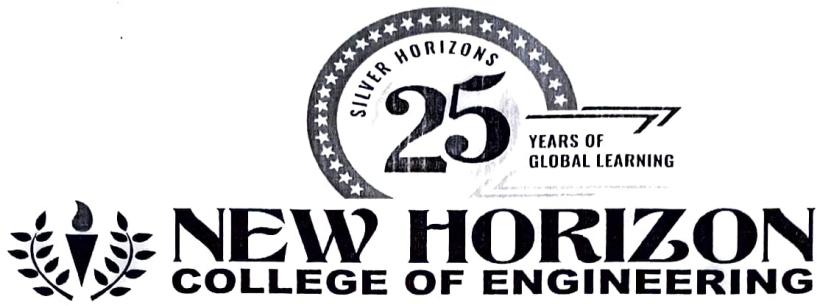




DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

12th Board of Studies Meeting

Minutes of Meeting

Academic Year 2026-27


Head of the Department
Department of Master of Computer Applications
NEW HORIZON COLLEGE OF ENGINEERING
20/7 Road, Bellandur Post, Bengaluru - 560 075


11/7/26


20/7/2026

Venue: *Conference Room, Department of MCA, Sardar Vallabhbhai Patel Block*

Date: *11-07-2026*

Time: *11:00 AM – 1:30 PM*

CONTENTS

S. No	PARTICULARS	Page No.
1	Constitution of the Board of Studies	1
2	List of Members	2
3	List of Members present	4
4	Welcome Address and Introduction of Members	5
5	Agenda 1: Vision, Mission and Highlights of the MCA Program	6
6	Agenda 2: Proposed and presented course details for scheme and syllabus for the AY:2026-27(Batch 2026-28, Semester I & II and Batch 2025-27 Semester III& IV)	7
7	Agenda 3: Salient features of the Syllabus AY: 2026-27	15
8	Agenda 4: CO, PO, PSO, PEO, Credit and RBT level requirements and mapping verification	18
9	Agenda 5: Suggestions and Recommendations of the BoS members	20
010	Agenda 6: Approval of Scheme & Syllabus	29
11	Agenda 7: Stakeholders Feedback and Considerations	29
12	Vote of thanks	30

CONSTITUTION OF THE BOARD OF STUDIES (2026-27)

S.No.	Academic Board	Structure/Constitution	Functions/Responsibilities	Frequency of Meetings
1	BOS	BOS Constituted with • Head of the Department as Chairman • Faculty members at different level with different specialization • Subject experts from outside the college nominated by academic council • Academic Expert from outside the college nominated by VTU • Representatives from Industry / Corporate sector / allied area related to placements, nominated by academic council • Post Graduate meritorious alumni nominated by Principal • Co-opted members with academic & research expertise.	• Recommendation and approval of curriculum-Scheme and Syllabus • Suggestions for incorporating new technologies /course • Removal of obsolete topics • To bridge the gap between industry and academia with supportive instructions and relevance • Validation and approval of course objectives and outcomes • Module-wise recommendation/ discussion/ suggestion for each proposed course of curriculum • Recommendations and approval of rubrics for evaluation.	Once in a year


BOS CHAIRMAN

Head of the Department
 Department of Master of Computer Applications
NEW HORIZON COLLEGE OF ENGINEERING
 Ring Road, Bellandur, Bangalore - 560 088

NEW HORIZON COLLEGE OF ENGINEERING
DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS
LIST OF MEMBERS - BOARD OF STUDIES (AY:2026-27)

S. No	Category	Nomination of the committee	Name of the person	Designation & Affiliation
1	Head of the Department	Chairperson	Dr. V. Asha	Professor & Head, Department of MCA, NHCE
2	Special Invitees (one academician from Institution of National Eminence: IIT, NIT, IIM, IISc)	1	Dr. Manjunatha	Principal, NHCE
		2	Dr. R. J. Anandhi	Vice Principal - Academics, NHCE
		3	Dr. Jaidhar C D	Professor, Department of Information Technology, National Institute of Technology, Suratkal.
3	Faculty members at different level with different specialization	Members		
		1	Dr. Arpana Prasad	Associate Professor
		2	Prof. S.P. Sreeja	Sr. Assistant Professor
		3	Dr. Nithya Ramesh	Associate Professor
		4	Dr. M T Vasumathi	Associate Professor
		5	Dr. Mithili Devi	Associate Professor
4	Subject experts from outside the College nominated by Academic Council	Members		
		1	Prof. Lakshminarayana	Professor & Head, Department of MCA, East West Institute of Technology (EWIT), Bengaluru.

5	Experts from outside the College nominated by VTU	Member		
		1	Dr. Balaji Rajendran	Associate Director, C-DAC, Bengaluru.
6	Representatives from Industry / Corporate sector / allied area related to placements, nominated by Academic Council	Members		
		1	Mr. Pravin Kumar Sinha	Director, VISA Bengaluru.
		2	Mr. Vasanthram S	Sr. Program Manager, Arctic Wolf Networks, Bengaluru.
7	Post Graduate meritorious alumni nominated by Principal	Member		
		1	Mr. Vipul Kumar	Principal Architect, Rocket Software, Bengaluru.
		2	Mr. Melvin Vincent	Senior Customer Support Engineer, Azul Inc. Bengaluru
8	Co-opted members	Members		
		1	Dr. Sivakumar Raju	Director - Career Development Centre, NHEI
		2	Dr. N S Sukanya	Associate Professor
		3	Dr. Priya Thomas	Associate Professor
		4	Mr. M. Govindaraj	Sr. Assistant Professor
		5	Prof. A. Kalaivani	Sr. Assistant Professor
		6	Prof. J Sathya	Sr. Assistant Professor
		7	Mrs. Diksha Dhiman	Assistant Professor
		8	Mrs. Ashwitha N	Assistant Professor

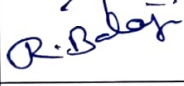
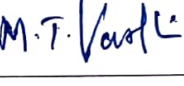
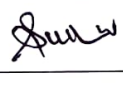
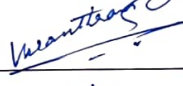
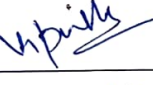
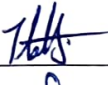
HOD - MCA

