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**Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur**  
**Board of Studies (Computer Science)**  
**Syllabus**  
**of**  
**M. Sc. (Information Technology)**  
**Choice Based Credit System (Semester Pattern)**  
**wef. 2023-24 as per NEP 2020**

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**Pre-requisites to enrol for the M. Sc. (Information Technology) Programme:**

The student who has completed the B. Sc. Course with Computer Science as one of the optional subject or Bachelor of Computer Application (BCA) or B. Sc. (IT) or B. Sc. (Data Science) with not less than 45% of aggregate marks (40% in case of student from reserved category) or equivalent CGPA from any of the recognised university is eligible to enroll for M. Sc. (Information Technology) Part I (Semester I). However, the student who has completed four-year B. Sc. course [B. Sc. (Honours)/ (Research) as per NEP- 2020] with Computer Science/Information Technology/Data Science as the major subject or Bachelor of Computer Application (BCA) with not less than 45% of aggregate marks (40% in case of student from reserved category) or equivalent CGPA from any of the recognised university is eligible to enrol directly to M. Sc. (Information Technology) Part II (Semester III).

**Credit distribution structure for two years Post Graduate Programme in Information Technology\***

Year (2 Yr PG)	Level	Sem. (2 Yr)	Major		RM	OJT/FP	RP	Cum. Cr.	Degree	
			Mandatory	Electives						
I	6.0	Sem. I	12 (3 theory + 2 Practical)	4	4			20	One Year PG Diploma	
		Sem. II	12 (3 theory + 2 Practical)	4		4		20		
Cum. Cr. For PG Diploma/ I year of PG			24	8	4	4	-	40		
Exit option: One Year PG Diploma 40 credits										
II	6.5	Sem. III	12 (3 theory + 2 Practical)	4			4	20	PG Degree After 3 Yr UG or PG degree after 4-Ys UG	
		Sem. IV	12 (3 theory + 2 Practical)	4			6	22		
Cum. Cr. For II year of PG			24	8			10	42		
Cum. Cr. For 2 year of PG degree			48	16	4	4	10	82		

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**Semester I**

S N	Course Category	Name of Course	Course Code	Teaching Scheme (hrs.)			Total Credit	Examination Scheme								
				(Th)	TU	P		Theory				Practical				
								Exam Hrs.	SEE	CIE	Mi n.	SEE	CI E	Mi n.	Total	
1	DSC	Artificial Intelligence	MIT1T01	4	-	-	4	3	80	20	40	-	-	-	100	
2	DSC	Cyber Security	MIT1T02	4	-	-	4	3	80	20	40	-	-	-	100	
3	DSE	Elective 1	MIT1T03	4	-	-	4	3	80	20	40	-	-	-	100	
4	RM	Research Methodology	MIT1T04	4	-	-	4	3	80	20	40	-	-	-	100	
5	DSC	Practical Based on Paper MIT1T01 and MIT1T02	MIT1P01	-	-	6	3	-	-	-	-	50	50	50	100	
6	DSC	Practical Based on Paper MIT1T03 and MIT1T04	MIT1P02	-	-	6	3	-	-	-	-	50	50	50	100	
<b>Total</b>				16	-	12	22		320	80		10 0	10 0		600	

CIE = Continuous Internal Evaluation and SEE = Semester End Examination

**Semester II**

S N	Course Category	Name of Course	Course Code	Teaching Scheme (hrs.)			Total Credit	Examination Scheme								
				(Th)	TU	P		Theory				Practical				
								Exam Hrs.	SEE	CIE	Mi n.	SEE	CIE	Mi n.	Total	
1	DSC	Cloud Computing	MIT2T05	4	-	-	4	3	80	20	40	-	-	-	100	
2	DSC	Machine Learning	MIT2T06	4	-	-	4	3	80	20	40	-	-	-	100	
3	DSE	Elective 2	MIT2T07	4	-	-	4	3	80	20	40	-	-	-	100	
4	OJT	Apprenticeship/Mini Project (Related to DSC)	MOJ2P01	-	-	8	4	3	-	-	-	50	50	50	100	
5	DSC	Practical Based on Paper MIT2T05 and MIT2T06	MIT1P03	-	-	6	3	-	-	-	-	50	50	50	100	
6	DSC	Practical Based on Paper MIT2T07	MIT1P04	-	-	6	3	-	-	-	-	50	50	50	100	
<b>Total</b>				12	-	20	22		240	60		150	150		600	

