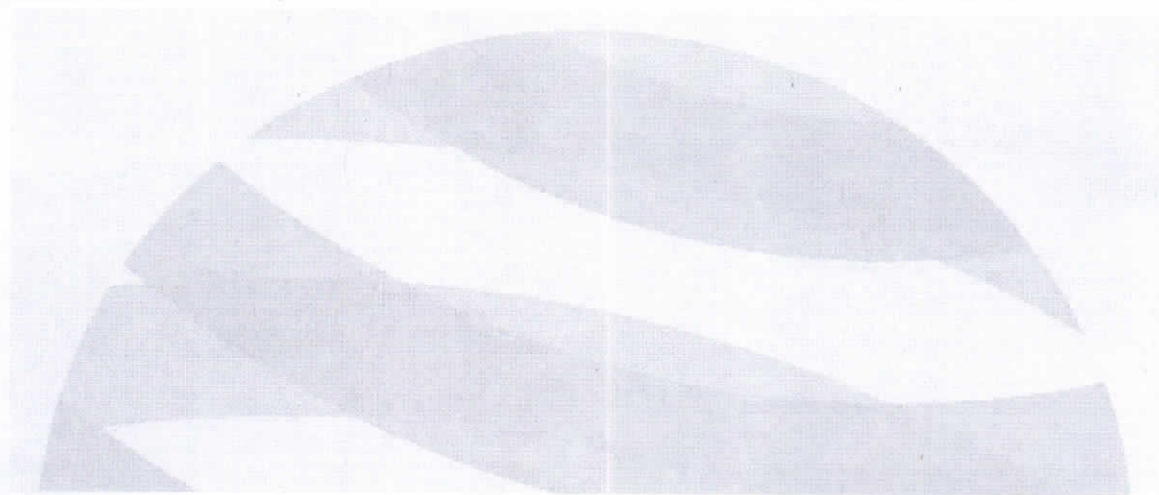# INVERTIS
UNIVERSITY BAREILLY
BUILDING VIBRANT PERSONALITIES

COURSE STRUCTURE
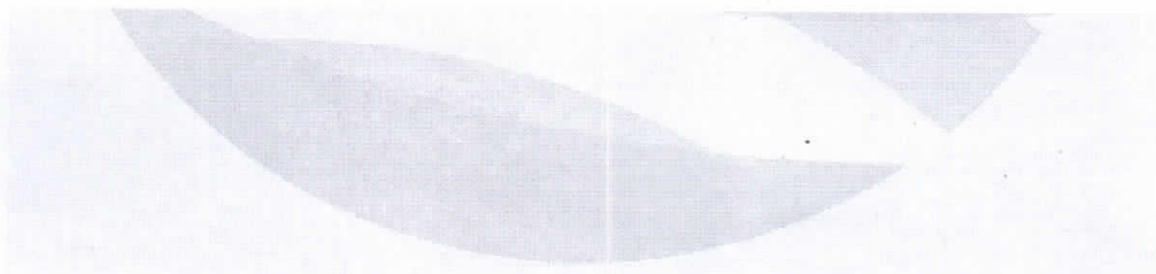
DEPARTMENT OF AGRICULTURE

NAAC CRITERIA 1.2.2

INVERTIS UNIVERSITY
BAREILLY

INVERTIS
UNIVERSITY BAREILLY

Established by Govt. of U.P. u/s 2F of UGC Act, 1956 vide U.P. Act 22 of 2010.

Evaluation Scheme & Syllabus

Of

Bachelor of (Hons.) Agriculture
(I Year)

(w.e.f. Academic Session 2018-19)

Department of Agriculture

INVERTIS UNIVERSITY - INVERTIS VILLAGE

Bareilly-Lucknow NH-24, Bareilly

Programme Outcomes of B.Sc. (Hons.) agriculture:

After completion of the program of B.Sc. in (Hons.) Agriculture, every student will know the following attributes:

PO1: Agriculture scenario of India and world.

PO2: They will know the crops, weeds, insect and diseases.

PO3: The will learn different resources both natural and artificial and their rational utilization

PO4: They will know seed to seed process i.e. production to marketing and value addition

PO5: They will learn marketing skill and commercial management of agricultural farms.

PO6: They will gain knowledge both on agriculture enterprises and related enterprises

PO7: They will have good communication skills and personality

PO8: They will be eligible to start their own agricultural based business or industries

PO9: They will have good knowledge of seeds and their production techniques

Discipline-wise Courses

S.No	Course Code	Course Title	Credit Hours
Agronomy			
1.	**BAG 106**	Fundamentals of Agronomy	4(3+1)
3.	**BAG 301**	Crop Production Technology – I (*Kharif* crops)	2(1+1)
4.	**BAG 409**	Introductory Agro-meteorology & Climate Change	2(1+1)
5.	**BAG 401**	Crop Production Technology – II (*Rabi* crops)	2(1+1)
6.	**BAG 407**	Farming System & Sustainable Agriculture	1(1+0)
7.	**BAG 591**	Practical Crop Production - I (*Kharif* crops)	2(0+2)
8.	**BAG 507**	Geoinformatics and Nanotechnology and Precision Farming	2(1+1)
9.	**BAG 010**	Weed Management	3(2+1) *
10.	**BAG 691**	Practical Crop Production - II (*Rabi* crops)	2(0+2)
11.	**BAG 607**	Principles of Organic Farming	2(1+1)
12.	**BAG 601**	Rainfed Agriculture & Watershed Management	2(1+1)
13.	**BAG 011**	System Simulation and Agro-advisory	3(2+1) *
Plant Breeding & Genetics			
14.	**BAG 201**	Fundamentals of Genetics	3(2+1)
15.	**BAG 302**	Fundamentals of Plant Breeding	3(2+1)
16.	**BAG 406**	Principles of Seed Technology	3(1+2)
17.	**BAG 003**	Commercial Plant Breeding	3(1+2)*
18.	**BAG 506**	Crop Improvement-I (*Kharif* crops)	2(1+1)
19.	**BAG 606**	Crop Improvement-II (*Rabi* crops)	2(1+1)
20.	**BAG 008**	Micro propagation Technologies	3(1+2)*
Soil Science & Agricultural Chemistry			
21.	**BAG 103**	Fundamentals of Soil Science	3(2+1)
22.	**BAG 404**	Problematic soils and their Management	2(2+0)
23.	**BAG 502**	Manures, Fertilizers and Soil Fertility Management	3(2+1)
Entomology			
24.	**BAG 207**	Fundamentals of Entomology	4(3+1)
26.	**BAG 006**	Biopesticides & Biofertilizers	3(2+1)*
27.	**BAG 504**	Pests of Crops and Stored Grain and their Management	3(2+1)
28.	**BAG 605**	Management of Beneficial Insects	2(1+1)
Agricultural Economics			
29.	**BAG 205**	Fundamentals of Agricultural Economics	2(2+0)
30.	**BAG 303**	Agricultural Finance and Co-Operation	3(2+1)
31.	**BAG 408**	Agricultural Marketing Trade & Prices	3(2+1)
32.	**BAG 001**	Agribusiness Management	3(2+1)*
33.	**BAG 608**	Farm Management, Production & Resource Economics	2(1+1)

Agricultural Engineering

34.	**BAG 203**	Soil and Water Conservation Engineering	2(1+1)
35.	**BAG 305**	Farm Machinery and Power	2(1+1)
36.	**BAG 403**	Renewable Energy and Green Technology	2(1+1)
37.	**BAG 602**	Protected Cultivation and Secondary Agriculture	2(1+1)

Plant Pathology

38.	**BAG 206**	Fundamentals of Plant Pathology	4(3+1)
39.	**BAG 503**	Diseases of Field and Horticultural Crops and their Management-I	3(2+1)
40.	**BAG 603**	Diseases of Field and Horticultural Crops and their Management-II	3(2+1)
41.	**BAG 501**	Principles of Integrated Pest and Disease Management	2(1+1)

Horticulture

42.	**BAG 101**	Fundamentals of Horticulture	2(1+1)
43.	**BAG 306**	Production Technology for Vegetables and Spices	2(1+1)
44.	**BAG 405**	Production Technology for Fruit and Plantation Crops	2(1+1)
45.	**BAG 402**	Production Technology for Ornamental Crops, MAP and Landscaping	2(1+1)
46.	**BAG 009**	Hi-tech. Horticulture	3(2+1)*
47.	**BAG 004**	Landscaping	3(2+1)*
48.	**BAG 604**	Post-harvest Management and Value Addition of Fruits and Vegetables	2(1+1)

Food Science & Technology

49.	**BAG 609**	Principles of Food Science & Nutrition	2(2+0)

Agricultural Extension and Communication

50.	**BAG 110**	Rural Sociology & Educational Psychology	2(2+0)
51.	**BAG 208**	Fundamentals of Agricultural Extension Education	3(2+1)
52.	**BAG 209**	Communication Skills and Personality Development	2(1+1)
53.	**BAG 505**	Entrepreneurship Development and Business Communication	2(1+1)
54.	**BAG 012**	Agricultural Journalism	3(2+1)*

Biochemistry / Physiology / Microbiology/ Environmental Sciences (Basic Science)

55.	**BAG 204**	Fundamentals of Crop Physiology	2(1+1)
56.	**BAG 202**	Agricultural Microbiology	2(1+1)
57.	**BAG 307**	Environmental Studies & Disaster Management	3(2+1)
58.	**BAG 102**	Fundamentals of Plant Biochemistry and Biotechnology	3(2+1)
	BAG104	Introduction to Forestry	2 (1+1)

Statistics, Computer Application and I.P.R.

59.	**BAG 308**	Statistical Methods	2(1+1)
60.	**BAG 304**	Agri-Informatics	2 (1+1)
61.	**BAG 508**	Intellectual Property Rights	1(1+0)

Animal Production

62.	**BAG309**	Livestock and Poultry Management	4(3+1)
Language			
63.	**BAG 105**	Comprehension & Communication Skills in English	2(1+1)
Remedial Courses			
64.	**BAG 107**	Introductory Biology	2(1+1)
65.	**BAG 108**	Elementary Mathematics	2(2+0)
2.	**BAG 109**	Agricultural Heritage	1(1+0)
Non-Gradial Courses			
	BAG 158	NSS/NCC/Physical Education & Yoga Practices	2(0+2)
	BAG 111	Human Values & Ethics	1(1+0)
*: Elective course, 2(1+1)= 2 lecture per week (1 for lecture and 1 for practical)			

Semester: 7th

BAG751	**Rural Agricultural Work Experience and Agro-industrial Attachment (RAWE &AIA)**			**MM**
	Activities	No. of weeks	Credit hours	100
	General Orientation & On campus training by different faculties	1	14	
	Village attachment	8		
	Unit attachment in Univ./ College. KVK/ Research Station Attachment	5		
	Plant clinic	2	2	
	Agro-Industrial Attachment	3	4	
	Project Report Preparation, Presentation and Evaluation	1		
	Total weeks for RAWE & AIA	**20**	**20**	**100**

Semester: 8th

Subject Code	**Title of the module (ELP PROGRAMME)**	**Credits**
BAG851	Production Technology for Bioagents and Biofertilizer	0+10
BAG852	Seed Production and Technology	0+10
BAG853	Mushroom Cultivation Technology	0+10
BAG854	Soil, Plant, Water and Seed Testing	0+10
BAG855	Commercial Beekeeping	0+10
BAG856	Poultry Production Technology	0+10
BAG857	Commercial Horticulture	0+10
BAG858	Floriculture and Landscaping	0+10
BAG859	Food Processing	0+10
BAG860	Agriculture Waste Management	0+10
BAG861	Organic Production Technology	0+10
BAG862	Commercial Sericulture	0+10

ELP: Experiential Learning Programme

Examination Scheme (First Semester)

I Semester (Credit hours distribution)

S.No	Course Code	Course Title	Credit Hours
1.	BAG101	Fundamental of horticulture	2 (1+1)
2.	BAG102	Fundamentals of Plant Biochemistry and Biotechnology	3(2+1)
3.	BAG103	Fundamentals of Soil Science	3 (2+1)
4.	BAG104	Introduction to Forestry	2 (1+1)
5.	BAG105	Comprehension & Communication Skills in English	2 (1+1)
6.	BAG106	Fundamentals of Agronomy	4(3+1)
7.	BAG107/BAG108	Introductory Biology*/ Elementary Mathematics*	2(1+1)/2(2+0)*
8.	BAG109	Agricultural Heritage*	1(1+0)*
9.	BAG110	Rural Sociology & Educational Psychology	2(2+0)
10.	BAG111	Human Values & Ethics (Non-gradial)**	1(1+0)
11.	BAG 158	NSS/NCC/Physical Education & Yoga Practices**	2(0+2)
TOTAL			**18+03*+03****

*R: Remedial course; **NC: Non-gradial courses, 3(2+1): 3 lectures per week, (2+1) :indicate 2 Lecture and one practical

Evaluation scheme

Subject Code	Paper name	L	P	AT	UT	TA	ESM	Total
					IAM			
Theory Subjects								
BAG101	Fundamental of horticulture	1	0	10	20	5	50	85
BAG102	Fundamentals of Plant Biochemistry and Biotechnology	2	0	10	20	5	50	85
BAG103	Fundamentals of Soil Science	2	0	10	20	5	50	85
BAG104	Introduction to Forestry	1	0	10	20	5	50	85
BAG105	Comprehension & Communication Skills in English	1	0	10	20	5	50	85
BAG106	Fundamentals of Agronomy	3	0	10	20	5	50	85
BAG107	Introductory Biology*/	1	0	10	20	5	50	85
BAG108	Elementary Mathematics*	2	0	10	30	10	50	100
BAG109	Agricultural Heritage*	1	0	10	30	10	50	100
BAG110	Rural Sociology & Educational Psychology	2	0	10	30	10	50	100
BAG111	Human Values & Ethics (Non-gradial)**	1	0	10	30	10	50	100
Laboratory/ Practical								
BAG151	Fundamental of Horticulture Lab	0	1				15	15
BAG152	Fundamentals of Plant Biochemistry and Biotechnology Lab	0	1				15	15
BAG153	Fundamentals of Soil Science Lab	0	1				15	15
BAG154	Introduction to Forestry Lab	0	1				15	15
BAG155	Comprehension & Communication Skills in English Lab	0	1				15	15
BAG156	Fundamentals of Agronomy Lab	0	1				15	15
BAG157	Introductory Biology Lab*	0	1				15	15
BAG158	NSS/NCC/Physical Education & Yoga Practices**	0	2				100	100
Total		17	7					1100

L: Lecture, P: Practical, AT: Attendance, UT: Unit Test, TA: Teacher Assessment, ESM: End Semester Mark

Examination Scheme (Third Semester)

III Semester (Credit hours distribution)

S.No	Course Code	Course Title	Credit Hours
1.	BAG301	Crop Production Technology – I (*Kharif* Crops)	2 (1+1)
2.	BAG302	Fundamentals of Plant Breeding	3(2+1)
3.	BAG303	Agricultural Finance and Cooperation	3 (2+1)
4.	BAG304	Agri- Informatics	2 (1+1)
5.	BAG305	Farm Machinery and Power	2 (1+1)
6.	BAG306	Production Technology for Vegetables and Spices	2(1+1)
7.	BAG307	Environmental Studies and Disaster Management	3(2+1)
8.	BAG308	Statistical Methods	2(1+1)
9.	BAG309	Livestock and Poultry Management	4(3+1)
		TOTAL	**23 (14+9)**

3(2+1): 3 lectures per week, (2+1): indicate 2 Lecture and one practical

Evaluation scheme

Subject Code	Paper name	L	P	IAM			ESM	Total
				AT	UT	TA		
Theory Subjects								
BAG301	Crop Production Technology – I (*Kharif* Crops)	1	0	10	20	5	50	85
BAG302	Fundamentals of Plant Breeding	2	0	10	20	5	50	85
BAG303	Agricultural Finance and Cooperation	2	0	10	20	5	50	85
BAG304	Agri- Informatics	1	0	10	20	5	50	85
BAG305	Farm Machinery and Power	1	0	10	20	5	50	85
BAG306	Production Technology for Vegetables and Spices	1	0	10	20	5	50	85
BAG307	Environmental Studies and Disaster Management	2	0	10	20	5	50	85
BAG308	Statistical Methods	1	0	10	20	5	50	85
BAG309	Livestock and Poultry Management	3	0	10	20	5	50	85
Laboratory/ Practical								
BAG351	Crop Production Technology – I (*Kharif* Crops) Lab	0	1				15	15
BAG352	Fundamentals of Plant Breeding Lab	0	1				15	15
BAG353	Agricultural Finance and Cooperation Lab	0	1				15	15
BAG354	Agri- Informatics Lab	0	1				15	15
BAG355	Farm Machinery and Power Lab	0	1				15	15
BAG356	Production Technology for Vegetables and Spices Lab	0	1				15	15
BAG357	Environmental Studies and Disaster Management Lab	0	1				15	15
BAG358	Statistical Methods Lab	0	1				15	15
BAG359	Livestock and Poultry Management Lab	0	1				15	15
Total		14	9					900

L: Lecture, P: Practical, AT: Attendance, UT: Unit Test, TA: Teacher Assessment, ESM: End Semester Mark

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Examination Scheme (Fifth Semester)

V Semester (Credit hours distribution)

S.No	Course Code	Course Title	Credit Hours
1.	BAG501	Principles of Integrated Pest and Disease Management	3(2+1)
2.	BAG502	Manures, Fertilizers and Soil Fertility Management	3(2+1)
3.	BAG503	Diseases of Field and Horticultural Crops and their Management -I	3(2+1)
4.	BAG504	Pests of Crops and Stored Grain and their Management	3 (2+1)
5.	BAG505	Entrepreneurship Development and Business Communication	2 (1+1)
6.	BAG506	Crop Improvement-I *(Kharif Crops)*	2 (1+1)
7.	BAG507	Geoinformatics and Nano-technology and Precision Farming	2(1+1)
8.	BAG508	Intellectual Property Rights	1 (1+0)
9.	BAG591	Practical Crop Production – I (*Kharif* crops)	2 (0+2)
10.		Elective Course*	3 credits
		TOTAL	**21(12+9)+3**

21(12+9)+3:21 lectures per week, (12+9) :indicate 12 Lecture and nine practical and 3 : credit hours of elective course

Subject Code	Paper name	L	P	IAM			ESM	Total
				AT	UT	TA		
	Theory Subjects							
BAG501	Principles of Integrated Pest and Disease Management	2	0	10	20	5	50	85
BAG502	Manures, Fertilizers and Soil Fertility Management	2	0	10	20	5	50	85
BAG503	Diseases of Field and Horticultural Crops and their Management -I	2	0	10	20	5	50	85
BAG504	Pests of Crops and Stored Grain and their Management	2	0	10	20	5	50	85
BAG505	Entrepreneurship Development and Business Communication	1	0	10	20	5	50	85
BAG506	Crop Improvement-I *(Kharif Crops)*	1	0	10	20	5	50	85
BAG507	Geoinformatics and Nano-technology and Precision Farming	1	0	10	20	5	50	85
BAG508	Intellectual Property Rights	1	0	10	30	10	50	100
	Elective Course*	0	0	10	20	5	50	85
	Laboratory/ Practical							
BAG551	Principles of Integrated Pest and Disease Management	0	1				15	15
BAG552	Manures, Fertilizers and Soil Fertility Management	0	1				15	15
BAG553	Diseases of Field and Horticultural Crops and their Management -I	0	1				15	15
BAG554	Pests of Crops and Stored Grain and their Management	0	1				15	15
BAG555	Entrepreneurship Development and Business Communication	0	1				15	15
BAG556	Crop Improvement-I *(Kharif Crops)*	0	1				15	15
BAG557	Geoinformatics and Nano-technology and Precision Farming	0	1				15	15
BAG559	Elective Course**	0	0				15	15
BAG591	Practical Crop Production – I (*Kharif* crops)	0	2				100	100
Total		12	9					1000

Evaluation scheme (table header)

* To be selected from elective course list, **No of practical hours will be decided on the basis of student subject preference, L: Lecture, P: Practical, AT: Attendance, UT: Unit Test, TA: Teacher Assessment, ESM: End Semester Marks

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Semester: 7th Semester

BAG751	Rural Agricultural Work Experience and Agro-industrial Attachment (RAWE &AIA)			MM
	Activities	No. of weeks	Credit hours	100
	General Orientation & On campus training by different faculties	1	14	
	Village attachment	8		
	Unit attachment in Univ./ College. KVK/ Research Station Attachment	5		
	Plant clinic	2	2	
	Agro-Industrial Attachment	3	4	
	Project Report Preparation, Presentation and Evaluation	1		
	Total weeks for RAWE & AIA	**20**	20	100

Course Objectives:

1. To make the students familiar with a package of practices of the farmers.
2. To make them familiar with the kind of Agri-based industries.
3. To orient them with national and international advances in agriculture
4. To develop skill for identification of crop pest and diseases and their management.

Agro- Industrial Attachment: The students would be attached with the agro-industries for a period of 3 weeks to get an experience of the industrial environment and working.

Educational tour will be conducted in break between IV & V Semester or VI & VII Semester

RAWE component I

Village Attachment Training Programme

S.No.	Activity	Duration
	Orientation and Survey of Village	1 week
	Agronomical Interventions	1 week
	Plant Protection Interventions	1 week
	Soil Improvement Interventions (Soil sampling and testing)	1 week
	Fruit and Vegetable production interventions	1 WeeK
	Food Processing and Storage interventions	1 week
	Animal Production Interventions	1 week
	Extension and Transfer of Technology activities	1 week

RAWE Component –II

Agro Industrial Attachment: Students shall be placed in Agro-and Cottage industries and Commodities Boards for 03 weeks. Industries include Seed/Sapling production, Pesticides-insecticides, Post harvest-processing value addition, Agri-finance institutions, etc.

Activities and Tasks during Agro-Industrial Attachment Programme
Acquaintance with industry and staff
Study of structure, functioning, objective and mandates of the industry
Study of various processing units and hands-on trainings under supervision of industry staff
Ethics of industry
Employment generated by the industry
Contribution of the industry promoting environment
Learning business network including outlets of the industry
Skill development in all crucial tasks of the industry
Documentation of the activities and task performed by the students
Performance evaluation, appraisal and ranking of students

Course Outcomes:

After completing the course, students will be able to:
1. Students will acquire knowledge on agricultural business.
2. They will get updated knowledge on local practices and problems being faced by the stack holders.
3. They can develop plant clinic.
4. Will have basic knowledge of agri-based industries.

8th Semester

Modules for Skill Development and Entrepreneurship: A student has to register 20 credits opting for two modules of (0+10) credits each (total 20 credits) from the package of modules in the **VIII semester.**

Subject Code	Title of the module (elp PROGRAMME)	Credits
BAG851	Production Technology for Bioagents and Biofertilizer	0+10
BAG852	Seed Production and Technology	0+10
BAG853	Mushroom Cultivation Technology	0+10
BAG854	Soil, Plant, Water and Seed Testing	0+10
BAG855	Commercial Beekeeping	0+10
BAG856	Poultry Production Technology	0+10
BAG857	Commercial Horticulture	0+10
BAG858	Floriculture and Landscaping	0+10
BAG859	Food Processing	0+10
BAG860	Agriculture Waste Management	0+10
BAG861	Organic Production Technology	0+10
BAG862	Commercial Sericulture	0+10

Evaluation of Experiential Learning Programme/ HOT

S.No.	Parameters	Max. Marks
1	Project Planning and Writing	10
2	Presentation	10
3	Regularity	10
4	Monthly Assessment	10
5	Output delivery	10
6	Technical Skill Development	10
7	Entrepreneurship Skills	10
8	Business networking skills	10
9	Report Writing Skills	10
10	Final Presentation	10
Total		100

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

ELECTIVE COURSES

Elective Courses : A student can select three elective courses out of the following and offer during 4th, 5th and 6th semesters.

Examination Scheme (Semester wise)

S.No	Course Code	Course Title	Credit Hours
\(Credit hours distribution\)			
1.	BAG001	Agribusiness Management	3(2+1)
2.	BAG002	Agrochemicals	3(2+1)
3.	BAG003	Commercial plant Breeding	3(1+2)
4.	BAG004	Landscaping	3(2+1)
5.	BAG005	Food safety and Standards	3(2+1)
6.	BAG006	Biopesticides & Biofertilizers	3(2+1)
7.	BAG007	Protected Cultivation	3(2+1)
8.	BAG008	Micro Propagation technologies	3(1+2)
9.	BAG009	Hi-Tech Horticulture	3(2+1)
10.	BAG010	Weed Management	3(2+1)
11.	BAG011	System Simulation and Agro-advisory	3(2+1)
12.	BAG012	Agriculture Journalism	3(2+1)
	TOTAL		**36 (21+15)**

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Evaluation scheme								
Subject Code	Paper name	L	P	IAM			ESM	Total
				AT	UT	TA		
Theory Subjects								
BAG001	Agribusiness Management	2	0	10	20	5	50	85
BAG002	Agrochemicals	2	0	10	20	5	50	85
BAG003	Commercial Plant Breeding	1	0	10	20	5	50	85
BAG004	Landscaping	2	0	10	20	5	50	85
BAG005	Food Safety and Standards	2	0	10	20	5	50	85
BAG006	Biopesticides & Biofertilizers	2	0	10	20	5	50	85
BAG007	Protected Cultivation	2	0	10	20	5	50	85
BAG008	Micro propagation Technologies	1	0	10	20	5	50	85
BAG009	Hi-tech. Horticulture	2	0	10	20	5	50	85
BAG010	Weed Management	2	0	10	20	5	50	85
BAG011	System Simulation and Agro-advisory	2	0	10	20	5	50	85
BAG012	Agricultural Journalism	2	0	10	20	5	50	85
Laboratory/ Practical								
BAG051	Agribusiness Management	0	1				15	15
BAG052	Agrochemicals	0	1				15	15
BAG053	Commercial Plant Breeding	0	2				15	15
BAG054	Landscaping	0	1				15	15
BAG055	Food Safety and Standards	0	1				15	15
BAG056	Biopesticides & Biofertilizers	0	1				15	15
BAG057	Protected Cultivation	0	1				15	15
BAG058	Micro propagation Technologies	0	2				15	15
BAG059	Hi-tech. Horticulture	0	1				15	15
BAG060	Weed Management	0	1				15	15
BAG061	System Simulation and Agro-advisory	0	1				15	15
BAG062	Agricultural Journalism	0	1				15	15

INVERTIS
UNIVERSITY BAREILLY
BUILDING VIBRANT PERSONALITIES
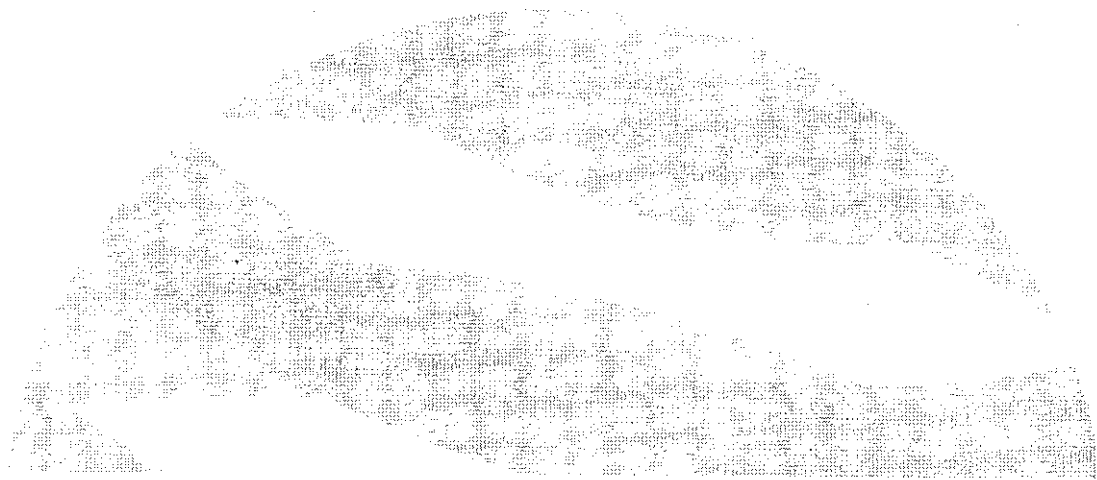
COURSE STRUCTURE

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

NAAC CRITERIA 1.2.2

Scheme

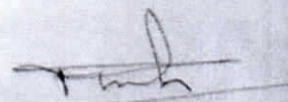# CBCS Scheme of Instruction & Syllabi

of

Bachelor of Science
(Physics, Chemistry & Mathematics)
First Year

(Effective from the academic session 2020- 2021)

Department of Applied Science & Humanities
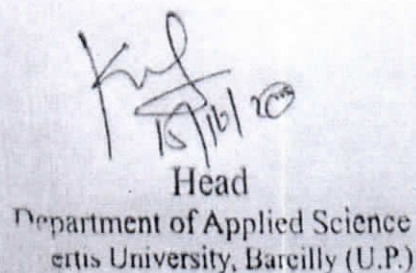
INVERTIS UNIVERSITY

Invertis Village,
Bareilly-Lucknow NH-24,
Bareilly, U.P. (243123)
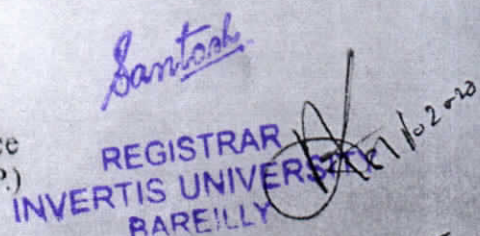
15/10/20
Dean
Faculty of Science
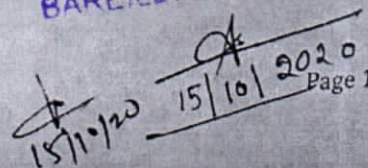Invertis University, Bareilly (U.P.)

15/10/20
Head
Department of Applied Science
ertis University, Bareilly (U.P.)

Santosh.
REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

w/e/f/ 2020-2021

VICE CHANCELLOR
INVERTIS UNIVERSITY
BAREILLY

15/10/20   15/10/2020

INVERTIS
UNIVERSITY BAREILLY

B.Sc. (Physics, Mathematics and Chemistry)

This program provides an ability to identify and solve significant problems across a broad range of application areas, to develop the aptitude to apply the principles of Chemistry, Physics and Mathematics to articulate an in depth understanding of core knowledge on various subjects of Physical Sciences. It is designed to help students understand the importance of chemicals, chemical industries and the role of these in improving the quality of human life. It also helps students recognize and appreciate the contribution of great scientists in the field of Physics, Chemistry and Mathematics.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

This program acts as a foundation degree and helps to develop critical, analytical and problem solving skills at first level. The foundation degree makes the graduates employable in scientific organizations and also to assume administrative positions in various types of organizations. Further acquisition of higher level degrees will help the graduates to pursue a career in academics or scientific organizations as a researcher.