Head of the Department
Department of Master of Computer Applications
NEW HORIZON COLLEGE OF ENGINEERING
Ring Road, Bellandur Post, Bengaluru - 560 103

VICE PRINCIPAL - ACADEMICS

PRINCIPAL

LIST OF MEMBERS PRESENT

S.NO	NAME	SIGNATURE	S.NO	NAME	SIGNATURE
1	Dr. V. Asha		12	Prof. S.P. Sreeja	
2	Dr. R.J. Anandhi		13	Dr. B Nithya Ramesh	
3	Dr. Balaji Rajendran		14	Dr. M T Vasumathi	
4	Dr. Jaidhar C D	Online	15	Dr. Mithili Devi	
5	Prof. Lakshminarayana		16	Dr. N S Sukanya	
6	Dr. Sivakumar Raju		17	Dr. Priya Thomas	
7	Mr. Pravin Kumar Sinha		18	Prof. M. Govindaraj	
8	Mr. Vasanthram S		19	Prof. A Kalaivani	
9	Mr. Vipul Kumar		20	Prof. J Sathya	
10	Mr. Melvin Vincent		21	Prof. Ashwitha N	
11	Dr. Arpana Prasad		22	Prof. Seema Badnaware	

WELCOME ADDRESS AND INTRODUCTION OF THE MEMBERS

The 12th Board of Studies (BoS) Meeting for the Department of Master of Computer Applications was convened on 11th July 2026 at 11:30 AM in the Department of MCA, New Horizon College of Engineering.

The meeting commenced with a warm and cordial Welcome Address delivered by Dr. Arpana Prasad, Associate Professor, Department of MCA. She welcomed the Chairperson, special invitees, external academic experts, industry representatives, alumni members, faculty members, and co-opted members of the Board. A special welcome was extended to Dr. Balaji Rajendran, Associate Director, C-DAC, Bengaluru (VTU Nominee); Dr. Jaidhar C. D., Professor, Department of Information Technology, National Institute of Technology, Suratkal; Prof. Lakshminarayana, Professor and Head, Department of MCA, East West Institute of Technology (EWIT), Bengaluru; Alumni representatives Mr. Vipul Kumar, Principal Architect, Rocket Software, Bengaluru and Mr. Melvin Vincent, Senior Customer Support Engineer, Azul Inc., Bengaluru; Industry representatives Mr. Pravin Kumar Sinha, Director, VISA, Bengaluru and Mr. Vasanthram S., Senior Program Manager, Arctic Wolf Networks, Bengaluru; Dr. Manjunatha, Principal, New Horizon College of Engineering; Dr. R. J. Anandhi, Vice Principal – Academics, New Horizon College of Engineering; Dr. Sivakumar Raju; and all the internal faculty and co-opted members. She expressed her sincere gratitude to all the members for their continued support in strengthening the academic quality and curriculum of the MCA programme.

Following the welcome address, Dr. V. Asha, Professor and Head, Department of MCA and Chairperson of the Board of Studies, felicitated the distinguished external members of the Board as a token of appreciation for their valuable association with the department and their continued contribution towards curriculum development and academic excellence.

Thereafter, Dr. V. Asha, Chairperson of the Board of Studies, proceeded with the agenda of the meeting.

AGENDA 1: VISION, MISSION AND HIGHLIGHTS OF THE MCA PROGRAMME

VISION

To emerge as a department of eminence in the field of Computer Applications in serving the Information Technology Industry and the nation by empowering students with a high degree of technical, managerial and practical competence.

MISSION

To strengthen the theoretical, practical and ethical aspects of the learning while inculcating a culture of research, innovation and practical applications amongst faculty and students.

To encourage long-term interactions between the department and the IT Industry through rich involvement of the Industry in the design of the curriculum and its hands-on implementation.

To strengthen and mould students in professional, ethical, social and environmental dimensions by encouraging participation in co-curricular and extracurricular activities.

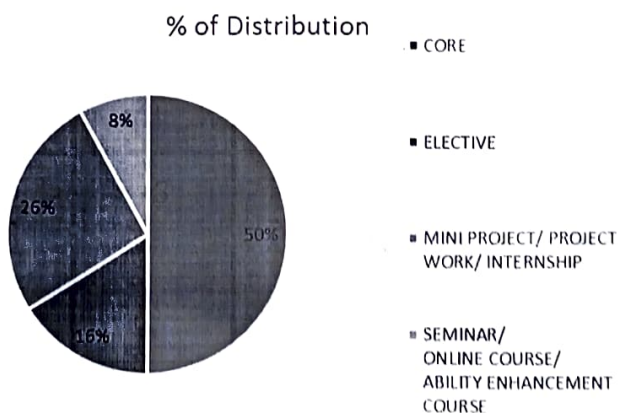
HIGHLIGHTS OF THE MCA PROGRAMME

- Academic Excellence
- Technically Strong Curriculum
- Integrated Professional Core Courses
- Lab Based Electives
- Credited and Non-Credited MOOC Courses
- Industry–Academia Collaboration
- Platforms to Showcase Technical Expertise
- Creativity and Innovation Focus
- Experienced Faculty Resources
- Advanced Learning Infrastructure

**AGENDA 2: PROPOSED SCHEME AND SYLLABUS FOR THE
AY: 2026-27, BATCH: 2026-28**

**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS
MCA DEGREE CURRICULUM – COURSE CREDIT STRUCTURE
BATCH: 2026-28: SEMESTER I TO IV**

SEMESTER	CORE	ELECTIVE	MINI PROJECT / PROJECT WORK/ INTERNSHIP	SEMINAR/ ONLINE COURSE/ ABILITY ENHANCEMENT COURSE	TOTAL CREDITS
I	20	-	-	-	20
II	12	5	2	1	20
III	8	5	7	-	20
IV	-	3	12	5	20
TOTAL	40	13	21	6	80
% of Distribution	50	16	26	8	100



DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS
SCHEME OF FIRST SEMESTER MCA PROGRAM
Scheme 2026 - AY 2026-27

