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

P.G. DEPARTMENT OF COMMERCE

(COMPUTER APPLICATIONS)

M.Com – COMPUTER APPLICATIONS
SYLLABUS
(CHOICE BASED CREDIT SYSTEM)

Under

LEARNING OUTCOMES-BASED CURRICULUM

FRAMEWORK (LOCF)

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

ABOUT THE COLLEGE

The College was founded in the new millennium 2000 by the vision of late Shri.K.M.Govindarajan fondly known as ayah, 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, ayah groomed it into a Higher Secondary School and later into a college. Education was his soul & breath. The college has grown into a full fledged educational hub offering 12 under 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 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.

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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.

S. No	Courses	Establishment year
1	B.Com (Computer Applications)	2009
2	M.Com – (Computer Applications)	2017

VISION OF THE DEPARTMENT

To impart holistic and quality education in the field of Commerce with Computer Applications and develop a broad knowledge base in core managerial and computer skill with professional excellence and experience.

MISSION OF THE DEPARTMENT

- To provide in-depth knowledge in the course.
- To train and develop the students with the employable skills required for Commerce and IT sectors.
- To import the ability to use the expertise in computing to meet the ever growing demands of the society.
- To provide technical education to the students through well-equipped Labs.

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 M.Com CA programme, the students will be able to:

POs	Graduate Attributes	Statements
PO1	Problem Solving skill	Apply knowledge of Management theories and Human Resource Practices to solve business problems through research in Global Context.
PO2	Decision Making Skills	Foster analytical and critical thinking abilities for data based decision-making.
PO3	Ethical Value	Ability to incorporate quality, ethical and legal value – based perspectives to all organizational activities.
PO4	Communication Skill	Ability to develop communication, managerial and interpersonal skills.
PO5	Individual and Team Leadership skill	Capability to lead themselves and the team to achieve organizational goals and contribute significantly to society.
PO6	Employability Skill	Inculcate contemporary business practices to enhance employability skills in the competitive environment.
PO7	Entrepreneurial Skill	.Equip with skills and competencies to become an entrepreneur.
PO8	Contribution to Society	Succeed in career endeavors and contribute significantly to society.
PO 9	Multicultural competence	Possess knowledge of the values and beliefs of multiple cultures and a global perspective.
PO10	Moral and ethical awareness /reasoning	Ability to embrace moral/ethical values in conducting one's life.

PROGRAM SPECIFIC OUTCOMES (PSOs)

On successful completion of the B.Com CA, the students will be able to:

PSOs	Statements
PSO1	To prepare the students who will demonstrate respectful engagement with others' ideas, behaviors, beliefs and apply diverse frames of reference to decisions and actions.
PSO2	To create effective entrepreneurs by enhancing their critical thinking, problem solving, decision making and leadership skill that will facilitate startups and high potential organizations.
PSO3	To produce employable in IT and IT enabled sectors with ethical and innovative professionalism to sustain in the dynamic business world.

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	3	3	2	3
PSO2	3	3	3	3	3	3	3	3	3	3
PSO3	3	3	3	3	3	3	3	3	3	3

K.M.G. COLLEGE OF ARTS AND SCIENCE
(AUTONOMOUS)
Subject and Credit System- M.Com (Computer Applications)
(Effective for the Batch of Students Admitted from 2024-2025)

Semester	Part	Category	Course Code	Course Title	Ins.Hrs/ Week	Credit	Maximum Marks		
							Internal	External	Total
SEMESTER - I	**Part - I**	Core-I	APCCP11	Business Finance	07	05	25	75	100
		Core-II	APCCP12	Digital Marketing	07	05	25	75	100
		Core-III	APCCP13	Banking and Insurance	06	04	25	75	100
		Elective – I (Choose any One)	APECP14A	Introduction to Industry 4.0	05	03	25	75	100
			APECP14B	Big Data Analytics					
		Elective – II (Choose any One)	APECP15A	Enterprise Resource Planning	05	03	25	75	100
			APECP15B	Database Management System					
				Semester Total	**30**	**20**			
SEMESTER - II	**Part - I**	Core-IV	APCCP21	Strategic Cost Management	05	05	25	75	100
		Core-V	APCCP22	Corporate Accounting	06	05	25	75	100
		Core-VI	APCCP23	Setting up of business entities	05	04	25	75	100
		Elective-III (Choose any One)	APECP24A	Data Mining and Data Interpretation	04	03	25	75	100
			APECP24B	Technology in Banking					
		Elective-IV (Choose any One)	APECP25A	Financial Analytics (Practical)	04	03	25	75	100
			APECP25B	Management Information System					
		SEC - I	APSCP26	Advertising and Media	04	02	25	75	100
	Part - II	Compulsory	APHR20	Human Rights	02	02	25	75	100
		Compulsory	APMOOC20	MOOC COURSE	-	02	-	100	100
				Semester Total	**30**	**26**			