The Program Educational Objectives are to prepare the students to:

PEO-1. Work alongside engineering, medical, ICT professionals and scientists to assist them in scientific problem solving.

PEO-2. Act as administrators in public, private and government organizations or business administrator with further training and education.

PEO-3. Pursue masters and doctoral research degrees to work in colleges, universities as professors or as scientists in research establishments.

w/e/f/ 2020-2021

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

VICE CHANCELLOR
INVERTIS UNIVERSITY
BAREILLY

15|10|2020

Page 2

INVERTIS
UNIVERSITY BAREILLY

PROGRAM OUTCOMES (POs)

After undergoing this programme, a student will be able to execute the following successfully:

PO-1. **Scientific knowledge**: Apply the knowledge of mathematics, science, Scientific fundamentals, and scientific specialization to the solution of complex scientific problems.

PO-2. **Problem analysis**: Identify, formulate, research literature, and analyze scientific problems to arrive at substantiated conclusions using first principles of mathematics, nature, and sciences.

PO-3. **Design/development of solutions**: Design solutions for complex scientific problems and design system components, processes to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO-4. **Conduct investigations of complex problems**: Use research-based knowledge including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO-5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern scientific tools including prediction and modeling to complex activities with an understanding of the limitations.

PO-6. **Scientific temper and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the practice.

PO-7. **Environment and sustainability**: Understand the impact of the professional scientific solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)
15/10/20

w/e/f/ 2020-2021   Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Page 3

15/10/2020

PO-8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the work practice.

PO-9. **Individual and team work**: Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.

PO-10. **Communication**: Communicate effectively with their community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.

PO-11. **Project management and finance**: Demonstrate knowledge and understanding of scientific and management principles and apply these to one's own work, as a member and leader in a team. Manage projects in multidisciplinary environments.

PO-12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning and research in the broadest context of scientific & technological change.

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

w/e/f/ 2020-2021
VICE CHANCELLOR
INVERTIS UNIVERSITY
BAREILLY

15-10-2020

Page 4

B. Sc. (PCM)

INVERTIS
UNIVERSITY BAREILLY

SCHEME OF INSTRUCTION
YEAR I B.Sc. (Physics, Chemistry & Mathematics)

S. No.	Category	Course Code	SUBJECT	PERIODS			Evaluation Scheme		Subject Total	Credit
				L	T	P	CA	EE		
I-SEMESTER										
1	DSC-1A	CMR101	Matrices & Geometry	5	1	0	50	100	150	6
2	DSC-2A	CSR101	Fundamentals of Chemistry	3	1	0	30	70	100	4
3	DSC-3A	CPR 101	Mechanics	3	1	0	30	70	100	4
4	AECC	CAE101	Environmental Science	2	0	0	15	35	50	2
5	DSC-2A(P)	CSR151	Chemistry Lab - I	0	0	4	15	35	50	2
6	DSC-3A(P)	CPR 151	Physics (Mech.) Lab - I	0	0	4	15	35	50	2
			TOTAL	13	3	8	155	345	500	20
II-SEMESTER										
1	DSC-1B	CMR201	Differential and Integral Calculus	5	1	0	50	100	150	6
2	DSC-2B	CSR201	Organic Chemistry	3	1	0	30	70	100	4
3	DSC-3B	CPR 201	Optics	3	1	0	30	70	100	4
4	AECC	CAE201	English Communication	2	0	0	15	35	50	2
5	DSC-2B(P)	CSR251	Organic Chemistry Lab – II	0	0	4	15	35	50	2
6	DSC-3B(P)	CPR 251	Physics (Optics) Lab – II	0	0	4	15	35	50	2
			TOTAL	13	3	8	155	345	500	20

L-Lecture, T-Tutorial, P- Practical, CA-Continuous Assessment, EE-Examination Evaluation.

*There will be a 2-credit course on human ethics and entrepreneurship which students can choose at any semester during the program.

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

w/e/f/ 2020-2021
VICE CHANCELLOR
INVERTIS UNIVERSITY
BAREILLY

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Page 5

Scanned by TapScanner

B. Sc. (PCM)

INVERTIS
UNIVERSITY BAREILLY

SCHEME OF INSTRUCTION
YEAR II B.Sc. (Physics, Chemistry & Mathematics)

S. No.	Category	Course Code	SUBJECT	PERIODS			Evaluation Scheme		Subject Total	Credit
				L	T	·P	CA	EE		
III-SEMESTER										
1	DSC-1C	CMR301	Vector Calculus & Elementary Analysis	5	1	0	50	100	150·	6
2	DSC-2C	CSR301	Physical Chemistry	3	1	0	30	70	100	4
3	DSC-3C	CPR 301	Electromagnetism	3	1	0	30	70	100	4
4	SEC	CSE301	SEC-1	2	0	0	15	35	50	2
5	DSC-2C(P)	CSR351	Physical Chemistry Lab – III	0	0	4	15	35	50	2
6	DSC-3C(P)	CPR351	Physics (EM)Lab - III	0	0	4	15	35	50	2
			TOTAL	13	3	8	155	345	500	20
IV-SEMESTER										
1	DSC-1D	CMR401	Differential Equation	5	1	0	50	100	150	6
2	DSC-2D	CSR401	Inorganic Chemistry	3	1	0	30	70	100	4
3	DSC-3D	CPR 401	Thermodynamics	3	1	0	30·	70	100	4
4	SEC	CSE 401	SEC-2	2	0	0	15	35	50	2
5	DSC-2D(P)	CSR 451	Inorganic Chemistry Lab-IV	0	0	4	15	35	50	2
6	DSC-3D(P)	CPR451	Physics (Thermo) Lab - IV	0	0	4	15	35	50	2
			TOTAL	13	3	8	155	345	500	20

L-Lecture, **T**-Tutorial, **P**- Practical, **CA**-Continuous Assessment, **EE**-Examination Evaluation.

*There will be a 2-credit course on human ethics and entrepreneurship which students can choose at any semester during the program.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

w/e/f/ 2020-2021

B. Sc. (PCM)

SCHEME OF INSTRUCTION
YEAR III B.Sc. (Physics & Mathematics)

S. No.	Category	Course Code	SUBJECT	PERIODS			Evaluation Scheme		Subject Total	Credit
				L	T	P	CA	EE		
V-SEMESTER										
1	DSE-1A	CPR501	DSE-1P	3	1	0	30	70	100	4
2	DSE-2A	CMR 501	DSE-1M	5	1	0	50	100	150	6
3	DSE-3A	CMR 502	DSE-2M	3	1	0	30	70	100	4
4	SEC	CSE501	SEC-3	2	0	0	15	35	50	2
5	DSE-1A (P)	CPR 551	Physics Lab-V	0	0	4	15	35	50	2
6	DSE-3A(P)	CMR 551	Math Lab-I	0	0	4	15	35	50	2
			TOTAL	13	3	8	155	345	500	20
VI-SEMESTER										
1	DSE-1B	CPR601	DSE-2P	3	1	0	30	70	100	4
2	DSE-2B	CPR602	DSE-3P	5	1	0	50	100	150	6
3	DSE-3B	CMR601	DSE-3M	3	1	0	30	70	100	4
4	SEC	CSE601	SEC-4	2	0	0	15	35	50	2
5	DSE-1B(P)	CPR651	Physics Lab-VI	0	0	4	15	35	50	2
6	DSE-3B(P)	CMR651	Math Lab-II	0	0	4	15	35	50	2
			TOTAL	13	3	8	155	345	500	20

L-Lecture, T-Tutorial, P- Practical, CA-Continuous Assessment, EE-Examination Evaluation.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

VICE CHANCELLOR
INVERTIS UNIVERSITY
BAREILLY

w/e/f/ 2020-2021

B. Sc. (PCM)

SCHEME OF INSTRUCTION
YEAR III B.Sc. (Physics & Chemistry)

S. No.	Category	Course Code	SUBJECT	PERIODS			Evaluation Scheme		Subject Total	Credit
				L	T	P	CA	EE		
V-SEMESTER										
1	DSE-1A	CSR501	DSE-1C	3	1	0	30	70	100	4
2	DSE-2A	CPR 501	DSE-1P	3	1	0	30	70	100	4
3	DSE-3A	CPR 502	DSE-2P	5	1	0	50	100	150	6
4	SEC	CSE501	SEC-3	2	0	0	15	35	50	2
5	DSE-1A(P)	CSR551	Organic Chemistry Lab	0	0	4	15	35	50	2
6	DSE-2A(P)	CPR 551	Physics Lab V	0	0	4	15	35	50	2
			TOTAL	13	3	8	155	345	500	20
VI-SEMESTER										
1	DSE-1B	CSR601	DSE-2C	3	1	0	30	70	100	4
2	DSE-2B	CSR602	DSE-3C	3	1	0	30	70	100	4
3	DSE-3B	CPR601	DSE-3P	3	1	0	30	70	100	4
4	SEC	CSE601	SEC-4	2	0	0	15	35	50	2
5	DSE-1B(P)	CSR651	Physical Chemistry lab	0	0	4	15	35	50	2
6	DSE-2B(P)	CSR652	Inorganic Chemistry Lab	0	0	4	15	35	50	2
7	DSE-3B(P)	CPR651	Physics Lab-VI	0	0	4	15	35	50	2
			TOTAL	11	3	12	150	350	500	20

L-Lecture, T-Tutorial, P- Practical, CA-Continuous Assessment, EE-Examination Evaluation.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)
15/10/20

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

VICE CHANCELLOR
INVERTIS UNIVERSITY
BAREILLY
15/10/2020

w/e/f/ 2020-2021

Page 6

B. Sc. (PCM)

INVERTIS
UNIVERSITY BAREILLY

SCHEME OF INSTRUCTION
YEAR III B.Sc. (Chemistry & Mathematics)

S. No.	Category	Course Code	SUBJECT	PERIODS			Evaluation Scheme		Subject Total	Credit
				L	T	P	CA	EE		
V-SEMESTER										
1	DSE-1A	CSR501	DSE-1C	3	1	0	30	70	100	4
2	DSE-2A	CMR501	DSE-1M	3	1	0	30	70	100	4
3	DSE-3A	CMR502	DSE-2M	5	1	0	50	100	150	6
4	SEC	CSE501	SEC-3	2	0	0	15	35	50	2
5	DSE-1A(P)	CSR551	Organic Chemistry Lab	0	0	4	15	35	50	2
6	DSE-3A(P)	CMR551	Math lab-I	0	0	4	15	35	50	2
			TOTAL	13	3	8	155	345	500	20
VI-SEMESTER										
1	DSE-1B	CSR601	DSE-2C	3	1	0.	30	70	100	4
2	DSE-2B	CSR602	DSE-3C	3	1	0	30	70	100	4
3	DSE-3B	CMR601	DSE-3M	3	1	0	30	70	100	4
4	SEC-4	CSE601	SEC-4	2	0	0	15	35	50	2
5	DSE-1B(P)	CSR651	Physical Chemistry lab	0	0	4	15	35	50	2
6	DSE-2B(P)	CSR652	Inorganic Chemistry Lab	0	0	4	15	35	50	2
7	DSE-3B(P)	CMR651	Math lab-II	0	0	4	15	35	50	2
			TOTAL	11	3	12	150	350	500	20

L-Lecture, T-Tutorial, P- Practical, CA-Continuous Assessment, EE-Examination Evaluation.

*There will be a 2-credit course on human ethics and entrepreneurship which students can choose at any semester during the program.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

Head
Department of Applied Science

B. Sc. (PCM)

LIST OF SEC

1	MS – Office
2	MATLAB
3	SPSS
4	Mathematica, Latex
5	Maple
6	Chemical Technology & Society
7	Pharmaceutical chemistry

LIST OF DSE

1	Modern Physics
2	Mathematical Physics
3	Atomic & Nuclear Physics
4	Solid State Electronic Devices
5	Condensed Matter Physics
6	Quantum Mechanics
1	Applied Organic Chemistry
2	Physical Chemistry
3	Inorganic Chemistry
4	Advanced Physical Organic Chemistry
5	Introduction to Nanoscience
6	Green Chemistry
1	Elementary Optimization & Numerical techniques
2	Probability & Statistics
3	Algebra
4	Mathematical Analysis
5	Discrete Mathematics
6	Statics and Dynamics

w/e/f/ 2020-2021

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

B. Sc. (PCM)

LIST OF SEC

1	MS – Office
2	MATLAB
3	SPSS
4	Mathematica, Latex
5	Maple
6	Chemical Technology & Society
7	Pharmaceutical chemistry

LIST OF DSE

1	Modern Physics
2	Mathematical Physics
3	Atomic & Nuclear Physics
4	Solid State Electronic Devices
5	Condensed Matter Physics
6	Quantum Mechanics
1	Applied Organic Chemistry
2	Physical Chemistry
3	Inorganic Chemistry
4	Advanced Physical Organic Chemistry
5	Introduction to Nanoscience
6	Green Chemistry
1	Elementary Optimization & Numerical techniques
2	Probability & Statistics
3	Algebra
4	Mathematical Analysis
5	Discrete Mathematics
6	Statics and Dynamics

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

w/e/f/ 2020-2021

Page 9

INVERTIS
UNIVERSITY BAREILLY

Scheme of Instruction & Syllabi

For

Master of Science

In

Chemistry

Two Years CBCS M.Sc. Course in Chemistry

(Academic Session: 2020-21)

Second Year

Department of Applied Sciences & Humanities

Santosh.
REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS UNIVERSITY

Invertis Village

Bareilly-Lucknow NH-24, Bareilly-243123, India

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)
15-10-20

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

INVERTIS
UNIVERSITY BAREILLY

Programme Outcomes (POs)

PO1: Students will have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in Analytical, Inorganic, Organic and Physical Chemistries.

PO2: Students will be able to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments.

PO3: Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.

PO4: Students will be able to clearly communicate the results of scientific work in oral, written and electronic formats to both scientists and the public at large.

PO5: Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.

PO6: Students will appreciate the central role of chemistry in our society and use this as a basis for ethical behavior in issues facing chemists including an understanding of safe handling of chemicals, environmental issues and key issues facing our society in energy, health and medicine.

PO7: Students will be able to function as a member of an interdisciplinary problem solving team.

PO8: The graduate has specific skills in planning and conducting advanced chemical experiments and applying structural-chemical characterisation techniques.

PO9: Are able to use modern instrumentation and classical techniques, to design experiments, and to properly record the results of their experiment.

PO10: Are able to use modern library searching and retrieval methods to obtain information about a topic, chemical, chemical technique, or an issue relating to chemistry.

PO11: Students should be able to communicate scientific results in writing and in oral presentation.

PO12: Students should become proficient in their specialized area of chemistry and acquire the basic tools needed to carry out independent chemical research.

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

w/e/f 2020-21

Head

VICE CHANCELLOR
Science INVERTIS UNIVERSITY

2

MSc (Chemistry)

Programme Educational Objectives (PEO)

PEO-1: The Masters in Chemistry will extend your depth and breadth of knowledge in all branches of chemistry, suitable for a professional chemist capable of conducting research.

PEO-2: To carryout research in the trust areas of chemistry. Will be able to communicate effectively the scientific information and research results in written and oral formats, to both professional scientists and to the public.

PEO-3: To motivate critical thinking and analytical skills to solve complex chemical problems and the Ability to handle problems of practical relevance to society while complying with economical, environmental, ethical, and safety factors.

PEO-4: To practice chemistry by performance of experiments in the laboratory classes. To perform accurate quantitative measurements with an understanding of the theory and use of contemporary chemical instrumentation, interpret experimental results, perform calculations on these results and draw reasonable, accurate conclusions.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

VICE CHANCELLOR
INVERTIS UNIVERSI
BAREILLY

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

w/e/f 2020-21

Head
of Applied Science

3

MSc (Chemistry)

INVERTIS
UNIVERSITY BAREILLY
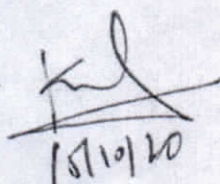
M.Sc. CHEMISTRY (SECOND YEAR)

SEMESTER -III

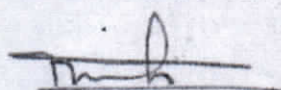| S.N	Course Code	Subject	L	T	P	MSM	ESM	Total Marks	Credit
1	MCH301	Inorganic Chemistry-III	3	1	-	30	70	100	4
2	MCH302	Organic Chemistry-III	3	1	-	30	70	100	4
3	MCH303	Physical Chemistry-III	3	1	-	30	70	100	4
4	MCH304	Analytical Chemistry-III	3	1	-	30	70	100	4
5	MCH3011*	Advanced Inorganic Chemistry	3	1	-	30	70	100	4
6	MCH3021*	Advanced Organic Chemistry	3	1	-	30	70	100	4
7	MCH3031*	Advanced Physical Chemistry	3	1	-	30	70	100	4
8	MCH3041*	Advanced Analytical Chemistry	3	1	-	30	70	100	4
9	MCH351*	Inorganic Chemistry Practical-III	-	-	3	20	30	50	2
10	MCH352*	Organic Chemistry Practical-III	-	-	3	20	30	50	2
11	MCH353*	Physical Chemistry Practical-III	-	-	3	20	30	50	2
12	MCH354*	Analytical Chemistry Practical-I	-	-	3	20	30	50	2
13	MCH355**	Field Project/Internship	-	-	2	30	70	100	2
		Total	15	5	3	200	450	650	24

*Student has to choose only one (theory + lab) in the specialization.
**Student will carry out Field Project/Internship during first year session break of the program

15/10/20

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

Kuldeep
15/10/20
Dr. Kuldeep chaubare

15/10/20
Dr. ARUMUGAM
REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

w.e.f 2020-21

MSc (Chemistry)

INVERTIS UNIVERSITY BAREILLY

SEMESTER IV

(Inorganic group)

S.No.	Course Code	Subject	Evaluation Scheme						Credit
			L	T	P	MSM	ESM	Total Marks	
1	MCH4012	Spectroscopic Methods	3	1	-	30	70	100	4
2	MCH4013	Bioinorganic Chemistry	3	1	-	30	70	100	4
3	MCH4014	Analytical Techniques	3	1	-	30	70	100	4
4	MCH4015	Nuclear and Radiochemistry	3	1	-	30	70	100	4
5	MCH451	Inorganic Chemistry Practical-IV	-	-	3	20	30	50	2
6	MCH452	Inorganic Chemistry Project & Evaluation	-	-	3	30	70	100	2
		Total	12	4	6	170	380	550	20

(Organic group)

S.No.	Course Code	Subject	Evaluation Scheme						Credit
			L	T	P	MSM	ESM	Total Marks	
1	MCH4022	Organic Synthesis	3	1	-	30	70	100	4
2	MCH4023	Biomolecules	3	1	-	30	70	100	4
3	MCH4024	Mechanisms of Organic Reactions	3	1	-	30	70	100	4
4	MCH4025	Medicinal Chemistry	3	1	-	30	70	100	4
5	MCH453	Organic Chemistry Practical-IV	-	-	3	20	30	50	2
6	MCH454	Organic Chemistry Project & Evaluation	-	-	3	30	70	100	2
		Total	12	4	6	170	380	550	20

Santosh.
REGISTRAR
INVERTIS UNIVERSITY
BAREILLY
15/10/20

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

Kuldeep
15/10/20
Kuldeep chauhan

Dr. D. ARUMUGAM

MSc (Chemistry)

(Physical group)

S.No.	Course Code	Subject	Evaluation Scheme						
			L	T	P	MSM	ESM	Total Marks	Credit
1	MCH4032	Advanced Electrochemistry	3	1	-	30	70	100	4
2	MCH4033	Photo and Radio Chemistry	3	1	-	30	70	100	4
3	MCH4034	Biophysical Chemistry	3	1	-	30	70	100	4
4	MCH4035	Crystallography	3	1	-	30	70	100	4
5	MCH455	Physical Chemistry Practical-IV	-	-	3	20	30	50	2
6	MCH456	Physical Chemistry Project & Evaluation	-	-	3	30	70	100	2
		Total	12	4	6	170	380	550	20

(Analytical group)

S.No.	Course Code	Subject	Evaluation Scheme						
			L	T	P	MSM	ESM	Total Marks	Credit
1	MCH4042	Separation Techniques	3	1	-	30	70	100	4
2	MCH4043	Polarography	3	1	-	30	70	100	4
3	MCH4044	Spectroscopic Techniques	3	1	-	30	70	100	4
4	MCH4045	Micro Analytical Techniques	3	1	-	30	70	100	4
5	MCH457	AnalyticalChemistry Practical-II	-	-	3	20	30	50	2
6	MCH458	Analytical Chemistry Project & Evaluation	-	-	3	30	70	100	2
		Total	12	3	6.	170	,380	550	20

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

Head
Department of Applied Science,
Invertis University, Bareilly (U.P.)
15/10/20
Dr. Kuldeep Chauhan

Dr. D. ARUMUGAM

SYLLABI AND EVALUATION SCHEME

for

Master of Science in Mathematics

TWO-YEARS FULL-TIME PROGRAMME
(Effective from session 2020-2021)

Second Year

INVERTIS
UNIVERSITY BAREILLY

Established by Govt. of U.P. u/s 2F of UGC Act, 1956 vide U.P. Act 22 of 2010.

Department of Applied Sciences & Humanities

INVERTIS UNIVERSITY
Invertis Village
Bareilly-Lucknow NH-24, Bareilly-243123, India

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Head
Department of Applied Science

INVERTIS
UNIVERSITY BAREILLY

Programme Outcome

PO-1: Critical Thinking: Inculcate critical thinking to carry out scientific investigation objectively. Formulate coherent arguments; critically evaluate practices, policies and theories by following scientific approach to knowledge development. Critically evaluate ideas, evidence and experiences from an open-minded and reasoned perspective.

PO-2: Knowledge Skill: Equip the student with skills to analyse problems, formulate an hypothesis, evaluate and validate results, and draw reasonable conclusions thereof. Capacity to extrapolate from what one has learned and apply their competencies to solve different kinds of non-familiar problems, rather than replicate curriculum contentknowledge.

PO-3: Scientific Communication Skills: Imbibe effective scientific and / or technical communication in both oral and writing. Ability to show the importance of the subject as precursor to various scientific developments since the beginning of the civilization.

PO-4: Ethics: Continue to acquire relevant knowledge and skills appropriate to professional activities and demonstrate highest standards of ethical issues in the subject concerned. Ability to identify unethical behaviour such as fabrication, falsification or misrepresentation of data and adoptive objective, unbiased and truthful actions in all aspects.

PO-5: Enlightened Citizenship: Create awareness to become an enlightened citizen with commitment to deliver one's responsibilities within the scope of bestowed rights and privileges

PO-6: Analytical Reasoning: Ability to evaluate the reliability and relevance of evidence; identify logical flaws and holes in the arguments of others; analyse and synthesise data from a variety of sources; draw valid conclusions and support them with evidence andexamples, and addressing opposing viewpoints.

PO-7: Multicultural Competence: Development of a set of competencies in order to enhance and promote the growth of multicultural sensitivity within universities. Integrating multicultural awareness such as race, gender, physical ability, age, income and other social variables, and by creating an environment that is "welcoming for all students".

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

Head
Department of Applied Science

VICE CHANCELLOR

M.Sc. Mathematics

PO-8: **Lifelong Learning**: Ability to think, acquire knowledge and skills through logical reasoning and to inculcate the habit of self-learning throughout life, through self- paced and self- directed learning aimed at personal development, and adapting to changing academic demands of work place through knowledge/ skill development/ reskilling.

PO-9: **Leadership Qualities**: Capability for mapping out the tasks of a team or an organization, and setting direction, formulating an inspiring vision, building a team who can help achieve the vision, motivating and inspiring team members to engage with that vision and using management skills to guide people to the right destination in a smooth and efficient way.

PO-10: **Research Skills**: Prepare students for pursuing research or careers in industry in concerned subjects and allied fields. Capability to use appropriate software to solve various problems and to apply programming concepts of C++ and Mathematica/Matlab to various scientific investigations, problem solving and interpretation.

PO-11: **Modern Tool. Usage**: Create, select and apply appropriate techniques, resources and modern scientific tools including prediction and modeling to complex activities with an understanding of the limitations.

PO-12: **Project Management & Finance**: Demonstrate knowledge and understanding of scientific and management principles and apply these to one's own work, as a member and leader in a team. Manage projects in multidisciplinary environments.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

[w/e/f/ 2020 V21E CHANCELLOR

Programme Specific Outcomes -PG Mathematics

PSO-1: **Strong Foundation in Knowledge**: Have strong foundation in core areas ofMathematics, and able to communicate Mathematics effectively.

PSO-2: **Abstract Skills**: Evaluate hypotheses, theories, methods and evidence within theirproper contexts.

PSO-3: **Problem Solving**: Solve complex problems by critical understanding, analysis and synthesis.

PSO-4: **Proficiency in Interdisciplinary Skills**: Select, interpret and critically evaluate information from a range of sources that include books, scientific reports, journals, casestudies and internet.

PSO-5: **Application and Research Efficiency**: Provide a systematic understanding of the concepts and theories of mathematics and their application in the real world- to an advanced level, and enhance career prospects in a huge array of fields, viz. in industry, commerce, education, finance and research.

PSO-6: **Lifelong Practical Knowledge**: Recognize the need to engage in lifelong learning through continuous education, and research leading to higher degrees like PhD, DSc

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

INVERTIS
UNIVERSITY BAREILLY

M.Sc. Mathematics

The proposed PG course structure in mathematics along with detailed syllabus shall be governed by the department of Applied sciences and Humanities, Invertis University, Bareilly.

1. There shall be four semesters in the two-year M.Sc. course in Mathematics.

2. Each paper will be of 100 marks. This will include an internal assessment of 30 marks. Duration for examination of a paper will be 3hours.

3. Three lectures and one tutorial per week are to be allotted to each paper.

4. A Project work/Dissertation Examination of 200 marks will be held during Semester IV. The Board of Examiners will consist of one External and two internal examiners recommended for appointment by the BOS. The Chairman of the Board will be the senior-most from amongst the internal examiners.

5. There shall be 600 marks for I, II, III, IV semester. Thus for the entire course it comes out to be a total of 2400 marks.

The course prescribed for various semesters shall be the following and marks distribution is described in the table.

Santosh.
REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Head
Department of Applied Science

M.Sc. Mathematics

INVERTIS
UNIVERSITY BAREILLY

II Year (Mathematics)

III Semester			Teaching Scheme			Marks Distribution			
PAPER	**CODE**	**SUBJECT**	**L**	**T**	**P**	**ESM**	**MSM**	**Total**	**Credit**
Paper 1	MMA301	Python	3	1	0	70	30	100	4
Paper 2	MMA302	Functional Analysis	3	1	0	70	30	100	4
Paper 3	MMA303	Mathematical Methods	3	1	0	70	30	100	4
Paper 4	MMA304	Probability and Stochastic Processes	3	1	0	70	30	100	4
Paper 5	MMA031	DSE-I	3	1	0	70	30	100	2
Lab	MMA351	PYTHON Lab	0	0	2	35	15	50	2
Lab	MMA352	MATLAB	0	0	2	35	15	50	2
Lab	MMA354 *	Field Project / Internship	0	0	2	70	30	100	2
Total			15	5	6	490	210	700	24

*Students will carryout field project/Internship during first year session break of the program

16/10/20
Head
Department of Applied Science (Mr. Ashutosh Pradhan)
Invertis University, Bareilly (U.P.)

15/10/20

15/10/20

(Dr. Suchita Gupta)

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

Santosh

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

[w/e/f/ 2020 - 21]
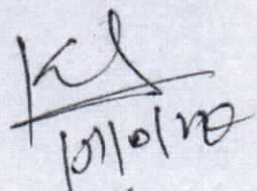
M.Sc. Mathematics

II Year (Data Science)
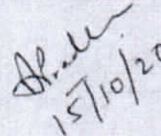
III Semester			Teaching Scheme			Marks Distribution			
PAPER	**CODE**	**SUBJECT**	**L**	**T**	**P**	**ESM**	**MSM**	**Total**	**Credit**
Paper 1	MMA301	PYTHON	3	1	0	70	30	100	4
Paper 2	MMA305	Database Management System	3	1	0	70	30	100	4
Paper 3	MMA306	Data Warehouse and Data Mining	3	1	0	70	30	100	4
Paper 4	MMA304	Probability and Stochastic Processes	3	1	0	70	30	100	4
Paper 5	MMA032	DSE-I	3	1	0	70	30	100	2
Lab	MMA351	Python Lab	0	0	2	35	15	50	2
Lab	MMA353	Database Management System Lab	0	0	2	35	15	50	2
Lab	MMA354 *	Field Project / Internship	0	0	2	70	30	100	2
Total			15	5	6	490	210	700	24

*Students will carry out field project/Internship during first year session break of the program

K.
01/0/20
Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

15/10/20
(Mr. Ashutosh Pradhay)
15/10/20

(Dr. Suchita Gupta)
Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

M.Sc. Mathematics

INVERTIS
UNIVERSITY BAREILLY

IV Semester (Mathematics)

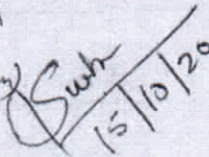| PAPER	CODE	SUBJECT	L	T	P	ESM	MSM	Total	Credit
Paper 6	MMA401	Mathematical Modeling	3	1	0	70	30	100	4
Paper 7	MMA041	DSE-II	3	1	0	70	30	100	4
Paper 8	MMA042	DSE- III	3	1	0	70	30	100	4
Paper 9	MMA043	DSE-IV	3	1	0	70	30	100	4
Project	MMA451	Project work* / Dissertation	0	0	4	70	30	100	2
Total			12	4	6	420	180	600	20

IV Semester (Data Science)

PAPER	CODE	SUBJECT	L	T	P	ESM	MSM	Total	Credit
Paper 6	MMA401	Mathematical Modeling	3	1.	0	70	30	100	4
Paper 7	MMA044	DSE-II	3	1	0	70	30	100	4
Paper 8	MMA045	DSE- III	3	1	0	70	30	100	4
Paper 9	MMA046	DSE-IV	3	1	0	70	30	100	4
Paper 10	MMA452	Project work* / Dissertation	0	0	4	70	30	100	2
Total			12	4	6	420	180	600	20

* Project will be given in III semester & submitted in IV semester.