SL NO	COURSE TYPE	COURSE CODE	COURSE TITLE	TEACHING & LEARNING SCHEME					EXAMINATION				CREDITS
				CI		LI	TW & SL	TOTAL HOURS/ SEM	DURATION IN HOURS	CIE MARKS	SEE MARKS	TOTAL MARKS	
				L	T	P							
1	AS/BSC	26MATC11	COMPUTATIONAL MATHEMATICS	30	30	-	30	90	3	50	50	100	3
2	MCA/PCC	26MCA12	PROBLEM SOLVING WITH C	45	-	-	45	90	3	50	50	100	3
3	MCA/PCC	26MCA13	OBJECT ORIENTED PROGRAMMING WITH JAVA	45	-	-	45	90	3	50	50	100	3
4	MCA/PCC	26MCA14	COMPUTER NETWORKS	45	-	-	45	90	3	50	50	100	3
5	MCA/IPCC	26MCA15	LINUX OPERATING SYSTEM AND SHELL SCRIPTING	30	-	30	30	90	3	50	50	100	3
6	MCA/IPCC	26MCA16	DATABASE MANAGEMENT SYSTEMS	30	-	30	30	90	3	50	50	100	3
7	MCA/PCCL	26MCAL17	PROGRAMMING WITH C LAB	-	-	45	-	45	3	50	50	100	1
8	MCA/PCCL	26MCAL18	OBJECT ORIENTED PROGRAMMING WITH JAVA LAB	-	-	45	-	45	3	50	50	100	1
TOTAL										400	400	800	20
Note: BSC - Basic Science Course, PCC - Professional Core Course, IPCC - Integrated Professional Core Course, (No SEE for lab component, only CIE), PCCL - Professional Core Course Lab CI - Classroom Instruction, LI - Laboratory Instruction, L - Lecture, T - Tutorial, P - Practical, TW & SL - Term work & Self Learning													
Research Methodology and IPR & Credited Online Courses should be mandatorily taken by the students anytime during the program, However, the marks will be included in 4th semester. Students have to qualify it for the award of master's degree													

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS
SCHEME OF SECOND SEMESTER MCA PROGRAM
Scheme 2026 - AY 2026-27

SL NO	COURSE TYPE	COURSE CODE	COURSE TITLE	TEACHING & LEARNING SCHEME					EXAMINATION				CREDITS
				CI		LI	TW & SL	TOTAL HOURS/ SEM	DURATION IN HOURS	CIE MARKS	SEE MARKS	TOTAL MARKS	
1	MCA/PCC	26MCA21	DATA STRUCTURES	45	-	-	45	90	3	50	50	100	3
2	MCA/PCC	26MCA22	ADVANCED JAVA	45	-	-	45	90	3	50	50	100	3
3	MCA/PCC	26MCA23	DESIGN AND ANALYSIS OF ALGORITHMS	45	-	-	45	90	3	50	50	100	3
4	MCA/PEC	26MCA24X	PROFESSIONAL ELECTIVES-1	45	-	-	45	90	3	50	50	100	3
5	MCA/PEC	26MCA25X	LAB BASED PROFESSIONAL ELECTIVES-1	-	-	60	-	60	3	50	50	100	2
6	MCA/PCCL	26MCAL26	DATA STRUCTURES AND ALGORITHMS LAB	-	-	45	-	45	3	50	50	100	1.5
7	MCA/PCCL	26MCAL27	ADVANCED JAVA LAB	-	-	45	-	45	3	50	50	100	1.5
8	MCA/PROJ	26MCA28	MINI PROJECT	-	-	30	30	60	3	50	50	100	2
9	MCA/AEC	26MCA29X	ABILITY ENHANCEMENT COURSE	-	-	30	-	30	2	50	50	100	1
TOTAL										450	450	900	20
Note: PCC - Professional Core Course, PEC - Professional Elective Course, PCCL - Professional Core Course Lab, AEC- Ability Enhancement Course CI - Classroom Instruction, LI - Laboratory Instruction, L - Lecture, T - Tutorial, P - Practical, TW & SL - Term work & Self Learning													

PROFESSIONAL ELECTIVES-1		
SL NO	COURSE CODE	COURSE TITLE
1	26MCA241	CLOUD COMPUTING
2	26MCA242	CYBER SECURITY AND CYBER LAW
3	26MCA243	CRYPTOGRAPHY AND NETWORK SECURITY
4	26MCA244	ARTIFICIAL INTELLIGENCE
5	26MCA245	SOFTWARE ENGINEERING AND TESTING

LAB BASED PROFESSIONAL ELECTIVES-1		
SL NO	COURSE CODE	COURSE TITLE
1	26MCA251	BUSINESS INTELLIGENCE AND DATA ANALYTICS
2	26MCA252	MOBILE APPLICATION DEVELOPMENT
3	26MCA253	COMPETITIVE PROGRAMMING WITH PYTHON
4	26MCA254	NON RELATIONAL DATABASES (NoSQL) WITH MongoDB
5	26MCA255	ASP.NET WITH C#

ABILITY ENHANCEMENT COURSES		
SL NO	COURSE CODE	COURSE TITLE
1	26MCA291	ADVANCED EXCEL FOR DATA ANALYSIS
2	26MCA292	MICROSOFT VISIO
3	26MCA293	CONTAINERIZATION TOOLS
4	26MCA294	TYPESCRIPT PROGRAMMING
5	26MCA295	PROBLEM SOLVING USING SCALA

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS
SCHEME OF THIRD SEMESTER MCA PROGRAM
Scheme 2024 - AY 2026-27