Semester	Part	Category	Course Code	Course Title	Ins.Hrs/ Week	Credit	Maximum Marks		
							Internal	External	Total
SEMESTER - III	Part - I	Core-VII	APCCP31	Taxation	6	5	25	75	100
		Core-VIII	APCCP32	Research Methodology	6	5	25	75	100
		Core-IX	APCCP33	Computer Application in Business	6	5	25	75	100
		Core-X	APCCP34	International Business	6	4	25	75	100
		Elective-V (Choose any One)	APECP35A	Applied Data Analytics and Machine Learning	03	03	25	75	100
			APECP35B	Python R Programming					
		SEC - II	APSCP36	Stock Market Operations	03	02	25	75	100
		Compulsory	APICP37	Internship / industrial Activity (Credits)	-	2	100	-	100
				Semester Total	**30**	**26**			
SEMESTER - IV	Part - I	Core-XI	APCCP41	Corporate and Economic Laws	6	5	25	75	100
		Core-XII	APCCP42	Human Resource Analytics	6	5	25	75	100
		Project with Viva	APPCP43	Project with viva	10	7	25	75	100
		Elective VI (Choose any One)	APECP44A	VI A – Cyber and Data Security	4	3	25	75	100
			APECP44B	VI B – E-Commerce					
		SEC – III / Professional Competency Skill	APSCP45	Consumer Behaviour	4	2	25	75	100
	Part - II	Compulsory	APEA40	Extension Activity	-	1	100	-	100
				Semester Total	**30**	**23**			

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Subject and Credit System- M.Com (Computer Applications)
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Consolidated Semester wise and Component wise Credit distribution

Parts	Semester-I	Semester-II	Semester-III	Semester-IV	Total Credits
Part-I	20	22	26	22	**90**
Part-II	-	4	-	1	**5**
Total	**20**	**26**	**26**	**23**	**95**

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

COURSE DESCRIPTORS

Title of the Course	Business Finance	Hours/Week	07
Course Code	APCCP11	Credits	05
Category	Core I	Year & Semester	I & I
Prerequisites	UG Commerce (Computer Applications)	Regulation	2024

Objectives of the course:
- To outline the fundamental concepts in finance
- To estimate and evaluate risk in investment proposals
- To evaluate leasing as a source of finance and determine the sources of startup financing
- To examine cash and inventory management techniques
- To appraise capital budgeting techniques for MNCs

UNITS	Contents	COs	Cognitive Levels
UNIT-I	**Introduction to Business Finance and Time vale of money** Business Finance: Meaning, Objectives, Scope -Time Value of money: Meaning, Causes – Compounding – Discounting – Sinking Fund Deposit Factor – Capital Recovery Factor – Multiple Compounding– Effective rate of interest – Doubling period (Rule of 69 and Rule of 72) – Practical problems.	CO1	K1,K2,K3
UNIT-II	**Risk Management** Risk and Uncertainty: Meaning – Sources of Risk – Measures of Risk – Measurement of Return – General pattern of Risk and Return – Criteria for evaluating proposals to minimise Risk (Single Asset and Portfolio) – Methods of Risk Management–Hedging currency risk.	CO2	K1,K2,K3, K5
UNIT-III	**Startup Financing and Leasing** Startup Financing: Meaning, Sources, Modes (Bootstrapping, Angel investors, Venture capital fund) - Leasing: Meaning – Types of Lease Agreements – Advantages and Disadvantages of Leasing – Financial evaluation from the perspective of Lessor and Lessee.	CO3	K1,K2

UNIT-IV	**Cash, Receivable and Inventory Management** Cash Management: Meaning, Objectives and Importance – Cash Cycle – Minimum Operating Cash – Safety level of cash – Optimum cash balance – Receivable Management: Meaning – Credit policy – Controlling receivables: Debt collection period, Ageing schedule, Factoring – Evaluating investment in accounts receivable – Inventory Management: Meaning and Objectives – EOQ with price breaks – ABC Analysis.	CO4	K1,K2
UNIT-V	**Multi National Capital Budgeting** Multi National Capital Budgeting: Meaning, Steps involved, Complexities, Factors to be considered– International sources of finance – Techniques to evaluate multi-national capital expenditure proposals: Discounted Pay Back Period, NPV, Profitability Index, Net Profitability Index and Internal Rate of Return – Capital rationing -Techniques of Risk analysis in Capital Budgeting.	CO5	K1,K2,K3, K4,K5