Head
Department of Applied Science
Invertis University, Bareilly (U.P.) Dean

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

(Mr. Ashutosh Pradhan) (Dr. Suchita Gupta)

Data Science
Discipline Specific Elective (DSE)
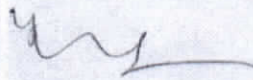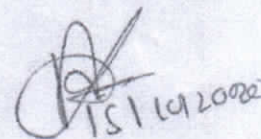
MMA032 / MMA044 / MMA045 / MMA046				
S. No.	**Course Name**	**L-T-P**	**Credit**	**Contact Hrs.**
1.	Big Data Analysis	4-0-0	4	40
2.	Digital Marketing	4-0-0	4	40
3.	Machine Learning	4-0-0	4	30
4.	Advance Machine Learning	4-0-0	4	30
5.	Portfolio Management	4-0-0	4	40
6.	Quality Management	4-0-0	4	40
7.	Discrete Mathematics	4-0-0	4	40
8.	Marketing Management	4-0-0	4	40
9.	Marketing Research	4-0-0	4	40
10.	Logistics and supply chain management	4-0-0	4	40
11.	Financial Mathematics	4-0-0	4	40
12.	Financial Management	4-0-0	4	40
13.	Reliability and Maintenance theory	4-0-0	4	40
14.	Software Reliability	4-0-0	4	40

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

VICE CHANCELLOR
INVERTIS UNIVE

Mathematics
Discipline Specific Elective (DSE)
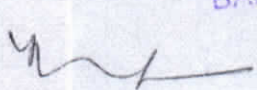
S. No.	Course Name	L-T-P	Credit	Contact Hrs.
	MMA031 / MMA041 / MMA042 / MMA043			
1.	Discrete Mathematics	4-0-0	4	40
2.	Finite Element Method	4-0-0	4	40
3.	Numerical Linear Algebra	4-0-0	4	40
4.	Bio Mathematics	4-0-0	4	40
5.	Multivariable Calculus	4-0-0	4	40
6.	Introduction to Algebraic Geometry	4-0-0	4	40
7.	Theory of Analytic functions	4-0-0	4	40
8.	Fourier Analysis and applications	4-0-0	4	40
9.	Network Models	4-0-0	4	40
10.	Stochastic Programming and applications	4-0-0	4	40
11.	Differential Geometry	4-0-0	4	40
12.	Modern theory of PDE	4-0-0	4	40
13.	Fluid Mechanics	4-0-0	4	40
14.	Numerical Methods of PDE	4-0-0	4	40
15.	Tensors & Riemannian Geometry	4-0-0	4	40
16.	Number theory and Cryptography	4-0-0	4	40
17.	Integral Equation and Calculus of variations	4-0-0	4	40
18	Financial Mathematics	4-0-0	4	40
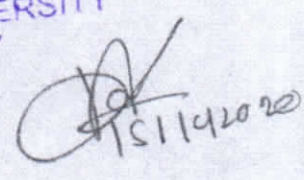
Skill Enhancement Courses (SEC) for Pure Mathematics and Data Science

S. No.	Course Name	Code	L-T-P	Credit	Contact Hrs.
1.	PYTHON	MMA 301	3-1-0	4	40
2.	Lab Python and ML	MMA 351	0-0-2	2	20
3.	Statistical Analysis Lab with R-Programming	MMA 251	0-0-2	2	20
4.	Statistical Analysis	MMA 204	3-1-0	4	40
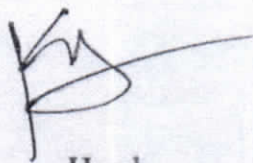
REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

VICE CHANCELLOR
INVERTIS UNI

M.Sc. Mathematics

Ability Enhancement Compulsory (AECC)

S. No.	Course Name	Code	L-T-P	Credit	Contact Hrs.
1.	Dissertation	MMA 454	**0-0-4**	4	40

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

VICE-CHANCELLOR
INVERTIS UNIV...

INVERTIS
UNIVERSITY BAREILLY

Scheme of Instruction & Syllabi

For

Master of Science

In

Physics

Two Years CBCS M.Sc. Course in Physics

(Academic Session: 2020-21)

Department of Applied Sciences &

Humanities INVERTIS UNIVERSITY

Invertis Village

Bareilly-Lucknow NH-24, Bareilly-243123, India

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

VICE CHANCELLOR
INVERTIS UNIVERSITY
BAREILLY

M.Sc. (Physics)

This program provides an ability to identify and solve significant problems across a broad range of application areas, to develop the aptitude to apply the principles of Physics and to articulate an in depth understanding of advanced knowledge on various areas of Physics. It is designed to help students understand the importance of physical advancements in industry and the role of these in improving the quality of human life.

Santosh.
REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

VICE CHANCELLOR
INVERTIS UNIVERSITY
BAREILLY

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

The program acts as the advanced degree and helps to develop critical, analytical and problem-solving skills at advanced level. The foundation degree makes the students employable in scientific organizations and also to assume administrative positions in various types of organizations. It also helps the students to pursue a career in academics or scientific organizations as a researcher.

The Program Educational Objectives are to prepare the students to:

PEO-1. Work independently or in team with engineering, medical, ICT professionals and scientists in scientific problem solving.

PEO-2. Act as administrators in public, private and government organizations or business administrator with further training and education.

PEO-3. Pursue Doctoral research degrees to work in colleges, universities as professors or as scientists in research establishments.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

VICE CHANCELLOR
INVERTIS UNIVERSITY
BAREILLY

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

3

INVERTĪS
UNIVERSITY BAREILLY
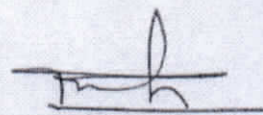
Program Outcomes of M.Sc. (Physics)

PO1: Students will have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in different areas of Physics.

PO2: Students will be able to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments.

PO3: Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.

PO4: Students will be able to clearly communicate the results of scientific work in oral, written and electronic formats to both scientists and the public at large.

PO5: Students will be able to explore new areas of research in both physics and allied fields of science and technology.

PO6: Students will appreciate the pivotal role of physics in our society and use this as a basis for ethical behavior.

PO7: Students will be able to function as a member of an interdisciplinary problem-solving team.

PO8: The graduate has specific skills in planning and conducting advanced experiments and applying structural-physical characterization techniques.

PO9: Are able to use modern instrumentation and classical techniques, to design experiments, and to properly record the results of their experiment.

PO10: Are able to use modern library searching and retrieval methods to obtain information about a topic, techniques, or an issue relating to physics.

PO11: Students should be able to communicate scientific results in writing and in oral presentation.

PO12: Students should become proficient in their specialized area of physics and acquire the basic tools needed to carry out independent cutting-edge research in physics.

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

15-10-2020

VICE CHANCELLOR
INVERTIS UNIVERSITY
BAREILLY
REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS
UNIVERSITY BAREILLY

M.Sc. Final (PHYSICS)
Proposed Course Structure

FOR SPECILIZATION IN **ELECTRONICS**

Semester – III

S.No	Paper	Code	Subjects	Teaching Scheme			Marks Distribution			Credit
				L	T	P	CA	EE	Total	
1	Paper 1	MPY -301	Laser Physics	3	1	0	30	70	100	4
2	Paper 2	MPY -302	Computational Physics	3	1	0	30	70	100	4
3	Paper 3	MPY -303	Electronic Devices	3	1	0	30	70	100	4
4	Lab 3	MPY -351	Electronics Lab	0	0	6	50	100	150	6
5	Lab 4	MPY -352	Computational Technique Lab	0	0	6	25	75	100	6
6	Field Lab	MPY-353*	Field Project/Internship	0	0	2	30	70	100	2
	Total			9	3	14	195	455	650	26

L-Lecture, T-Tutorial, P- Practical, CA-Continuous Assessment, EE-Examination Evaluation.

Semester – IV

S.No	Paper	Code	Subjects	Teaching Scheme			Marks Distribution			Credit
				L	T	P	CA	EE	Total	
1	Paper 1	MPY -401	Digital Electronics	3	1	0	30	70	100	4
2	Paper 2	MPY -402	Communication Electronics & OP-amp	3	1	0	30	70	100	4
3	Lab 5	MPY -451	Advanced Electronics Lab	0	0	6	50	100	150	6
4	Project	MPY -452	Project work	0	0	6	100	100	200	6
	Total			6	2	12	210	340	550	20

L-Lecture, T-Tutorial, P- Practical, CA-Continuous Assessment, EE-Examination Evaluation.

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

*Student will carry out Field Project/Internship during first year session break of the program

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)   *Dean*

(Dr. S.K. Jain)

15/10/2020

M.Sc. (Physics)

FOR SPECILIZATION IN MATERIAL SCIENCES

Semester - III

S.No	Paper	Code	Subjects	Teaching Scheme			Marks Distribution			Credit
				L	T	P	CA	EE	Total	
1	Paper 1	MPY -301	Laser Physics	3	1	0	30	70	100	4
2	Paper 2	MPY -302	Computational Physics	3	1	0	30	70	100	4
3	Paper 3	MPY -304	Structure of Materials	3	1	0	30	70	100	4
4	Lab 3	MPY -353	Material Science Lab	0	0	6	50	100	150	6
5	Lab 4	MPY -352	Computational Technique Lab	0	0	6	25	75	100	6
6	Field Lab	MPY -355 *	Field Project/Internship	0	0	2	30	70	100	2
	Total			9	3	14	195	455	650	26

L-Lecture, T-Tutorial, P- Practical, CA-Continuous Assessment, EE-Examination Evaluation.

Semester – IV

S.No	Paper	Code	Subjects	Teaching Scheme			Marks Distribution			Credit
				L	T	P	CA	EE	Total	
1	Paper 1	MPY -403	Properties of Materials	3	1	0	30	70	100	4
2	Paper 2	MPY -404	Nano Materials	3	1	0	30	70	100	4
3	Lab 5	MPY -453	Advanced Material Science Lab	0	0	6	50	100	150	6
4	Project	MPY -454	Project work	0	0	6	100	100	200	6
	Total			6	2	12	210	340	550	20

L-Lecture, T-Tutorial, P- Practical, CA-Continuous Assessment, EE-Examination Evaluation.

*Student will carry out Field Project/Internship during first year session break of the program

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

10/10/20

Head
Department of Applied Science 15/10/20
Inve.t.   . . .il. (U.P.)

(Dr. S.K.Jain)
15/10/20

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

15/10/2020

(Mr. Arun kaushik)

INVERTIS
UNIVERSITY BAREILLY

CBCS Scheme of Instruction & Syllabi

of

Bachelor of Science
(Zoology, Botany & Chemistry)
First Year

(Effective from the academic session 2020- 2021)

Department of Applied Science & Humanities

INVERTIS UNIVERSITY

Invertis Village,

Bareilly-Lucknow NH-24,

Head   Bareilly, U.P. (243123)

Department of Applied Science
Invertis University, Bareilly (U.P.)

Dean
Faculty of Science
Invertis University, Bareilly (U.P)

15/10/20

17/10/2020

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

VICE CHANCELLOR
INVERTIS UNIVERSITY
BAREILLY

w/e/f/ 2020-2021

1

INVERTIS
UNIVERSITY BAREILLY

B.Sc. (Zoology, Botany and Chemistry)

This program provides an ability to identify and solve significant problems across a broad range of application areas, to develop the aptitude to apply the principles of Zoology, Botany and Chemistry to articulate an in depth understanding of core knowledge on various subjects of Biological Sciences. It is designed to help students understand the importance of biodiversity, sustainable development and the role of these in improving the quality of human life. It also helps students recognize and appreciate the contribution of great scientists in the field of Zoology, Botany and Chemistry.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

The program acts as a foundation degree and helps to develop critical, analytical and problem solving skills at first level. The foundation degree makes the graduates employable in scientific organizations and also to assume administrative positions in various types of organizations. Further acquisitions of higher level degrees help the graduates to pursue a career in academics or scientific organizations as a researcher.

The Program Educational Objectives are to prepare the students to:

PEO-1. Work alongside engineering, medical, ICT professionals and scientists to assist them in scientific problem solving.

PEO-2. Act as administrators in public, private and government organizations or business administrator with further training and education.

PEO-3. Pursue masters and doctoral research degrees to work in colleges, universities as professors or as scientists in research establishments.

Faculty of Science
Invertis University, Bareilly (U.P)

Head
Department of Applied Science
Invertis University, Bareilly U.P.

w/e/f/ 2020-2021 VICE CHANCELLOR
INVERTIS UNIVERSITY
BAREILLY

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

2

PROGRAM OUTCOMES (POs)

After undergoing this programme, a student will be able to execute the following successfully:

PO-1. <u>Scientific knowledge</u>: Apply the knowledge of living world, science, scientific fundamentals, and scientific specialization to the solution of complex scientific problems.

PO-2. <u>Problem analysis</u>: Identify research literature, and analyze scientific problems to arrive at substantiated conclusions using basic principles of natural sciences.

PO-3. <u>Design/development of solutions</u>: Design solutions for scientific problems and design system components, processes to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO-4. <u>Conduct investigations of complex problems</u>: Application research-based knowledge including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO-5. <u>Modern tool usage</u>: Create, select, and apply appropriate techniques, resources, and modern scientific tools including prediction and modeling to complex activities with an understanding of the limitations.

PO-6. <u>Scientific temper and society</u>: Apply reasoning informed by the contextual knowledge to assess societal, health,

safety, legal, and cultural issues and the consequent responsibilities relevant to the practice.

PO-7. **Environment and sustainability**: Appreciate the impact of the professional scientific solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO-8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the work practice.

PO-9. **Individual and team work**: Act as an individual, and as a member or leader in teams, and in multidisciplinary settings.

PO-10. **Communication**: Connect with their community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.

PO-11. **Project management and finance**: Establish knowledge and understanding of scientific and management principles and apply these to one's own work, as a member and leader in a team. Manage projects in multidisciplinary environments.

PO-12. **Life-long learning**: Identify the need for, and have the preparation and ability to engage in independent and life-long learning and research in the broadest context of scientific & technological change.

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

Head
Department of Applied Science
Invertis University Bareilly (U.P.)

w/e/f/ 2020-2021

15/10/20

Santosh.
VICE REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Scheme of Instruction
B.Sc. I st Year (Botany, Zoology and Chemistry)

First Year

CATEGORY	CODE	SUBJECT	L	T	P	CA	EE	Total	Credits
		I Semester	**Teaching Scheme**			**Marks Distribution**			
DSC-1A	CZT101	Animal Diversity	3	1	0	30	70	100	4
DSC-2A	CBT101	Diversity of Non-flowering Plants	3	1	0	30	70	100	4
DSC-3A	CSR101	Fundamental of Chemistry	3	1	0	30	70	100	4
AECC	CAE101	Environmental Science	2	0	0	15	35	50	2
DSC-1A(P)	CZT151	Zoology lab-I	0	0	4	15	35	50	2
DSC-2A(P)	CBT151	Botany lab-I	0	0	4	15	35	50	2
DSC-3A(P)	CSR151	Chemistry lab-I	0	0	4	15	35	50	2
Total			11	3	12	150	350	500	20

II Semester

CATEGORY	CODE	SUBJECT	L	T	P	CA	EE	Total	Credits
DSC-1B	CZT201	Comparative Anatomy and Developmental Biology	3	1	0	30	70	100	4
DSC-2B	CBT201	Angiosperms Diversity and Taxonomy	3	1	0	30	70	100	4
DSC-3B	CSR202	Organic Chemistry	3	1	0	30	70	100	4
AECC	CAE202	English Communication	2	0	0	15	35	50	2
DSC-1B(P)	CZT251	Zoology lab-II	0	0	4	15	35	50	2
DSC-2B(P)	CBT251	Botany lab-II	0	0	4	15	35	50	2
DSC-3B(P)	CSR251	Chemistry lab-II	0	0	4	15	35	50	2
Total			11	3	12	150	350	500	20

Dean
Faculty of Science
Invertis University, Bareilly (U.P.)

*There will be a 2-credit course on human ethics and entrepreneurship which students can choose at any semester during the program.

w/e/f/ 2020-2021

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

VICE CHANCELLOR
INVERTIS UNIVERSITY
BAREILLY

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

5

INVERTIS
UNIVERSITY BAREILLY

Scheme of Instruction
B.Sc. IInd Year (Botany, Zoology and Chemistry)

Second Year									
III Semester			**Teaching Scheme**			**Marks Distribution**			
Category	Code	Subject	L	T	P	CA	EE	Total	Credits
DSC-1C	CZT301	Physiology and Biochemistry	3	1	0	30	70	100	4
DSC-2C	CBT301	Plant Anatomy and Embryology	3	1	0	30	70	100	4
DSC-3C	CSR301	Physical Chemistry	3	1	0	30	70	100	4
SEC	CSE301	SEC-1	2	0	0	15	35	50	2
DSC-1C(P)	CZT351	Zoology lab-III	0	0	4	15	35	50	2
DSC-2C(P)	CBT351	Botany lab-III	0	0	4	15	35	50	2
DSC-3C(P)	CSR351	Chemistry lab-III	0	0	4	15	35	50	2
Total			11	3	12	150	350	500	20

IV Semester									
CATEGORY	CODE	SUBJECT	L	T	P	CA	EE	Total	Credits
DSC-1D	CZT401	Genetics and Evolutionary Biology	3	1	0	30	70	100	4
DSC-2D	CBT401	Ecology and Plant Physiology	3	1	0	30	70	100	4
DSC-3D	CSR401	Inorganic Chemistry	3	1	0	30	70	100	4
SEC	CSE401	SEC-2	2	0	0	15	35	50	2
DSC-1D(P)	CZT451	Zoology lab-IV	0	0	4	15	35	50	2
DSC-2D(P)	CBT451	Botany lab-IV	0	0	4	15	35	50	2
DSC-3D(P)	CSR451	Chemistry lab-IV	0	0	4	15	35	50	2
Total			11	3	12	150	350	500	20

*There will be a 2-credit course on human ethics and entrepreneurship which students can choose at any semester during the program.

w.e.f 2020-2021

Dean
Faculty of Science
Invertis University, Bareilly

Head
Department of Applied Science
Invertis University, Bareilly (U.P.)

VICE CHANCELLOR
INVERTIS UNIVERSITY
BAREILLY

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS
UNIVERSITY BAREILLY

Scheme of Instruction
B.Sc. IIIrd Year (Zoology and Botany)

Third Year (Zoology and Botany)									
V Semester			**Teaching Scheme**			**Marks Distribution**			
CATEGORY	**CODE**	**SUBJECT**	**L**	**T**	**P**	**CA**	**EE**	**Total**	**Credits**
DSE-1A	CZT501	DSE-1Z	3	1	0	30	70	100	4
DSE-2A	CZT502	DSE-2Z	3	1	0	30	70	100	4
DSE-3A	CBT501	DSE-3B	3	1	0	30	70	100	4
SEC	CSE501	SEC-3	2	0	0	15	35	50	2
DSE-1A (P)	CZT551	Zoology lab-V	0	0	4	15	35	50	2
DSE-2A(P)	CZT552	Zoology lab-VI	0	0	4	15	35	50	2
DSE-3A(P)	CBT551	Botany lab-V.	0	0	4	15	35	50	2
Total			**11**	**3**	**12**	**150**	**350**	**500**	**20**
VI Semester									
CATEGORY	**CODE**	**SUBJECT**	**L**	**T**	**P**	**CA**	**EE**	**Total**	
DSE-1B	CZT601	DSE-3Z	3	1	0	30	70	100	4
DSE-2B	CBT601	DSE-2B	3	1	0	30	70	100	4
DSE-3B	CBT602	DSE-3B	3	1	0	30	70	100	4
SEC	CSE602	SEC-4	2	0	0	15	35	50	2
DSE-1B(P)	CZT651	Zoology lab-VII	0	0	4	15	35	50	2
DSE-2B(P)	CBT651	Botany lab-VI	0	0	4	15	35	50	2
DSE-3B(P)	CBT652	Botany lab-VII	0	0	4	15	35	50	2
Total			**11**	**3**	**12**	**150**	**350**	**500**	**20**

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Dean
Faculty of Science
Invertis University, Bareilly

Head

INVERTIS
UNIVERSITY BAREILLY

Scheme of Instruction
B.Sc. IIIrd Year (Zoology and Chemistry)

Third Year (Zoology and Chemistry)									
V Semester			**Teaching Scheme**			**Marks Distribution**			
CATEGORY	CODE	SUBJECT	L	T	P	CA	EE	Total	Credits
DSE-1A	CZT501	DSE-1Z	3	1	0	30	70	100	4
DSE-2A	CZT502	DSE-2Z	3	1	0	30	70	100	4
DSE-3A	CSR501	DSE-3C	3	1	0	30	70	100	4
SEC	CSE501	SEC-3	2	0	0	15	35	50	2
DSE-1A (P)	CZT551	Zoology lab-V	0	0	4	15	35	50	2
DSE-2A(P)	CZT552	Zoology lab-VI	0	0	4	15	35	50	2
DSE-3A(P)	CSR551	Chemistry lab-V	0	0	4	15	35	50	2
Total			11	3	12	150	350	500	20
VI Semester									
CATEGORY	CODE	SUBJECT	L	T	P	CA	EE	Total	
DSE-1B	CZT601	DSE-1Z	3	1	0	30	70	100	4
DSE-2B	CSR601	DSE-2C	3	1	0	30	70	100	4
DSE-3B	CSR602	DSE-3C	3	1	0	30	70	100	4
SEC	CSE602	SEC-4	2	0	0	15	35	50	2
DSE-1B(P)	CZT651	Zoology lab-VII	0	0	4	15	35	50	2
DSE-2B(P)	CSR651	Chemistry lab-VI	0	0	4	15	35	50	2
DSE-3B(P)	CSR652	Chemistry lab-VII	0	0	4	15	35	50	2
Total			11	3	12	150	350	500	20

INVERTIS
UNIVERSITY BAREILLY

Scheme of Instruction
B.Sc. IIIrd Year (Botany and Chemistry)

Third Year (Botany and Chemistry)									
V Semester			Teaching Scheme			Marks Distribution			
CATEGORY	CODE	SUBJECT	L	T	P	CA	EE	Total	Credits
DSE-1A	CBT501	DSE-1B	3	1	0	30	70	100	4
DSE-2A	CBT502	DSE-2B	3	1	0	30	70	100	4
DSE-3A	CSR501	DSE-3C	3	1	0	30	70	100	4
SEC	CSE501	SEC-3	2	0	0	15	35	50	2
DSE-1A (P)	CBT551	Botany lab-V	0	0	4	15	35	50	2
DSE-2A(P)	CBT552	Botany lab-VI	0	0	4	15	35	50	2
DSE-3A(P)	CSR551	Chemistry lab-V	0	0	4	15	35	50	2
Total			11	3	12	150	350	500	20
VI Semester									
CATEGORY	CODE	SUBJECT	L	T	P	CA	EE	Total	
DSE-1B	CBT601	DSE-1B	3	1	0	30	70	100	4
DSE-2B	CSR601	DSE-2C	3	1	0	30	70	100	4
DSE-3B	CSR602	DSE-3C	3	1	0	30	70	100	4
SEC	CSE602	SEC-4	2	0	0	15	35	50	2
DSE-1B(P)	CBT651	Botany lab-VII	0	0	4	15	35	50	2
DSE-2B(P)	CSR651	Chemistry lab-VI	0	0	4	15	35	50	2
DSE-3B(P)	CSR652	Chemistry lab-VII	0	0	4	15	35	50	2
Total			11	3	12	150	350	500	20

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Dean
Faculty of Science
Invertis University, Bareilly

B.Sc.ZBC

*There will be a 2-credit course on human ethics and entrepreneurship which students can choose at any semester during the program.

List of DSEs

DSE(Zoology)1A	Ecology and Systematics
DSE(Zoology)2A	Analytical Techniques in Animal Sciences
DSE(Zoology)3A	Immunology
DSE (Zoology)4A	Economic Zoology and Animal Biotechnology
DSE (Zoology)1B	Reproductive Biology
DSE(Zoology)2B	Parasitology and Disease management
DSE(Zoology)3B	Aquatic Biology
DSE(Zoology)4B	Cytogenetics and Human Genetics
DSE(Botany)1A	Cell and Molecular Biology
DSE(Botany)2A	Economic Botany and Plant Biotechnology
DSE(Botany)3A	Analytical Techniques in Plant Sciences
DSE(Botany)4A	Plant Breeding and Tissue Culture
DSE(Botany)1B	Microbiology and Plant Pathology
DSE(Botany)2B	Evolution and Paeleobotany
DSE(Botany)3B	Environment protection and Sustainable Development
DSE(Botany)4B	Plant Resource Utilization and Palynology
DSE(Chemistry)1A	Applied Organic Chemistry
DSE(Chemistry)2A	Physical chemistry
DSE(Chemistry)3A	Inorganic Chemistry
DSE(Chemistry)1B	Introduction to Nanoscience
DSE(Chemistry)2B	Advanced Physical Organic Chemistry
DSE(Chemistry)3B	Green Chemistry

List of SECs

SEC-1	Aquarium and fish keeping
SEC-2	Apiculture
SEC-3	Sericulture
SEC-4	Public Health and Hygiene
SEC-5	Biofertilizers
SEC-6	Medicinal Botany
SEC-7	Ethnobotany
SEC-8	Intellectual Property Rights (IPR)
SEC-9	Chemical Technology & Society
SEC-10	Pharmaceutical Chemistry

Head
Department of Applied Science
Invertis University, Bareilly (U.P.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

VICE CHANCELLOR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS
UNIVERSITY BAREILLY
BUILDING VIBRANT PERSONALITIES
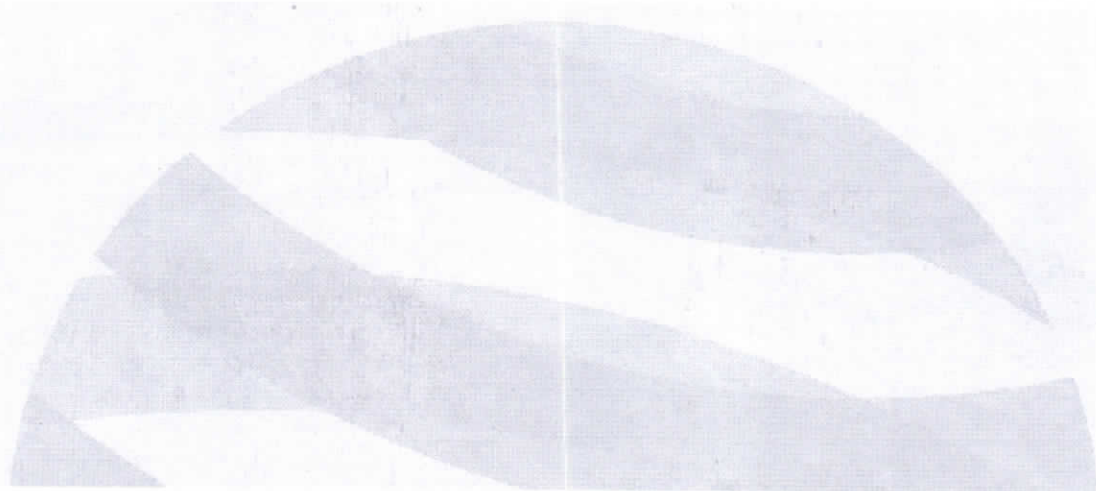
COURSE STRUCTURE

DEPARTMENT OF COMPUTER APPLICATIONS

NAAC CRITERIA 1.2.2
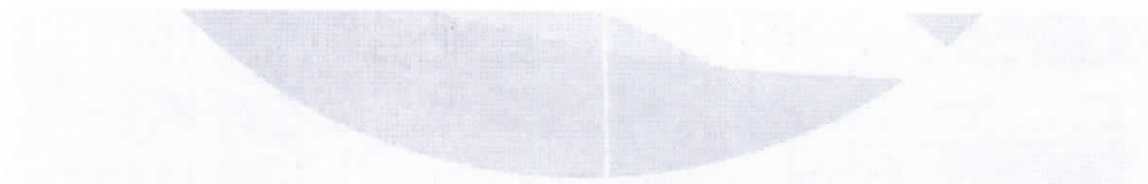
Scheme of Instructions & Syllabi

of

Bachelor of Science (Honors)
in Computer Science
First Year

(Effective from session 2020-21)

Department of Computer Applications

INVERTIS UNIVERSITY
Bareilly-243123 U.P.

STUDY AND EVALUATION SCHEME
B. Sc. (Honors) in Computer Science
(Effective from session 2020-2021)

SEMESTER I, YEAR I

Course Code	Course Title	Course Category	L+T+P	CA	EE	Total	Credit
CSH101	Computer Fundamentals	CC1	5+1+0	50	100	150	6
CSH102	Programming using C	CC2	3+1+0	30	70	100	4
CSH103	Digital Electronics and Applications	CC3	3+1+0	30	70	100	4
CSH105	Industrial Applications	AECC	2+0+0	15	35	50	2
LAB							
CSH151	C Programming Lab	CC2(P)	0+0+4	15	35	50	2
CSH152	Digital Electronics Lab	CC3(P)	0+0+4	15	35	50	2
	Total			155	345	500	20

SEMESTER II, YEAR I

Course Code	Course Title	Course Category	L+T+P	CA	EE	Total	Credit
CSH**	GE1	GE	2+0+0	15	35	50	2
CSH204	Data Structures using C	CC4	3+1+0	30	70	100	4
CSH205	Operating Systems	CC5	5+1+0	50	100	150	6
CSH206	Programming in C++	CC6	3+1+0	30	70	100	4
LAB							
CSH252	Data Structures Lab	CC4P	0+0+4	15	35	50	2
CSH253	C++ LAB	CC6P	0+0+4	15	35	50	2
	Total			155	345	500	22

L – Lecture
T – Tutorial
P – Practical
ESM – End Semester Marks
MSM – Max. Sessional Marks

Program Outcomes (POs)

PO1	**Engineering knowledge**	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	**Problem analysis**	Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	**Design / development of solutions**	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	**Conduct investigations of complex problems**	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	**Modern tool usage**	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	**The engineer and society**	Apply reasoning informed by the contextual knowledge to assesssocietal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	**Environment and sustainability**	Understand the impact of the professional engineering solutionsin societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	**Ethics**	Apply ethical principles, responsibility and norms of the engineering practice
PO9	**Individual and team work**	Function effectively as an individual, and as a member or leader indiverse teams, and in multidisciplinary settings.
PO10	**Communication**	Communicate effectively on complex engineering activities with the engineeringcommunity and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
PO11	**Project management and finance**	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. Manage projects in multi-disciplinary environments
PO12	**Life-long learning**	Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Scheme of Instructions & Syllabi

of

Bachelor of Science (Honors) in Computer Science Second Year

(Effective from session 2020-21)

Department of Computer Applications

INVERTIS UNIVERSITY
Bareilly-243123 U.P.