SL NO	BOARD/ COURSE	COURSE CODE	COURSE	BOS	CREDIT DISTRIBUTION				OVERALL CREDITS	CONTACT HOURS WEEKLY (THEORY)	MARKS		
					L	T	P	S			CIE	SEE	TOTAL
1	MCA/IPCC	24MCA31	MACHINE LEARNING	MCA	3	0	1	0	4	6	50	50	100
2	MCA/IPCC	24MCA32	WEB DEVELOPMENT USING FULL STACK	MCA	3	0	1	0	4	6	50	50	100
3	MCA/PEC	24MCA33X	PROFESSIONAL ELECTIVES - 2	MCA	3	0	0	0	3	4	50	50	100
4	MCA/PROJ	24MCA34	PROJECT WORK	MCA	0	0	9	0	9	18	50	50	100
TOTAL					9	0	11	0	20	34	200	200	400
Note: IPCC - Integrated Professional Core Courses, (No SEE for lab component, only CIE), PEC- Professional Elective Course, PROJ- Project Work L – Lecture, T- Tutorial, P-Practical, S - Skill Development Activities													
PROFESSIONAL ELECTIVES – 2													
SL NO	COURSE CODE	COURSE	BOS	CREDIT DISTRIBUTION				TOTAL					
				L	T	P	S						
1	24MCA331	DATA SCIENCE	MCA	3	0	0	0	3					
2	24MCA332	ETHICAL HACKING	MCA	3	0	0	0	3					
3	24MCA333	AUGMENTED REALITY AND VIRTUAL REALITY	MCA	3	0	0	0	3					
4	24MCA334	INTERNET OF THINGS	MCA	3	0	0	0	3					
5	24MCA335	UI/UX DESIGN	MCA	3	0	0	0	3					

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS
SCHEME OF FOURTH SEMESTER MCA PROGRAM
Scheme 2024 - AY 2026-27

SL NO	BOARD/ COURSE	COURSE CODE	COURSE	BOS	CREDIT DISTRIBUTION				OVERALL CREDITS	CONTACT HOURS WEEKLY	MARKS		
					L	T	P	S			CIE	SEE	TOTAL
1	MCA/PEC	24MCA41X	PROFESSIONAL ELECTIVES -3	MCA	3	0	0	0	3	3	50	50	100
2	MCA/PEC	24MCA42X	LAB BASED PROFESSIONAL ELECTIVES - 2	MCA	0	0	2	0	2	4	50	50	100
3	MCA/TS	24MCA43	TECHNICAL SEMINAR	MCA	0	0	0	2	2	4	50	50	100
4	AUD/AEC	24AUD44X	ONLINE COURSE (12 weeks)		-	-	-	3	3	-	-	-	100
5	AUD/NCMC*	24AUD45	RESEARCH METHODOLOGY AND IPR - Online		Classes and evaluation procedures are as per the policy of the online course providers.								pp
6	MCA/INT	24MCA46	INTERNSHIP	MCA	0	0	0	10	10	20	50	50	100
TOTAL					3	0	2	15	20	31	200	200	500
Note: PEC- Professional Elective Course, TS -Technical Seminar, INT - Internship, NCMC-Non Credit Mandatory Course *(Online Course) AUD/AEC – Audit Course/ Ability Enhancement Course. L – Lecture, T- Tutorial, P-Practical, S – Skill Development Activities													

PROFESSIONAL ELECTIVES - 3								
SL NO	COURSE CODE	COURSE	BOS	CREDIT DISTRIBUTION				TOTAL
				L	T	P	S	
1	24MCA411	AI ETHICS	MCA	3	0	0	0	3
2	24MCA412	DIGITAL FORENSICS	MCA	3	0	0	0	3
3	24MCA413	DESIGN THINKING AND INNOVATION	MCA	3	0	0	0	3
4	24MCA414	DIGITAL MARKETING	MCA	3	0	0	0	3
5	24MCA415	AGILE SOFTWARE DEVELOPMENT	MCA	3	0	0	0	3

LAB BASED PROFESSIONAL ELECTIVES -2								
SNO	COURSE CODE	COURSE	BOS	CREDIT DISTRIBUTION				TOTAL
				L	T	P	S	
1	24MCA421	CLOUD SERVICES MANAGEMENT	MCA	0	0	2	0	2
2	24MCA422	DEVOPS	MCA	0	0	2	0	2
3	24MCA423	BIG DATA ANALYTICS USING HP VERTICA	MCA	0	0	2	0	2
4	24MCA424	SOFTWARE TESTING USING SELENIUM	MCA	0	0	2	0	2
5	24MCA425	BLOCKCHAIN	MCA	0	0	2	0	2

**NHCE MCA PROPOSED CREDIT DISTRIBUTION IN COMPARISON
WITH VTU FOR BATCH 2026-28**

S. No	Course Category	VTU Breakup of Credits (80)	NHCE Breakup of Credits (80)
1	Professional Core Courses (PCC, BSC, PCCL)	34	26
2	Professional Elective Courses (PEC)	10	13
3	Mini Project/ Project Work / Seminar	07	11
4	Internship	10	12
5	Online Courses (PEC)	06	03
6	Integrated Professional Core Course (IPCC)	12	14
7	Ability Enhancement Course(AEC)	01	01

AGENDA 3: SALIENT FEATURES OF THE SYLLABUS-AY: 2026-27

1. Comprehensive Core and Foundation Knowledge

- Strong foundation through courses such as Computational Mathematics, Problem Solving with C, Object-Oriented Programming with Java, Computer Networks, Linux Operating System & Shell Scripting, Database Management Systems, Data Structures, Advanced Java, and Design & Analysis of Algorithms.
- Builds competencies in programming, algorithms, databases, operating systems, networking, and software development.
- *OBE Contribution:* Collectively, the core curriculum strengthens Foundation Knowledge (PO1), Problem Analysis (PO2), Development of Solutions (PO3), Modern Tool Usage (PO4) and PSO1, enabling students to analyse, design, and develop computing solutions.

2. Strong Computational Foundation

- Computational Mathematics develops mathematical reasoning, analytical thinking, numerical methods, and computational modelling required for advanced computing domains such as Artificial Intelligence, Data Analytics, and Algorithm Design.
- *OBE Contribution:* Strengthens PO1 (Foundation Knowledge), PO2 (Problem Analysis) and PSO1, providing the analytical foundation for computing applications.

