



**Atal Bihari Vajpayee-Indian Institute of Information Technology and Management
Gwalior-474015 (MP)**

(An Institute of National Importance under Ministry of Education, Govt. of India)

Integrated Postgraduate in Information Technology (B.Tech. + M.Tech.) (211 credits)

SEMESTER -1	Sl no	Course Code	Subjects	Credits	L-T-P
	1	EE101	Fundamentals of Electrical and Electronics	4	3-0-2
	2	ES101	Engineering Physics	4	3-0-2
	3	ES102	Engineering Mathematics	4	3-1-0
	4	EE102	Engineering Design Principles	3	2-0-2
	5	IT101	Principles of Computer Programming	4	3-0-2
	6	HS101	Freshman Skills	2	2-0-0
	7	HS102	Sports and Physical Education	2	0-1-2
			Total	23 Credits	

SEMESTER -2	Sl no	Course Code	Subjects	Credits	L-T-P
	1	EE103	Digital Electronics	4	3-0-2
	2	ES103	Probability and Statistics	4	3-1-0
	3	IT102	Data Structures	4	3-0-2
	4	EE104	Hardware Workshop	3	2-0-2
	5	IT103	Object Oriented Programming	4	3-0-2
	6	HS103	Ecology and Environment Sciences	2	2-0-0
	7	CS104	Mobile Application Technologies	2	0-1-2
			Total	23 credits	
		MO101	MOOC-1 (Optional in summer)	2/3	

EXIT AFTER YEAR – 1.

Certificate in Engineering Sciences (46 credits)

SEMESTER -3	Sl no	Course Code	Subjects	Credits	L-T-P
	1	HS201	Indian Culture, Ethics and Moral Values	2	2-0-0
	2	IT201	Discrete Structures	4	3-1-0
	3	IT202	Computer Organization and Architecture	4	3-0-2
	4	IT203	Design and Analysis of Algorithms	4	3-0-2
	5	IT204	Data Communications	4	3-0-2
	6	IT205	Database Systems	4	3-0-2
			Total	22 credits	

SEMESTER -4	Sl no	Course Code	Subjects	Credits	L-T-P
	1	MS619	Entrepreneurship and Innovation	2	2-0-0
	2	IT206	Theory of Computation	3	3-0-0
	3	IT207	Operating Systems	4	3-0-2
	4	IT208	Computer Networks	4	3-0-2
	5	EE201	Signals and Systems	4	3-1-0
	6	IT209	Graph Theory	4	3-0-2
			Total	21 credits	
		MO201	MOOC-2 (Optional in summer)	2/3-0-0	

EXIT AFTER YEAR - 2

Diploma in Information Technology (89 credits)

SEMESTER -5	Sl no	Course Code	Subjects	Credits	L-T-P
	1	MS603	Business Economics	3	3-0-0
	2		Multidisciplinary/Open Elective- 1	3	3-0-0
	3	IT308	Nature Inspired computing	3	3-0-0
	4	IT302	Compiler Design	4	3-0-2
	5	IT303	Computer Graphics	4	3-0-2
	6	IT304	Trustworthy Artificial Intelligence	4	3-0-2
			Total	21 credits	

SEMESTER -6	Sl no	Course Code	Subjects	Credits	L-T-P
	1	EN301	Art of Engineering Research	2	2-0-0
	2		Multidisciplinary/Open Elective- 2/MOOC 1 ^s	3	3-0-0
	3	IT0XX	Department Elective-1	3	3-0-0
	4	IT305	Game Theory	3	3-0-0
	5	IT306	Machine Learning	4	3-0-2
	6	IT307	Wireless Communication Technologies	4	3-0-2
			Total	19 credits	

BTech Project allocation to be done during 6th Semester

^s MOOC 1 can also be taken in summer after 2nd semester if the student wishes to finish it earlier.

EXIT AFTER YEAR - 3

B.Sc. in Information Technology (129 credits)

SEMESTER -7	Sl no	Course Code	Subjects	Credits	L-T-P
	1		Multidisciplinary/Open Elective- 3/MOOC2 ^s	3	3-0-0
	2	IT0XX	Department Elective -2	3	3-0-0
	3	IT404	Software Engineering	4	3-0-2
	4	IT401	Cloud Computing	3	3-0-0
	5	IT402	Digital Image Processing	4	3-0-2
	6	IT403	Cryptography	3	3-0-0
	7	IT399	BTech Summer Project	6	0-0-12
			Total	26 credits	

^s MOOC 2 can also be taken in summer after 4th semester if the student wishes to finish it earlier

SEMESTER -8	Sl no	Course Code	Subjects	Credits	L-T-P
	1	IT408	Deep Learning	3	3-0-0
	2	IT405	Data Mining	4	3-0-2
	3.	IT406	IoT and Applications	3	3-0-0
	4.	IT407	Mobile Computing	3	3-0-0
	5.	IT409	Blockchain Technologies	3	3-0-0
	6		Multidisciplinary/Open Elective- 4/MOOC 3	3	3-0-0
			Total	19 credits	

Colloquium of 3 credits in summer semester (MOOC, NPTEL etc. in place of colloquium)

EXIT AFTER YEAR - 4

B.Tech.[§]/B.Sc. (Hons.)[#] in Information Technology (174 credits)

SEMESTER -9	Sl no	Course Code	Course	Credits	L-T-P
	1.	IT501	Natural Language Processing	4	3-0-2
	2.	IT0XX	Department Elective -3	3	3-0-0
	3.	IT498	Colloquium (Based on industrial training)/MOOC	3	0-0-6
	4.	IT598	MTech Thesis – Part 1	12	0-0-24
	Total			22 credits	

SEMESTER -10	Sl no	Course	Course	Credits	L-T-P
	1.	IT0XX	Department Elective – 4/MOOC 4	3	3-0-0
	2.	IT599	MTech Thesis – Part 2	12	0-0-24
	Total			15 credits	

FINAL EXIT AFTER YEAR – 5

B.Tech. + M.Tech. in Information Technology (211 credits)

NOTE-1:

[§] **B.Tech. in Information Technology:** If a candidate is allowed for an early exit after 4th year in the beginning of 4th year or termed as Planned Exit. In such a case the course structure is different from the above from 7th Semester. Please refer to the course structure of B.Tech. in Information Technology 7th semester onwards.