STUDY AND EVALUATION SCHEME

B. Sc. (Honors) in Computer Science
(Effective from session 2020-2021)

SEMESTER III, YEAR II

Course Code	Course Title	Course Category	L+T+P	CA	EE	Total	Credit
CSH301	RDBMS	CC7	3+1+0	30	70	100	4
CSH305	Java Programming	CC8	3+1+0	30	70	100	4
CSH306	Software Engineering	CC9	5+1+0	50	100	150	6
CSH**	GE2	GE	2+0+0	15	35	50	2
LAB							
CSH351	RDBMS Lab	CC7P	0+0+4	15	35	50	2
CSH353	Java Lab	CC8P	0+0+4	15	35	50	2
Total				155	345	500	20

SEMESTER IV, YEAR II

Course Code	Course Title	Course Category	L+T+P	CA	EE	Total	Credit
CSH402	Computer Graphics	CC11	3+1+0	30	70	100	4
CSH406	Programming in Python	CC10	3+1+0	30	70	100	4
CSH407	Cryptography & Data Security	CC12	5+1+0	50	100	150	6
CSH408	Computer Networking	CC13	5+1+0	50	100	150	6
LAB							
CSH453	Python Lab	CC10(P)	0+0+4	15	35	50	2
CSH451	Computer Graphics Lab	CC11(P)	0+0+4	15	35	50	2
	Total			190	410	600	24

L – Lecture
T – Tutorial
P – Practical
ESM – End Semester Marks
MSM – Max. Sessional Marks

Santosh.
REGISTRAR
INVERTIS UNIVERSITY
C. REILLY

Scheme of Instructions & Syllabi

of

Bachelor of Science (Honors)
in Computer Science
Third Year
(Effective from session 2020-21)

Department of Computer Applications

INVERTIS UNIVERSITY
Bareilly-243123 U.P.

STUDY AND EVALUATION SCHEME
B. Sc. (Honors) in Computer Science
(Effective from session 2020-2021)

SEMESTER V, YEAR III

Course Code	Course Title	Course Category	L+T+P	CA	EE	Total	Credit
CSH502	Internet Technologies	CC14	3+1+0	30	70	100	4
CSH505	GUI .NET Framework	CC15	3+1+0	30	70	100	4
CSH506	Data Mining	SEC	2+0+0	15	35	50	2
CSH*	DSE1	DSE	4+2+0	50	100	150	6
BCA568	Summer Internship ***	AECC(P)	0+0+2	15	35	50	2
LAB							
CSH552	Internet Technologies Lab	CC14(P)	0+0+4	15	35	50	2
CSH553	GUI .NET Framework Lab	CC15(P)	0+0+4	15	35	50	2
	Total			170	380	550	22

L – Lecture
T – Tutorial
P – Practical
ESM – End Semester Marks
MSM – Max. Sessional Marks

SEMESTER VI, YEAR III

Course Code	Course Title	Course Category	L+T+P	CA	EE	Total	Credit
CSH605	PHP	CC16	3+1+0	30	70	100	4
CSH606	Digital Marketing	SEC	2+0+0	15	35	50	2
CSH*	DSE2	DSE	3+1+0	30	70	100	4
CSH604	DSE3	DSE	4+2+0	50	100	150	6
LAB							
CSH653	PHP Lab	CC16(P)	0+0+4	15	35	50	2
CSH*	DSE3 Lab	DSE	0+0+4	15	35	50	2
	Total			155	345	500	20

L – Lecture
T – Tutorial
P – Practical
ESM – End Semester Marks
MSM – Max. Sessional Marks

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Scheme of Instructions & Syllabi

of

Bachelor of Computer Applications
First Year
(Effective from session 2020-21)

Department of Computer Applications

INVERTIS UNIVERSITY
Bareilly-243123 U.P.

STUDY AND EVALUATION SCHEME
Bachelor of Computer Applications
(Effective from session 2020-2021)

SEMESTER I, YEAR I

Course Code	Course Title	Course Category	L+T+P	CA	EE	Total	Credit
BCA101	Environment & Ecology	AECC	2+0+0	15	35	50	2
BCA107	C Programming	CC1	3+1+0	30	70	100	4
BCA**	GE1	GE	2+0+0	15	35	50	2
BCA105	Digital Electronics and Computer Organization	CC2	5+1+0	50	100	150	6
BCA106	Information Technologies	CC3	3+1+0	30	70	100	4
BCA**	GE2(Qualifying)	GE	3+1+0	30	70	100	0
LAB							
BCA153	C Programming Lab	CC1(P)	0+0+4	15	35	50	2
BCA154	Information Technologies Lab	CC3(P)	0+0+4	15	35	50	2
	TOTAL			200	450	650	22

SEMESTER II, YEAR I

Course Code	Course Title	Course Category	L+T+P	CA	EE	Total	Credit
BCA202	Introduction to Operating Systems	CC4	5+1+0	50	100	150	6
BCA204	Object Oriented Programming using C++	CC5	3+1+0	30	70	100	4
BCA206	Data Structures using C	CC6	3+1+0	30	70	100	4
BCA207	Industrial Applications	AECC	2+0+0	15	35	50	2
BCA**	GE3	GE	2+0+0	15	35	50	2
LAB							
BCA253	Object Oriented Programming using C++ Lab	CC5(P)	0+0+4	15	35	50	2
BCA254	Data Structures using C Lab	CC6(P)	0+0+4	15	35	50	2
	Total			170	380	550	22

PROGRAM OUTCOMES(POs)

	Program Outcomes (POs)	
PO1	Engineering knowledge	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	Problem analysis	Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	Design/development of solutions	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural, societal, and environmental considerations.
PO4	Conduct investigations of complex problems	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	Modern tool usage	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	The engineer and society	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	Environment and sustainability	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	Ethics	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	Individual and team work	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	Communication	Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	Project management and	Demonstrate knowledge and understanding of the engineering

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

	finance	and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	Life-long learning	Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

Scheme of Instructions & Syllabi

of

Bachelor of Computer Applications
Second Year
(Effective from session 2020-21)

Department of Computer Applications

INVERTIS UNIVERSITY
Bareilly-243123 U.P.

STUDY AND EVALUATION SCHEME
Bachelor of Computer Applications
(Effective from session 2020-2021)

SEMESTER III, YEAR II

Course Code	Course Title	Course Category	L+T+P	CA	EE	Total	Credit
BCA302	Database Management Systems	CC7	3+1+0	30	70	100	4
BCA304	Computer Networks	CC8	5+1+0	50	100	150	6
BCA306	JAVA Programming	CC9	3+1+0	30	70	100	4
BCA**	GE4	GE	2+0+0	15	35	50	2
BCA309	Multimedia & its Applications	SEC	3+1+0	30	70	100	4
LAB							
BCA351	DBMS LAB	CC9(P)	0+0+4	15	35	50	2
BCA353	JAVA Programming LAB	CC7(P)	0+0+4	15	35	50	2
BCA354	Multimedia LAB	SEC(P)	0+0+4	15	35	50	2
Total				200	450	650	26

SEMESTER IV, YEAR II

Course Code	Course Title	Course Category	L+T+P	CA	EE	Total	Credit
BCA401	Software Engineering	CC10	5+1+0	50	100	150	6
BCA406	Web Based System Development	CC11	3+1+0	30	70	100	4
BCA407	GUI using .Net Framework	CC12	3+1+0	30	70	100	4
BCA408	Data Mining & Warehousing	SEC	5+1+0	50	100	150	6
BCA409	Mini Project	CC13	0+0+6	50	100	150	6
LAB							
BCA453	Web Based System Development Lab	CC11(P)	0+0+4	15	35	50	2
BCA454	GUI using .Net Framework Lab	CC12(P)	0+0+4	15	35	50	2
Total				240	510	750	30

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

*   Students can choose Elective from the DSE list
**   Student can choose Elective from the GE list
*** After 4th Semester, students will undergo 4 weeks summer training compulsorily in Public Sector undertakings or Private Sector, known as Industrial Training/Internship. 50 marks will be on the basis of viva of students on their Project experience in 5th Semester.

Scheme of Instructions & Syllabi

of

Bachelor of Computer Applications
Third Year

(Effective from session 2020-21)

Department of Computer Applications

INVERTIS UNIVERSITY
Bareilly-243123 U.P.

Santosh
REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

STUDY AND EVALUATION SCHEME
Bachelor of Computer Applications
(Effective from session 2020-2021)

SEMESTER V, YEAR III

Course Code	Course Title	Course Category	L+T+P	CA	EE	Total	Credit
BCA501	Computer Graphics and Animation	CC14	3+1+0	30	70	100	4
BCA503	Digital Marketing	SEC	2+0+0	15	35	50	2
BCA*	DSE1	DSE	3+1+0	30	70	100	4
BCA505	Data & Network Security	CC15	5+1+0	50	100	150	6
LAB							
BCA556	Computer Graphics Lab	CC14(P)	0+0+4	15	35	50	2
BCA*	DSE1 Lab	DSE(P)	0+0+4	15	35	50	2
BCA557	Summer Internship ***	AECC(P)	0+0+2	15	35	50	2
	Total			170	380	525	22

SEMESTER VI, YEAR III

Course Code	Course Title	Course Category	L+T+P	CA	EE	Total	Credit
BCA601	Python Programming	CC16	3+1+0	30	70	100	4
BCA604	Advanced SQL Programming	CC17	3+1+0	30	70	100	4
BCA605	Cloud computing	CC18	5+1+0	50	100	150	6
BCA*	DSE2	DSE	5+1+0	50	100	150	6
LAB							
BCA653	Python Lab	CC16(P)	0+0+4	15	35	50	2
BCA654	Advanced SQL LAB	CC17(P)	0+0+4	15	35	50	2
BCA*	DSE3	DSE	0+0+6	50	100	150	6
	Total			215	460	675	27

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

*   Students can choose Elective from the DSE list
**   Student can choose Elective from the GE list
*** After 4th Semester, students will undergo 4 weeks summer training compulsorily in Public Sector undertakings or Private Sector, known as Industrial Training/Internship. 50 marks will be on the basis of viva of students on their Project experience in 5th Semester.

Scheme of Instructions & Syllabi

of

Master of Computer Applications
First Year

(Effective from session 2020-21)

Department of Computer Applications

INVERTIS UNIVERSITY
Bareilly-243123 U.P.

STUDY AND EVALUATION SCHEME
Master of Computer Applications
(Effective from session 2020-2021)

SEMESTER I, YEAR I

S.N.	Course Code	Subjects	L+T+P	Scheme CA	Scheme EE	Total	Credit
THEORY							
1	MCA106	Object Oriented Programming Concepts	3+1+0	30	70	100	4
2	MCA107	Advanced Computer Architecture	3+1+0	30	70	100	4
3	MCA108	Advanced Database Management Systems	3+1+0	30	70	100	4
4	MCA109	Advanced Computer Networks	3+1+0	30	70	100	4
5	MCA110	Advanced Data Structure and Algorithms	3+1+0	30	70	100	4
6	MCA111	Elementary Mathematics	3+1+0	30	70	100	0
PRACTICAL / PROJECTS							
7	MCA153	Object Oriented Programming Concepts Lab	0+0+4	15	35	50	2
8	MCA154	Advanced Database Management Systems Lab	0+0+4	15	35	50	2
9	MCA155	Advanced Data Structure and Algorithms Lab	0+0+4	15	35	50	2
TOTAL			15 5 12	195	455	650	26

SEMESTER II, YEAR I

S.N.	Course Code	Subjects	L+T+P	Scheme CA	Scheme EE	Total	Credit
THEORY							
1	MCA206	Advanced Java Programming	3+1+0	30	70	100	4
2	MCA207	Design & Analysis of Algorithms	3+1+0	30	70	100	4
3	MCA208	Advanced Operating Systems	3+1+0	30	70	100	4
4	MCA209	Advanced Software Engineering	3+1+0	30	70	100	4
5	MCA210	Web Technologies	3+1+0	30	70	100	4
PRACTICAL / PROJECTS							
7	MCA253	Java Programming Lab	0+0+4	15	35	50	2
8	MCA254	Web Technologies Lab	0+0+4	15	35	50	2

9	MCA255	Seminar	2+0+0	0	0	50	2
		TOTAL	**15 5 12**	**195**	**455**	**650**	**26**

		Program Outcomes (POs)	
PO1	Computational Knowledge	Understand and apply mathematical foundation, computing and domain knowledge for the conceptualization of computing models from defined problems.
PO2	Problem analysis	Ability to identify, critically analyze and formulate complex computing problems using fundamentals of computer science and application domains.
PO3	Design / Development of Solutions	Ability to transform complex business scenarios and contemporary issues into problems, investigate, understand and propose integrated solutions using emerging technologies
PO4	Conduct Investigations of Complex Computing Problems	Ability to devise and conduct experiments, interpret data and provide well informed conclusions.
PO5	Modern Tool Usage	Ability to select modern computing tools, skills and techniques necessary for innovative software solutions.
PO6	Professional Ethics	Ability to apply and commit professional ethics and cyber regulations in a global economic environment.
PO7	Life-long Learning	Recognize the need for and develop the ability to engage in continuous learning as a Computing professional.
PO8	Project Management and Finance	Ability to understand, management and computing principles with computing knowledge to manage projects in multidisciplinary environments.
PO9	Communication efficacy	Communicate effectively with the computing community as well as society by being able to comprehend effective documentations and presentations.
PO10	Societal & Environmental Concern	Ability to recognize economical, environmental, social, health, legal, ethical issues involved in the use of computer technology and other consequential responsibilities relevant to professional practice.
PO11	Individual & Team Work	Ability to work as a member or leader in diverse teams in multidisciplinary environment.
PO12	Innovation and Entrepreneurship	Identify opportunities, entrepreneurship vision and use of innovative ideas to create value and wealth for the betterment of the individual and society.

Scheme of Instructions & Syllabi

of

Master of Computer Applications
Second Year

(Effective from session 2020-21)

Department of Computer Applications

INVERTIS UNIVERSITY

Bareilly-243123 U.P.

STUDY AND EVALUATION SCHEME
Master of Computer Applications
(Effective from session 2020-2021)

SEMESTER III, YEAR II

S.N.	Course Code	Subjects	L+T+P	Scheme CA	Scheme EE	Total	Credit
THEORY							
1	MCA306	.NET Framework using C#	3+1+0	30	70	100	4
2	MCA307	Advanced Data Mining Techniques	3+1+0	30	70	100	4
3	MCA308	Cryptography and Cyber Security	3+1+0	30	70	100	4
4	MCA*	Elective 1	3+1+0	30	70	100	4
5	MCA*	Elective 2	3+1+0	30	70	100	4
6	MCA319	Industrial Training Viva **	0+0+0	0	0	25	1
PRACTICAL / PROJECTS							
7	MCA353	.NET Framework using C # Lab	0+0+4	15	35	50	2
8	MCA354	Elective 1 Lab	0+0+4	15	35	50	2
9	MCA355	Mini Project	0+0+4	10	15	25	1
TOTAL			15 5 12	190	435	650	26

	Elective 1			Elective 2	
i	MCA309	Artificial Neural Network	i	MCA314	Digital Marketing
ii	MCA310	Android Programming	ii	MCA315	Theory of Computation
iii	MCA311	PHP	iii	MCA316	Distributed DBMS
iv	MCA312	Search Engine Optimization	iv	MCA317	Data Compression
v	MCA313	Oracle	v	MCA318	Social Network Analysis

STUDY AND EVALUATION SCHEME
Master of Computer Applications
(Effective from session 2020-2021)

SEMESTER IV, YEAR II

S.N.	Course Code	Subjects	L+T+P	Scheme CA	Scheme EE	Total	Credit
THEORY						
1	MCA404	Machine Learning with Python	3+1+0	30	70	100	4
2	MCA405	Cloud Computing and Virtualization	3+1+0	30	70	100	4
3	MCA*	Elective	3+1+0	30	70	100	4
PRACTICAL / PROJECTS						
7	MCA453	Machine Learning with Python Lab	0+0+4	15	35	50	2
8	MCA454	Major Project	0+0+4	90	210	300	12
		TOTAL	9 3 8	195	455	650	26

Electives

i	MCA406	Internet of Things	I	MCA415	Big Data Analysis
ii	MCA407	MATLAB	Ii	MCA416	Compiler Design
iii	MCA408	Digital Image Processing	Iii	MCA417	Advanced Soft Computing
iv	MCA409	Block Chain Technology	Iv	MCA418	Software Quality Assurance & Testing
v	MCA410	Artificial Intelligence	V	MCA419	Advanced Mobile Computing

Santosh

* Students can choose Electives from Elective1 & Elective 2 lists.

**After 2nd Semester, students will undergo 6 weeks summer training compulsorily in Public Sector undertakings or Private Sector, known as Industrial Training/Internship. 25 marks will be on viva of students on their Project experience in 3rd Semester.

INVERTIS
UNIVERSITY BAREILLY
BUILDING VIBRANT PERSONALITIES
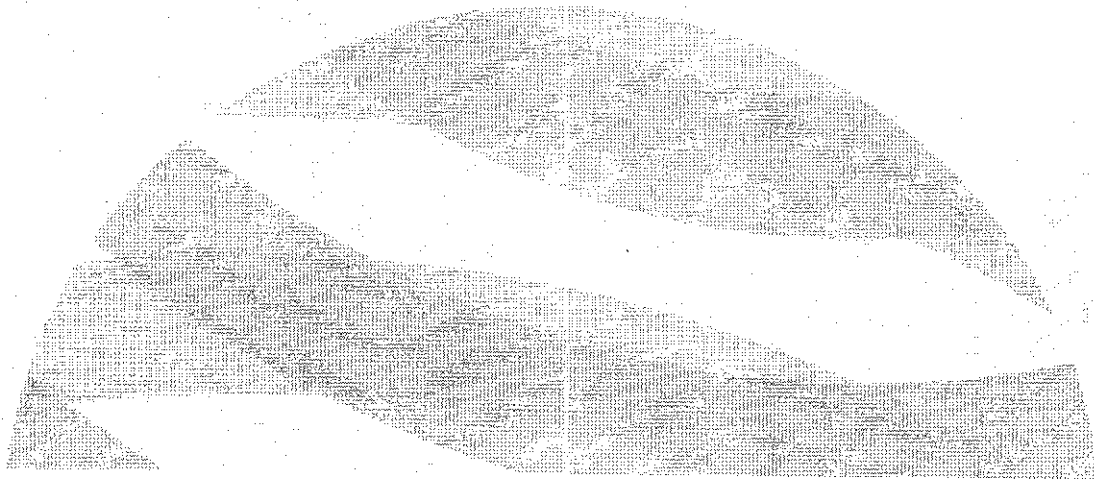
COURSE STRUCTURE

DEPARTMENT OF CIVIL ENGINEERING

NAAC CRITERIA 1.2.2
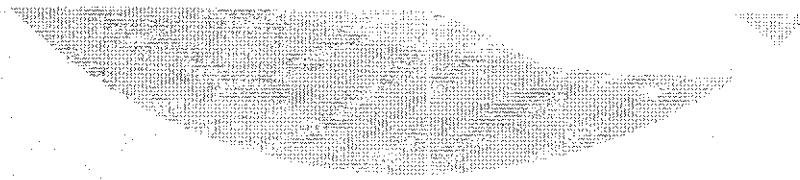
INVERTIS
UNIVERSITY BAREILLY
Established by Govt. of U.P. u/s 2F of UGC Act, 1956 vide U.P. Act 22 of 2010.

Invertis Institute of Engineering &Technology

INVERTIS UNIVERSITY
Invertis Village
Bareilly-Lucknow NH-24, Bareilly

Effective from the batches admitted in 2014-15 onwards

DEPARTMENT OF
CIVIL ENGINEERING

Vision of the Institute

To develop responsible citizens who would 'think global and act local' and become the change agents of society to meet the challenges of future.

Mission of the Institute

To impart high quality Engineering and Management education to the budding professionals and provide the ambience needed for developing requisite skills to make a mark of excellence in Education, Business and Industry.

Departmental Vision

To produce a new generation of Civil Engineers by providing state-of-the-art education in Civil Engineering recognized worldwide for excellence. This would be guided by extensive research in technology and management for industrial and social needs for sustainabledevelopment.

Departmental Mission

Our endeavour is to make the department the highest seat of learning, prepare Engineers equipped with strong conceptual Foundation coupled with practical insight meet global Business changes.

Program Educational Objectives (PEOs)

PEO 1 Graduates will be able to analyze, design and propose a feasible solution to civil engineering problems by applying basic principles of mathematics, science and engineering.

PEO 2 Graduates will be inculcated with necessary professional skills, effective oral and written communication to be productive engineers.

PEO 3 Graduates will be able to work as a team in intra and interdisciplinary end over for development of new ideas and products to serve in contemporary societal contexts.

PEO 4 Graduates will be able to face challenges of the world economic order by incorporating expertise gained by faculty in consultancy work, for educating students, involving modern tools and techniques.

PEO 5 Graduates will achieve a high level of technical and managerial expertise to achieve excellence, outstanding leadership to succeed in positions in civil engineering profession with higher threshold start in employment background.

PROGRAM OUTCOMES (POs)

Engineering Graduates will be able to:

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clearinstructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Graduates will be able to apply technical skills and modern engineering tools for civil engineering day to day practice.

PSO2: Graduates will be able to participate in critical thinking and problem solving of civil engineering field that requires analytical and design requirements.

PSO3: Graduates will be able to pursue of lifelong learning and professional development to face the challenging and emerging needs of our society.

CURRICULUM SEMESTER WISE
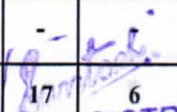
First Year First Semester

S. No.	Course Code	SUBJECT	PERIODS			Credit
			L	T	P	
THEORY						
1	BAS-103	Mathematics-I	3	1	0	4
2	BAS-102 or BME-102	Engg. Chemistry or Engg. Mechanics	3	1	0	4
3	BEE-101 or BCS-101	Electrical Engg. or Computer Fundamentals & Programming in C	3	1	0	4
4	BEC-101 or BHU-101	Electronics Engineering or Professional Communication	3	1	0	4
5	BAS-101	Engg. Physics-I	3	1	0	4
6	BME-101 or BAS-104	Manufacturing Process or Environment & Ecology	2	0	0	2
PRACTICAL/TRAINING/PROJECT						
7	BME-151 or BCE-151	Workshop Practice or Engg. Drawing & Computer Graphics	0	1	3	2
8	BAS-152 or BME-152	Engg. Chemistry Lab or Engg. Mechanics Lab	0	0	2	1
9	BEE-151 or BCS-151	Electrical Engg Lab or Computer Fundamentals & Programming in C Lab	0	0	2	1
10	BAS-151 or BHU-151	Physics Lab or Professional Communication Lab	0	0	2	1
11	GP-101	General Proficiency	-	-	-	1
Total			17	6	9	28

First Year Second Semester

S. No.	Course Code	SUBJECT	PERIODS			Credit
			L	T	P	
THEORY						
1	BAS-203	Mathematics-II	3	1	0	4
2	BME-202 or BAS-202	Engg. Mechanics -I or Engg. Chemistry	3	1	0	4
3	BCS-201 or BEE-201	Computer Fundamentals & Programming in C or Electrical Engg.	3	1	0	4
4	BHU-201 or BEC-201	Professional Communication or Electronics Engineering	3	1	0	4
5	BAS-201	Engg. Physics-II	3	1	0	4
6	BAS-204 or BME-201	Environment & Ecology or Manufacturing Process	2	0	0	2
PRACTICAL/TRAINING/PROJECT						
7	BCE-251 or BME-251	Engg. Drawing & Computer Graphics or Workshop Practice	0	1	3	2
8	BME-252 or BAS-252	Engg. Mechanics Lab or Engg. Chemistry Lab	0	0	2	1
9	BCS-251 or BEE-251	Computer Fundamentals & Programming in C Lab or Electrical Engg. Lab	0	0	2	1
10	BHU-251 or BAS-251	Professional Communication Lab or Physics Lab	0	0	2	1
11	GP-201	General Proficiency	-	-	-	1
		Total	17	6	9	28

Second Year 3rd Semester

S.NO.	COURSE CODE	SUBJECT	PERIODS			CREDIT
			L	T	P	
THEORY						
1	BHU-301/ BHU-302	IndustrialPsychology /Industrial Sociology	2	0	0	2
2	BOE-031-038/ BAS-301	Science Based Open Elective/ Mathematics III	3	1	0	4
3	BCE-304	Strength Of Materials	3	1	0	4
4	BCE-301	Fluid Mechanics	3	1	0	4
5	BCE-302	Building Materials & Construction	4	0	0	4
6	BCE-303	Surveying	2	1	0	3
PRACTICAL/TRAINING/PROJECT						
7	BCE-351	Fluid Mechanics Lab	0	0	3	1
8	BCE-352	Building Materials Lab	0	0	3	1
9	BCE-353	Surveying Lab	0	0	3	1
10	BCE-354	Building Planning &Drawing Lab	0	0	3	1
11	GP-301	General Proficiency	-	-	-	1
TOTAL			17	4	12	26

REGISTRAR
INVERT'S UNIVERSITY
BAREILLY

Second Year 4th Semester

S.NO	COURSE CODE	SUBJECT	PERIODS			CREDIT
			L	T	P	
THEORY						
1	BHU-401/ BHU-402	Industrial Psychology / Industrial Sociology	2	0	0	2
2	BOE-041-048/ BAS-401	Science Based Open Elective/ Mathematics III	3	1	0	4
3	BCE-401	Geotechnical Engineering I	3	1	0	4
4	BCE-402	Geoinformatics	3	1	0	4
5	BCE-403	Hydraulics & Hydraulic Machines	3	1	0	4
6	BCE-404	Engineering Geology*	2	1	0	3
PRACTICAL/TRAINING/PROJECT						
7	BCE-451	Geotechnical Engineering Lab	0	0	3	1
8	BCE-452	Geoinformatics Lab	0	0	3	1
9	BCE-453	Hydraulic Machines Lab	0	0	3	1
10	BCE-454	Computer based statistical & Numerical Techniques Lab	0	0	3	1
11	GP-401	General Proficiency	-	-	-	1
		TOTAL	16	5	12	26

REGISTRAR
INVERTIS UNIVERSITY
LY

Third Year 5ᵗʰ Semester

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
		THEORY									
1	BCE-501	Geotechnical Engineering II	3	1	0	20	10	30	70	100	4
2	BCE-502	Structural Analysis I	3	1	0	20	10	30	70	100	4
3	BCE-503	Transportation Engineering I	3	1	0	20	10	30	70	100	4
4	BCE-504	Irrigation Engineering	3	1	0	20	10	30	70	100	3
5	BCE-505	Environmental Engineering I	2	1	0	10	5	15	35	50	3
6	BCE-506	Estimation Costing & Valuation	2	1	0	10	5	15	35	50	2
		PRACTICAL/DESIGN/DRAWING									
7	BCE-551	Environmental Engineering Design Practice	0	0	2	-	-	10	15	25	1
8	BCE-552	Structural Analysis Lab	0	0	2	-	-	10	15	25	1
9	BCE-553	Geotechnical Engineering II Lab	0	0	2	-	-	10	15	25	1
10	BCE-554	Seminar	0	0	2	-	-	25	-	25	1
11	GP-501	General Proficiency	-	-	-	-	-	25	-	25	1
	Total		16	6	8	100	50	230	395	625	25

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Third Year 6th Semester

S. No.	Course Code	SUBJECT	PERIODS			SESSIONAL EXAM.			E-SEM/		Credits
			L	T	P	CT	TA	TOTAL	TOTAL		
THEORY											
1	BCE-601	Concrete Structure	3	1	0	20	10	30	70	100	4
2	BCE-602	Structural Analysis II	3	1	0	20	10	30	70	100	4
3	BCE-603	Transportation Engineering II	3	1	0	20	10	30	70	100	4
4	BCE-604	Environmental Engineering II	2	1	0	10	5	15	35	50	2
5		CE Elective-I	3	1	0	20	10	30	70	100	4
6		CE Elective-II	2	1	0	10	5	15	35	50	2
PRACTICAL/DESIGN/DRAWING											
6	BCE-651	Cement Concrete Lab	0	0	2	-	-	10	15	25	1
7	BCE-652	Structural Detailing Lab	0	0	2	-	-	10	15	25	1
8	BCE-653	Transportation Engineering Lab	0	0	2	-	-	10	15	25	1
9	BCE-654	Environmental Engineering Lab	0	0	2	-	-	10	15	25	1
10	GP-601	General Proficiency	-	-	-	-	-	25	-	25	1
Total			16	6	8	100	50	215	410	625	25

Fourth Year 7th Semester

S. No.	Course Code	SUBJECT	L	T	P	CT	TA	TOTAL	E-SEM	SUBJECT TOTAL	Credits
						Evaluation Scheme					
			PERIODS			**SESSIONAL EXAM.**					
THEORY											
1	BCE-701	Steel Structures	3	1	0	20	10	30	70	100	4
2	BCE-702	Water Resource Engineering I	3	1	0	20	10	30	70	100	4
3	BCE-703	Environmental Impact Assessment	3	1	0	20	10	30	70	100	4
4	BCE: 704	Pre-stressed Concrete	3	1	0	20	10	30	70	100	4
5		CE ELECTIVE-III	3	1	0	20	10	30	70	100	4
PRACTICAL/DESIGN/DRAWING											
6	BCE-751	Industrial Training	0	0	0	-	-	25	-	25	1
7	BCE-752	Structural Engineering Lab	0	0	2	-	-	10	15	25	1
8	BCE-753	Project	0	0	4	-	-	15	35	50	2
9	GP-701	General Proficiency	-	-	-	-	-	25	-	25	1
Total			15	5	6	100	50	225	400	625	25

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Fourth Year 8th Semester

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
THEORY											
1	BCE-801	Construction Planning and Management	3	1	0	20	10	30	70	100	4
2	BCE-802	Water Resource Engineering II	3	1	0	20	10	30	70	100	4
3		CE Elective-IV	3	1	0	20	10	30	70	100	4
4		CE Elective-V	3	1	0	20	10	30	70	100	4
PRACTICAL/DESIGN											
5	BCE-851	Cad Lab	0	0	2	-	-	10	15	25	1
6	BCE-852	Steel Structures Lab	0	0	2	-	-	10	15	25	1
7	BCE-853	Project Lab	0	0	4	-	-	50	100	150	6
8	GP-801	General Proficiency	-	-	-	-	-	25	-	25	1
Total			12	4	8	80	40	215	410	625	25

List of elective
B.Tech.   6th sem.

