

## Integrated MCA Syllabus structure Level 4.5 Semester - I

Course Code	Name of Course	Course Category (As per NEP)	Teaching Scheme Hrs/Week			Credits	Evaluation Scheme				
			L	T	P		Theory		Practical		Total Marks
							CIA	ESE	INT	EXT	
CA-101 - T	Problem Solving and Programming in C	MM	02	--	--	02	15	35	--	--	50
CA-102 - P	Lab course on Programming in C and Scilab programing	MM	--	--	04	02	--	--	15	35	50
CA-103 - T	Computer Organization & Architecture	MM	02	--	--	02	15	35	--	--	50
CA-104 - P	Lab course on Computer Organization & Architecture	VSC	--	--	04	02	--	--	15	35	50
CA-105 - T	Open Elective-I	OE	02	--	--	02	15	35	--	--	50
CA-107 - OE	Open Elective-II		02	--	--	02	15	35	--	--	50
CA-108- VSEC	Web Development	SEC	--	--	04	02	--	--	15	35	50
CA-109- IKS	Indian Knowledge System	IKS	02	--	--	02	50	--	--	--	50
CA-110- AEC	Business Communication	AEC	02	--	--	02	50	--	--	--	50
CA-111- VEC	Understanding India	VEC	02	--	--	02	50	--	--	--	50
CA-112- CC	Course from College Basket (Yoga/Sports/Dance/Drama/Health wellness/NSS/Cultural activities/Fine arts)	CC	--	--	04	02	--	--	50	--	50
Total			14		16	22	210	140	95	105	550

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## Level 4.5 Semester - II

Course Code	Name of Course	Course Category (As per NEP)	Teaching Scheme Hrs/Week			Credits	Evaluation Scheme				
			L	T	P		Theory		Practical		Total Marks
							CIA	ESE	INT	EXT	
CA-151 - T	Advanced C Programming	MM	02	--	--	02	15	35	--	--	50
CA-152- P	Lab course on Advanced C Programming	MM	--	--	04	02	--	--	15	35	50
CA-153 - T	Introduction to Microcontrollers	MM	02	--	--	02	15	35	--	--	50
CA-154 - T	Hands on training in Digital Electronics	SEC	--	--	04	02	--	--	15	35	50
CA-155 - P	Statistics	MN	02	--	--	02	15	35	--	--	50
CA-156 - VSC	Laboratory course on R Programming	VSC	--	--	04	02	--	--	15	35	50
CA-157- OE	Open Elective-III	OE	02	--	--	02	15	35	--	--	50
CA-158- OE	Open Elective-IV		02	--	--	02	15	35	--	--	50
CA-156- AEC	Essentials of Business Etiquette	AEC	02	--	--	02	50	-	-	-	50
CA – 160 - VEC	Democracy, Election and Governance	VEC	02	--	--	02	50	-	-	-	50
CA– 161 - CC	Course from College Basket (Yoga/Sports/Dance/Drama/Health wellness/NSS/Cultural activities/Fine arts)	CC	--	--	04	02	--	--	50	--	50
Total			14		16	22	175	175	95	105	550

Exit option: Award of UG Certification in Bachelor of Computer Application (BCA) with 44 credits and an additional 08 credits (for either courses by Microsoft/CCNA/Salesforce/Google/AWS/Oracle/ RedHat etc or Swayam/ NPTEL/MKCL equivalent to core NSQF course or an Internship) or else Continue with Major and Minor

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## Integrated MCA Syllabus structure Level 5.0 Semester – III