  
  
  


### Semester III

S N	Course Category	Name of Course	Course Code	Teaching Scheme (hrs.)			Total Credit	Examination Scheme										
				(Th)	TU	P		Theory				Practical						
								Exam Hrs.	SEE	CIE	Min.	SEE	CIE	Min.	Total			
1	DSC	Advanced Software Engineering	MIT3T08	4	-	-	4	3	80	20	40	-	-	-	-	100		
2	DSC	Network Security	MIT3T09	4	-	-	4	3	80	20	40	-	-	-	-	100		
3	DSC	Internet of Things (IoT)	MIT3T10	4	-	-	4	3	80	20	40	-	-	-	-	100		
4	DSE	Elective 3	MIT3T11	4	-	-	4	3	80	20	40	-	-	-	-	100		
5	RP	Research Project/ Dissertation (Core)	MRP3P01	-	-	8	4	-	-	-	-	50	50	50	50	100		
6	DSC	Practical Based on Paper MIT3T08, MIT3T09, MIT3T10 and MIT3T11	MIT1P05	-	-	4	2	-	-	-	-	50	50	50	50	100		
<b>Total</b>				16	-	12	22		320	80		100	100			600		

## Semester IV

S N	Course Category	Name of Course	Course Code	Teaching Scheme (hrs.)			Total Credit	Examination Scheme							
				(Th)	TU	P		Theory				Practical			
				Exam Hrs.	SEE	CIE	Mi n.	SEE	CIE	Mi n.	Total				
1	DSC	Big Data Analytics	MIT4T12	4	-	-	4	3	80	20	40	-	-	-	100
2	DSC	Block Chain Technology	MIT4T13	4	-	-	4	3	80	20	40	-	-	-	100
3	DSC	Deep Learning	MIT4T14	4	-	-	4	3	80	20	40	-	-	-	100
4	DSE	Elective 4	MIT4T15	4	-	-	4	3	80	20	40	-	-	-	100
5	RP	Research Project/ Dissertation (Core)	MRP4P02	-	-	12	6	-	-	-	-	100	100	100	200
<b>Total</b>				16	-	12	22		320	80		100	100		<b>600</b>

**Total Credits for Four Semesters (Two-Year Course): = 88**

**Total Marks for Four Semesters (Two Year Course): = 2400**

### Abbreviations:

**DSC:** Discipline Specific Course, **DSE:** Discipline Specific Elective **SEE:** Semester End Examination, **CIE:** Continuous Internal Evaluation, **OJT:** On the Job Training (Internship/Apprenticeship), **FP:** Field Project, **RM:** Research Methodology, **RP:** Research Project

n, OJT: On the Job Training (Internship/Apprenticeship), FP: Field  
y, RP: Research Project

**Elective papers:**

In addition to the mandatory papers, the student has to opt for ONE elective paper in each semester from the basket of elective papers mentioned in the following table.

**Basket for Elective Courses (4 Credits each)**

Semester	Course Category	Name of the course	Course Code
I	Elective 1	a) PHP b) Discrete Mathematics c) Equivalent MOOC course	MIT1T03
II	Elective 2	a) ASP.NET b) Data Mining c) Equivalent MOOC course	MIT2T07
III	Elective 3	a) Neural Network b) Computer Vision c) Equivalent MOOC course	MIT3T11
IV	Elective 4	a) Reinforcement Learning b) Cyber Forensics c) Equivalent MOOC course	MIT4T15

The students can opt either the elective paper taught in the department in offline mode or any other equivalent online course of at least 4 credits offered by MOOC or any other such platform. The student should submit the passing certificate to the College in order to include the marks in the mark sheet. **The MOOCs which is identical to courses offered in this scheme of M.Sc. Information Technology (in terms of contents) and are accessible to the student shall not be allowed for credit transfer.**

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*Antony* *Abdullah* *S* *(S)*