CE ELECTIVE-I
BCE-011 Matrix Analysis of
Structure
BCE-012 Advanced Foundation
Design
BCE-013 Environmental
Management for Industries
BCE-014 Principles of Town
Planning & Architectures

CE ELECTIVE-II

BCE-021 Disaster Management

BCE-022 Earth and Earth retaining Structure

BCE-023Transportation System Planning

BCE-024 Rural Water Supply & Sanitation

List of elective B.Tech.   7 th sem.

CE ELECTIVE-III
BCE:031 Bridge Engineering
BCE:032 Environmental Geotechnology
BCE:033 Finite Element Methods
BCE: 034 Industrial Pollution Control Env.Audit

List of elective B.Tech.   8th sem.

CE ELECTIVE-IV
BCE-041 Open Channel Flow

BCE-042 River Engineering
BCE-043 Plastic analysis of
structure

BCE-044 Tunnel Engineering

CE ELECTIVE-V
BCE-051 Ground Improvement Techniques
BCE-052 Earthquake resistant design of
structure

BCE-053 Ground Water Management
BCE-054 Analysis and design of hydraulic
structures

INVERTIS
UNIVERSITY BAREILLY
BUILDING VIBRANT PERSONALITIES

COURSE STRUCTURE

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

NAAC CRITERIA 1.2.2

INVERTIS

UNIVERSITY BAREILLY

Established by Govt. of U.P. u/s 2F of UGC Act, 1956 vide U.P Act 22 of 2010

Scheme of Instruction & Syllabi

of

M.Tech. (Computer Science & Engineering)

(Effective From 2016-2017)

Invertis Institute of Engineering &Technology
INVERTIS UNIVERSITY

Invertis Village,Bareilly-Lucknow NH-24, Bareilly

YEAR I, SEMESTER-I

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	SUB TOTAL			
1	MCS-101	Advanced Computer Architecture	3	1	0	20	10	30	70	100	4
2	MCS-102	Foundation of Computer Science	3	1	0	20	10	30	70	100	4
3	MCS-103	Advanced Computer networks	3	1	0	20	10	30	70	100	4
4	MCS-104	Distributed Systems	3	1	0	20	10	30	70	100	4
5	MCS-105	Cloud Computing	3	1	0	20	10	30	70	100	4
6	MCS-151	Colloquium & Research Review Paper-I	0	2	0		-	50	-	50	2
		Total	15	7	0	-	-	-	-	550	22

YEAR I, SEMESTER-II

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	SUB TOTAL			
1	MCS-201	Advanced Database Systems	3	1	0	20	10	30	70	100	4
2	MCS-202	Parallel Computing	3	1	0	20	10	30	70	100	4
3	MCS-203	Mobile Computing	3	1	0	20	10	30	70	100	4
4	MCS-204	Object Oriented Modeling	3	1	0	20	10	30	70	100	4
5		Elective 1	3	1	0	20	10	30	70	100	4
6	MCS-251	Colloquium & Research Review Paper-II	0	2	0		-	50	-	50	2
		Total	15	7	0	-	-	-	-	550	22

YEAR II, SEMESTER-III

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	SUB TOTAL			
1		Elective 2	3	1	0	20	10	30	70	100	4
2		Elective 3	3	1	0	20	10	30	70	100	4
3	MCS351	Colloquium & Research Review Paper-III	0	2	0	-	-	50	-	50	2
4	MCS393	Preliminary Thesis	0	8	0	-	-	200	-	200	8
		Total	6	12	0	-	-	-	-	450	18

YEAR II, SEMESTER-IV

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	SUB TOTAL			
	MCS-394	THESIS	0	16	0	-	-	100	300	400	16
		Total	0	16	0	-	-	-	-	400	16

ELECTIVE-I

MCS-211 ADVANCED SOFTWARE ENGINEERING
MCS-212 WIRLESS SENSOR NETWORKS
MCS-213 NETWORK SECURITY & CRYPTOGRAPHY
MCS-214 MACHINE LEARNING
MCS-215 MULTIMEDIA SYSTEMS

ELECTIVE –II

MCS-321 SOFTWARE PROJECT MANAGEMENT
MCS-322 DESIGN AND ANALYISIS OF ALGORITHMS
MCS-323 INTELLECTUAL PROPERTY RIGHTS
MCS-324 UNIX NETWORK PROGRAMMING
]MCS-325 COMPLIER TECHNIQUES

ELECTIVE-III

MCS-331 REAL TIME SYSTEMS
MCS-332 NETWORKING PROTOCOLS
MCS-333 EMERGING DATABASE TECHNOLOGIES
MCS-334 DATA WAREHOUSING & MINING

INVERTIS UNIVERSITY, BAREILLY

**DEPARTMENT OF COMPUTER SCIENCE AND
ENGINEERING SCHEME OF INSTRUCTION
AND DETAILED SYLLABUS OF B.TECH. PROGRAM
IN COMPUTER SCIENCE AND
ENGINEERING.**

Santosh.

REGISTRAR
INVERTIS UNIVERSIT
BAREILLY

Effective from the batches admitted 2016-2017 and onwards

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VISION-

To be renowned itself as a reputed organization in engineering education. Creating knowledge of fundamental principles and innovation technologies through research within the core areas of computer science and also in inter- disciplinary topics.

MISSION-

- Providing learner centric Teaching learning process in excellent infrastructure for making the graduates industry ready with social ethics.

- To empower the students with the required skills to solve the complex technological problems of modern society and also provide them with a framework for promoting collaboration and multidisciplinary activities.

- To impart high quality professional training at the postgraduate and undergraduate level with an emphasis on basic principles of computer science and engineering.

PROGRAM EDUCATIONAL OBJECTIVES (PEO):

PEO1	To prepare students to excel in Computer Science and Engineering program through quality education enabling them to succeed in computing industry profession.
PEO2	To provide students with a solid foundation in mathematics, engineering, basic science fundamentals required to solve computing problems.
PEO3	To expose students to tools and techniques of Computer Science and Engineering so that they can comprehend, analyze, design and create innovative computing products and solutions for real life problems.
PEO4	To inculcate in students multidisciplinary approach, professional attitude and ethics, communication and teamwork skills, and ability to relate computer engineering issues with social awareness.
PEO5	To develop professional skills in students that prepares them for immediate employment and for lifelong learning in advanced areas of computer science and related fields.
PEO6	To prepare students which are an asset to the country, who can contribute towards nation building.
PEO7	To imbibe such qualities in students which enable them to be successful entrepreneurs.
PEO8	Apply probability, statistics, mathematics through differential and integral calculus, sciences including applications appropriate to the Computer Science & Engineering topics.

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

PROGRAM OUTCOMES(PO): At the end of the program the student will be able to:

PO1	Apply knowledge of mathematics, science, and engineering in the design and development of software systems
PO2	Perform experiments on different software packages either obtain from external parties or developed by themselves and analyse the experimental results.
PO3	Design and develop software projects given their specifications and within performance and cost constraints.
PO4	Understand professional and ethical responsibilities and analyze the impact of computing on individuals, organizations, and the society.
PO5	Communicate effectively in oral, written and graphical form.
PO6	Work cooperatively, responsibly, creatively, and respectfully in teams.
PO7	An ability to apply knowledge of mathematics, science and engineering.
PO8	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
PO9	An ability to identify opportunities for establishing an enterprise.

SCHEME OF INSTRUCTION

B.Tech.(Computer Science and Engineering)

Course Structure

B. TECH. I- YEAR, I SEMESTER

S. No.	Course Code	SUBJECT	L	T	P	Credits
1	BAS-103	Mathematics-I	3	1	0	4
2	BAS-102 or BME-102	Engg. Chemistry Or Engg. Mechanics	3	1	0	4
3	BEE-101 or BCS-101	Electrical Engg. Or Computer fundamentals & programming in C	3	1	0	4
4	BEC-101 or BHU-101	Electronics Engineering Or Professional Communication	3	1	0	4
5	BAS-101	Engg. Physics-I	3	1	0	4
6	BME-101 or BAS-104	Manufacturing Process Or Environment & Ecology	2	0	0	2
7	BME-151 Or BCE-151	Workshop Practice Or Engg. Drawing & Computer Graphics	0	1	3	2
8	BAS-152 Or BCE-151	Engg. Chemistry Lab Or Engg. Mechanics Lab	0	0	2	1
9	BEE-151 Or BCS-151	Electrical Engg. Lab Or Computer fundamentals & Programming in C lab	0	0	2	1
10	BAS-151 Or BHU-151	Physics Lab Or Professional Communication Lab	0	0	2	1
11	GP-101	General Proficiency	-	-	-	1
		Total	17	6	9	28

B.TECH. I YEAR, II SEMESTER

S. No.	Course Code	SUBJECT	L	T	P	Credits
1	BAS-203	Mathematics-II	3	1	0	4
2	BME-202 or BAS-202	Engg. Mechanics -I Or Engg. Chemistry	3	1	0	4
3	BCS-201 or BEE-201	Computer Fundamentals & Programming in C Or Electrical Engg.	3	1	0	4
4	BHU-201 or BEC-201	Professional Communication Or Electronics Engineering	3	1	0	4
5	BAS-201	Engg. Physics-II	3	1	0	4
6	BAS-204 or BME-201	Environment & Ecology Or Manufacturing Process	2	0	0	2
7	BCE-251 Or BME-251	Engg. Drawing & Computer Graphics Or Workshop Practice	0	1	3	2
8	BME-252 Or BAS-252	Engg. Mechanics Lab Or Engg. Chemistry Lab	0	0	2	1
9	BCS-251 Or BEE-251	Computer Fundamentals & Programming in C Lab Or Electrical Engg. Lab	0	0	2	1
10	BHU-251 Or BAS-251	Professional Communication Lab Or Physics Lab	0	0	2	1
11	GP-201	General Proficiency	-	-	-	1
		Total	17	6	9	28

B.Tech. YEAR II, SEMESTER III

S. No.	Course Code	SUBJECTS	HOURS			EVALUATION SCHEME					SUBJECT TOTAL	Credit
						SESSIONAL EXAM.				END SEM		
			L	T	P	CT	TA	AT	TOTAL			
THEORY
1	BHU-302/BHU-301	Industrial Sociology / Industrial Psychology	2	1	0	10	5		15	35	50	2
2	BAS-301	Mathematics-III	3	1	0	20	10		30	70	100	4
3	BCS-301	Data Structures	3	1	0	20	10		30	70	100	4
4	BCS-302	Discrete Structures	3	1	0	20	10		30	70	100	4
5	BCS-303	Digital Logic Design	3	1	0	20	10		30	70	100	4
6	BCS-304	IT Infrastructure and its Management	3	1	0	20	10		30	70	100	4
PRACTICALS AND PROJECTS
7s	BCS-351	Data structures Lab	0	0	2	-	-		10	15	25	1
8	BCS-353	Digital Logic Design Lab	0	0	2	-	-		10	15	25	1
9	BCS-354	IT Infrastructure Lab	0	0	2	-	-		10	15	25	1
10	GP-301	General Proficiency	-	-	-	-	-		50	-	50	1
		TOTAL	17	6	6				245	430	675	26

B.Tech. YEAR II, SEMESTER IV

S. No.	Course Code	SUBJECTS	HOURS			EVALUATION SCHEME				END SEM.	SUBJECT TOTAL	Credit
						SESSIONAL EXAM.						
			L	T	P	CT	TA	AT	TOTAL			
THEORY												
1	BHU-402/BHU-401	Industrial Sociology / Industrial Psychology	2	1	0	10	5		15	35	50	2
2	BCS-401	Computer Organization & Introduction to Microprocessor	3	1	0	20	10		30	70	100	4
3	BCS-402	Design and Analysis of Algorithms	3	1	0	20	10		30	70	100	4
4	BCS-403	Operating Systems	3	1	0	20	10		30	70	100	4
5	BCS-404	Unix & Shell Programming	3	1	0	20	10		30	70	100	4
6	BCS-407	Object Oriented Techniques	3	1	0	20	10		30	70	100	4
PRACTICALS AND PROJECTS												
7	BCS-451	Computer Organization & Introduction to Microprocessor Lab	0	0	2	-	-		10	15	25	1
8	BCS-452	Design and Analysis of Algorithms Lab	0	0	2	-	-		10	15	25	1
9	BCS-454	Unix & Shell Programming Lab	0	0	2	-	-		10	15	25	1
10	GP-401	General Proficiency	-	-	-	-	-		50	-	50	1
		TOTAL	17	6	6				245	430	675	26

B.Tech. YEAR III, SEMESTER V

S. No.	Course Code	SUBJECTS	HOURS			EVALUATION SCHEME				END SEM.	SUBJECT TOTAL	Credit
						SESSIONAL EXAM.						
			L	T	P	CT	TA	AT	TOTAL			
THEORY												
1	BCS-501	Theory of Computation	3	1	0	20	10		30	70	100	4
2	BCS-502	Data Base Management System	3	1	0	20	10		30	70	100	4
3	BCS-503	Java Programming	3	1	0	20	10		30	70	100	4
4	BCS-504	Software Engineering	3	1	0	20	10		30	70	100	4
5	BCS-051-054	CS Elective-I	3	1	0	20	10		30	70	100	4
6	BOE-501-504	Open Elective-1	2	1	0	10	5		15	35	50	2
PRACTICALS AND PROJECTS												
7	BCS-552	DBMS Lab	0	0	2	-	-		10	15	25	1
8	BCS-553	Java Programming Lab	0	0	2	-	-		10	15	25	1
9	BCS-554	Software Engineering Lab	0	0	2	-	-		10	15	25	1
10	GP-501	General Proficiency	-	-	-	-	-		50	-	50	1
		TOTAL	17	6	6				245	430	675	26

Santosh.

REGISTRAR
INVERTIC UNIVERSITY
BAREILLY

B.Tech. YEAR III, SEMESTER VI

S. No.	Course Code	SUBJECTS	HOURS			EVALUATION SCHEME				END SEM.	SUBJECT TOTAL	Credit
						SESSIONAL EXAM.						
			L	T	P	CT	TA	AT	TOTAL			
THEORY												
1	BCS-601	Computer Networks	3	1	0	20	10		30	70	100	4
2	BCS-602	Computer Graphics	3	1	0	20	10		30	70	100	4
3	BCS-603	Compiler Design	2	1	0	10	5		15	35	50	2
4	BCS-604	Internet Technology	3	1	0	20	10		30	70	100	4
5		CS Elective-II	3	1	0	20	10		30	70	100	4
6		CS Elective-III	3	1	0	20	10		30	70	100	4
PRACTICALS AND PROJECTS												
7	BCS-651	Computer Networks Lab	0	0	2	-	-		10	15	25	1
8	BCS-652	Computer Graphics Lab	0	0	2	-	-		10	15	25	1
9	BCS-654	Internet Technology Lab	0	0	2	-	-		10	15	25	1
10	GP-601	General Proficiency	-	-	-	-	-		50	-	50	1
		TOTAL	17	6	6				245	430	675	26

List of Electives

YEAR III, SEMESTER V

OPEN ELECTIVE-I

BOE-501 Total Quality Management
BOE-502 Human Computer Interaction
BOE-503 Entrepreneurship Development
BOE-504 Non-Conventional Energy Resource
BOE-505 Operational Research

CS ELECTIVE-I

BCS-051 Principles of Programming Language
BCS-052 Fuzzy logic
BCS-053 Multimedia Systems
BCS-054 Soft Computing
BCS-055 Cloud Architecture

YEAR III, SEMESTER VI

CS ELECTIVE-II
BCS-061 Software Testing
BCS-062 Graph Theory
BCS-063 System Programming
BCS-064 PHP
BCS-065 Linux Administration

CS ELECTIVE-III
BCS-066 Software Project Management
BCS-067 Pattern Recognition
BCS-068 Parallel Algorithm
BCS-069 Natural Language Processing
BCS-070 ERP Systems

YEAR IV, SEMESTER VII

CS ELECTIVE-IV
BCS-071 Embedded and Real Time Systems
BCS-072 Data Compression
BCS-073 Neural Networks
BCS-074 OS for Smart Devices (Android)
BCS-075 Client Server Computing

YEAR IV, SEMESTER VIII

CS ELECTIVE-V
BCS-081 Distributed Database
BCS-082 Software Quality Management
BCS-083 Simulation and Modeling
BCS-084 Bioinformatics
BCS-085 Digital Image Processing

CS ELECTIVE-VI
BCS-086 Computational Geometry
BCS-087 Computational Complexity
BCS-088 IT in Forensic Science
BCS-089 Advanced Computer Network
BCS-090 Big Data Analysis

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

B.Tech. YEAR IV, SEMESTER VII

S. No.	Course Code	SUBJECTs	HOURS			EVALUATION SCHEME					SUBJECT TOTAL	Credit
			L	T	P	SESSIONAL EXAM.				END SEM.		
						CT	TA	AT	TOTAL			
THEORY												
1	BCS-701	Advanced Computer Architecture	3	1	0	20	10		30	70	100	4
2	BCS-702	Artificial Intelligence and Expert Systems	3	1	0	20	10		30	70	100	4
3	BCS-703	Data Warehouse and Data Mining	3	1	0	20	10		30	70	100	4
4	BCS-704	Distributed Systems	3	1	0	20	10		30	70	100	4
5		CS Elective-IV	3	1	0	20	10		30	70	100	4
PRACTICALS AND PROJECTS												
7	BCS-751	Industrial Training Viva-Voce	0	0	2	-	-		25		25	1
8	BCS-752	Artificial Intelligence Lab	0	0	2	-	-		10	15	25	1
9	BCS-753	Project	0	0	4	-	-		25	25	50	2
10	BCS-754	Seminar	0	0	2	-	-		25	-	25	1
11	GP-701	General Proficiency	-	-	-	-	-		25	-	25	1
		TOTAL	17	6	6				260	390	650	26

B.Tech. YEAR IV, SEMESTER VIII

S. No.	Course Code	SUBJECTs	HOURS			EVALUATION SCHEME					SUBJECT TOTAL	Credit
						SESSIONAL EXAM.				END SEM.		
			L	T	P	CT	TA	AT	TOTAL			
						THEORY						
1	BCS-801	Cryptography and Network Security	3	1	0	20	10		30	70	100	4
2	BCS-802	.NET Framework	2	1	0	10	5		15	35	50	2
3	BCS-803	Mobile Computing	3	1	0	20	10		30	70	100	4
4		CS Elective-V	3	1	0	20	10		30	70	100	4
5		CS Elective-VI	3	1	0	20	10		30	70	100	4
		PRACTICALS AND PROJECTS										
7	BCS-851	Cryptography and Network Security Lab	0	0	2	-	-		10	15	25	1
8	BCS-852	.NET Lab	0	0	2	-	-		10	15	25	1
9	BCS-853	Mobile Computing Lab	0	0.	2	-	-		10	15	25	1
10	BCS-854	Project	0	0	6	-	-		50	50	100	4
11	GP-801	General Proficiency	-	-	-	-	-		25	-	25	1
		TOTAL	14	5	6				240	410	650	26

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Scheme of Instruction & Syllabi

of

(Integrated Course)

B.Tech(CSE) + MBA

(Effective From 2016-2017)

Invertis Institute of Engineering &Technology
INVERTIS UNIVERSITY

Invertis Village,Bareilly-Lucknow NH-24, Bareilly

STUDY & EVALUATION SCHEME
Integrated B. Tech. & M.Tech.(Computer Science & Engineering)
YEAR II, SEMESTER-III

S.NO.	COURSE CODE	SUBJECTS	PERIODS			Evaluation Scheme				SUBJECT TOTAL	CREDITS
						SESSIONAL EXAM.					
			L	T	P	CT	TA	TOTAL	E-SEM		
THEORY											
1	BHU-302/BHU-301	Industrial Sociology / Industrial Psychology	2	1	0	10	5	15	35	50	2
2	BAS-301/BOE-031-038	Mathematics-III /Science elective	3	1	0	20	10	30	70	100	4
3	BEC-305	Digital Logic Design	3	1	0	20	10	30	70	100	4
4	BCS-301	Data Structures	3	1	0	20	10	30	70	100	4
5	BCS-302	Discrete Structures	3	1	0	20	10	30	70	100	4
6	BIT-301	IT Infrastructure and its Management	3	1	0	20	10	30	70	100	4
PRACTICALS & PROJECTS											
7	BEC-355	Digital Logic Design Lab	0	0	2	-	-	10	15	25	1
8	BCS-351	Data structures Lab	0	0	2	-	-	10	15	25	1
9	BIT-351	IT Infrastructure and its Management Lab	0	0	2	-	-	10	15	25	1
10	GP-301	General Proficiency	-	-	-	-	-	25	-	25	1
		Total	17	6	6	110	55	220	430	650	26

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

STUDY & EVALUATION SCHEME
Integrated B. Tech. & M.Tech.(Computer Science & Engineering)
YEAR II, SEMESTER-IV

S.NO.	COURSE CODE	SUBJECTS	PERIODS			Evaluation Scheme SESSIONAL EXAM.			Exam End SEM	SUBJECT TOTAL	CREDITS
THEORY											
1	BHU-402 /BHU-401	Industrial Sociology / Industrial Psychology	2	1	0	10	5	15	35	50	2
2	BAS-401 /BOE-041-048	Mathematics-III /Science elective	3	1	0	20	10	30	70	100	4
3	BCS-401	Computer Organization & Introduction to Microprocessor	3	1	0	20	10	30	70	100	4
4	BCS-402	Design and Analysis of Algorithms	3	1	0	20	10	30	70	100	4
5	BCS-403	Operating System	3	1	0	20	10	30	70	100	4
6	BCS-404	Unix & Shell Programming	3	1	0	20	10	30	70	100	4
PRACTICALS & PROJECTS											
7	BCS-451	Computer Organization & Introduction to Microprocessor	0	0	2	-	-	10	15	25	1
8	BCS-452	Design and Analysis of algorithms lab	0	0	2	-	-	10	15	25	1
9	BCS-454	Unix & Shell Programming Lab	0	0	2	-	-	10	15	25	1
10	GP-401	General Proficiency	-	-	-	-	-	25	-	25	1
		Total	17	6	6			220	430	650	26

STUDY & EVALUATION SCHEME
B. Tech. Computer Science & Engineering

YEAR III, SEMESTER-V

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
THEORY											
1	BCS-501	Theory of Computation	3	1	0	20	10	30	70	100	4
2	BCS-502	DBMS	3	1	0	20	10	30	70	100	4
3	BCS-503	OOPS with java	3	1	0	20	10	30	70	100	4
4	BCS-504	Software Engineering	3	1	0	20	10	30	70	100	4
5	BCS-505	Principles of Programming Language	2	1	0	10	5	15	35	50	2
		OE-I	2	1	0	10	5	15	35	50	2
PRACTICAL/DESIGN/DRAWING											
7	BCS-552	DBMS Lab	0	0	2	-	-	10	15	25	1
8	BCS-553	OOPS with java Lab	0	0	2	-	-	10	15	25	1
9	BCS-554	Software Engineering Lab	0	0	2	-	-	10	15	25	1
10	BCS-555	Seminar	0	0	2	-	-	25	-	25	1
11	GP-501	General Proficiency	-	-	-	-	-	25	-	25	1
Total			16	6	8	100	50	230	395	625	25

OPEN ELECTIVE-I
BOE-501 Total Quality Management
BOE-502 Human Computer Interaction
BOE-503 Entrepreneurship Development
BOE-504 Non-Conventional Energy Resources

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

STUDY & EVALUATION SCHEME
B. Tech. Computer Science & Engineering

YEAR III, SEMESTER-VI

S. No.	Course Code	SUBJECT	PERIODS			SESSIONAL EXAM.			E-SEM/		Credits
			L	T	P	CT	TA	TOTAL	TOTAL		
		THEORY									
1	BCS-601	Computer Networks	3	1	0	20	10	30	70	100	4
2	BCS-602	Computer Graphics	3	1	0	20	10	30	70	100	4
3	BCS-603	Compiler	3	1	0	20	10	30	70	100	4
4	BIT-601	Internet Technology	2	1	0	10	5	15	35	50	2
5		CS Elective-I	3	1	0	20	10	30	70	100	4
6		CS Elective-II	2	1	0	10	5	15	35	50	2
		PRACTICAL/DESIGN/DRAWING									
6	BCS-651	Computer Networks Lab	0	0	2	-	-	10	15	25	1
7	BCS-652	Computer Graphics Lab	0	0	2	-	-	10	15	25	1
8	BCS-653	Compiler Lab	0	0	2	-	-	10	15	25	1
9	BIT-651	Internet Technologies Lab	0	0	2	-	-	10	15	25	1
10	GP-601	General Proficiency	-	-	-	-	-	25	-	25	1
Total			16	6	8	100	50	215	410	625	25

CS ELECTIVE-I
BIT-061 Software Testing
BCS-061 Graph Theory
BCS-062 System Programming
BCS-063 Operational Research

CS ELECTIVE-II
BIT-062 Software project Management
BCS-064 Pattern Recognition
BCS-065 Parallel Algorithm
BCS-066 Object Oriented Techniques

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

STUDY & EVALUATION SCHEME
Integrated B. Tech.(CS) & MBA
Year IV, Semester VII

S. No.	Course Code	Subject	Period			Evaluation Scheme				Subject Total	Credits
						Sessional Exam.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	BCS-701	Computer Architecture	3	1	0	20	10	30	70	100	4
2	BCS-702	Artificial Intelligence	3	1	0	20	10	30	70	100	4
3	MBA-102	Market Science	4	1	0	20	10	30	70	100	4
4	MBA-104	Recording & Analysis of Business Operations	4	1	0	20	10	30	70	100	4
5	MBA-105	Micro Economics & Economic Planning	4	1	0	20	10	30	70	100	4
6	MBA-101	Management-Micro and Macro	4	1	0	20	10	30	70	100	4
7	BCS-751	Industrial Training viva-voce	0	0	2			0	0	25	1
8	GP-701	General Proficiency	-	-	-	-	-	-	-	25	1
		Total	22	6	2	-	-	-	-	650	26

STUDY & EVALUATION SCHEME
Integrated B. Tech.(CS) & MBA
Year IV, Semester VIII

Course: MBA Full Time

Sl. No.	Paper Code	Paper Name	L+T+P	Maximum marks			Credit
1	MBA201	Management Science	4+1+0	70	30	100	4
2	MBA202	Market Intelligence	4+1+0	70	30	100	4
3	MBA203	Identification, addition and delivery of Value	4+1+0	70	30	100	4
4	MBA204	Human Resource – Development	4+1+0	70	30	100	4
5	MBA205	Cases in Finance and Business Laws	4+1+0	70	30	100	4
6	MBA206	Event Management	4+1+0	70	30	100	4
		Total		420	180	600	24

After 8th Semester, students will go for 8 weeks summer training compulsorily in Public Sector undertakings or Private Sector, known as Hands on Experience.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

STUDY & EVALUATION SCHEME
Integrated B. Tech.(CS) & MBA
Year V, Semester IX

Sl. No.	Paper Code	Paper Name	L+T+P	Maximum marks			Credit
1	MBA301	Strategies - Business, Marketing and HRM	4+1+0	70	30	100	4
2	MBA302	India at a Glance	4+1+0	70	30	100	4
3		Spec. Group 1 Paper 1	4+1+0	70	30	100	4
4		Spec. Group 1 Paper 2	4+1+0	70	30	100	4
5		Spec. Group 2 Paper 1	4+1+0	70	30	100	4
6		Spec. Group 2 Paper 2	4+1+0	70	30	100	4
7	MBA396	Hands on Experience Viva				100	2
		Total		350	150	700	26

Institutional Course (Qualifying in Nature)   Aptitude (MBA498)   2 Hrs   2 Credit

STUDY & EVALUATION SCHEME
Integrated B. Tech.(CS) & MBA
Year V, Semester X

Course: MBA Full Time

Sl. No.	Paper Code	Paper Name	L+T+P	Maximum marks			Credit
1		Spec. Group 1 Paper 3	4+1+0	70	30	100	4
2		Spec. Group 1 Paper 4	4+1+0	70	30	100	4
3		Spec. Group 1 Paper 5	4+1+0	70	30	100	4
4		Spec. Group 2 Paper 3	4+1+0	70	30	100	4
5		Spec. Group 2 Paper 4	4+1+0	70	30	100	4
6		Spec. Group 2 Paper 5	4+1+0	70	30	100	4
7	MBA496	Winter Project Viva		-	-	100	2
		Total		420	180	700	26

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

List of Specializations

Specialization - 1: FINANCE
MBA311: Banking operations Management
MBA312: Central Banking
MBA411: Capital Markets
MBA412: Stock Exchange operations
MBA413: Wealth Maximization

Specialization -2: MARKETING
MBA316: Sales and Distribution
MBA317: Service Management
MBA416: CB and IMC
MBA417: Rural Marketing
MBA418: International Marketing

Specialization -3: HUMAN RESOURCE
MBA421: Employee welfare and Labour Legislation
MBA422: Training & Development and competency mapping
MBA423: Performance Appraisal and compensation Management
MBA321: Organizational Change and Development
MBA322: Employee Engagements

Specialization -5: INFORMATION TECHNOLOGY
MBA336: Managing IT-Enabled Services
MBA337: Ecommerce
MBA436: Business Intelligence and Data Mining
MBA437: Information Technology Project Management
MBA438: Data communication and Networking security

Specialization -7: OPERATIONS MANAGEMENT
MBA346: Project Management
MBA347: Decision Making in Innovation and New Product Development
MBA446: Operation Strategy
MBA447: Computer Integrated Manufacturing
MBA448: Business Process Reengineering

Specialization -4: INTERNATIONAL BUSINESS
MBA326: International Trade
MBA327: EXIM Procedure & Documentation
MBA426: Export-Import Financing
MBA427: Global Business Environment
MBA428: International Logistics

Specialization -6: HOSPITALITY & TOURISM
MBA331: Service Sanitation and Risk
MBA332: Hospitality and Tourism Planning
MBA431: Travel agency and tour operators
MBA432: Hospitality Information System
MBA433: Recent trends in Hospitality and tourism

Specialization -8: RETAIL MANAGEMENT
MBA341: Retail Management
MBA342: Retail Pricing and Branding
MBA441: International Retailing

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

MBA442: Merchandising and Mall Management
MBA443: Trends in Retailing

Specialization -9: HEALTHCARE MANAGEMENT
MBA351: Outdoor Health Management
MBA352: Management of Indore health
MBA451: Associated Services and Hygiene
MBA452: Hospital Layouts
MBA453: Recent trends in health care management

Specialization -10: LEGAL ISSUES IN MODERN ERA
MBA356: Patent and trade marks
MBA357: IPRs
MBA456: Cyber Law
MBA457: UN Charter and International court of Justice
MBA458: Business Adjudication

Note: Students required to choose any two Specializations out of ten offering by the University. First Specialization chosen by student will be treated as Spec. Group 1 and second Specialization will be treated as Spec. Group 2.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Scheme of Instruction & Syllabi

of

Integrated B. Tech. & M.Tech.