THEORY – 60%, PROBLEMS – 40%
Recommended Text Books
　　1. Maheshwari S.N., (2019), "Financial Management Principles and Practices", 15ᵗʰ Edition, Sultan Chand &Sons, New Delhi.
　　2. Khan M.Y &Jain P.K, (2011), "Financial Management: Text, Problems and Cases", 8ᵗʰ Edition, McGraw Hill Education, New Delhi.
　　3. Prasanna Chandra, (2019), "Financial Management, Theory and Practice", 10ᵗʰ Edition, McGraw Hill Education, New Delhi.
　　4. Apte P.G, (2020), "International Financial Management" 8th Edition, Tata McGraw Hill, New Delhi.

Reference Books

　　1. Pandey I. M., (2021), "Financial Management", 12thEdition, Pearson India Education Services Pvt. Ltd, Noida.
　　2. Kulkarni P. V. & Satyaprasad B. G., (2015), "Financial Management", 14ᵗʰ Edition, Himalaya Publishing House Pvt Ltd, Mumbai.
　　3. RustagiR. P., (2022), "Financial Management, Theory, Concept, Problems", 6 th Edition, Taxmann Publications Pvt. Ltd, New Delhi.
　　4. Arokiamary Geetha Rufus, Ramani N. & Others, (2017), "Financial Management", 1 st Edition, Himalaya Publishing House Pvt Ltd, Mumbai.

Website and e-learning source

> *1. https://resource.cdn.icai.org/66674bos53808-cp8.pdf*
>
> *2. https://resource.cdn.icai.org/66677bos53808-cp10u2.pdf*
>
> *3. https://resource.cdn.icai.org/66592bos53773-cp4u5.pdf*
>
> *4. https://resource.cdn.icai.org/65599bos52876parta-cp16.pdf*

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	Explain important finance concepts	K1,K2,K3
CO2	Estimate risk and determine its impact on return.	K1,K2,K3,K5
CO3	Explore leasing and other sources of finance for startups	K1,K2
CO4	Summarize cash, receivable and inventory management techniques	K1,K2
CO5	Evaluate techniques of long term investment decision incorporating risk factor.	K1,K2,K3,K4,K5

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

COURSE DESCRIPTORS

Title of the Course	Digital Marketing	Hours/Week	07
Course Code	APCCP12	Credits	05
Category	Core II	Year & Semester	I & I
Prerequisites	UG Commerce (Computer Applications)	Regulation	2024

Objectives of the course:
- ➢ To assess the evolution of digital marketing
- ➢ To appraise the dimensions of online marketing mix
- ➢ To infer the techniques of digital marketing
- ➢ To analyse online consumer behavior
- ➢ To interpret data from social media and to evaluate game based marketing

UNITS	Contents	COs	Cognitive Levels
UNIT I	**Introduction to Digital Marketing** Digital Marketing – Transition from traditional to digital marketing – Rise of internet – Growth of e-concepts – Growth of e-business to advanced e-commerce – Emergence of digital marketing as a tool – Digital marketing channels – Digital marketing applications, benefits and limitations – Factors for success of digital marketing – Emerging opportunities for digital marketing professionals.	CO1	K1,K2
UNIT-II	**Online marketing mix** Online marketing mix – E-product – E-promotion – E-price – E-place – Consumer segmentation – Targeting – Positioning – Consumers and online shopping issues – Website characteristics affecting online purchase decisions – Distribution and implication on online marketing mix decisions.	CO2	K1,K2,K3

UNIT-III	**Digital media channels** Digital media channels – Search engine marketing – ePR – Affiliate marketing – Interactive display advertising – Opt-in-email marketing and mobile text messaging, Invasive marketing – Campaign management using – Facebook, Twitter, Corporate Blogs – Advantages and disadvantages of digital media channels – Metaverse marketing.	CO3	K1,K2,K3
UNIT-IV	**Online consumer behavior** Online consumer behavior – Cultural implications of key website characteristics – Dynamics of online consumer visit – Models of website visits – Web and consumer decision making process – Data base marketing – Electronic consumer relationship management – Goals – Process – Benefits – Role – Next generation CRM.	CO4	K1,K2,K4
UNIT-V	**Analytics and Gamification** Digital Analytics – Concept – Measurement framework – Demystifying web data - Owned social metrics – Measurement metrics for Facebook, Twitter, YouTube, Slide Share, Pinterest, Instagram, Snapchat and LinkedIn – Earned social media metrics - Digital brand analysis – Meaning – Benefits – Components – Brand share dimensions – Brand audience dimensions – Market influence analytics – Consumer generated media and opinion leaders – Peer review – Word of mouth – Influence analytics – Mining consumer generated media – Gamification and game based marketing – Benefits – Consumer motivation for playing online games.	CO5	K1,K2,K3

Recommended Text Books

1.Puneet Singh Bhatia, (2019) "Fundamentals of Digital Marketing", 2ndEdition,Pearson Education Pvt Ltd, Noida.