3. Experiential Learning through Integrated Labs

- Every major programming course is complemented with dedicated laboratory sessions.
- Integrated Professional Core Courses (IPCC) seamlessly integrate theory with laboratory practice, promoting concept-to-application learning.
- Hands-on learning is reinforced through Programming with C, Java, Data Structures & Algorithms, and Advanced Java laboratories.
- *OBE Contribution:* Laboratory components collectively enhance Development of Solutions (PO3), Modern Tool Usage (PO4), Individual & Teamwork (PO5) while strengthening PSO1 through practical software development.

4. Lab-Based Electives in Emerging Technologies

- Specialized laboratory electives provide practical exposure in Business Intelligence & Data Analytics, Competitive Programming with Python, NoSQL Databases (MongoDB), Mobile Application Development, DevOps, Cloud Services, Blockchain, Software Testing using Selenium, and Big Data Analytics.
- Enables students to gain hands-on expertise in emerging technologies aligned with industry requirements.
- *OBE Contribution:* Strengthens PO3 (Development of Solutions), PO4 (Modern Tool Usage), PO8 (Life-long Learning) and PSO2 through innovation-driven and application-oriented learning.

5. Industry-Oriented Curriculum

- Professional electives address emerging domains including Artificial Intelligence, Machine Learning, Cloud Computing, Cyber Security, Data Science, Ethical Hacking, Internet of Things, UI/UX Design, Blockchain, DevOps, Full Stack Development, and Mobile Application Development.
- Curriculum is aligned with evolving industry expectations and technological advancements.
- *OBE Contribution:* Strengthens PO3, PO4, PO8 and PSO2, preparing graduates to develop innovative, secure, and industry-relevant software solutions.

6. Balanced Theory–Practice Curriculum

- Curriculum is designed to provide an optimal balance between theoretical knowledge and practical learning, ensuring strong conceptual understanding along with hands-on implementation skills.
- Theory Component (including Technical Seminar and Online Courses):
45 /80 Credits (56%)
- Practical Component (including Laboratory Courses, Mini Project, Project Work, and Internship): **35/80 Credits (44%)**
- The balanced credit distribution promotes experiential learning, innovation, research orientation, and industry readiness.
- *OBE Contribution:* Promotes holistic attainment of PO1–PO8 through a balanced integration of knowledge acquisition, practical application, professional competencies, and lifelong learning.

7. Project-Based Learning

- Mini Project (Semester II), Project Work (Semester III), and Internship (Semester IV) progressively develop students' ability to solve real-world problems through innovation, teamwork, and industry engagement.
- Encourages research, creativity, project planning, and professional practice.
- *OBE Contribution:* Collectively enhances PO3 (Development of Solutions), PO5 (Individual & Teamwork), PO6 (Project Management & Finance), PO7 (Ethics), PO8 (Life-long Learning) and PSO2.

8. Professional Development and Lifelong Learning

- Technical Seminar, Online Courses, Research Methodology & IPR, and Ability Enhancement Courses helps communication, research aptitude, ethical practice, and continuous professional development.
- Encourages participation in NPTEL, SWAYAM, VTU Online Courses, and industry certification programmes.
- *OBE Contribution:* Supports PO5 (Individual & Teamwork), PO7 (Ethics), PO8 (Life-long Learning) by promoting continuous learning and professional excellence.

9. Outcome-Based Curriculum Design

- OBE-driven curriculum with systematic alignment of COs, POs, PSOs, and PEOs.
- Verification of CO–PO–PSO mapping, credit structure, RBT level distribution, and assessment design for every course.
- Ensures curriculum coherence, academic quality, and compliance with AICTE, VTU, and NBA guidelines.
- *Outcome:* Strengthens constructive alignment, outcome attainment, and continuous quality improvement.

AGENDA 4: CO, PO, PSO, PEO, CREDIT AND RBT LEVEL REQUIREMENTS AND MAPPING VERIFICATION

PROGRAM OUTCOMES

S. No	Graduate Attributes	Program Outcomes (POs)
1.	PO1: Foundation knowledge	Apply knowledge of mathematics, programming logic and coding fundamentals for solution architecture and problem solving.
2.	PO2: Problem Analysis	Identify, review, formulate and analyze problems primarily focusing on customer requirements using critical thinking frameworks.
3.	PO3: Development of Solutions	Design, develop and investigate problems with an innovative approach for solutions incorporating ESG/SDG goals.
4.	PO4: Modern Tools Usage	Select, adapt and apply modern computational tools such as development of algorithms with an understanding of the limitations including human biases.
5.	PO5: Individual and Teamwork	Function and communicate effectively as an individual or a team leader in diverse and multidisciplinary groups. Use methodologies such as agile.
6.	PO6: Project Management and Finance	Use the principles of project management such as scheduling, work breakdown structure and be conversant with the principles of Finance for profitable project management.
7.	PO7: Ethics	Commit to professional ethics in managing software projects with financial aspects. Learn to use new technologies for cyber security and insulate customers from malware.
8.	PO8: Life-long Learning	Change management skills and the ability to learn, keep up with contemporary technologies and ways of working.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1	Excel in the field of Computer Applications and contribute to academia, industry and research.
PEO2	Deliver software solutions that are socially relevant and adapt quickly to emerging technologies.
PEO3	Demonstrate professional behavior by understanding ethical and communication skills to engage in lifelong learning.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1

Apply knowledge of programming, database systems, operating systems, computer networks, software engineering, and data analytics to analyze, design, and implement computing solutions for real-world applications using modern software tools and technologies.

PSO2

Design and develop innovative, secure, ethical and sustainable software solutions using data science, artificial intelligence, cloud computing, cyber security, and full-stack development to address industry requirements and societal needs.

The Program Outcomes (POs) are mapped to the Course Outcomes (COs) of each course using a **CO-PO table**. The correlation values of 3, 2, and 1 represent the degree of alignment between COs and POs, with the following labels: **High (3)**, **Medium (2)**, and **Low (1)**.

The **Course Outcomes (COs)** are articulated using the **Revised Bloom's Taxonomy (RBT)** levels to ensure their effective attainment. The course outcomes are defined across cognitive levels, ranging from **Level 1 to Level 6**, as follows:

- **Level 1** – Remember
- **Level 2** – Understand
- **Level 3** – Apply
- **Level 4** – Analyze
- **Level 5** – Evaluate
- **Level 6** – Create

The **CO-PO mapping** for each course has been thoroughly verified by both the faculty members and expert members of the Board of Studies (BoS). NHCE MCA Credit Distribution in Comparison with VTU as given in Table below was also discussed.