(Computer Science & Engineering)

(Effective From 2016-2017)

Invertis Institute of Engineering &Technology

INVERTIS UNIVERSITY

Invertis Village,Bareilly-Lucknow NH-24, Bareilly

STUDY & EVALUATION SCHEME
Integrated B. Tech. & M.Tech.(Computer Science & Engineering)
YEAR II, SEMESTER-III

S.NO.	COURSE CODE	SUBJECTS	PERIODS			Evaluation Scheme				SUBJECT TOTAL	CREDITS
						SESSIONAL EXAM.					
			L	T	P	CT	TA	TOTAL	E-SEM		
THEORY											
1	BHU-302/BHU-301	Industrial Sociology / Industrial Psychology	2	1	0	10	5	15	35	50	2
2	BAS-301/BOE-031-038	Mathematics-III /Science elective	3	1	0	20	10	30	70	100	4
3	BEC-305	Digital Logic Design	3	1	0	20	10	30	70	100	4
4	BCS-301	Data Structure	3	1	0	20	10	30	70	100	4
5	BCS-302	Discrete Structure	3	1	0	20	10	30	70	100	4
6	BIT-301	IT Infrastructure and its Management	3	1	0	20	10	30	70	100	4
PRACTICALS & PROJECTS											
7	BEC-355	Digital Logic Design Lab	0	0	2	-	-	10	15	25	1
8	BCS-351	Data structures Lab	0	0	2	-	-	10	15	25	1
9	BIT-351	IT Infrastructure and its Management Lab	0	0	2	-	-	10	15	25	1
10	GP-301	General Proficiency	-	-	-	-	-	25	-	25	1
		Total	17	6	6	110	55	220	430	650	26

STUDY & EVALUATION SCHEME
Integrated B. Tech. & M.Tech.(Computer Science & Engineering)
YEAR II, SEMESTER-IV

S.NO.	COURSE CODE	SUBJECTS	PERIODS			Evaluation Scheme				SUBJECT TOTAL	CREDITS
						SESSIONAL EXAM.					
			L	T	P	CT	TA	TOTAL	E-SEM		
THEORY											
1	BHU-402 /BHU-401	Industrial Sociology / Industrial Psychology	2	1	0	10	5	15	35	50	2
2	BAS-401 /BOE-041-048	Mathematics-III /Science elective	3	1	0	20	10	30	70	100	4
3	BCS-401	Computer Organization & Introduction to Microprocessor	3	1	0	20	10	30	70	100	4
4	BCS-402	Design Analysis & Algorithms	3	1	0	20	10	30	70	100	4
5	BCS-403	Operating System	3	1	0	20	10	30	70	100	4
6	BCS-404	Unix & Shell Programming	3	1	0	20	10	30	70	100	4
PRACTICALS & PROJECTS											
7	BCS-451	Computer Organization & Introduction to Microprocessor	0	0	2	-	-	10	15	25	1
8	BCS-452	Design Analysis & algorithm lab	0	0	2	-	-	10	15	25	1
9	BCS-454	Unix & Shell Programming Lab	0	0	2	-	-	10	15	25	1
10	GP-401	General Proficiency	-	-	-	-	-	25	-	25	1
		Total	17	6	6			220	430	650	26

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

STUDY & EVALUATION SCHEME
B. Tech. Computer Science & Engineering

YEAR III, SEMESTER-V

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
		THEORY									
1	BCS-501	Theory of Computation	3	1	0	20	10	30	70	100	4
2	BCS-502	DBMS	3	1	0	20	10	30	70	100	4
3	BCS-503	OOPS with java	3	1	0	20	10	30	70	100	4
4	BCS-504	Software Engineering	3	1	0	20	10	30	70	100	4
5	BCS-505	Principles of Programming Language	2	1	0	10	5	15	35	50	2
		OE-I	2	1	0	10	5	15	35	50	2
		PRACTICAL/DESIGN/DRAWING									
7	BCS-552	DBMS Lab	0	0	2	-	-	10	15	25	1
8	BCS-553	OOPS with java Lab	0	0	2	-	-	10	15	25	1
9	BCS-554	Software Engineering Lab	0	0	2	-	-	10	15	25	1
10	BCS-555	Seminar	0	0	2	-	-	25	-	25	1
11	GP-501	General Proficiency	-	-	-	-	-	25	-	25	1
	Total		16	6	8	100	50	230	395	625	25

OPEN ELECTIVE-I
BOE-501 Total Quality Management
BOE-502 Human Computer Interaction
BOE-503 Entrepreneurship Development
BOE-504 Non-Conventional Energy Resources

STUDY & EVALUATION SCHEME
B. Tech. Computer Science & Engineering

YEAR III, SEMESTER-VI

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme					Credits
						SESSIONAL EXAM.			E-SEM/		
			L	T	P	CT	TA	TOTAL	TOTAL		
		THEORY									
1	BCS-601	Computer Networks	3	1	0	20	10	30	70	100	4
2	BCS-602	Computer Graphics	3	1	0	20	10	30	70	100	4
3	BCS-603	Compiler	3	1	0	20	10	30	70	100	4
4	BIT-601	Internet Technology	2	1	0	10	5	15	35	50	2
5		CS Elective-I	3	1	0	20	10	30	70	100	4
6		CS Elective-II	2	1	0	10	5	15	35	50	2
		PRACTICAL/DESIGN/DRAWING									
6	BCS-651	Computer Networks Lab	0	0	2	-	-	10	15	25	1
7	BCS-652	Computer Graphics Lab	0	0	2	-	-	10	15	25	1
8	BCS-653	Compiler Lab	0	0	2	-	-	10	15	25	1
9	BIT-651	Internet Technologies Lab	0	0	2	-	-	10	15	25	1
10	GP-601	General Proficiency	-	-	-	-	-	25	-	25	1
		Total	16	6	8	100	50	215	410	625	25

CS ELECTIVE-I
BIT-061 Software Testing
BCS-061 Graph Theory
BCS-062 System Programming
BCS-063 Operational Research

CS ELECTIVE-II
BIT-062 Software project Management
BCS-064 Pattern Recognition
BCS-065 Parallel Algorithm
BCS-066 Object Oriented Techniques

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

STUDY & EVALUATION SCHEME
Integrated B. Tech. & M.Tech.(Computer Science & Engineering)
Year IV, Semester VII

S. No.	Course Code	Subject	Period			Evaluation Scheme				Subject Total	Credits
						Sessional Exam.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	BCS-701	Computer Architecture	3	1	0	20	10	30	70	100	4
2	BCS-702	Artificial Intelligence	3	1	0	20	10	30	70	100	4
3	BCS-703	Real TimeSystems	3	1	0	20	10	30	70	100	4
4	MCS-103	Advance Computer Network	4	1	0	20	10	30	70	100	4
5	MCS-104	Distributed System	4	1	0	20	10	30	70	100	4
6	BCS-751	Industrial Training	0	0	2	-	-	25	-	25	1
7	BCS-752	Artificial Intelligence Lab	0	0	2			7	18	25	1
8	BCS-353	Project	-	-	4	-	-	15	35	50	2
9	GP 701	GP	-	-	2	-	-	25	-	25	1
Total			15	5	10	-	-	-	-	625	25

STUDY & EVALUATION SCHEME
Integrated B. Tech. & M.Tech.(Computer Science & Engineering)
YEAR IV, SEMESTER-VIII

S. No.	Course Code	Subject	Period			Evaluation Scheme				Subject Total	Credits
						Sessional Exam			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MCS-201	Advance Database System	4	1	0	20	10	30	70	100	4
2	MCS-202	Parallel Computing	4	1	0	20	10	30	70	100	4
3	MCS-203	Mobile Computing	4	1	0	20	10	30	70	100	4
4		MCS-Elective I	4	1	0	20	10	30	70	100	4
5	MCS-251	Seminar	0	4	0			50		50	2
Total			12	8						450	18

STUDY & EVALUATION SCHEME
Integrated B. Tech. & M.Tech.(Computer Science & Engineering)
YEAR V, SEMESTER-IX

S. No.	Course Code	Subject	Period			Evaluation Scheme				Subject Total	Credits
						Sessional Exam.			E-SEM		
			L	T	P	CT	TA	Total			
		THEORY									
1		MCS Elective II	4	1	0	20	10	30	70	100	4
2		MCS Elective III	4	1	0	20	10	30	70	100	4
3	MCS-351	Seminar	0	4	0	0	0	50		50	2
4	MCS-393	Preliminary THESIS	-	-	-	-	-	200	-	200	8
Total			6	6						450	18

STUDY & EVALUATION SCHEME
Integrated B. Tech. & M.Tech.(Computer Science & Engineering)
YEAR V, SEMESTER-X

S. No.	Course Code	Subject	Period			Evaluation Scheme				Subject Total	Credits
						Sessional Exam.		E-SEM			
1	MCS-394	THESIS	0	16	0	0	0	100	300	400	16
Total			0	16	0	-	-	-	-	400	16

ELECTIVE-I

MCS-211 ADVANCED SOFTWARE ENGINEERING
MCS-212 WIRLESS SENSOR NETWORKS
MCS-213 NETWORK SECURITY & CRYPTOGRAPHY
MCS-214 MACHINE LEARNING
MCS-215 MULTIMEDIA SYSTEMS

ELECTIVE –II

MCS-321 SOFTWARE PROJECT MANAGEMENT
MCS-322 DESIGN AND ANALYISIS OF ALGORITHMS
MCS-323 INTELLECTUAL PROPERTY RIGHTS
MCS-324 UNIX NETWORK PROGRAMMING
]MCS-325 COMPLIER TECHNIQUES

ELECTIVE-III

MCS-331 REAL TIME SYSTEMS
MCS-332 NETWORKING PROTOCOLS
MCS-333 EMERGING DATABASE TECHNOLOGIES
MCS-334 DATA WAREHOUSING & MINING

DRM-101 RESEARCH METHODOLOGY for Engineering Stream

UNIT I

Research Topic: selection of problems, stages in the execution of research, preparation of manuscript and report writing. Search engines: google, pubmed, google scholar, EMBL, etc. Publication of Report in Journals: Standard of research journals, impact factor, citation index, H index, and more. Proof reading, reading journals and review.

UNIT II

Introduction of computer science- Database management systems, presentation graphics, management of data by office applications: MS-office, MS-Word, MS-Excel, and MS-PowerPoint. Generation and analysis of data, basics of softwares: Matlab and Labview.

LaTeX overview – document classes, Packages, document environment, Block structure, and special pages.

UNIT III

Measures of dispersion: sampling methods: random sampling - types of variables: qualitative and quantitative variables - continuous and discontinuous variables - scaling method – mean - standard deviation- standard error - coefficient of variation. Comparison of means: chi square test, student's t test and ANOVA.

UNIT IV

Spectrophotometer: principle and applications, Ultra violet, Infra Red, 1H, Nuclear magnetic resonance (NMR), fundamental and procedure of chromatography. Principle and application of electron microscopy, scanning electron microscopy, transmission electron microscopy, X-ray diffraction.

REFERENCE BOOKS

- Statistical methods, Snedecor, G, W. and W.G. Cohran, 1978. Oxford and IBH publishing CO Pvt. Ltd.
- Biometry, Sokal, R.R. and F.J.Rohlf, 1981. W.H. Freeman, NewYork.
- Authoring a PhD, thesis: how to plan, draft, write and finish a doctoral dissertation, Duncary, P. 2003. Macmillan, pp 256.
- Biostatistical analysis, Zar, J.H., 1996. Prentice Hall, Uppar Saddle River, newjersy, USA.
- Scientific courses and presentations, Martha Davis, 2005. Academic press, Tokyo.pp.356

16.1.14

16.1.2014

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Syllabus for Ph. D. in Computer Science

(PhD-032) Advance Research Studies in Computer Engineering

Module-I (Data Warehouse and Mining)
Introduction to Data Warehousing. Client/Server Computing mode, Parallel processors & Cluster Systems. Data Warehousing Components, Building a Data Warehouse, Mapping the Data Warehousing to a Multiprocessor Architecture, DBMS Schemas for Decision Support. Introduction to Data Mining. Decision Trees, Neural Networks, Nearest Neighbor & Clustering, Genetic Algorithms, Rule Induction, Selecting & Using the Right Technique.

Module-II (Advance Computer Network and Ad-hoc Networks)
Next Generation IP protocol, TCP extensions for high speed network, Introduction to SCTP. P2P file sharing and structure overlay network. Introduction to wireless and ad-hoc networks, Mobility in networks, Mobile IP, Mobile TCP, advantages and limitations of ad-hoc networks, Routing in MANETs.

Module-III
Introduction to MatLab and NS-2.

1. SOFTWARE PROJECT MANAGEMENT (PhDCS 103)

MODULE I
Overview of Project Management, PMI Processes, Software project phases, Organizational structures, Project charter, Statement of Work (SOW) **Planning Phase,** Development lifecycle models, Matching lifecycles to projects, Project plans, Work Breakdown Structures (WBS) **Estimation and Budgeting**, Estimation, Budgeting, Project, selection, NPV, ROI, Payback models

MODULE II
Scheduling, Project network diagram fundamentals, PERT techniques, Gantt charts, Critical chain scheduling **Risk and Change Management**, Mid-term review , Risk management, Change control, More MS-Project.

Development Management, Team models, Requirements process, Configuration, management, Software metrics, Programming languages & tools, Managing conflict and motivating, MS-Project: Assigning Resources.

MODULE III
Project Control, Status reporting, Project metrics, Earned value analysis, Communications Techniques, Process Improvement, MS Project: (a) Resource leveling (b) Other views

System Test Process, Test specifications, Black box and white box testing, Test scripts, Unit and integration testing, Acceptance test specifications, Test tools, MS Project:(a) Reporting.

Final Phases & Other Issues, Project Recovery, Documentation, Cutover/Migration Post Project Reviews, Closing, MS Project: (a) Advanced features.

Reference Books:
1. S. McConnell, "Software Project Survival Guide" (1997)
2. S. Berkun, "The Art of Project Management", (2005)
3. C. Larman, "Agile and Iterative Development: A Manager's Guide", (2003)
4. W. Royce, "Software Project Management: A Unified Framework", (1998)
5. J. Highsmith, "Agile Project Management: Creating Innovative Products", (2004)
6. T. DeMarco, "The Deadline: A Novel About Project Management", (1997)
7. T. DeMarco, "Peopleware: Productive Projects and Teams", (1999)
8. E. Bennatan, "On Time Within Budget: Software Project Management Practices and Techniques", (2000)

2. NETWORKING PROTOCOLS (PhDCS 104)

MODULE I
Networks and Services, Approaches to Network Design, The OSI Reference Model; Overview of TCP/IP Architecture, Application Protocols and TCP/IP Utilities, Internet Architecture Interconnection through IP Routers, Internet Protocol (IP), User datagram protocol (UDP).

MODULE II
Routing Cores - peers Algorithms Autonomous Systems Exterior Gateway Protocol Multicast Address. Internet Group Management Protocol (IGMP) and Implementation. TCP/IP over ATM networks: ATM cell Transport, Adaptation Layer, IP Address Building in an ATM network Logical IP subnet Concept ATMARP packet format. Domain name system, Remote Login (Telnet, Rlogin) File Transfer and Access (FTP, TFTP, NFS), Electronic mail (SMTP, MIME) Internet Management (SNMP, SNMPV2) Internet Security and Firewall Design Post Office Protocol (POP) Network News Transfer Protocol (NNTP).

MODULE III
TCP/IP over view- The Transport Layer: TCP and UDP. Elementary TCP Sockets. TCP Client-Server Example. I/O Multiplexing: The select and poll Functions. Socket Options. Elementary UDP Sockets. Elementary Name and Address Conversions. The Client Server Model and Software Design, Concurrent Processing in Client-Server Software, Iterative, Connectionless Servers (UDP), Iterative, Connection-Oriented Servers (TCP), Concurrent, Connection-Oriented Servers (TCP). Single-Process, Concurrent Servers (TCP). Multiprotocol Servers (TCP, UDP), Multiservice Servers (TCP, UDP). Uniform, Efficient Management of server. Concurrency in clients. TCP/IP Architecture, The Internet Protocol, Limitations of IPv4 and Introduction to IPv6, User Datagram Protocol, Transmission Control Protocol, DHCP, Introduction to Internet Routing Protocols

Reference Books:

1. A. Leon-Garcia, Indra Widjaja, "Communication Networks", Tata McGraw Hill, 2000
2. William Stallings, "Data and Computer Communications", Pearson Education, 7th Edition.
3. Andrew S. Tanenbaum, "Computer Networks", Prentice Hall India, 4th Edition, 2003
4. W.Richard Stevens: TCP/IP Illustrated vol 1: The Protocols, Pearson Edun. Asia, 2000.
5. Douglas Comer: Internetworking with TCP/IP vol.1: Principles, Protocols and Architecture, Prentice Hall, 4th edition, 2000

3. REAL TIME SYSTES (PhDCS 105)

Module 1

Time System, Issues in real time computing, Performance measures of Real Time System, Issues in Real Time Computing, Performance measures of Real time Systems, Real Time Application.Task Assignment and Scheduling: Different task model, Scheduling hierarchy, offline vs Online Scheduling, Clock Drives. Model of Real Time System: Processor, resources, temporal parameter, Periodic Task Model, Sporadic Task Model, Precedence Constraints and Data Dependencies, Scheduling hierarchy Scheduling of Periodic Task: Assumptions, fixed versus dynamic priority algorithms, schedulability test for fixed priority task with arbitrary deadlines.

MODULE II

Scheduling of Aperiodic and Sporadic Tasks: Assumptions and approaches, deferrable, sporadic servers, slack stealing in deadline driven and fixed priority systems. Two level scheme for integrated scheduling, Scheduling for applications having flexible constrains.

MODULE III

Resources and Resource Access Control: Assumptions on resources and their usage, resource contention, resource access control(Priority Ceiling Protocol, Priority Inheritance protocol, Slack Based Priority Ceiling Protocol, Peremption Ceiling Protocol). Multi Processor Scheduling: Model of multi processor and distributed systems, Scheduling algorithms for end to end periodic tasks in homogeneous/heterogeneous systems, Predictability and validation of dynamic multiprocessor system. Real time Communication: Model of real time Communication, Priority base service For switched network, Weighted Round Robin Service, Medium access Control Protocol, Real Time Protocol.

Reference Books:

1. Jane .W. S. Liu Real Time Systems Pearson Education.
2. Krishna .C.M Real Time Systems Mc-Graw Hill Publication

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS
UNIVERSITY BAREILLY
BUILDING VIBRANT PERSONALITIES

COURSE STRUCTURE

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

NAAC CRITERIA 1.2.2

INVERTIS
UNIVERSITY BAREILLY

Established by Govt. of U.P. u/s 2F of UGC Act, 1956 vide U.P. Act 22 of 2010.

Scheme of Instruction & Syllabi
Of
MASTER OF TECHNOLGY
IN
ELECTRONICS AND COMMUNICATION
ENGINEERING

(Effective From 2016-2017)

(Mr. Chandan Gupta)	**(Dr. R.K. Shukla)**	**(Dr. YDS Arya)**	**(Prof. JagdishRai)**
HOD, ECE	**Dean (Academics)**	**Pro- Vice-Chancellor**	**Vice Chancellor**

Invertis Institute of Engineering &Technology
INVERTIS UNIVERSITY

Invertis Village,Bareilly-Lucknow NH-24, Bareilly

INVERTIS
UNIVERSITY BAREILLY
Established by Govt. of U.P. u/s 2F of UGC Act, 1956 vide U.P. Act 22 of 2010.

STUDY & EVALUATION SCHEME
M.Tech. in Electronics & Communication Engineering
[Effective from the academic year 2016-2017]

YEAR I, SEMESTER-I

S.No.	Course Code	Subjects	Periods			Evaluation Scheme				Subject Total	Credits
						Sessional Marks			End Sem.		
			L	T	P	CT	TA	Sub. Total			
1	MEC-101	Advanced Digital Signal Processing	3	1	0	20	10	30	70	100	4
2	MEC-102	Satellite Communication & Navigation Systems	3	1	0	20	10	30	70	100	4
3	MEC-103	Advanced Microwave Antennas	3	1	0	20	10	30	70	100	4
4	MEC-104	Information and Coding Theory	3	1	0	20	10	30	70	100	4
5	MEC-105	Microprocessor and Engineering Applications	3	1	0	20	10	30	70	100	4
6	MEC-151	Signal Processing & Microprocessor Lab	0	0	2	-	-	10	15	25	1
7	MEC-152	Pre-Assigned Project &Colloquium-I	0	2	0	-	-	25	-	25	1
		TOTAL	15	7	2	100	100	200	350	550	22

YEAR I, SEMESTER-II

S.No.	Course Code	Subjects0	Periods			Evaluation Scheme				Subject Total	Credits
						Sessional Marks			End Sem.		
			L	T	P	CT	TA	Sub. Total			
1	MEC-201	Image Processing	3	1	0	20	10	30	70	100	4
2	MEC-202	Biomedical Signal Processing	3	1	0	20	10	30	70	100	4
3	MEC-203	Wireless Communication and Data Networks	3	1	0	20	10	30	70	100	4
4		Elective –I	3	1	0	20	10	30	70	100	4
5		Elective –II	3	1	0	20	10	30	70	100	4
6	MEC-251	Image processing Lab	0	0	2	-	20	20	30	50	2
		TOTAL	15	7	0	100	100	200	350	550	22

YEAR II, SEMESTER-III

S.No.	Course Code	Subjects	Periods			Evaluation Scheme				Subject Total	Credits
						Sessional Marks			End Sem.		
			L	T	P	CT	TA	Sub. Total			
1		Elective –III	3	1	0	20	10	30	70	100	4
2		Elective –IV	3	1	0	20	10	30	70	100	4
3	MEC-351	Colloquium & Research Review Paper-III	0	2	0	-	50	50	-	50	2
4	MEC-352	Preliminary Thesis	0	8	0	-	200	200	-	200	8
		TOTAL	6	12	0	40	270	310	140	450	18

YEAR II, SEMESTER-IV

S.No.	Course Code	Subjects	Periods			Evaluation Scheme				Subject Total	Credits
						Sessional Marks			End Sem.		
			L	T	P	CT	TA	Sub. Total			
1	MEC-451	Thesis Work	0	16	0	-	100	100	300	400	16
		TOTAL	0	16	0	-	100	100	300	400	16

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS
UNIVERSITY BAREILLY

LIST OF ELECTIVE SUBJECTS

ELECTIVE-I

MEC-111-High Speed Devices & Circuits
MEC-112-CMOS Circuit and VLSI Design
MEC-113-Digital Communication Systems & Design
MEC-114-Wireless AD-HOC Networks

ELECTIVE-II

MEC-211- Nano Technology
MEC-212- Advanced Optical Fiber Communication
MEC-213- Cloud Computing
MEC-214- Microwave Theory

ELECTIVE-III

MEC-311- Neural Networks and Fuzzy Logic
MEC-312-Reliability of Electronics & Communication Systems
MEC-313-Opto-Electronic Devices & Sensors
MEC-314- Advanced Communication Networks

ELECTIVE-IV

MEC-321- Wireless Sensor Networks& Internet of Things (WSN &IoT)
MEC-322-Microwave Integrated Circuits
MEC-323- Low Power VLSI Design
MEC-324-Mobile Computing Technology

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS UNIVERSITY, BAREILLY

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHEME OF INSTRUCTIONS AND

DETAILED SYLLABI OF

B.TECH PROGRAM IN ELECTRONICS AND COMMUNICATION ENGINEERING

Effective from 2019-2020 and onwards

DEPARTMENT OF ELECTRONICS
AND COMMUNICATION
ENGINEERING

Vision

To provide the students excellent education for developing them into high class electronics engineers so that they could meet the challenges of modern industry and blossom into extra-ordinary entrepreneurs.

Mission

- To create learning, development and testing environment to meet ever challenging needs of electronic industry.

- To become a global partner in training human resources in the fields of chip design, instrumentation and networking.

- To be highly competent in various fields of Electronics and Communication engineeringthrough the best breed laboratory facilities.

- To associate with internationally reputed Institutions for academic excellence and collaborative research.

PROGRAM EDUCATIONAL OBJECTIVES

PEO1	Analyze, plan and apply the acquired knowledge in basic sciences and mathematics in solving the problems with technical, economic, environmental and social contexts.
PE02	Design and build modern communication systems as per the requirements stated.
PEO3	Design, build and test analog & digital electronic systems.
PEO4	Work in a teamusing technical knowledge, tools and environments to achieve project objectives.
PEO5	Engage in lifelong learning, career enhancement and adapt to changing professional and societal needs.

PROGRAM OUTCOMES:

At the end of the program the student will be able to:

PO1	Apply basic science and mathematics to analyze complex engineering problems.
PO2	Employ necessary techniques, hardware and software tools for engineering applications.
PO3	Synthesize solutions for existing problems within practical constraints.
PO4	Gather requirement specifications, design and test electronic systems.
PO5	Communicate effectively in diverse groups and exhibit leadership qualities..
PO6	Understand and practice professional ethics.
PO7	Exhibit responsibility in professional, ethical, legal, security and social issues
PO8	Work in a team using technical skills, common tools and environments to achieve the objective of the project.
PO9	Apply management principles to manage projects in multidisciplinary environment
PO10	Pursue life-long learning as a means of enhancing knowledge and skills for continuous professional advancement.

SYLLABUS

B.Tech.(Electronics and Communication Engineering) Course Structure

B. Tech. I - Year I – Semester

S.No.	Course code	Course title	L	T	P	credits	Cat. Code
1	BAS-103	Mathematics-I	3	1	0	4	
2	BAS-102 or BME-102	Engg. Chemistry or Engg. Mechanics	3	1	0	4	
3	BEE-101 or BCS-101	Electrical Engg. or Computer Fundamentals & Programming in C	3	1	0	4	
4	BEC-101 or BHU-101	Electronics Engineering or Professional Communication	3	1	0	4	
5	BAS-101	Engg. Physics-I	3	1	0	4	
6	BME-101 or BAS-104	Manufacturing Process or Environment & Ecology	2	0	0	2	
7	BAS-152 or BME-152	Engg. Chemistry Lab or Engg. Mechanics Lab	0	0	2	1	
8	BEE-151 or BCS-151	Electrical Engg Lab or Computer Fundamentals & Programming in C Lab	0	0	2	1	
9	BME-151 or BCE-151	Workshop Practice or Engg. Drawing & Computer Graphics	0	1	3	2	
10	BAS-151 or BHU-151	Physics Lab or Professional Communication Lab	0	0	2	1	
11	GP-101	General Proficiency	-	-	-	1	
		TOTAL	17	6	9	28	

B.Tech. I - Year II - Semester

S.No.	Course code	Course title	L	T	P	Credits	Cat. Code
1	BAS-203	Mathematics-II	3	1	0	4	
2	BME-202 or BAS-202	Engg. Mechanics -I or Engg. Chemistry	3	1	0	4	
3	BCS-201 or BEE-201	Computer Fundamentals & Programming in C or Electrical Engg.	3	1	0	4	
4	BHU-201 or BEC-201	Professional Communication or Electronics Engineering	3	1	0	4	
5	BAS-201	Engg. Physics-II	3	1	0	4	
6	BAS-201 or BME-201	Environment & Ecology or Manufacturing Process	2	0	0	2	
7	BCE-251 or BME-251	Engg. Drawing & Computer Graphics or Workshop Practice	0	1	3	2	
8	BME-252 or BAS-252	Engg. Mechanics Lab or Engg. Chemistry Lab	0	0	2	1	
9	BAS-251 or BEE-251	Computer Fundamentals & Programming in C Lab or Electrical Engg. Lab	0	0	2	1	
10	BHU-251 or BAS-251	Professional Communication Lab or Physics Lab	0	0	2	1	
11	GP-201	General Proficiency	-	-	-	1	
		Total	17	6	9	28	

B.Tech. II - Year III – Semester

S.No.	Course code	Course Title	L	T	P	Credits	Cat. code
1	BHU-301/401	Industrial Psychology/ Industrial sociology	2	0	0	2	
2	BHU-302/402	Science Elective/ Mathematics-III	3	1	0	4	
3	BEC-304	Electromagnetic Field Theory	3	1	0	4	
4	BEC-301	Fundamentals of Electronic Devices	3	1	0	4	
5	BEC-302	Digital Electronics	3	1	0	4	
6	BEE-302/ BEC-303	(EE &EEE) Electrical Measurements and Instrumentation/(EC) Electronics Measurements &Instrumentation	3	1	0	4	
7	BEC-351	Electronics Lab-I	0	0	2	1	
8	BEC-352/ BEE-351	MATLAB Programming (EE &EEE)/Digital Electronics Lab (EC)	0	0	2	1	
9	BEE-352/ BEC-353	Electrical Measurement & Instrumentation Lab(EE & EEE)/Electronics Measurement & Instrumentation Lab(EC)	0	0	2	1	
10	GP-301	General Proficiency	-	-	-	1	
		Total	17	5	6	26	

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

B.Tech. II year IV semester

S.No.	Course code	Course Title	L	T	P	Credits	Cat. code
1	BHU-301/401	Industrial Psychology/Industrial Sociology	2	0	0	2	
2	BOE31-38/BOE41-48/BAS 301/401	Science Elective/Mathematics-III	3	1	0	4	
3	BCS-405	Computer Organization	3	1	0	4	
4	BEC-401	Signals and Systems	3	1	0	4	
5	BEC-402	Network Analysis and Synthesis	3	1	0	4	
6	BEC-403	Electronic Circuits	3	1	0	4	
7	BCS-455	Computer Organization Lab	0	0	2	1	
8	BEC-453	Electronics Circuit Lab	0	0	2	1	
9	BEC-456	PCB Lab	0	0	2	1	
10	GP-401	General Proficiency	-	-	-	1	
		Total	17	5	6	26	

B.Tech. III year V semester

S.No.	Course code	Course Title	L	T	P	Credits	Cat. code
1	BHU-501	Engineering and Managerial Economics	2	0	0	2	
2	BEC-501	Antenna & Wave Propagation	3	1	0	4	
3	BIC-501	Control Systems –I	3	1	0	4	
4	BEC-502	Principles of Communication	3	1	0	4	
5	BEC-503	Fundamentals of Power Electronics	3	1	0	4	
6	BEC-504	Microprocessors	3	1	0	4	
7	BIC-551	Control System Lab-I	0	0	2	1	
8	BEC-552	Communication Lab-I	0	0	2	1	
9	BEC-554	Microprocessor Lab	0	0	2	1	
10	GP 501	General Proficiency	-	-	-	1	
		Total	17	5	6	26	