Course Code	Name of Course	Course Category (As per NEP)	Teaching Scheme Hrs/Week			Credits	Evaluation Scheme				
			L	T	P		Theory		Practical		Total Marks
							CIA	ESE	INT	EXT	
CA-201 – T	Data Structures and Algorithms	MM	02	-	-	02	15	35	-	-	50
CA-202- T	Database Management Systems	MM	02	-	-	02	15	35	-	-	50
CA-203– P	Lab course on DBMS	MM	-	-	04	02	-	-	15	35	50
CA- 204 – T	Object Oriented Programming with C++	MM	02	-	-	02	15	35	-	-	50
CA-205 – VSC	Hands on training on Oops and DS	VSC	-	-	04	02	-	-	15	35	50
CA-206-FP	Field Project	FP	-	-	04	02	-	-	50	-	50
CA 207 MN	Programming with Python	MN	02	-	-	02	15	35	-	-	50
CA – 208 – MN	Lab course on Programming with Python	MN	-	-	04	02	-	-	15	35	50
CA – 209 – OE	Open Elective-V	OE	02	-	-	02	15	35	-	-	50
CA - 210 – AEC	Modern Indian Language (Hindi/ Marathi/ Sanskrit Language)	AEC	02	-	-	02	50	-	-	-	50
CA - 211 – CC	Yoga/Sports/Dance/Dra ma/Health wellness/NSS/Cultural activities/Fine arts	CC	--	--	04	02	--	--	50	--	50
Total			12		20	22	125	175	145	105	550

  
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## Level 5.0 Semester – IV

Course Code	Name of Course	Course Category (As per NEP)	Teaching Scheme Hrs/Week			Credits	Evaluation Scheme				
			L	T	P		Theory		Practical		Total Marks
							CIA	ESE	INT	EXT	
CA-251- T	Relational Database Management Systems	MM	02	--	--	02	15	35	-	-	50
CA-252- P	Lab course on RDBMS	MM	--	--	04	02	-	-	15	35	50
CA- 253 -T	Data Science	MM	02	--	--	02	15	35	-	-	50
CA-254- P	Lab course on Data Science	MM	--	--	04	02	-	-	15	35	50
CA-255- SEC	Computer Graphics and Visualization	SEC	--	02	--	02	-	-	50	-	50
CA- 256 CEP	Community Project	CEP	--	--	04	02	-	-	50	-	50
CA – 257 – MN	Operating system & Shell Programming	MN	02	--	--	02	15	35	-	-	50
CA – 258 – MN	Lab course on Shell Programming		--	--	04	02	-	-	15	35	50
CA – 259 – OE	Open Elective-VI	OE	02	--	--	02	15	35	-	-	50
CA-260- AEC	Modern Indian Language (Hindi/ Marathi/ Sanskrit Language)	AEC	02	--	--	02	50	--	--	--	50
CA-261- CC	Yoga/Sports/Dance/Dra ma/Health wellness/NSS/Cultural activities/Fine arts	CC	--	--	04	02	--	--	50	--	50
Total			10	2	20	22	110	140	195	105	550

Exit option: Award of UG Diploma in Bachelor of Computer Application (BCA) with 88 credits and an additional 08 credits (for either courses by Microsoft/CCNA/Salesforce/Google/AWS/Oracle/ RedHat etc. or Swayam/ NPTEL/MKCL equivalent to core NSQF courses or an internship) or else Continue with Major and Minor

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**Level 5.5**  
**Semester –V**

Course Code	Name of Course	Course Category (As per NEP)	Teaching Scheme Hrs/Week			Credits	Evaluation Scheme				
			L	T	P		Theory		Practical		Total Marks
							CIA	ESE	INT	EXT	
CA-301 -T	Software Engineering and Agile Technologies	MM	02	--	--	02	15	35	-	-	50
CA-302 -T	Artificial Intelligence and Machine Learning		02	--	--	02	15	35	-	-	50
CA-303 - P	Lab course on AIML		--	--	04	02	-	-	15	35	50
CA-304 - T	Computer Networking		02	--	--	02	15	35	-	-	50
CA- 305- EI	Elective 1	ME	02	--	--	02	15	35	-	-	50
CA- 306- EIP	Lab course on Elective 1		--	--	04	02	-	-	15	35	50
CA- 311 VSC	Core JAVA Programming	VSC	02	--	--	02	15	35	-	-	50
CA- 312 VSCP	Lab course on JAVA		--	--	04	02	-	-	15	35	50
CA- 313 FP	Field Project	FP	--	--	04	02	-	-	50	-	50
CA – 314 – MN	Embedded System and Internet of Things (IOT)	MN	--	02	-	02	-	-	50	-	50
CA – 315 – MN	User Interface and User Experience (UI-UX) Design		--	02	-	02	-	-	50	-	50
Total			10	4	16	22	75	175	195	105	550