AGENDA 5: SUGGESTIONS AND RECOMMENDATIONS OF THE BOS MEMBERS

1. Integration of MOOC Courses

- The Board appreciated the integration of MOOC courses into the curriculum in alignment with the VTU Scheme and Outcome-Based Education (OBE).
- For Batch 2026–28, the board appreciated that the students will be encouraged to complete online certification as part of the Term Work & Self-Learning (TW & SL) learning hours. Relevant certification courses will be identified through the Course Enrichment Analysis by the respective Course Coordinators. Though the certifications will not be mandatory but this tool will specifically be helpful to the fast learners.
- The board also appreciated that for selected courses, MOOC/certification courses (e.g., CISCO Certifications and Spoken Tutorial certifications after the qualifying examination) are identified as part of the Alternate Assessment Test (AAT) component to strengthen practical and industry-relevant skills.
- The Board appreciated the Department's recommendations on completion of MOOC courses during Semester I and Semester II though the courses are part of Sem IV scheme.
- Members of the board further recommended that 8-week (30-hour) MOOCs be considered for 2 credits and 12-week MOOCs for 3 credits, with the duration explicitly specified in the syllabus.
- As per board recommendations students may be encouraged to pursue Artificial Intelligence and other emerging technology-related MOOCs to enhance industry readiness and lifelong learning competencies.

2. Inclusion of Artificial Intelligence Courses

- The Board appreciated the inclusion of Artificial Intelligence-oriented courses in the curriculum, recognizing the progressive integration of AI across multiple semesters through:
 - Artificial Intelligence as a Professional Elective in Semester II,
 - Machine Learning as a Core Course in Semester III,
 - Data Science as a Professional Elective in Semester III, and
 - AI Ethics as a Professional Elective in Semester IV.

- The Board further recommended introducing *Agentic AI* as a Lab-Based Professional Elective–I (2 Credits) in Semester II, replacing ASP.NET with C#. The Board observed that the proposed course would provide students with hands-on experience in designing and developing AI agents using Large Language Models (LLMs), prompt engineering, AI workflows, Retrieval-Augmented Generation (RAG), and agent orchestration. The course would enable students to build intelligent, autonomous AI applications and gain practical exposure to the rapidly evolving AI ecosystem, thereby enhancing industry readiness and aligning the curriculum with current and future technological trends.

3. Course Title Revision for Better Curriculum Alignment

The Board also recommended renaming the course titled *Cyber Security and Cyber Law* to *Cyber Security*. The Board observed that the revised title would be more concise, align with contemporary industry terminology, and accurately reflect the course content and learning outcomes.

4. Inclusion of Spring Boot Module in Advanced Java (26MCA22)

The Board recommended incorporating a dedicated **Spring Boot** module in **Advanced Java (26MCA22)**. The Board observed that the inclusion of Spring Boot would strengthen students' understanding of enterprise application development, RESTful web services, and modern Java frameworks, thereby enhancing industry readiness.

5. Enhancement of Business Intelligence and Data Analytics (26MCA251)

The Board recommended strengthening **Business Intelligence and Data Analytics (26MCA251)**, **Lab-Based Professional Elective–I**, by enriching the laboratory with industry-oriented business analytics applications, real-world datasets, advanced data visualization techniques, and practical case studies. The Board observed that these enhancements would improve students' analytical, visualization, and data-driven decision-making skills, aligning the course with current industry practices.

6. Inclusion of Containerization Tools in AEC

The Board appreciated the inclusion of Containerization Tools in the Ability Enhancement Course. The Board observed that this would strengthen students' practical knowledge of application deployment, DevOps practices, and cloud-based technologies, aligning the course with current industry requirements.

The finalized scheme and syllabus for Semester I and II of AY 2026-27 is prepared considering the above recommendations to align with the VTU guidelines and industry requirements. The recommendations and action taken is presented in Table 1.

Table 1: Summary of BoS Recommendations and Departmental Action Taken

Sl. No.	Board Recommendation	Action Taken by the Department
1	Introduce Agentic AI (26MCA252) as Lab-Based Professional Elective–I in Semester II, replacing ASP.NET with C#, to provide hands-on exposure to AI agents, LLMs, prompt engineering, RAG, and AI application development.	Accepted and implemented. Agentic AI (26MCA252) has been introduced as Lab-Based Professional Elective–I in Semester II, replacing ASP.NET with C#.
2	Rename Cyber Security and Cyber Law (25MCA242) as Cyber Security (26MCA242) to align the course title with current industry nomenclature.	Accepted and implemented. The course title has been revised to Cyber Security (26MCA242).
3	Incorporate a Spring Boot module in Advanced Java (26MCA22) to strengthen enterprise application development skills.	Accepted and implemented. A dedicated Spring Boot module has been incorporated into Advanced Java (26MCA22).
4	Strengthen Business Intelligence and Data Analytics (26MCA251), Lab-Based Professional Elective–I, by enriching the laboratory with industry-oriented business analytics applications, real-world datasets, advanced data visualization, and practical case studies.	Accepted and implemented. The laboratory syllabus has been enhanced with industry-oriented datasets, advanced visualization techniques, and practical case studies.

Based on the recommendations of the Board, the following Scheme and Syllabus for the Academic Year 2026-27 Batch 2026-28, Semesters I & II and Batch 2025-27, Semester III & IV have been finalized.