B.Tech. III year VI semester

S.No.	Course code	Course Title	L	T	P	Credits	Cat. code
1	BHU-601	Industrial Management	2	0	0	2	
2	-	Departmental Elective	3	1	0	4	
3	BEC-601	Digital Communication	3	1	0	4	
4	BEC-602	Digital Signal Processing	3	1	0	4	
5	BEC-603	Integrated Circuits	3	1	0	4	
6	BEC-604	Microwave Engg.	3	1	0	4	
7	BEC-651	Digital Communication Lab	0	0	2	1	
8	BEC-652	DSP Lab	0	0	2	1	
9	BEC-653	Integrated Circuits Lab	0	0	2	1	
10	GP-601	General Proficiency	-	-	-	1	
		Total	17	5	6	26	

B.Tech. IV year VII semester

S.No.	Course code	Course Title	L	T	P	Credits	Cat. code
1		Open Elective-I**	3	1	0	4	
2		Departmental Elective-II	3	1	0	4	
3	BEC-701	Optical Communication	3	1	0	4	
4	BEC-702	Data Communication Network	3	1	0	4	
5	BEC-703	VLSI Design	3	1	0	4	
6	BEC-751	Microwave and Fiber Optics Lab	0	0	2	1	
7	BEC-752	Electronics Circuit Design	0	0	2	1	
8	BEC-753	Industrial Training Seminar	0	0	2	1	
9	BEC-754	Minor Project	-	-	-	2	
10	GP-701	General Proficiency	-	-	-	1	
		Total	15	5	6	26	

B.Tech. IV year VIII semester

S.No.	Course code	Course Title	L	T	P	Credits	Cat. code
1		Open Elective-II**	3	1	0	4	
2		Departmental ElectiveIII	3	1	0	4	
3	BEC-801	Wireless & Mobile Communication	3	1	0	4	
4	BEC-802	Electronics Switching	3	1	0	4	
5	BEC-851	Projects	-	-	-	9	
6	GP-801	General Proficiency	-	-	-	1	
		Total	12	4	0	26	

List of Electives

II year III semester

BOE-031/041 Fuzzy Logic

BOE-032/042 Nano Physics

EOE-033/043 Laser Systems and Applications

BOE-034/044 Space Sciences

BOE-035/045 Polymer Science and Technology

BOE-036/046 Nuclear Science

BOE-037/047 Material Science

BOE-038/048 Discrete Mathematics

III year VI semester

BIC-021 Microcontroller

BEC-022 Analog Signal Processing

BEC-023 Advanced Semiconductor Devices

IV year VII semester

BOE-071 Introduction to Biotechnology

BOE-073 Non Linear Dynamic

BEC-071 Satellite Communication

BEC-072 Digital Image Processing

BEC-073 Optical Networks

IV year VIII semester

BEC- 081 Digital System Design Using VHDL

BEC-082 Speech Processing

BEC-083 Introduction to Radar systems

BOE-081 Non-Conventional Energy

BOE-082 Reliability of Electronics

BOE-083 Automation and Robotics

List of Specializations

Specialization - 1: FINANCE
MBA 311 –Tax planning and Management
MBA 312 -Security Analysis & Portfolio Management
MBA 411- Corporate Restructuring
MBA 412 Banking Operations Management
MBA 413 -Financial Market & Services

Specialization -2: MARKETING
MBA316: Sales and Distribution
MBA317: Service Management
MBA416: CB and IMC
MBA417: Rural Marketing
MBA418: International Marketing

Specialization -3: HUMAN RESOURCE
MBA321: Organizational Change and Development
MBA322: Training & Development and competency mapping
MBA421: Employee welfare and Labour Legislation
MBA422: Strategic Human Resource Management
MBA423: Performance Appraisal and compensation Management

Specialization-4: INFORMATION TECHNOLOGY
MBA336: Business Intelligence and Data Mining
MBA337: E-Commerce
MBA436: Big Data Analytics
MBA437: IT Project Management
MBA438: Data communication and Networking security

Specialization -5: INTERNATIONAL BUSINESS
MBA326: International Business
MBA327: EXIM Procedure & Documentation
MBA426: International Financial Management
MBA427: Global Business Environment
MBA428: International Logistics

Specialization -6: HOSPITALITY & TOURISM
MBA331: Introduction to Tourism Industry
MBA332: Hospitality and Tourism Planning

MBA431: Travel agency and tour operators
MBA432: Hospitality Information System
MBA433: Tourist Products design and destination development

Specialization -7: RETAIL MANAGEMENT
MBA341: Retail Science
MBA342: Pricing and Branding
MBA441: International Retailing
MBA442: Merchandising and Mall Management
MBA443: Acquiring, Maintaining and Retaining Customer

Specialization -8: HEALTHCARE MANAGEMENT
MBA351: Hospital Planning
MBA352: Medical Terminology and Procedures
MBA451: Hospital Administration
MBA452: Laws Related to Hospital and Medical Services
MBA453: Healthcare and Administration of Clinical and non-clinical Services

Specialization-9: Project Management
Mba371: project formulation and appraisal
Mba372: construction
Planning, scheduling and control.
Mba471: construction personnel management
Mba472: construction project management
Mba473: project safety management

Secialization-10: Rural and Agriculture Management
Mba376: rural economy
Mba377: basics of rural and agricultural marketing
Mba476:distribution strategies for rural and agricultural marketing
Mba477: evolution of agricultural marketing in India
Mba478: rural and agricultural financing

Year-4 Semester-9

Sl. No.	Paper Code	Paper Name	L+T+P	Maximum marks			Credit
1	MBA301	Strategic Management	4+1+0	70	30	100	4
2	MBA302	Event Management*	2+1+2	40	60	100	4
3		Spec. Group 1 Paper 1	4+1+0	70	30	100	4
4		Spec. Group 1 Paper 2	4+1+0	70	30	100	4
5		Spec. Group 2 Paper 1	4+1+0	70	30	100	4
6		Spec. Group 2 Paper 2	4+1+0	70	30	100	4
7	MBA396	Hands on Experience Viva**		100		100	4
		Total		490	210	700	28

*Event Management being a highly practical subject, student's Organizing capacity evaluation become important. The students will be divided into group of four and these groups are expected to organize at-least one event. Evaluation of the group will be based on the report submitted by the group and viva will be conducted for individual assessment.

It is therefore necessary to reduce the weightage of external written examination to 40 marks and event organized assessment to 60 Marks. Out of 60 marks UTs consist of 20 marks and the rest 40 marks will be on viva of students on their event management experience.

Year-4   Semester-10

Sl. No.	Paper Code	Paper Name	L+T+P	Maximum marks			Credit
1		Spec. Group 1 Paper 3	4+1+0	70	30	100	4
2		Spec. Group 1 Paper 4	4+1+0	70	30	100	4
3		Spec. Group 1 Paper 5	4+1+0	70	30	100	4
4		Spec. Group 2 Paper 3	4+1+0	70	30	100	4
5		Spec. Group 2 Paper 4	4+1+0	70	30	100	4
6		Spec. Group 2 Paper 5	4+1+0	70	30	100	4
7	MBA496	Comprehensive Viva		100		100	4
		Total		520	180	700	28

Note: Students required choosing any two Specializations out of TEN offering by the University. First Specialization chosen by student will be treated as Spec. Group 1 and second Specialization will be treated as Spec. Group 2.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Year -3   Semester-7

Sl. No.	Paper Code	Paper Name	L+T+P	Maximum marks				Credit
				E	I	P	T	
1	MBA101	Management- Micro and Macro	4+1+0	70	30		100	4
2	MBA102	Market Science	4+1+0	70	30		100	4
3	MBA104	Recording and Analysis of Business Operations	4+1+0	70	30		100	4
4	MBA105	Micro Economics & Economic Planning	4+1+0	70	30		100	4
5	Paper B.Tech.	EC1	4+1+0	70	30		100	4
6	Paper B.Tech.	EC2	4+1+0	70	30		100	4
		Total		420*	180*		600*	24*

* Two Paper from Btech will be studied by Students in this Semester based on their Course.

Year-3 Semester-8

Sl. No.	Paper Code	Paper Name	L+T+P	Maximum marks			Credit
1	MBA201	Management Science	4+1+0	70	30	100	4
2	MBA202	Market Intelligence	4+1+0	70	30	100	4
3	MBA203	Identification, addition and delivery of Value	4+1+0	70	30	100	4
4	MBA204	Economics of Human Resource	4+1+0	70	30	100	4
5	MBA205	Legal Issues in Business	4+1+0	70	30	100	4
6	MBA206	Financial Issues	4+1+0	70	30	100	4
7	MBA207	Professional Communications and Aptitude	4+1+0	70	30	100	4
		Total		480	210	700	28

**After 2nd Semester, students will undergo 8 weeks summer training compulsorily in Public Sector undertakings or Private Sector, known as Hands on Experience. 100 marks will be on viva of students on their management experience in 3rd Semester.

This is the policy of the university not to allocate students in their home town. In case of extraordinary circumstances specific permission will be necessary from Hon'ble Chancellor.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS UNIVERSITY, BAREILLY

PROPOSED SYLLABUS
FOR

B.Tech. (EC) + MBA

As Per Course Structure to Be Effective From Academic Year 2019 Onward

NEURAL NETWORK AND FUZZY LOGIC

NEURAL NETWORKS:

Introduction to neurons, Classification of neurons, Introduction to neural networks, Modeling of neural networks based on soft and hard neurons, Different network configuration, Feed forward and recurrent network, Pulsed neurons, Learning supervised and unsupervised, Neural networks application in control, Identification, Pattern recognition, Filtering and state estimation, Decision based on neural networks.

fuzzy relations and membership classification, Fuzzy controllers.

genetic algorithm concepts

Micro Electronics and Communication

MODULE I

... Generation of Power ...
... and Generation of switching ...
... Types and Models, Configuration and ...
... Structures of VHDL ...
... VHDL Essential Terminologies

MODULE II

... Image Processing, transforms, and statistical ...
... line and edge detection mechanism ...
... mination
... image representation, boundary description, color ...
... restoration, relational ...

MODULE III

... communication systems ...
... cellular systems ...
... Communication
... techniques, SDMA techniques ...

DRM-101 RESEARCH METHODOLOGY for Engineering Stream

UNIT I

Research Topic: selection of problems, stages in the execution of research, preparation of manuscript and report writing. Search engines: google, pubmed, google scholar, EMBL, etc. Publication of Report in Journals: Standard of research journals, impact factor, citation index, H index, and more. Proof reading, reading journals and review.

UNIT II

Introduction of computer science- Database management systems, presentation graphics, management of data by office applications: MS-office, MS-Word, MS-Excel, and MS-PowerPoint. Generation and analysis of data, basics of softwares: Matlab and Labview.

LaTeX overview – document classes, Packages, document environment, Block structure, and special pages.

UNIT III

Measures of dispersion: sampling methods: random sampling - types of variables: qualitative and quantitative variables - continuous and discontinuous variables - scaling method – mean - standard deviation- standard error - coefficient of variation. Comparison of means: chi square test, student's t test and ANOVA.

UNIT IV

Spectrophotometer: principle and applications, Ultra violet, Infra Red, 1H, Nuclear magnetic resonance (NMR), fundamental and procedure of chromatography. Principle and application of electron microscopy, scanning electron microscopy, transmission electron microscopy, X-ray diffraction.

REFERENCE BOOKS

➢ Statistical methods, Snedecor, G, W. and W.G. Cohran, 1978. Oxford and IBH publishing CO Pvt. Ltd.
➢ Biometry, Sokal, R.R. and F.J.Rohlf, 1981. W.H. Freeman, NewYork.
➢ Authoring a PhD, thesis: how to plan, draft, write and finish a doctoral dissertation, Duncary, P. 2003. Macmillan, pp 256.
➢ Biostatistical analysis, Zar, J.H., 1996. Prentice Hall, Uppar Saddle River, newjersy, USA.
➢ Scientific courses and presentations, Martha Davis, 2005. Academic press, Tokyo.pp.356

16.1.14

16.1.2014

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS
UNIVERSITY BAREILLY
BUILDING VIBRANT PERSONALITIES

COURSE STRUCTURE

DEPARTMENT OF EDUCATION

NAAC CRITERIA 1.2.2

Bachelors of Elementary Education (B. El. Ed)

(Effective from Session 2018 – 2019)

Invertis Institute of Education

Invertis University, Bareilly

Invertis Village,

Bareilly – Lucknow Road, NH – 24,

Bareilly (U. P) - 243123

India

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Invertis Institute of Education

Four Year B.El.Ed. Syllabus 2018-19

First Year Structure of B.El.Ed. Programme

Semester – I

S.NO	Course Code	Course/Paper	PERIOD			Credit	Evaluation Scheme		
			L	T	P		MSM	ESM	Total
Theory Course									
1	BELED101	Human Growth and Development	4			4	30	70	100
2	BELED102	Elementary Education: Introduction	4			4	30	70	100
3	BELED103	English language and communication I	3		2	4	30	70	100
4	BELED104	Nature of Language	4			4	30	70	100
5	BELED105	Core Mathematics	4			4	30	70	100
PRACTICAL									
	BELED 161	Fine Arts and Craft Participatory Work, Psychological Assessment and Academic Enrichment Activities			4	2	30	70	100
	Total		19		6	22	180	420	600

Santosh.
REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Invertis Institute of Education

Four Year B.El.Ed. Syllabus 2018-19

First Year Structure of B.El.Ed. Programme

Semester – II

S.NO	Course Code	Course/Paper	PERIOD			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
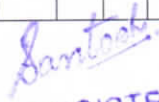
Theory Course

S.NO	Course Code	Course/Paper	L	T	P	Credit	Internal	External	Total
1	BELED 201	Cognition, Learning and Teaching	4			4	30	70	100
2	BELED 202	Contemporary India and Education	4			4	30	70	100
3	BELED 203	English Language and Communication II	3		2	4	30	70	100
4	BELED 204	Core Social Science	4			4	30	70	100
5	BELED 205	Core Science	4			4	30	70	100

PRACTICAL

S.NO	Course Code	Course/Paper	L	T	P	Credit	Internal	External	Total
	BELED 261	Scout & Guide Camp /Drama & Arts and Music Activities and Academic Enrichment Activities			4	2	30	70	100
		TOTAL	19		6	22	180	420	600

Invertis Institute of Education

Four Year B.El.Ed. Syllabus 2018-19

Second Year Structure of B.El.Ed. Programme

Semester – III

S.NO	Course Code	Course/Paper	L	T	P	Credit	MSM	ESM	Total
Theory Course									
1	BELED 301	Contemporary India	4			4	30	70	100
2	BELED 302	Health and Yoga Education	4			4	30	70	100
3	BELED 303	ICT and Education	4			4	30	70	100
4	BELED 304	School Planning and Management	4			4	30	70	100
Liberal Courses (Select Any One group from Science or Art Stream)									
Science Stream									
Group	BELED 321	Physics I	3			3	30	70	100
A	BELED 351	Physics Lab I	0		2	1	30	70	100
Group	BELED 322	Chemistry I	3			3	30	70	100
B	BELED 352	Chemistry Lab I	0		2	1	30	70	100
Group	BELED 323	Mathematics I	3			3	30	70	100
C	BELED 353	Mathematics Lab I	0		2	1	30	70	100
Group	BELED 324	Botany I	3			3	30	70	100
D	BELED 354	Botany Lab I	0		2	1	30	70	100
Group	BELED 325	Zoology I	3			3	30	70	100
E	BELED 355	Zoology Lab I	0		2	1	30	70	100
Arts Stream									
Group	BELED 326	Hindi I	3			3	30	70	100
A	BELED 356	Hindi Practical I	0		2	1	30	70	100
Group	BELED 327	English Literature I	3			3	30	70	100
B	BELED 357	English Practical I	0		2	1	30	70	100
Group	BELED 328	History I	3			3	30	70	100
C	BELED 358	History Practical I	0		2	1	30	70	100

REGISTRAR
INVERTIS UNIVERSITY

Group										
Group D	BELED 329	Political Science I	3				3	30	70	100
	BELED 359	Political Science Practical I	0		2		1	30	70	100
Group E	BELED 330	Economics I	3				3	30	70	100
	BELED 360	Economics Practical I	0		2	1		30	70	100
PRACTICAL										
	BELED 361	Yoga & Meditation / Sports & Health Education / Self-development workshop Activities			4	**2**		30	70	100
		TOTAL	19		8	22		210	490	700

Invertis Institute of Education

Four Year B.El.Ed. Syllabus 2018-19

Second Year Structure of B.El.Ed. Programme

Semester – IV

S.NO	Course Code	Course/Paper	L	T	P	Credit	MSM	ESM	Total
TheoryCourse									
1	BELED 401	Basic Concepts of Education	4			4	30	70	100
2	BELED 402	Human Value and Ethics	4			4	30	70	100
3	BELED 403	Language Acquisition	4			4	30	70	100
4	BELED 404	Pedagogy of Environmental Studies	4			4	30	70	100
Liberal Courses (Select Any One group from Science or Art Stream)									
Science Stream									
Group	BELED 421	Physics II	3			3	30	70	100
A	BELED 451	Physics Lab II	0		2	1	30	70	100
Group	BELED 422	Chemistry II	3			3	30	70	100
B	BELED 452	Chemistry Lab II	0		2	1	30	70	100
Group	BELED 423	Mathematics II	3			3	30	70	100
C	BELED 453	Mathematics Lab II	0		2	1	30	70	100
Group	BELED 424	Botany II	3			3	30	70	100
D	BELED 454	Botany Lab II	0		2	1	30	70	100
Group	BELED 425	Zoology II	3			3	30	70	100
E	BELED 455	Zoology Lab II	0		2	1	30	70	100
Arts Stream									
Group	BELED 426	Hindi II	3			3	30	70	100
A	BELED 456	Hindi Practical II			2	1	30	70	100
Group	BELED 427	English Literature II	3			3	30	70	100
B	BELED 457	English Practical II			2	1	30	70	100
Group	BELED 428	History II	3			3	30	70	100

C	BELED 458	History Practical II	0		2	1	30	70	100
Group	BELED 429	Political Science II	3			3	30	70	100
D	BELED 459	Political Science Practical II	0		2	1	30	70	100
Group	BELED 430	Economics II	3			3	30	70	100
E	BELED 460	Economics Practical II	0		2	1	30	70	100
PRACTICAL									
	BELED 461	Educational Excursion/ Academic Enrichment Activities			2	1	15	35	50
	BELED 471	School Internship (School Observation) I			2	1	15	35	50
		TOTAL	19		8	22	310	390	700

Santosh.

REGISTRAR
INVERTIS UNIVERSITY

Invertis Institute of Education

Four Year B.El.Ed. Syllabus 2018-19

Second Year Structure of B.El.Ed. Programme

Semester –V

S.NO	CourseCode	Course/Paper	L	T	P	Credit	MSM	ESM	Total
Theory Courses									
1	BELED501	Logico Mathematics Education	4			4	30	70	100
2	BELED502	Language across the Curriculum	4			4	30	70	100
3	BELED503	Educational Management and Administration	4			4	30	70	100
Pedagogy Course I (Select Any One)									
1	BELED 531	Pedagogy of Hindi – I	2			2	15	35	50
2	BELED 532	Pedagogy of English – I	2			2	15	35	50
3	BELED 533	Pedagogy of Sanskrit – I	2			2	15	35	50
4	BELED 534	Pedagogy of Physical Science - I	2			2	15	35	50
Pedagogy Course II (Select Any One)									
1	BELED 541	Pedagogy of Social Studies– I	2			2	15	35	50
2	BELED 542	Pedagogy of Mathematics- I	2			2	15	35	50
3	BELED 543	Pedagogy of Biology - I	2			2	15	35	50
Liberal Courses (Select Any One group from Science or Art Stream)									
Science Stream									
Group A	BELED 521	Physics III	3			3	30	70	100
	BELED 551	Physics Lab III	0		2	1	30	70	100
Group B	BELED 522	Chemistry III	3			3	30	70	100
	BELED 552	Chemistry Lab III	0		2	1	30	70	100
Group C	BELED 523	Mathematics III	3			3	30	70	100
	BELED 553	Mathematics Lab III	0		2	1	30	70	100
Group D	BELED 524	Botany III	3			3	30	70	100
	BELED 554	Botany Lab III	0		2	1	30	70	100

Group	Code	Subject							
Group E	BELED 525	Zoology III	3			3	30	70	100
	BELED 555	Zoology Lab III	0		2	1	30	70	100
Art Stream									
Group A	BELED 526	Hindi III	3			3	30	70	100
	BELED 556	Hindi Practical III	0		2	1	30	70	100
Group B	BELED 527	English Literature III	3			3	30	70	100
	BELED 557	English Practical III	0		2	1	30	70	100
Group C	BELED 528	History III	3			3	30	70	100
	BELED 558	History Practical III	0		2	1	30	70	100
Group D	BELED 529	Political Science III	3			3	30	70	100
	BELED 559	Political Science Practical III	0		2	1	30	70	100
Group E	BELED 530	Economics III	3			3	30	70	100
	BELED 560	Economics Practical III	0		2	1	30	70	100
PRACTICAL									
	BELED561	Microteaching 10 Plans, Development of Teaching aid and Learning Material, Academic Enrichment activities			4	2	30	70	100
		Total	**19**		**8**	**22**	**210**	**490**	**700**

Second Year Structure of B.El.Ed. Programme

Semester – VI

S.NO	CourseCode	Course/Paper	Period			Credit	Evaluation Scheme		
			L	T	P		MSM	ESM	Total
Theory Courses									
1	BELED601	Knowledge and Curriculum	4			4	30	70	100
2	BELED602	Gender School and Society	4			4	30	70	100
3	BELED603	Fundamentals of Computer	4			4	30	70	100
Pedagogy Course I (Select Any One)									
1	BELED 631	Pedagogy of Hindi - II	2			2	15	35	50
2	BELED 632	Pedagogy of English - II	2			2	15	35	50
3	BELED 633	Pedagogy of Sanskrit - II	2			2	15	35	50
4	BELED 634	Pedagogy of Physical Science - II	2			2	15	35	50
Pedagogy Course II (Select Any One)									
1	BELED 641	Pedagogy of Social Studies - II	2			2	15	35	50
2	BELED 642	Pedagogy of Mathematics- II	2			2	15	35	50
3	BELED 643	Pedagogy of Biology - II	2			2	15	35	50
Liberal Courses (Select Any One group from Science or Art Stream)									
Science Stream									
Group A	BELED 621	Physics IV	3			3	30	70	100
	BELED 651	Physics Lab IV	0		2	1	30	70	100
Group B	BELED 622	Chemistry IV	3			3	30	70	100
	BELED 652	Chemistry Lab IV	0		2	1	30	70	100
Group C	BELED 623	Mathematics IV	3			3	30	70	100
	BELED 653	Mathematics Lab IV	0		2	1	30	70	100
Group D	BELED 624	Botany IV				3	30	70	100
	BELED 654	Botany Lab IV	0		2	1	30	70	100
Group E	BELED 625	Zoology IV				3	30	70	100
	BELED 655	Zoology Lab IV	0		2	1	30	70	100

Art Stream

Group A	BELED 626	Hindi IV	3			3	30	70	100
	BELED 656	Hindi Practical IV	0		2	1	30	70	100
Group B	BELED 627	English Literature IV	3			3	30	70	100
	BELED 657	English Practical IV	0		2	1	30	70	100
Group C	BELED 628	History IV	3			3	30	70	100
	BELED 658	History Practical IV	0		2	1	30	70	100
Group D	BELED 629	Political Science IV	3			3	30	70	100
	BELED 659	Political Science Practical IV	0		2	1	30	70	100
Group E	BELED 630	Economics IV	3			3	30	70	100
	BELED 660	Economics Practical IV	0		2	1	30	70	100

PRACTICAL

	BELED661	Simulation Teaching 10 plans, Development and Use Teaching aid and Learning Material			2	1	15	35	50
	BELED671	School Internship II			2	1	15	35	50
		Total	19		8	22	210	490	700

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Invertis Institute of Education

Four Year B.El.Ed. Syllabus 2018-19

Fourth Year Structure of B.El.Ed. Programme

Semester - VII

S.NO	Course Code	Course/Paper	Periods			Credit	Evalution Scheme		
			L	T	P		Internal	External	Total
Theory Course									
1	BELED 771	School Internship III (16 Weak)				16	150	350	500
2	BELED 761	Preparation and Presentation by ICT				1	50	50	100
TOTAL						18	200	400	600

Invertis Institute of Education

Four Year B.El.Ed. Syllabus 2018-19

Fourth Year Syllabus of B.El.Ed. Programme

Semester - VIII

S.NO	CourseCode	Course/Paper	L	T	P	Credit	MSM	ESM	Total
Theory Course									
	BELED801	Educational Measurement, Evaluation & Action Research	4			4	30	70	100
	BELED802	Guidance and Counselling	4			4	30	70	100
	BELED803	Environmental Studies	3		2	4	30	70	100
Elective Courses (Select Any One Group)									
	BELED871	Inclusive Education	4			4	30	70	100
Group A	BELED872	Special Education	4			4	30	70	100
	BELED873	Life Skill Education	4			4	30	70	100
Group B	BELED874	Work Education	4			4	30	70	100
PRACTICAL									
	BELED861	1.Educational Evaluation of Action Research 2.Construction of Achievement/ Diagnostic Test	0		2	1	30	70	100
Total			19		4	21	180	420	600

163

Revised
Scheme of Instruction & Syllabi

of

Integrated Course for

Bachelor of Science with Bachelor of Education (B. Sc. B. Ed.)

(B. Sc. with Physics, Chemistry and Mathematics)

(Effective from Session 2018 – 2019)

Invertis Institute of Education

Invertis University, Bareilly

Invertis Village,
Bareilly – Lucknow Road, NH – 24,
Bareilly (U. P) - 243123
India

Semester I – Programme Structure

Course Type	Course Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	P	ESM	MSM	Total
CC1	BEB106	Basics of Inorganic Chemistry I	3	1	0	70	30	100
	BEB107	Matrix Theory & Geometry	3	1	0	70	30	100
	BEB108	Mechanics and Thermodynamics	3	1	0	70	30	100
	BEB151	Chemistry Lab - I	0	0	2	35	15	50
	BEB152	Physics Lab - I	0	0	2	35	15	50
CC2	BED101	Childhood and Growing Up	3	1	0	70	30	100
	BED102	Language and Communication - I	2	0	0	35	15	50
	BED103	Educational Technology	2	0	0	35	15	50
Practicum	BED151	Practicum I : Psychology Practical	0	0	4	00	50	50
Total			16	4	8	420	230	650

L – Lecture, T- Tutorial, P- Practical, ESM – End Semester Marks, MSM – Mid Semester Marks

Semester II – Programme Structure

Course Type	Course Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	P	ESM	MSM	Total
CC1	BEB206	Basics of Organic Chemistry I	3	1	0	70	30	100
	BEB207	Calculus	3	1	0	70	30	100
	BEB208	Wave Optics and Electromagnetism	3	1	0	70	30	100
	BEB251	Chemistry Lab - II	0	0	2	35	15	50
	BEB252	Physics Lab - II	0	0	2	35	15	50
CC2	BED201	Contemporary India And Education	3	1	0	70	30	100
	BED202	Language And Communication - II	2	0	0	35	15	50
	BED203	ICT in Education - I	2	0	0	35	15	50
Practicum	BED251	Practicum II : Scout Camp / Community Awareness Camp	0	0	2	00	50	50
Total			16	4	6	420	230	650

L – Lecture, T- Tutorial, P- Practical, ESM – End Semester Marks, MSM – Mid Semester Marks

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Semester III – Programme Structure

Course Type	Course Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	P	ESM	MSM	Total
CC1	BEB306	Basics of Inorganic Chemistry II	3	1	0	70	30	100
	BEB307	Statics & Dynamics	3	1	0	70	30	100
	BEB308	Basic Electronics and Circuit Fundamentals	3	1	0	70	30	100
	BEB351	Chemistry Lab - III	0	0	2	35	15	50
	BEB352	Physics Lab - III	0	0	2	35	15	50
CC2	BED301	Development of Education System in India	3	1	0	70	30	100
	BED302	Sociological Aspects of Education	2	0	0	35	15	50
	BED303	Health Education and Yoga	2	0	0	35	15	50
Practical	BED351	Practicum III : Cultural Activities, Sports and Yoga	0	0	2	00	50	50
EPC	BED361	EPC – I: Reading and Reflecting on Texts	0	0	2	00	50	50
Total			16	4	8	420	280	700

L – Lecture, T- Tutorial, P- Practical, ESM – End Semester Marks, MSM – Mid Semester Marks

Semester IV – Programme Structure

Course Type	Course Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	P	ESM	MSM	Total
CC1	BEB406	Basics of Organic Chemistry II	3	1	0	70	30	100
	BEB407	Analysis & Algebra	3	1	0	70	30	100
	BEB408	Solid State and Modern Physics	3	1	0	70	30	100
	BEB451	Chemistry Lab - IV	0	0	2	35	15	50
	BEB452	Physics Lab - IV	0	0	2	35	15	50
CC2	BED401	Teaching, Learning and Assessment	3	1	0	70	30	100
	BED402	Classroom Management	2	0	0	35	15	50
EPC	BED461	EPC – II: Educational Excursion / Art and Craft Workshop	0	0	2	00	50	50
School Internship	BED471	School Internship – I for School Observation (Two Week)	0	0	0	00	50	50
Total			14	4	6	385	265	650

L – Lecture, T- Tutorial, P- Practical, ESM – End Semester Marks, MSM – Mid Semester Marks

Semester V – Programme Structure

Course Type	Course Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	P	ESM	MSM	Total
CC1	BEB506	Basics of Physical Chemistry I	3	1	0	70	30	100
	BEB507	Differential Equations	3	1	0	70	30	100
	BEB508	Atomic and Nuclear Physics	3	1	0	70	30	100
	BEB551	Chemistry Lab - V	0	0	2	35	15	50
	BEB552	Physics Lab - V	0	0	2	35	15	50
CC2	BED503	Pedagogy of Physical Science: Part - I	2	0	0	35	15	50
	BED504	Pedagogy of Mathematics: Part – I	2	0	0	35	15	50
	BED506	ICT in Education – II	1	1	0	35	15	50
Practicum	BED551	Practicum IV : Micro Teaching, Preparation of Teaching Aid & Construction of Achievement/ Diagnostic Test	0	0	4	00	50 (20 +10+20)	50
EPC	BED561	EPC – III: Drama and Art in Education	0	0	2	00	50	50
Total			14	4	10	385	265	650

L – Lecture, T- Tutorial, P- Practical, ESM – End Semester Marks, MSM – Mid Semester Marks

Semester VI – Programme Structure

Course Type	Course Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	P	ESM	MSM	Total
CC1	BEB606	Basics of Physical Chemistry II	3	1	0	70	30	100
	BEB607	Probability, Statistics & Numerical Analysis	3	1	0	70	30	100
	BEB608	Mathematical and Quantum Physics	3	1	0	70	30	100
	BEB651	Chemistry Lab - VI	0	0	2	35	15	50
	BEB652	Physics Lab - VI	0	0	2	35	15	50
CC2	BED603	Pedagogy of Physical Science: Part – II	2	0	0	35	15	50
	BED604	Pedagogy of Mathematics: Part – II	2	0	0	35	15	50
Practicum	BED651	Practicum V : Workshop on Preparation for Teaching & Simulation Teaching	0	0	4	00	100 (40+60)	100
School Internship	BED671	School Internship – II for Practice Teaching (Two Week)	0	0	0	50	00	50
Total			13	3	8	400	250	650

L – Lecture, T- Tutorial, P- Practical, ESM – End Semester Marks, MSM – Mid Semester Marks

Santosh.