**Elective 1 Options:**

Data Analytics Track	Cloud Computing Track	Cyber Security Track
Data Warehousing and Data Mining	Basics of Cloud Computing	Fundamentals of Cyber Security

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**Level 5.5**  
**Semester –VI**

Course Code	Name of Course	Course Category (As per NEP)	Teaching Scheme Hrs/Week			Credits	Evaluation Scheme				
			L	T	P		Theory		Practical		Total Marks
							CIA	ESE	INT	EXT	
CA- 351-T	Advance Database Management Systems	MM	02	--	--	02	15	35	-	-	50
CA- 352-T	Web Programming using PHP		02	--	--	02	15	35	-	-	50
CA- 353-P	Lab course on PHP		--	--	04	02	--	--	15	35	50
CA- 354-T	Software Testing Quality and Assurance		02	--	--	02	15	35	-	-	50
CA- 355-P	Lab course on STQA (On Field Project / Community Project)		--	--	04	02	--	--	15	35	50
CA – 356 – MN	Advanced JAVA Programming	MN	02	--	--	02	15	35	-	-	50
CA – 357 – MN	Lab course on Adv. JAVA		--	--	04	02	--	--	15	35	50
CA- 358-ME	Elective 2	ME	02	--	--	02	15	35	-	-	50
CA- 359-MEP	Lab course on Elective 2		--	--	04	02	--	--	15	35	50
CA- 364-OJT	On Job Training	OJT	--	--	08	04	--	--	100	--	100
Total			10		24	22	75	175	160	140	550

Exit option: Award of Bachelor of Computer Application (BCA) with multidisciplinary minor with 132 credits OR else Continue with Major and Minor

**Elective 2 Options:**

Data Analytics Track	Cloud Computing Track	Cyber Security Track
Big Data Analytics	Advanced Cloud Computing	Cyber Crime Investigation and Ethical Hacking

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## Level 6.0 IMCA

### Semester – VII

Course Code	Name of Course	Course Category (As per NEP)	Teaching Scheme Hrs/Week			Credits	Evaluation Scheme				
			L	T	P		Theory		Practical		Total Marks
							CIA	ESE	INT	EXT	
CA- 401- T	Full Stack Development	MM	04	--	--	04	30	70	-	-	100
CA- 402- P	Lab course on Full Stack Dev. using NodeJS, React		--	--	04	02	-	-	15	35	50
CA- 404- T	Mobile Application Development		04	--	--	04	30	70	-	-	100
CA- 405- P	Lab course on Mobile Application Development		--	--	04	02	-	-	15	35	50
CA- 406- T	Design Thinking		--	02	-	02	-	-	15	35	50
CA- 407- T	Prompt Engineering		04	--	--	04	30	70	-	-	100
CA- 408- ME	Elective 3	ME	02	--	--	02	15	35	-	-	50
CA- 409- MEP	Lab course Elective 3		--	--	04	02	-	-	15	35	50
Total			14	2	12	22	105	245	60	140	550

\* Bridge course for Non- Lateral Entry students.