APPROVED SCHEME & SYLLABUS

AY: 2026-27 BATCH 2026-28

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

SCHEME OF FIRST SEMESTER MCA PROGRAM

Scheme 2026 - AY 2026-27

SL NO	COURSE TYPE	COURSE CODE	COURSE TITLE	TEACHING & LEARNING SCHEME					EXAMINATION				CREDITS
				CI		LI	TW & SL	TOTAL HOURS/ SEM	DURATION IN HOURS	CIE MARKS	SEE MARKS	TOTAL MARKS	
				L	T	P							
1	AS/BSC	26MATC11	COMPUTATIONAL MATHEMATICS	30	30	-	30	90	3	50	50	100	3
2	MCA/PCC	26MCA12	PROBLEM SOLVING WITH C	45	-	-	45	90	3	50	50	100	3
3	MCA/PCC	26MCA13	OBJECT ORIENTED PROGRAMMING WITH JAVA	45	-	-	45	90	3	50	50	100	3
4	MCA/PCC	26MCA14	COMPUTER NETWORKS	45	-	-	45	90	3	50	50	100	3
5	MCA/IPCC	26MCA15	LINUX OPERATING SYSTEM AND SHELL SCRIPTING	30	-	30	30	90	3	50	50	100	3
6	MCA/IPCC	26MCA16	DATABASE MANAGEMENT SYSTEMS	30	-	30	30	90	3	50	50	100	3
7	MCA/PCCL	26MCAL17	PROGRAMMING WITH C LAB	-	-	45	-	45	3	50	50	100	1
8	MCA/PCCL	26MCAL18	OBJECT ORIENTED PROGRAMMING WITH JAVA LAB	-	-	45	-	45	3	50	50	100	1
TOTAL										400	400	800	20
Note: BSC - Basic Science Course, PCC - Professional Core Course, IPCC - Integrated Professional Core Course, (No SEE for lab component, only CIE), PCCL - Professional Core Course Lab CI - Classroom Instruction, LI - Laboratory Instruction, L - Lecture, T - Tutorial, P - Practical, TW & SL - Term work & Self Learning													
Research Methodology and IPR & Credited Online Courses should be mandatorily taken by the students anytime during the program, However, the marks will be included in 4th semester. Students have to qualify it for the award of master's degree													

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS
SCHEME OF SECOND SEMESTER MCA PROGRAM
Scheme 2026 - AY 2026-27

SL NO	COURSE TYPE	COURSE CODE	COURSE TITLE	TEACHING & LEARNING SCHEME					EXAMINATION				CREDITS
				CI		LI	TW & SL	TOTAL HOURS/ SEM	DURATION IN HOURS	CIE MARKS	SEE MARKS	TOTAL MARKS	
				L	T	P							
1	MCA/PCC	26MCA21	DATA STRUCTURES	45	-	-	45	90	3	50	50	100	3
2	MCA/PCC	26MCA22	ADVANCED JAVA	45	-	-	45	90	3	50	50	100	3
3	MCA/PCC	26MCA23	DESIGN AND ANALYSIS OF ALGORITHMS	45	-	-	45	90	3	50	50	100	3
4	MCA/PEC	26MCA24X	PROFESSIONAL ELECTIVES-1	45	-	-	45	90	3	50	50	100	3
5	MCA/PEC	26MCA25X	LAB BASED PROFESSIONAL ELECTIVES-1	-	-	60	-	60	3	50	50	100	2
6	MCA/PCCL	26MCAL26	DATA STRUCTURES AND ALGORITHMS LAB	-	-	45	-	45	3	50	50	100	1.5
7	MCA/PCCL	26MCAL27	ADVANCED JAVA LAB	-	-	45	-	45	3	50	50	100	1.5
8	MCA/PROJ	26MCA28	MINI PROJECT	-	-	30	30	60	3	50	50	100	2
9	MCA/AEC	26MCA29X	ABILITY ENHANCEMENT COURSE	-	-	30	-	30	2	50	50	100	1
TOTAL										450	450	900	20
Note: PCC - Professional Core Course, PEC - Professional Elective Course, PCCL - Professional Core Course Lab, AEC- Ability Enhancement Course CI - Classroom Instruction, LI - Laboratory Instruction, L - Lecture, T - Tutorial, P - Practical, TW & SL - Term work & Self Learning													

PROFESSIONAL ELECTIVES-1		
SL NO	COURSE CODE	COURSE TITLE
1	26MCA241	CLOUD COMPUTING
2	26MCA242	CYBER SECURITY
3	26MCA243	CRYPTOGRAPHY AND NETWORK SECURITY
4	26MCA244	ARTIFICIAL INTELLIGENCE
5	26MCA245	SOFTWARE ENGINEERING AND TESTING

LAB BASED PROFESSIONAL ELECTIVES-1		
SL NO	COURSE CODE	COURSE TITLE
1	26MCA251	BUSINESS INTELLIGENCE AND DATA ANALYTICS
2	26MCA252	AGENTIC AI
3	26MCA253	COMPETITIVE PROGRAMMING WITH PYTHON
4	26MCA254	NON RELATIONAL DATABASES (NoSQL) WITH MongoDB
5	26MCA255	MOBILE APPLICATION DEVELOPMENT

ABILITY ENHANCEMENT COURSES		
SL NO	COURSE CODE	COURSE TITLE
1	26MCA291	CONTAINERIZATION TOOLS
2	26MCA292	ADVANCED EXCEL FOR DATA ANALYSIS
3	26MCA293	MICROSOFT VISIO
4	26MCA294	TYPESCRIPT PROGRAMMING
5	26MCA295	PROBLEM SOLVING USING SCALA

APPROVED SCHEME & SYLLABUS
AY: 2026-27 BATCH 2025-27

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS
SCHEME OF THIRD SEMESTER MCA PROGRAM
Scheme 2024 - AY 2026-27

SL NO	BOARD/ COURSE	COURSE CODE	COURSE	BOS	CREDIT DISTRIBUTION				OVERALL CREDITS	CONTACT HOURS WEEKLY (THEORY)	MARKS		
					L	T	P	S			CIE	SEE	TOTAL
1	MCA/IPCC	24MCA31	MACHINE LEARNING	MCA	3	0	1	0	4	6	50	50	100
2	MCA/IPCC	24MCA32	WEB DEVELOPMENT USING FULL STACK	MCA	3	0	1	0	4	6	50	50	100
3	MCA/PEC	24MCA33X	PROFESSIONAL ELECTIVES - 2	MCA	3	0	0	0	3	4	50	50	100
4	MCA/PROJ	24MCA34	PROJECT WORK	MCA	0	0	9	0	9	18	50	50	100
TOTAL					9	0	11	0	20	34	200	200	400
Note: IPCC - Integrated Professional Core Courses, (No SEE for lab component, only CIE), PEC- Professional Elective Course, PROJ- Project Work L – Lecture, T- Tutorial, P-Practical, S - Skill Development Activities													