[#] **B.Sc (Honours) in Information Technology:** If a candidate opts for an abrupt exit after 4th year without exercising an option for exit in the beginning of 3rd year or termed as Abrupt Exit. In such a case the student exits with B.Sc. in Information Technology.

Minor in Information Technology (Total 23 credits required)

Sl no	Code	Courses	Credits	L-T-P
1	IT207	Operating System	4	3-0-2
2	IT208	Computer Networks	4	3-0-2
3	IT404	Software Engineering	4	3-0-2
4	IT205	Database Systems	4	3-0-2
5	IT401	Cloud Computing	4	3-0-2
6	IT0XX	IT Elective Courses	3	3-0-0
Total			23 Credits	

B.Tech. in Information Technology - 7th Semester onwards

(For students allowed for Early exit from IMT/IMG programs)

SEMESTER -7	Sl no	Course Code	Subjects	Credits	L-T-P
	1		Multidisciplinary/Open Elective- 3/MOOC 2 ^s	3	3-0-0
	2	IT0XX	Department Elective -2	3	3-0-0
	3	IT404	Software Engineering	4	3-0-2
	4	IT401	Cloud Computing	3	3-0-0
	5	IT402	Digital Image Processing	4	3-0-2
	6	IT403	Cryptography	3	3-0-0
	7	IT498	Colloquium (Based on industrial training)/MOOC 3	3	0-0-6/
			Total	23 credits	

^s MOOC 2 can also be taken in summer after 4th semester if the student wishes to finish it earlier

SEMESTER -8	Sl no	Course Code	Subjects	Credits	L-T-P
	1	IT499	BTech Project/Internship	12	0-0-24
	2	IT0XX	Department Elective – 3/MOOC 4	3	3-0-0
			Total	15 credits	

FINAL EXIT AFTER YEAR - 4

B.Tech. in Information Technology (167 credits)

Elective courses

1. Visual Information Processing

Sl.No	Course Name	Code	L-T-P	Credits
1	Computer Vision	IT001	3-0-0	3
2	Digital Signal Processing	IT002	3-0-0	3
3	Pattern Recognition	IT003	3-0-0	3
4	Information Retrieval and Extraction.	IT004	3-0-0	3
5	Human Computer Interaction	IT005	3-0-0	3
6	Digital Video Processing	IT006	3-0-0	3
7	Advanced Machine Learning	IT007	3-0-0	3
8	Multimedia Processing	IT008	3-0-0	3
9	Digital Watermarking	IT009	3-0-0	3
10	Applied Image Processing	IT010	3-0-0	3

2. Communication and Networks

Sl.No	Course Name	Code	L-T-P	Credits
1	Cognitive Radio	IT011	3-0-0	3
2	Next Generation Networks	IT012	3-0-0	3
3	Queuing Theory	IT013	3-0-0	3
4	Network design and Optimization	IT014	3-0-0	3
5	Advanced Wireless Communications	IT015	3-0-0	3
6	Multimedia Networks	IT016	3-0-0	3
7	Industrial IoT Communication	IT017	3-0-0	3
8	Detection and Estimation Theory	IT018	3-0-0	3

9	Distributed Systems	IT019	3-0-0	3
10	Information Theory and Coding	IT020	3-0-0	3
11	Convex Optimization	IT021	3-0-0	3

3. Information Security

Sl.No	Course Name	Code	L-T-P	Credits
1	Digital Watermarking and Steganalysis	IT022	3-0-0	3
2	Cryptography and Network Security	IT023	3-0-0	3
3	Distributed System Security	IT024	3-0-0	3
4	Cyber Security and Laws	IT025	3-0-0	3
5	Advanced cryptography	IT026	3-0-0	3
6	Information Security and Secure Coding	IT027	3-0-0	3
8	Malware Analysis	IT028	3-0-0	3
9	Formal methods for Security Verifications	IT029	3-0-0	3
10	IoT and its security	IT030	3-0-0	3
11	Blockchain Technologies	IT031	3-0-0	3

4. Computing and Data Sciences

Sl.No	Course Name	Code	L-T-P	Credits
1	Convex Optimization	IT032	3-0-0	3
2	Parallel and Concurrent Programming	IT033	3-0-0	3
3	Scientific Computing and Numerical	IT034	3-0-0	3
4	Optimization Techniques	IT035	3-1-0	4
5	Big Data Analytics	IT036	3-0-0	3
6	Integrated Circuit Technology	IT037	3-0-2	4
7	Program Analysis Verification and Testing	IT038	3-0-0	3
8	Competitive Programming	IT039	3-0-0	3
9	Microprocessor and Interfacing	IT040	3-0-2	4
10	Generative Artificial Intelligence	IT-719	3-0-0	3
11	Large Language Models	IT-720	3-0-0	3

NOTE-1:

[§] **BTech. in Information Technology:** If a candidate opts for an early exit after 4th year in the beginning of 3rd year or termed as Planned Exit.

[#] **BSc (Honours) in Information Technology:** If a candidate opts for an abrupt exit after 4th year without exercising an option for exit in the beginning of 3rd year or termed as Abrupt Exit. In such a case the student exits with BSc. in Information Technology.