2. Dave Chaffey, Fiona Ellis-Chadwick,(2019) "Digital Marketing", Pearson Education Pvt Ltd, Noida.

3. Chuck Hemann& Ken Burbary, (2019) "Digital Marketing Analytics", Pearson Education Pvt Ltd, Noida.

4. Seema Gupta,(2022) "Digital Marketing" 3rdEdition, McGraw Hill Publications Noida.

5. Kailash Chandra Upadhyay,(2021) "Digital Marketing: Complete Digital Marketing Tutorial", Notion Press, Chennai.

6. Michael Branding, (2021) "Digital Marketing", Empire Publications India Private Ltd, New Delhi.

Reference Books
1.Vandana Ahuja, (2016) "Digital Marketing", Oxford University Press. London.
2. Ryan Deiss& Russ Henneberry, (2017) "Digital Marketing", John Wiley and Sons Inc. Hoboken.
3. Alan Charlesworth,(2014), "Digital Marketing - A Practical Approach", Routledge, London.
4. Simon Kingsnorth, Digital Marketing Strategy,(2022) "An Integrated approach to Online Marketing", Kogan Page Ltd. United Kingdom.
5. MaityMoutusy,(2022) "Digital Marketing" 2ndEdition, Oxford University Press, London.

Website and e-learning source

https://www.digitalmarketer.com/digital-marketing/assets/pdf/ultimate-guide-to-

digital-marketing.pdf

2. https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/teaching-

tips/educational-technologies/all/gamification-and-game-based-learning

3. https://journals.ala.org/index.php/ltr/article/download/6143/7938

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	Explain the dynamics of digital marketing	K1,K2
CO2	Examine online marketing mix	K1,K2,K3
CO3	Compare digital media channels	K1,K2,K3
CO4	Interpret online consumer behavior	K1,K2,K4
CO5	Analyse social media data.	K1,K2,K3

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

COURSE DESCRIPTORS

Title of the Course	Banking and Insurance	Hours/Week	06
Course Code	APCCP13	Credits	04
Category	Core III	Year & Semester	I & I
Prerequisites	UG Commerce (Computer Applications)	Regulation	2024

Objectives of the course:
- To understand the evolution of new era banking
- To explore the digital banking techniques
- To analyse the role of insurance sector
- To evaluate the mechanism of customer service in insurance and the relevant Regulations
- To analsye risk and its impact in banking and insurance industry

UNITS	Contents	COs	Cognitive Levels
UNIT-I	**Introduction to Banking** Banking: Brief History of Banking - Rapid Transformation in Banking: Customer Shift - Fintech Overview - Fintech Outlook - The Financial Disruptors - Digital Financial Revolution - New Era of Banking. Digital Banking – Electronic Payment Systems– Electronic Fund Transfer System – Electronic Credit and Debit Clearing – NEFT – RTGS – VSAT–SFMS–SWIFT.	CO1	K1,K2,K3
UNIT-II	**Contemporary Developments in Banking** Distributed Ledger Technology – Blockchain: Meaning - Structure of BlockChain - Types of Block Chain - Differences between DLT and Blockchain - Benefits of Blockchain and DLT - Unlocking the potential of Blockchain – Crypto currencies, Central Bank Digital Currency (CBDC) - Role of DLT in financial services - AI in Banking: Future of AI in Banking - Applications of AI in Banking - Importance of AI in banking - Banking reimagined with AI. Cloud banking - Meaning - Benefits in switching to Cloud Banking.	CO2	K1,K2,K3

UNIT-III	**Indian Insurance Market** History of Insurance in India – Definition and Functions of Insurance – Insurance Contract – Indian Insurance Market – Reforms in Insurance Sector – Insurance Organisation – Insurance organisation structure. Insurance Intermediaries: Insurance Broker – Insurance Agent - Surveyors and Loss Assessors - Third Party Administrators (Health Services) – Procedures - Code of Conduct.	CO3	K1,K2,K3
UNIT-IV	**Customer Services in Insurance** Customer Service in Insurance – Quality of Service - Role of Insurance Agents in Customer Service-Agent's Communication and Customer Service –Ethical Behaviour in Insurance – Grievance Redressal System in Insurance Sector –Integrated Grievance Management System-Insurance Ombudsman - Insurance Regulatory and Development Authority of India Act (IRDA) – Regulations and Guidelines.	CO4	K1,K2,K3
UNIT-V	**Risk Management** Risk Management and Control in banking and insurance industries – Methods of Risk Management – Risk Management by Individuals and Corporations – Tools for Controlling Risk.	CO5	K1,K2