PROFESSIONAL ELECTIVES - 2								
SL NO	COURSE CODE	COURSE	BOS	CREDIT DISTRIBUTION				TOTAL
				L	T	P	S	
1	24MCA331	DATA SCIENCE	MCA	3	0	0	0	3
2	24MCA332	ETHICAL HACKING	MCA	3	0	0	0	3
3	24MCA333	AUGMENTED REALITY AND VIRTUAL REALITY	MCA	3	0	0	0	3
4	24MCA334	INTERNET OF THINGS	MCA	3	0	0	0	3
5	24MCA335	UI/UX DESIGN	MCA	3	0	0	0	3

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS
SCHEME OF FOURTH SEMESTER MCA PROGRAM
Scheme 2024 - AY 2026-27

SL NO	BOARD/ COURSE	COURSE CODE	COURSE	BOS	CREDIT DISTRIBUTION				OVERALL CREDITS	CONTACT HOURS WEEKLY	MARKS		
					L	T	P	S			CIE	SEE	TOTAL
1	MCA/PEC	24MCA41X	PROFESSIONAL ELECTIVES -3	MCA	3	0	0	0	3	3	50	50	100
2	MCA/PEC	24MCA42X	LAB BASED PROFESSIONAL ELECTIVES - 2	MCA	0	0	2	0	2	4	50	50	100
3	MCA/TS	24MCA43	TECHNICAL SEMINAR	MCA	0	0	0	2	2	4	50	50	100
4	AUD/AEC	24AUD44X	ONLINE COURSE (12 weeks)		-	-	-	3	3	-	-	-	100
5	AUD/NCMC*	24AUD45	RESEARCH METHODOLOGY AND IPR - Online		Classes and evaluation procedures are as per the policy of the online course providers.								pp
6	MCA/INT	24MCA46	INTERNSHIP	MCA	0	0	0	10	10	20	50	50	100
TOTAL					3	0	2	15	20	31	200	200	500
Note: PEC- Professional Elective Course, TS -Technical Seminar, INT - Internship, NCMC-Non Credit Mandatory Course *(Online Course) AUD/AEC - Audit Course/ Ability Enhancement Course. L - Lecture, T- Tutorial, P-Practical, S - Skill Development Activities													

PROFESSIONAL ELECTIVES - 3								
SL NO	COURSE CODE	COURSE	BOS	CREDIT DISTRIBUTION				TOTAL
				L	T	P	S	
1	24MCA411	AI ETHICS	MCA	3	0	0	0	3
2	24MCA412	DIGITAL FORENSICS	MCA	3	0	0	0	3
3	24MCA413	DESIGN THINKING AND INNOVATION	MCA	3	0	0	0	3
4	24MCA414	DIGITAL MARKETING	MCA	3	0	0	0	3
5	24MCA415	AGILE SOFTWARE DEVELOPMENT	MCA	3	0	0	0	3

LAB BASED PROFESSIONAL ELECTIVES -2								
SNO	COURSE CODE	COURSE	BOS	CREDIT DISTRIBUTION				TOTAL
				L	T	P	S	
1	24MCA421	CLOUD SERVICES MANAGEMENT	MCA	0	0	2	0	2
2	24MCA422	DEVOPS	MCA	0	0	2	0	2
3	24MCA423	BIG DATA ANALYTICS USING HP VERTICA	MCA	0	0	2	0	2
4	24MCA424	SOFTWARE TESTING USING SELENIUM	MCA	0	0	2	0	2
5	24MCA425	BLOCKCHAIN	MCA	0	0	2	0	2

AGENDA 6: APPROVAL OF SCHEME & SYLLABUS

The Board of Studies members reviewed the revised scheme and syllabus, ensuring that their recommendations and suggestions were appropriately incorporated. Following the review, the members approved the modified draft for final implementation.

AGENDA 7: STAKEHOLDERS FEEDBACK AND CONSIDERATIONS

Feedback and suggestions from students, exit surveys, faculty course feedback, PTM discussions, and external expert members are systematically incorporated into BoS decisions to ensure a well-rounded and complaint-free curriculum.

- **Student Course Feedback:** Collected every academic semester for all individual courses through a feedback link provided by the Library and Information Centre, NHCE.
- **Exit Survey:** Conducted with graduating students as they leave the campus, capturing their reflections on infrastructure, curriculum, placement opportunities, and other facilities.
- **Faculty Course Feedback:** Obtained from faculty members who taught the courses during the academic semester. Inputs regarding the strengths, weaknesses, content, and delivery modes are carefully reviewed and considered.
- **Parent-Teacher Meetings (PTM):** Held twice a year, during the interim periods of odd and even semesters. The faculty coordinator documents the remarks and suggestions received during these meetings, which are then incorporated into BoS decisions.

VOTE OF THANKS

Prof. S. P. Sreeja, Sr. Assistant Professor, Department of MCA, proposed the Vote of Thanks. She expressed her sincere gratitude to the Chairperson, the VTU Nominee, Special Invitee, Subject Expert, Alumni and Industry Experts for their valuable time, insightful deliberations, and constructive recommendations. She also conveyed heartfelt thanks, to the Honourable Chairman, Dr. Mohan Manghnani, the Principal, Dr. Manjunatha, and the Vice Principal – Academics, Dr. R. J. Anandhi, for their continued guidance and support. She acknowledged the valuable presence and suggestions of Dr. Sivakumar Raju, Director – CDC, appreciated the leadership of the Chairperson, Dr. V. Asha, and thanked all the faculty members for their active participation and support. She concluded by expressing confidence that the recommendations of the Board would further strengthen the MCA curriculum and enhance its academic quality and industry relevance.

With this, the 12th Board of Studies Meeting of the Department of MCA, New Horizon College of Engineering, Bengaluru, formally concluded.

R. J. Anandhi
17/7/26


HOD-MCA

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