#### Elective 3 Options:

Data Analytics Track	Cloud Computing Track	Cyber Security Track
Big Data Architectures	Web Services	Cryptography for Cyber Security

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**Level 6.0 IMCA**  
**Semester – VIII**


Course Code	Name of Course	Course Category (As per NEP)	Teaching Scheme Hrs/Week			Credits	Evaluation Scheme				
			L	T	P		Theory		Practical		Total Marks
							CIA	ESE	INT	EXT	
CA-451-T	Managerial Skills and Leadership	MM	04	--	--	04	30	70	-	-	100
CA- 452-P	Optimization Techniques		04	--	--	04	30	70	-	-	100
CA- 453-T	Green Computing		04	--	--	04	30	70	-	-	100
CA-454- RM	Research Methodology	RM	04	--	--	04	30	70	-	-	100
CA-455-ME	Elective 4	ME	04	--	--	04	30	70	-	-	100
CA-456- ME P	Lab course on Elective 4		--	--	04	02	-	-	15	35	50
CA-457- ME P	Elective 5		--	--	04	02	-	-	15	35	50
Total			20		8	24	150	350	30	70	600

Award of BCA Hon. with Multidisciplinary Minor with 176 credits or The PG Diploma may be awarded to a student provided they have earned the requisite credits in one year including on-the-job training of 04 credits during summer break, after completion of the second semester of the first year in the respective Major Subject.

Elective 4 Options:		
Data Analytics Track	Cloud Computing Track	Cyber Security Track
Deep Learning	Continues Integration/ Continues Deployment	Information Security and Audit
Elective 5 Options:		
Nosql/ MongoDB	Serverless Computing	Emerging Trends and Technologies 1

  
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**Level 6.5**  
**Semester – IX**

Course Code	Name of Course	Course Category (As per NEP)	Teaching Scheme Hrs./Week			Credits	Evaluation Scheme				
			L	T	P		Theory		Practical		Total Marks
							CIA	ESE	INT	EXT	
CA-501- T	Robotic Process Automation	MM	04	--	--	04	30	70	-	-	100
CA- 502- P	Lab course on RPA		--	--	04	02	--	--	15	35	50
CA- 503- P	Augmented Reality (AR) and Virtual Reality (VR)		--	--	04	02	--	--	15	35	50
CA- 504- ME	Elective 6	ME	04	--	--	04	30	70	-	-	100
CA- 505- ME	Lab course Elective 6		--	--	04	02	--	--	15	35	50
CA- 506- ME	Elective 7		04	--	--	04	30	70	-	-	100
CA- 507- ME	Lab course on Elective 7		--	--	04	02	--	--	15	35	50
CA- 516- RP	Research Project Work	RP	--	--	12	06	--	--	60	140	200
Total			12		28	26	90	210	120	280	700

Elective 6 Options:		
Data Analytics Track	Cloud Computing Track	Cyber Security Track
Natural Language Processing & large language models	Low Code No Code Platforms	Blockchain
Elective 7 Options:		
Emerging Trends and Technologies 2	Emerging Trends and Technologies 3	Emerging Trends and Technologies 4

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**Level 6.5**  
**Semester – X**

Course Code	Name of Course	Course Category (As per NEP)	Teaching Scheme Hrs/Week			Credits	Evaluation Scheme				
			L	T	P		Theory		Practical		Total Marks
							CIA	ESE	INT	EXT	
CA-551-MOOC1	Self-Learning Course MOOC	MOOC	02	--	--	02	15	35	-	-	50
CA-552-MOOC2	Self-Learning Course MOOC		02	--	--	02	15	35	-	-	50
CA-553-MOOC3	Self-Learning Course MOOC		02	--	--	02	15	35	-	-	50
CA-552-PR	Industrial Internship/Entrepreneurship/IPR	PROJ	--	--	24	12			200	250	450
Total			6		24	18	45	105	200	250	600

  
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## Basket: Open Elective (OE)