Recommended Text Books

1. Indian Institute of Banking and Finance (2021), "Principles & Practices of Banking", 5th Edition, Macmillan Education India Pvt. Ltd, Noida, Uttar Pradesh.
2. Mishra M N & Mishra S B, (2016), "Insurance Principles and Practice", 22nd Edition, S.Chand and Company Ltd, Noida, Uttar Pradesh.
3. Emmett, Vaughan, Therese Vaughan M., (2013), "Fundamentals of Risk and Insurance", 11th Edition, Wiley & Sons, New Jersey, USA.
4. Theo Lynn , John G. Mooney, Pierangelo Rosati, Mark Cummins (2018), Disrupting Finance: FinTech and Strategy in the 21st Century (Palgrave Studies in Digital Business & Enabling Technologies), Macmillan Publishers, NewYork (US)

Reference Books

1. Sundharam KPM & Varshney P. N., (2020), "Banking Theory, Law and Practice", 20th Edition, Sultan Chand & Sons, New Delhi.
2. Gordon & Natarajan, (2022), "Banking Theory, Law and Practice", 9th Edition, Himalaya Publishing House Pvt Ltd, Mumbai.
3. Gupta P. K. (2021), "Insurance and Risk Management" 6th Edition, Himalaya Publishing House Pvt Ltd, Mumbai.
4. Susanne Chishti., & Janos Barberis(2016), The Fintech book: The financial technology handbook for investors, entrepreneurs and visionaries. John Wiley & Sons.

Website and e-learning source

1. https://corporatefinanceinstitute.com/resources/knowledge/finance/fintech-financial-technology.

2. https://mrcet.com/downloads/digital_notes/CSE/IV%20Year/CSE%20B.TECH%20IV%20YEAR%20II%20SEM%20BCT%20(R18A0534)%20NOTES%20Final%20 PDF.pdf

3. https://www.irdai.gov.in/ADMINCMS/cms/frmGeneral_Layout.aspx?page=PageNo108&flag=1

Note: Latest edition of the books may be used

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	Relate the transformation in banking from traditional to new age	K1,K2,K3
CO2	Apply modern techniques of digital banking	K1,K2,K3
CO3	Evaluate the role of insurance sector	K1,K2,K3
CO4	Examine the regulatory mechanism	K1,K2,K3
CO5	Assess risk mitigation strategies	K1,K2

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

COURSE DESCRIPTORS

Title of the Course	Introduction to Industry 4.0	Hours/Week	05
Course Code	APECP14 A	Credits	03
Category	Elective IA	Year & Semester	I & I
Prerequisites	UG Commerce (Computer Applications)	Regulation	2024

Objectives of the course:
➢ To enable the students to comprehend the change from industry 1.0 to 4.0
To gain knowledge on the challenges and future prospects of applying artificial
➢ Intelligence
➢ To learn the applications of big data for industrial growth and development
➢ To understand the applications of IoT in various sectors
➢ To understand why education has to be aligned with industry 4.0

UNITS	Contents	COs	Cognitive Levels
UNIT-I	**Introduction** Industry: Meaning, Types - Industrial Revolution: Industrial Revolution 1.0 to 4.0: Meaning, Goals and Design Principles - Technologies of Industry 4.0 - Big Data – Artificial Intelligence (AI) – Industrial Internet of Things - Cyber Security – Cloud – Augmented Reality.	CO1	K1,K2,K3
UNIT-II	**Artificial Intelligence** Artificial Intelligence (AI): Need, History and Foundations -The AI - environment - Societal Influences of AI – Application Domains and Tools - Associated Technologies of AI - Future prospects of AI – Challenges of AI.	CO2	K1,K2,K3

