",Affiliated East West Press Pvt.Ltd. New York.

Website and e-learning source
     htt11://ebooks.i11ude.in.011erationsresearch/
     htt11://ocw.mit.in/

Course Learning Outcomes (for Mapping with POs and PSOs)

On completion of the course the students should be able to

COs	CO Description	Cognitive Level
CO1	To develop skills for decision making.	K1,K2,K3
CO2	To make use of Linear programming problems	K1,K2,K3
CO3	To make use of Simplex methods	K1,K2,K3
CO4	To make use of Mathematical formulation of assignment problem	K1,K2,K3
CO5	To utilize Mathematical formulation of transportation problem	K1,K2,K3,K4

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3
CO1	3	3	3	3	3	3	1	-	-	1	2	2	1
CO2	3	3	2	3	3	3	1	-	-	1	2	2	1
CO3	3	2	2	3	2	3	1	-	-	1	2	2	1
CO4	3	3	3	2	2	3	1	-	-	1	2	2	1
CO5	3	2	3	2	3	2	1	-	-	1	2	2	1