Department of AI & DS		
OE-1	OE-2	OE-3
24UAIL304 /24UAIP304 A: DMS administration	24UAIL405 A: Data Security & Privacy	24UAIL506 A: AI & ML
24UAIL304/24UAIP304 B: Analytics using Data Science	24UAIL405 B: Design Thinking	24UAIL506 B: AR & VR applications in Industry
24UAIL304 /24UAIP304 C: Gen AI	24UAIL405 C: Social Network analysis	24UAIL506 C: Deep Neural Network
24UAIL301/ 24UAIP301: Data Engineering		

Department of Information Technology		
OE-1	OE-2	OE-3
24UIT304A Software engineering and development	24UIT405A Design and Analysis of Algorithms	24UIT505A Big data analytics and R Programming
24UIT304B Data Structures	24UIT405B Deep Learning	24UIT505B Internet of Things
24UIT304C Statistics for Engineers	24UIT405C Android and IOS app development	24UIT505C Cryptocurrency and block chain

Department of Mechanical Engineering		
OE-1	OE-2	OE-3
24UAI304 A Non-conventional Energy System	24UME405A Mathematical Modelling	24UME505A Technology and Financial Management
24UAI304 B Solar Energy	24UME405B Advance Excel	24UME505B Product Design and Development
24UAI304 C Product Development	24UME405C Power BI	24UME505C Process Planning & Management

Department of E&TC		
OE-1	OE-2	OE-3
24UET304-A Electromagnetics wave propagation and Antenna theory	24UET403-A Network Analysis	24UET502- A Wireless Sensor Networks
24UET304-B Digital Image Processing	24UET403-B ES and RTOS	24UET502- B Speech and video signal processing
24UET304-C Electronics and Electrical Engineering	24UET403-C Mechatronics	24UET502-C Renewable energy sources and Applications

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Department of IMBA					
Sr. No.	Course Code	Course Name	Credits		
			TH	PR	Total
Sem I	MM01	Principles of Management	02	00	02
	AEC01	Business Communication I	02	00	02
	MMM02	Principles of Marketing	02	00	02
Sem II	MMH05	Organizational Behavior	02	00	02
	AEC02	Business Communication II	02	00	02
	MMF05	Business Accounting	02	00	02

Sr. No.	Course Code	Course Name	Credits		
			TH	PR	Total
Sem III	MMM07	Sales & Distribution Management	02	00	02
	MM08	Entrepreneurship and Startup Ecosystem	02	00	02
	MMH07	Human Resource Management Functions & Practices	02	00	02
Sem IV	MNM03	Employee Recruitment and Record Management	02	00	02
	MMM10	Retail Management	02	00	02
	MMF10	Banking and Finance	02	00	02

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## List of Open Elective (OE) Courses offered to other Disciplines / Faculty

Department of Integrated MCA							
OE-1		OE-2		OE-3		OE-4	
Course code	Subject Name	Course code	Subject Name	Course code	Subject Name	Course code	Subject Name
CA -107-OE	Web Designing	CA-157T-OE / CA-157-OE	Data Science	CA-208T-OE / CA-208P- OE	E-Commerce & Digital Marketing	CA-208-OE	Prompt Engineering & Generative AI
CA -108T-OE / CA -108P-OE	Database Management System	CA-158P-OE	Web Programming using PHP	CA-209T-OE	Green Computing	CA-209-OE	Green Computing

  
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Type of Course	Abbreviations
Major (Core) Subject comprising Mandatory	MM
Minor Subject	MN
Department Specific Core	DSC
School Specific Core	SSC
Indian Knowledge System	IKS
Board of Studies	BoS
Ability Enhancement Courses	AEC
Value Education Courses	VEC
Co-curricular Courses	CC
Vocational and Skill Enhancement Courses	VSEC
Vocational Skill Courses	VSC
Skill Enhancement Courses	SEC
Open Elective	OE
Generic Elective	GE
Program Core	PCC
Basic Science	BSC
Field Project	FP
Program Elective	PEC
On-job Training	OJT
Entrepreneurship, Economics and Management	EEM

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