UNIT-III	**Big Data** Evolution - Data Evolution - Data : Terminologies - Essential of Big Data in Industry 4.0 - Big Data Merits and Limitations - Big Data Components : Big Data Characteristics - Big Data Processing Frameworks - Big Data Tools - Big Data Applications - Big Data Domain Stack : Big Data in Data Science – Big Data in IoT - Big Data in Machine Learning - Big Data in Databases - Big Data Usecases: Big Data in Social Causes - Big Data for Industry - Big Data Roles - Learning Platforms; Internet of Things (IoT) : Introduction to IoT – Architecture of IoT Technologies for IoT - Developing IoT Applications - Applications of IoT - Security in IoT.	CO3	K1,K2,K3
UNIT-IV	**Applications of IoT** IoT in Manufacturing – Healthcare – Education – Aerospace and Defence – Agriculture – Transportation and Logistics – Impact of Industry 4.0 on Society: Impact on Business, Government, People - Tools for Artificial Intelligence - Big Data and Data Analytics - Virtual Reality - Augmented Reality –IoT - Robotics.	CO4	K1,K2,K3
UNIT-V	**Industry 4.0** Education 4.0 – Curriculum 4.0 – Faculty 4.0 – Skills required for Future - Tools for Education – Artificial Intelligence Jobs in 2030 – Jobs 2030 - Framework for aligning Education with Industry 4.0.	CO5	K1,K2

Recommended Text Books

1. Seema Acharya J, Subhashini Chellappan, (2019) "Big Data and Analytics", 2nd Edition, Wiley Publication, New Delhi.
2. Russel S, Norvig P (2010), "Artificial Intelligence: A Modern approach", 3rdEdition, Prentice Hall, New York.

3. Pethuru Raj and Anupama C. Raman, (2017),"The Internet of Things: Enabling Technologies, Platforms, and Use Cases",Auerbach Publications

Reference Books

1. Judith Hurwitz, Alan Nugent, Fern Halper, Marcia Kaufman, "Big Data for Dummies", John Wiley & Sons, Inc.
2. Nilsson (2000), Artificial Intelligence: A new synthesis, Nils J Harcourt Asia PTE Ltd.

Website and e-learning source

1. https://sist.sathyabama.ac.in/sist_coursematerial/uploads/SEEA1403.pdf
2. https://library.oapen.org/bitstream/handle/20.500.12657/43836/external_content.pdf?
sequence=1
3. https://www.vssut.ac.in/lecture_notes/lecture1428643004.pdf

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	Discuss on the change from industry 1.0 to 4.0	K1,K2,K3
CO2	Discover the challenges and future prospects of applying artificial intelligence	K1,K2,K3
CO3	Apply big data for industrial growth and development	K1,K2,K3
CO4	Apply IoT in various sectors like Manufacturing, Healthcare, Education, Aerospace and Défense	K1,K2,K3
CO5	Appraise why education has to be aligned with industry 4.0	K1,K2

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

COURSE DESCRIPTORS

Title of the Course	BIG DATA ANALYTICS	Hours/Week	5
Course Code	APECP14B	Credits	3
Category	Elective IB	Year & Semester	I & I
Prerequisites	UG Commerce (Computer Applications)	Regulation	2024

Objectives of the course:

1. To understand the various aspects of data science and applying them in health care
2. To learn the applications of big data for industrial growth and development
3. To understand the characteristics of 5 V's
4. To know the big data problems
5. To understand the Hadoop

UNITS	Contents	COs	Cognitive Levels
UNIT-I	**Introduction to Data Science** Introduction to data science – Case Studies – Data Science in Biomedicine and Healthcare – Sequence Processing – Medical Image Analysis – Natural Language Processing – Network Modelling and Probabilistic Modelling.	CO1	K1,K2
UNIT-II	**Big Data** Big data: Meaning – Importance of Big Data – Example of Big Data – Source of Big Data - Machine - Generated Data - Advantages – Big Data generated by people – Organization of Generated Data - Integrating the data.	CO2	K1,K2,K3
UNIT-III	**Characteristics of Big Data** Characteristics of big data volume – Variety –Velocity – Characteristics of Big Data – 23 Veracity – Valence and Value – Getting value out of Big Data using 5-step process to structure your analysis.	CO3	K1,K2,K3

UNIT-IV	**Data Science: Getting value out of Big Data** Building a Big Data Strategy – Happening of Big Data science – Five Components of Data Science. Steps in Data Science: Acquiring Data, Preprocessing and Exploring Data – Analysing Data - Communicating results – Turning insights into action.	CO4	K1,K2,K4
UNIT-V	**Big Data Systems and Hadoop** Meaning of Distributed File System – Scalable Computing over the Internet – Programming Models for Big Data – Introduction to Hadoop systems – The Hadoop Distributed File System: A Storage System for Big Data – YARN: A Resource Manager for Hadoop – Map Reduce: Simple Programming for Big Results – When to Reconsider Hadoop? – Cloud Computing: An important Big Data enabler.	CO5	K1,K2,K3

Recommended Text Books

1. Peter Guerra and Kirk Borne (2016), "Ten Signs of Data Science Maturity", O'Reily Media Pvt Ltd, USA

2. Tom White (2012), "Hadoop: The Definitive Guide" Third Edition, O'Reily Media, USA.

3. SeemaAcharya (2015), SubhasiniChellappan, "Big Data Analytics", Wiley, USA

Reference Books

1. Howard Wen, Big Ethics for Big Data, O'Reilly Media, USA.

2. Michael Mineli, Michele Chambers, AmbigaDhiraj (2013), Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses, Wiley Publications, USA .

3. Judith S.Hurwitz, Alan Nugent, Fern Halper, Marcia Kaufman (2015), "Big Data for Dummies", John Wiley & Sons, Inc., USA.

Website and e-learning source

1. https://www.coursera.org/learn/big-data-introduction/home/welcome

2. https://www.coursera.org/learn/bioconductor?action=enroll&authMode=login

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	Describe the Big Data landscape including examples of real world big data problems	K1,K2
CO2	Explain the advantages of Big Data.	K1,K2,K3
CO3	Explain the Vs of Big Data and its impacts of data collection, monitoring, storage, analysis and reporting	K1,K2,K3
CO4	Identify what are and what are not big data problems and be able to recast big data problems as data science questions	K1,K2,K4
CO5	Explain Hadoop technology	K1,K2,K3

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

COURSE DESCRIPTORS

Title of the Course	ENTERPRISE RESOURCE PLANNING	Hours/Week	5
Course Code	APECP15A	Credits	3
Category	Elective IIA	Year & Semester	I & I
Prerequisites	UG Commerce (Computer Applications)	Regulation	2024

Objectives of the course:

1. To learn the history and growth of ERP
2. To understand the risks involved while using ERP
3. To gain knowledge on the various ERP technologies
4. To learn the dynamics of ERP marketplace
5. To choose appropriate ERP solutions or packages

UNITS	Contents	COs	Cognitive Levels
UNIT-I	**Enterprise an Overview** Business Functions and Business Processes - Integrated Management Information - Business Modelling - Integrated Data Model. Business Processes: Major Business Processes. Introduction to ERP: Common ERP Myths - A Brief History of ERP - Reasons for the Growth of ERP Market - Advantages of ERP.	CO1	K1,K2
UNIT-II	**Risk of ERP** People Issues - Process Risks - Technological Risks - Implementation Issues-Operation and Maintenance Issues - Unique Risks of ERP Projects - Managing Risks on ERP Projects. Benefits of ERP: Information Integration - Reduction of Lead Time - On-Time Shipment - Reduction in Cycle Time - Improved Resource Utilization - Better Customer Satisfaction - Improved Supplier Performance - Increased Flexibility - Reduced Quality Costs - Better Analysis and Planning Capabilities - Improved Information Accuracy and Decision Making Capability - Use of Latest Technology.	CO2	K1,K2,K3

UNIT-III	**ERP and Related Technologies** Business Process Reengineering (BPR) - Business Intelligence (BI) - Business Analytics (BA) - Data Warehousing- Data Mining - On - Line Analytical Processing (OLAP) - Product Life Cycle Management (PLM) - Supply Chain Management (SCM) - Customer Relationship Management (CRM) - Geographic Information Systems (GIS) - Intranets and Extranets. Advanced Technology and ERP Security: Technological Advancements - Computer Crimes - ERP and Security - Computer Security - Crime and Security.	CO3	K1,K2,K4
UNIT-IV	**ERP Market Place and Market Place Dynamics** Market Overview - ERP Market Tiers. Market Place Dynamics - Industry - Wise ERP Market Share - ERP: The Indian Scenario. Business Modules of an ERP Package: Functional Modules of ERP Software: Integration of ERP, Supply Chain, and Customer Relationship Applications.	CO4	K1,K2,K3
UNIT-V	**ERP Implementation** Benefits of Implementing ERP - Implementation Challenges. ERP Implementation Life Cycle: Objectives of ERP Implementation - Different Phases of ERP Implementation Reasons for ERP Implementation Failure. ERP Package Selection: ERP Package Evaluation and Selection - The Selection Process - ERP Packages: Make or Buy.	CO5	K1,K2,K3

Recommended Text Books

Books for study:

1. Alexis Leon (2008), "Enterprise Resource Planning", 2nd edition, Tata McGraw-Hill, Noida.

2. Jagan Nathan Vaman (2008), "ERP in Practice", Tata McGraw-Hill, Noida.

3. MahadeoJaiswal and Ganesh Vanapalli (2009), "ERP", Macmillan India, Noida.

Reference Books

1. Sinha P. Magal and Jeffery Word (2012), "Essentials of Business Process and Information System", Wiley India, USA.

2. Summer (2008), "ERP", Pearson Education, Noida.

3. Vinod Kumar Grag and N.K. Venkitakrishnan (2006), "ERP- Concepts and Practice", Prentice Hall of India, New Delhi.

Website and e-learning source

1. https://mrcet.com/downloads/digital_notes/CSE/III%20Year/ERP%20Digital%20notes.pdf

2.https://mrcet.com/downloads/digital_notes/ME/III%20year/ERP%20Complete%20Digital%20notes.pdf

3. https://www.vssut.ac.in/lecture_notes/lecture1428643004.pdf

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	Recall the history and growth of ERP	K1,K2
CO2	Appraise the risks involved while using ERP	K1,K2,K4
CO3	Select from among various ERP technologies	K1,K2,K3
CO4	Analyse the dynamics of ERP marketplace	K1,K2,K3
CO5	Distinguish and choose appropriate ERP solutions or packages	K1,K2,K3

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

COURSE DESCRIPTORS

Title of the Course	DATABASE MANAGEMENT SYSTEM	Hours/Week	5
Course Code	APECP15B	Credits	3
Category	Elective IIB	Year & Semester	I & I
Prerequisites	UG Commerce (Computer Applications)	Regulation	2024

Objectives of the course:

1. To introduce the basic concepts of Relational Database Management System and the working knowledge of Linux environment
2. To understand designing databases and queries in SQL
3. To learn RDBMS
4. To upskill the functions and operators
5. To understand the constraints, locks and MySQL

UNITS	Contents	COs	Cognitive Levels
UNIT-I	**Introduction to Database Systems and Linux** Introduction to File and Database systems Database System Structure - Data Models Introduction to Network Models: ER Model, Relational Model - Introduction to Linux Operating System - Properties of Linux - Desktop Environment - Linux basics commands - Working with Files - Text Editors - I/O Redirections - Pipes, Filters, and Wildcards - Changing Access Rights.	CO1	K1,K2
UNIT-II	**SQL Definition and Normalization** SQL – Data Definition - Queries in SQL - Updates - Views - Integrity and Security. Relational Database design – Functional dependences and Normalization for relational databases (up to BCNF) - Query Forms.	CO2	K1,K2

UNIT-III	**Files and RDBMs** Record Storage and Primary File Organization - Secondary Storage Devices – Operations on Files - Heap File - Sorted Files - Hashing Techniques - Index Structure for Files - Different Types of Indexes - B-Tree - B+Tree - Query Processing - Multimedia Databases - Basic Concepts and Applications - Indexing and Hashing - Text Databases - Overview of RDBMs - Advantages of RDBMs over DBMs – Introduction to Data Mining.	CO3	K1,K2,K3
UNIT-IV	**Data Definition and Manipulation Language** Data Definition Language - Data Manipulation Language - Transaction Control – Data Control Language Grant - Revoke Privilege Command - Set Operators - Joins- Kinds of Joins - Table Aliases - Sub queries - Multiple and Correlated Sub Queries - Functions - Single Row - Date, Character, Numeric, Conversion and Group Functions	CO4	K1,K2,K3
UNIT-V	**Constraints and MYSQL** Constraints - Domain, Equity, Referential Integrity Constraints Locks - Types of Locks, Table Partitions - Synonym - Introduction to PL/SQL - Introduction - MySQL as an RDBMS Tool - Data types and Commands.	CO5	K1,K2,K3

Recommended Text Books

1. Ramakrishnan Raghu and Gehrke Johannes, "Database Management Systems", McGraw–Hill, USA.

2. Rajendra Prasad Mahapatra and GovindVerma, "Database Management System", Khanna Publications, New Delhi.

Reference Books

1. Ramon A Mata-Toledo and Pauline K Cushman, "Database Management System", Schaun's Outlines, New York.

2. Abraham Silberschatz, Henry F Korth and S. Sudarshan, "Database System Concepts" McGraw–Hill, USA.

Website and e-learning source

1. http://education-portal.com/academy/lesson/what-is-a-database-managementsystempurpose-and-function.html.

2. http://www.comptechdoc.org/os/linux/usersguide/linux_ugbasics.html.

3. http://www.dummies.com/how-to/content/common-linux-commands.html.

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	Identify models and schemas in DBMS and LINUX	K1,K2
CO2	Demonstrate Queries in SQL	K1,K2
CO3	Discuss handling files and databases	K1,K2,K3
CO4	Apply skills on functions and operators in RDBMS	K1,K2,K3
CO5	Apply constraints and locks in SQL	K1,K2,K3

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