REGISTRAR
INVERTIS UNIVERSITY

Semester VII – Programme Structure

Course Type	Course Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	P	ESM	MSM	Total
EPC	BED761	EPC – IV: Preparation and Presentation Through ICT	0	0	2	00	50	50
School Internship	BED771	School Internship – III (16 week including 02 week school and community Awareness Programme)	0	0	0	250	00	250
Total			0	0	2	250	50	300

L – Lecture, T- Tutorial, P- Practical, ESM – End Semester Marks, MSM – Mid Semester Marks

Semester VIII – Programme Structure

Course Type	Course Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	P	ESM	MSM	Total
CC2	BED801	Inclusive Education	3	1	0	70	30	100
	BOD081 BOD082 BOD083	Elective (Choose any one out of three) Special Education Guidance and Counselling Value Education	3	1	0	70	30	100
	BED802	Environmental Education	2	0	0	35	15	50
	BED803	Gender, School and Society	2	0	0	35	15	50
	BED804	Educational Measurement and Evaluation	3	1	0	70	30	100
	BED805	Curriculum Development	2	0	0	35	15	50
EPC	BED861	EPC - V : Understanding The Self Including Workshop on Self Development	0	0	2	00	50	50
Total			15	3	2	315	185	500

L – Lecture, T- Tutorial, P- Practical, ESM – End Semester Marks, MSM – Mid Semester Marks

Revised
Scheme of Instruction & Syllabi

of

Integrated Course for

Bachelor of Science with Bachelor of Education (B. Sc. B. Ed.)

B.Sc With Zoology, Botany and Chemistry

(ZBC)

Effective from session 2018-19

Invertis Institute of Education

Invertis University, Bareilly

Invertis Village,
Bareilly – Lucknow Road, NH – 24,
Bareilly (U. P) - 243123
India

Effective from the   **2018 - 2019**
academic session

Semester I - Programme Structure

Course Type	Course Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	I'	ESM	MSM	Total
CC1	BEB106	Basics of inorganicChemistry1	3	1	0	70	30	100
	BEB109	Non-Chordate and Cell Biology	3	1	0	70	30	100
	BEB110	Diversity of Viruses, Bacteria, A 1 ;lf Lichens, &Fungi	3	1	0	70	30	100
	BEB151	Chemistry Lab – 1	0	0	2	35	15	50
	BEB153	Life Science Lab – I	fi	0	2	35	15	50
CC2	BED101	Childhood and Growing U p	3	1	0	70	30	100
	BED102	Language and Communication – 1	2	0	0	35	15	50
	BEDI03	Educational' Technology	2	0	0	35	15	50
Practicum	BEDISI	Practicum 1: Psychology •Practical	0	0	4	00	50	50
		Total	16	4	8	420	230	650

L — Lecture, T- Tutorial, P- Practical, ESM — End Semester Marks, MSM — Mid Semester Marks
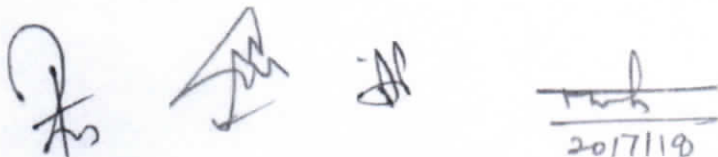
Semester 2— Programme Structure

Course Type	Course Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	P	ESM	MSM	Total
Cci	BEB206	Basics of Organic Chemistry 1	3	1	0	70	30	100
	BEB209	Evolution, Developmental Biology and Environmental 1 °f,l	3	1	0	70	30	100
	BEB2l0	Diversity of Bryophytes, Pteridophytes. Gymnosperms &Angiosperms	3	1	0	70	30	100
	BEB25 1	Chemistry Lab – 11	0	0	2	35	15	50
	BEB253	Life Science Lab – 11	0	0	2	35	15	50
CC2	BED201	Contemporary India And Education	3	1	0	70	30	100
	BED202	Language And Communication - 11	2	0	0	35	15	50
	BED203	ICT in Education- 1	2	0	0	35	15	50

Practicum	BED25 1	Practicum II : Scout Camp / Community Awareness Camp	0	0	2	00	50	50
		Total	16	4	6	420	230	650

L — Lecture, T- Tutorial, P- Practical, ESM — End Semester Marks, MSM — Mid Semester Marks

2017119

InvertisInstituteofEducation,InvertisUniversity,Bareilly(U.P)—243123

Pag

Effective from the academic session 2018 - 2019

Semester 3 — Programme Structure

Course Type	Course Code	Course Name	Teaching Subjects			Evaluation scheme		
			L	T	P	ESM	MSM	Total
CCI	BEB306	Basics of Inorganic Chemistry 11	.3	1	0	70	30	100
	BEB309	Chordate and Comparative Anatomy & Histology	3	1	0	70	30	100
	BEB310	Physiology, Molecular Biology, Plant Biotechnology of Plants	3	1	0	70	30	100
	BEB351	Chemistry Lab-III	0	0	2	35	15	50
	BEB353	Life Science Lab-III	0	0	4	35	15	50
CC2	BED301	Development of Education System in India	3	1	0	70	30	100
	BED302	Sociological Aspects of Education	2	0	0	35	15	50
	BED303	Health Education and Yoga	2	0	0	35	15	50
Practical	BED351	Practicum III : Cultural Activities, Sports and Yoga	0	0	2	00	50	50
EPC	BED36 I	EPC — I: Reading and Reflecting on Texts	0	0	2	00	50	50
Total			16	4	10	420	280	700

L — Lecture, T- Tutorial, P- Practical, ESM — End Semester Marks, MSM — Mid Semester Marks

Semester IV— Programme Structure

Course Type	Course Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	P	ESM	MSM	Total
CCI	**BEB406**	**Basics** of Organic Chemistry II	3	1	0	70	30	100
	BEB409	Biochemistry, Endocrinology and Animal Behaviour	3	1	0	70	30	100
	BEB410	Economic Botany and Plant Anatomy	3	1	0	70	30	100
	BEB451	Chemistry Lab-Lv	0	0	2	35	15	50
	BEB453	Chemistry Lab-IV	0	0	4	35	15	50
Ccz	BED40I	Teaching, Learning and Assessment	3	1	0	70	30	100
	BED402	Classrooms Management	2	0	0	35	15	50
EPC	BED46I	EPC—II: Educational Excursion / Art and Craft Workshop	0	0	2	00	50	50

School Internshi p	BED47I	School Internship — I for School Observation (16 weeks)	0	0	0	00	50	50
		Total	J4	4	8	385	265	650

L—Leer   utorial, P- Practical, ESM — 1:nd Semester Marks, MSM — Mid SemesterMarks

Insti

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

SEMESTER 5 (PROGRAMM STRUCTURE)

Course	Course	Course Name	Teaching			Evaluation scheme		
			L	T	P	SPSM		T
CCI	BEB506	Basics of Physical Chemistry 1	3	1	0	70	30	100
	BEB509	Economic Zoology, Microbiology and Immunology	3	1	0	70	30	100
	BEB510	Cytogenetic, Plant Pathology and	3	1	0	70	30	100
	BEBSSI	ChemistryLab-V	0	0	2	35	15	50
	BEB553	Life Science Lab-V	0	0	4	35	15	50
CC2	BED503	Pedagogyof Physical Science: Part- 1	2	0	J0	35	15	50
	BED505	Pedagogy of Biological Science: Part — 1	2	0	0	35	15	50
	BED506	ICT in Education— 11	1	1	0	35	15	50
Practicum	BED551	Practicum IV :Micro teaching, Preparation of Teaching Aid ~~. Construction of Achievement / Diagnostic Test	0	0	4	00	50 {20 ,,2,,	50
EPC	BED56I	EPC —III: Drama and Art Education	0	0	2	00	50	50

L — LecMe, T- Tutorial, P- Practical, ESM — End Semester Marks, MSM — Mid Semester Marks

Semester 6— Programme Structure

Type	Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	P	ESM	MSSI	Tot
Cci	BEB606	Basics of PhysicalChemistryl. 1	3	1	0	70	30	10
	BEB609	Physiology &Toxicology, Genetics end Biotechnology	3	1	0	70	30	10
	BEB6l0	Plant Resource Utilization, Palynology and Biostatistics	3	1	0	70	30	10
	BEB6S1	ChemistryLab- VI	0	0	2	3S	I S	5(
	BEB653	Life Science Lab- V1	0	0	4	35	15	5(
CC2	BED603	Pedagogy of PhysicalScience: Part — II	2	0	0	35	15	5(
	BED605	Pedagogy of Biological Science Part— ll	2	0	0	35	IS	5(
Practicum	BED65 1	Practicum V : Workshop on Preparation for Teaching &SimulationTeaching	0	0	4	00	100 (* I	1(

School Internshi p	BED671	School Internship — II for Practice Teaching (Two Weeks) 0	0	0	0	50	00	5
		Total	13	3	10	400	250	6

L—Le**Turorial**.Tu   'al,P-**PracticalESM—EndSemesterMarks,MSM—MidSemesterMarks**

InvertisInstitue
te of Educ₹   ueation, Invertis University Bareilly(U.P)—243123   Pa₹

SEMESTER 7 (PROGRAMM STRUCTURE)

Course Type	Course Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	P	ESM	MSM	Total
EPC	BED761	EPC — IV: Preparation and Presentation Through ICI'	0	0	2	00	50	50
School Internship	BED771	School Internship —III (16 week including 02 week school and community Awareness Programme)	0	0	0	250	00	250
Total			0	0	2	250	50	300

L — Lecture, T- Tutorial, P- Practical, ESM –End Semester Marks, MSM — Mid Semester Marks

Semester 8
Programme
Structure

Course Type	Course Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	P	ESM	MSM	Total
CC2	BED80I	Inclusive Education	3	1	0	70	30	100
	BOD08I BOD082 BOD083	Elective (Choose any one out of following) Special Education Guidance and CounsellingValue Education	3	1	0	70	30	100
	BED802	Environmental Education	2	0	0	35	15	50
	BED803	Gender, School and Society	2	0	0	35	15	50
	BED804	Educational Measurement and Learning Assessment	3	1	0	70	30	100
	BED805	Curriculum Development	2	0	0	35	15	50
EPC	BED861	EPC - V :Understanding "the Self- including Workshop on Self Development	)	0	2	00	50	50
Total			15	3	2	315	185	500

L — Lecture, T- Tutorial, P- Practical, ES M — EndSemester Marks, MSM — Mid Semester Marks

INVERTIS
UNIVERSITY BAREILLY

Revised

Scheme of Instruction & Syllabi

of

Integrated Course for

Bachelor of Arts with Bachelor of Education (B. A. B. Ed.)

(B. A. with English Literature, Political Science, Sociology and History)

(Effective from Session 2018 – 2019)

Invertis Institute of Education

Invertis University, Bareilly

Invertis Village,
Bareilly – Lucknow Road, NH – 24,
Bareilly (U. P) - 243123
India

(Dr. Ram Shanker Saxena)

Integrated B.A. B. Ed.

Effective from the academic session 2018 - 2019

Semester I – Programme Structure

Course Type	Course Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	P	ESM	MSM	Total
CC1	BAB101	English Literature - I	3	1	0	70	30	100
	BAB102	Political Theory	3	1	0	70	30	100
	BAB103	General Principles of Sociology	3	1	0	70	30	100
	BAB105	Ancient Indian Culture	3	1	0	70	30	100
CC2	BED101	Childhood and Growing Up	3	1	0	70	30	100
	BED102	Language and Communication - I	2	0	0	35	15	50
	BED103	Educational Technology	2	0	0	35	15	50
Practicum	BED151	Practicum I : Psychology Practical	0	0	4	00	50	50
Total			**19**	**5**	**4**	**420**	**230**	**650**

L – Lecture, T- Tutorial, P- Practical, ESM – End Semester Marks, MSM – Mid Semester Marks

Semester II – Programme Structure

Course Type	Course Code	Course Name	Teaching Scheme			Evaluation scheme		
			L	T	P	ESM	MSM	Total
CC1	BAB201	English Literature - II	3	1	0	70	30	100
	BAB202	Organization and Organs of Government	3	1	0	70	30	100
	BAB203	Nature and Development of Society	3	1	0	70	30	100
	BAB205	History of Ancient India	3	1	0	70	30	100
CC2	BED201	Contemporary India And Education	3	1	0	70	30	100
	BED202	Language And Communication - II	2	0	0	35	15	50
	BED203	ICT in Education - I	2	0	0	35	15	50
Practicum	BED251	Practicum II : Scout Camp / Community Awareness Camp	0	0	2	00	50	50
Total			**19**	**5**	**2**	**420**	**230**	**650**

L – Lecture, T- Tutorial, P- Practical, ESM – End Semester Marks, MSM – Mid Semester Marks

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Invertis Institute of Education, Invertis University, Bareilly (U.P) – 243123
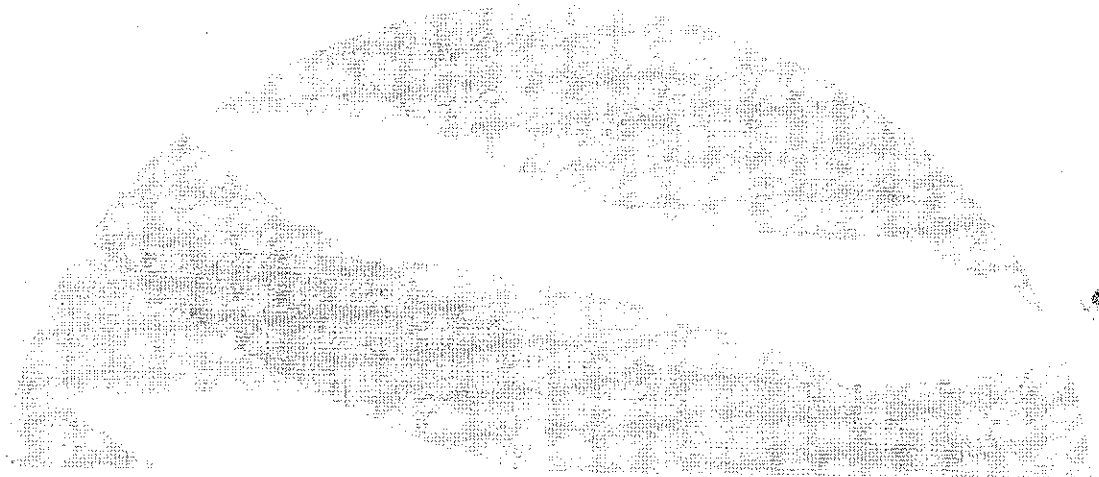
INVERTIS
UNIVERSITY BAREILLY
BUILDING VIBRANT PERSONALITIES

COURSE STRUCTURE

DEPARTMENT OF ELECTRICAL ENGINEERING

NAAC CRITERIA 1.2.2

INVERTIS UNIVERSITY, BAREILLY

DEPARTMENT OF ELECTRICAL
ENGINEERING

SCHEME OF INSTRUCTIONS AND
DETAILED SYLLABI OF
B.TECH PROGRAM IN ELECTRICAL
ENGINEERING

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Effective from 2019-2020 and onwards

DEPARTMENT OF ELECTRICAL
ENGINEERING

Vision

To promote specialized knowledge in the field of electrical engineering along with interdisciplinary awareness and to develop a framework to support the communicative and ethical needs of industry and society at global level.

Mission

To impart quality education in the field of electrical engineering and to facilitate and develop students for their superior employability, to pursue research and higher studies.

PROGRAM EDUCATIONAL OBJECTIVES

PEO1	To prepare students for a professional career in Electrical Engineering.
PE02	To develop the capability in students to solve engineering problems, carry out higher studies and research in core areas.
PEO3	To induct professionalism, creativity, innovativeness and ethical attitude leading to better services of the society.
PEO4	Work in a team using technical knowledge, tools and environments to achieve project objectives.
PEO5	Engage in lifelong learning, career enhancement and adapt to changing professional and societal needs.

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

PROGRAM OUTCOMES:

At the end of the program the student will be able to:

PO1	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO7	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO8	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO9	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

SYLLABUS

B.Tech.(Electrical Engineering)
Course Structure

B. Tech. I - Year I – Semester

S.No.	Course code	Course title	L	T	P	credits	Cat. Code
1	BAS-103	Mathematics-I	3	1	0	4	
2	BAS-102 or BME-102	Engg. Chemistry or Engg. Mechanics	3	1	0	4	
3	BEE-101 or BCS-101	Electrical Engg. or Computer Fundamentals & Programming in C	3	1	0	4	
4	BEC-101 or BHU-101	Electronics Engineering or Professional Communication	3	1	0	4	
5	BAS-101	Engg. Physics-I	3	1	0	4	
6	BME-101 or BAS-104	Manufacturing Process or Environment & Ecology	2	0	0	2	
7	BAS-152 or BME-152	Engg. Chemistry Lab or Engg. Mechanics Lab	0	0	2	1	
8	BEE-151 or BCS-151	Electrical Engg Lab or Computer Fundamentals & Programming in C Lab	0	0	2	1	
10	BAS-151 or BHU-151	Physics Lab or Professional Communication Lab	0	0	2	1	
11	GP-101	General Proficiency	-	-	-	1	
TOTAL			17	6	9	28	

Santosh.
REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

B.Tech. I - Year II - Semester

S.No.	Course code	Course title	L	T	P	Credits	Cat. Code
1	BAS-203	Mathematics-II	3	1	0	4	
2	BME-202 or BAS-202	Engg. Mechanics -I or Engg. Chemistry	3	1	0	4	
3	BCS-201 or BEE-201	Computer Fundamentals & Programming in C or Electrical Engg.	3	1	0	4	
4	BHU-201 or BEC-201	Professional Communication or Electronics Engineering	3	1	0	4	
5	BAS-201	Engg. Physics-II	3	1	0	4	
6	BAS-201 or BME-201	Environment & Ecology or Manufacturing Process	2	0	0	2	
7	BCE-251 or BME-251	Engg. Drawing & Computer Graphics or Workshop Practice	0	1	3	2	
8	BME-252 or BAS-252	Engg. Mechanics Lab or Engg. Chemistry Lab	0	0	2	1	
9	BAS-251 or BEE-251	Computer Fundamentals & Programming in C Lab or Electrical Engg. Lab	0	0	2	1	
10	BHU-251 or BAS-251	Professional Communication Lab or Physics Lab	0	0	2	1	
11	GP-201	General Proficiency	-	-	-	1	
Total			17	6	9	28	

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

STUDY AND EVALUATION SCHEME
B.Tech. in EE, EEE and EC
(Effective from session 2018-2019)
YEAR II, SEMESTER III

S. No.	Course Code	SUBJECTS	HOURS			EVALUATION SCHEME					SUBJECT TOTAL	Credit
						SESSIONAL EXAM.				END SEM.		
			L	T	P	CT	TA	AT	TOTAL			
THEORY												
1	BHU-302/BHU-301	Industrial Sociology / Industrial Psychology	2	1	0	10	5		15	35	50	2
2	BOE31-38/BAS 301	Science Elective/Mathematics-III	3	1	0	20	10	-	30	70	100	4
3	BEC-301	Fundamentals of Electronics Devices	3	1	0	20	10	-	30	70	100	4
4	BEC-302	Digital Electronics	3	1	0	20	10	-	30	70	100	4
5	BEC-304	Electromagnetic Field Theory	3	1	0	20	10	-	30	70	100	4
6	BEE-302/BEC-303	Electrical Measurement and Measuring Instruments(EE & EEE)/Electronics Measurements and Instrumentation (EC)	3	1	0	20	10		30	70	100	4
PRACTICALS AND PROJECTS												
7	BEE-351/BEC-352	MATLAB Programming (EE & EEE)/Digital Electronics Lab (EC)	0	0	2	-	-		10	15	25	1
8	BEE-352/BEC-353	Electrical Measurement Lab (EE & EEE)/Electronics Measurements & Instrumentation Lab (EC)	0	0	2	-	-		10	15	25	1

9	BEC-351	Electronics I Lab	0	0	2	-	-		10	15	25	1
10	GP-301	General Proficiency	-	-	-	-	-		50	-	50	2
		TOTAL	17	6	6				245	430	675	27

L-Lecture, **T**- Tutorial , **P**- Practical , **CT** – Cumulative Test ,**TA** –Teacher Assessment ,
AT – Attendance , **E-Sem** – End Semester Marks

REGISTRAR
INVERTIS UNIVERSITY
bAREILLY

STUDY AND EVALUATION SCHEME
B.Tech. in EE, EEE & EC
(Effective from session 2018-2019)
YEAR II, SEMESTER IV

| S. No. | Course Code | SUBJECTS | HOURS | | | EVALUATION SCHEME | | | | | SUBJECT TOTAL | Credit |
| | | | | | | SESSIONAL EXAM. | | | | END SEM. | | |
			L	T	P	CT	TA	AT	TOTAL			
THEORY												
1	BHU-402/BHU-401	Industrial Sociology / Industrial Psychology	2	1	0	10	5		15	35	50	2
2	BOE41-48/BAS 401	Science Elective/Mathematics -III	3	1	0	20	10		30	70	100	4
3	BEC-401	Signals and Systems	3	1	0	20	10		30	70	100	4
4	BEE-401/ BEC-403	Electromechanical Energy Conversion-I (EE and EEE)/ Electronic Circuits (EC)	3	1	0	20	10		30	70	100	4
5	BEE-403/BCS-405	Electrical Engineering Material (EE & EEE)/Computer Organization (EC)	3	1	0	20	10		30	70	100	4
6	BEE-402	Network Analysis and Synthesis	3	1	0	20	10		30	70	100	4
PRACTICALS AND PROJECTS												
7	BEE-451/BEC-451	Electromechanical Energy Conversion-I Lab (EE & EEE)/Electronics Circuit lab (EC)	0	0	2	-	-		10	15	25	1
8	BEC-452	PCB Lab	0	0	2	-	-		10	15	25	1
9	BEE-452/BCS-455	Network Systems Lab (EE & EEE)/ Computer Organization Lab (EC)	0	0	2	-	-		10	15	25	1
10	GP-401	General Proficiency	-	-	-	-	-		50	-	50	2
		TOTAL	17	6	6				245	430	675	27

L-Lecture, **T-** Tutorial , **P-** Practical , **CT** – Cumulative Test ,**TA** –Teacher Assessment , **AT** – Attendance , **E-Sem** – End Semester Marks

STUDY AND EVALUATION SCHEME
B.Tech. in EE, EEE
(Effective from session 2019-2020)
YEAR III, SEMESTER V

S. No.	Course Code	SUBJECTS	HOURS			EVALUATION SCHEME				END SEM.	SUBJECT TOTAL	Credit
						SESSIONAL EXAM.						
			L	T	P	CT	TA	AT	TOTAL			
THEORY												
1	BHU-501	Engineering and Managerial Economics	2	1	0	10	5		15	35	50	2
2	BEE-501	Electromechanical Energy Conversion-II	3	1	0	20	10	-	30	70	100	4
3	BIC-501	Control Systems	3	1	0	20	10	-	30	70	100	4
4	BEE-502	Elements of Power System	3	1	0	20	10	-	30	70	100	4
5	BEE-503	Power Electronics	3	1	0	20	10	-	30	70	100	4
6	BEC-504	Microprocessors	3	1	0	20	10		30	70	100	4
PRACTICALS AND PROJECTS												
7	BIC-551	Control Systems Lab	0	0	2	-	-		10	15	25	1
8	BEE-551	Electromechanical Energy Conversion-II Lab	0	0	2	-	-		10	15	25	1
9	BEC-554	Microprocessor Lab	0	0	2	-	-		10	15	25	1
10	GP-501	General Proficiency	-	-	-	-	-		50	-	50	2
		TOTAL	17	6	6				245	430	675	27

L-Lecture, T- Tutorial , P- Practical , CT – Cumulative Test ,TA –Teacher Assessment ,
AT – Attendance , E-Sem – End Semester Marks

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

STUDY AND EVALUATION SCHEME
B.Tech. in EE, EEE
(Effective from session 2019-2020)
YEAR III, SEMESTER VI

S. No.	Course Code	SUBJECTS	HOURS			EVALUATION SCHEME					SUBJECT TOTAL	Credit
						SESSIONAL EXAM.				END SEM.		
			L	T	P	CT	TA	AT	TOTAL			
THEORY												
1	BHU-601	Industrial Management	2	1	0	10	5		15	35	50	2
2	BEC-601	Digital Communication	3	1	0	20	10		30	70	100	4
3	BEC-602	Digital Signal Processing	3	1	0	20	10		30	70	100	4
4	BEE-601	Power System Analysis	3	1	0	20	10		30	70	100	4
5	BEE-602	Electrical Instrumentation and Process Control	3	1	0	20	10		30	70	100	4
6	BEE-603	High Voltage Engineering	3	1	0	20	10		30	70	100	4
PRACTICALS AND PROJECTS												
7	BEC-651	Digital Communication Lab	0	0	2	-	-		10	15	25	1
8	BEE-651	Electrical Instrumentation Lab	0	0	2	-	-		10	15	25	1
9	BEE-652	Power Electronics Lab	0	0	2	-	-		10	15	25	1
10	GP-601	General Proficiency	-	-	-	-	-		50	-	50	2
		TOTAL	17	6	6				245	430	675	27

L-Lecture, **T**- Tutorial , **P**- Practical , **CT** – Cumulative Test ,**TA** –Teacher Assessment , **AT** – Attendance , **E-Sem** – End Semester Marks

STUDY AND EVALUATION SCHEME
B.Tech in EE, EEE
(Effective from session 2020-2021)
YEAR IV, SEMESTER VII

S. No.	Course Code	SUBJECTS	HOURS			EVALUATION SCHEME				END SEM.	SUBJECT TOTAL	Credit
						SESSIONAL EXAM.						
			L	T	P	CT	TA	AT	TOTAL			
THEORY												
1		Open Elective-I	3	1	0	20	10	-	30	70	100	4
2		Departmental Elective-I	3	1	0	20	10	-	30	70	100	4
3		Departmental Elective-II	3	1	0	20	10	-	30	70	100	4
4	BEE-701	Switch Gear & Protection	3	1	0	20	10	-	30	70	100	4
5	BEE-702	Power Station Practice	3	1	0	20	10	-	30	70	100	4
PRACTICALS AND PROJECTS												
6	BEE-751	Power System Lab	0	0	2	-	-		10	15	25	1
7	BEE-752	Seminar	0	0	2	-	-		25	-	25	1
8	BEE-753	Project	0	0	4	-	-		50	-	50	2
9	BEE-754	Industrial Training	-	-	-	-	-		25	-	25	1
10	GP-701	General Proficiency	-	-	-	-	-		50	-	50	2
		TOTAL	17	6	6			-	410	365	675	27

L-Lecture, **T**- Tutorial , **P**- Practical , **CT** – Cumulative Test ,**TA** –Teacher Assessment , **AT** – Attendance , **E-Sem** – End Semester Marks

Santosh

STUDY AND EVALUATION SCHEME
B.Tech in EE, EEE
(Effective from session 2020-2021)
YEAR IV, SEMESTER VIII

S. No	Course Code	SUBJECTS	HOURS			EVALUATION SCHEME				END SEM.	SUBJECT TOTAL	Credit
						SESSIONAL EXAM.						
			L	T	P	CT	TA	AT	TOTAL			
THEORY												
1	BEE-801	Utilization of Electrical Energy &Traction	3	1	0	20	10		30	70	100	4
2	BOE-081 BOE-084	Open Elective-II	3	1	0	20	10		30	70	100	4
3	BEE-041 BEE-044	Departmental Elective-IV	3	1	0	20	10		30	70	100	4
4	BEE-051 BEE-053	Department Elective-V	3	1	0	20	10		30	70	100	4
PRACTICALS AND PROJECTS												
7	BEE-851	Project	0	0	18	-	-		75	150	225	9
10	GP-801	General Proficiency	-	-	-	-	-		50	-	50	2
		TOTAL	17	6	6				245	430	675	27

L-Lecture, **T**- Tutorial , **P**- Practical , **CT** – Cumulative Test ,**TA** –Teacher Assessment , **AT** – Attendance , **E-Sem** – End Semester Marks

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

List of Electives

DEPARTMENTAL ELECTIVES

ELECTIVE – I
BCS-019 Data Base Management System, Data Mining and Warehousing
BEE-011 Digital Control System
BEE-012 Special Electrical Machines
BEE-013 Advanced microprocessors and micro controllers

ELECTIVE – II
BCS-029 Object Oriented Systems and C++
BEE-021 Power System Operation and Control
BEE-022 Neural Networks and fuzzy System
BEE-023 EHV AC & DC Transmission

ELECTIVE – III
BCS-039 Computer Networks
BEC-039 Digital Communication
BEE-031 Bio Instrumentation
BEE-032 Reliability Engineering

ELECTIVE – IV
BEE-041 Energy Efficiency & Conservation
BEE-042 Power Quality
BEE-043 SCADA & Energy Management System
BEE-044 Power Converters Applications

LIST OF OPEN ELECTIVES:

OPEN ELECTIVE-I
BOE-071 Introduction to Biotechnology
BOE-072 Quality Management
BOE-073 Nonlinear Dynamic Systems
BOE-074 Automation & Robotics

Electrical Engineering Department

PhD Course work:

1. **Research Methodology**

2. **Recent topic paper (PEE-101)**

3. **Specialized paper**

   A. Power system dynamics & reliability (PEE-201)
   B. Electric drives & their control (PEE-202)
   C. advanced power system protection (PEE-203)
   D. Evolutionary Techniques (PEE-204)
   E. Renewable energy generation sources (PEE-205)
   F. Advanced Control Systems (PEE-206)

INVERTIS
UNIVERSITY BAREILLY

BACHELOR OF SCIENCE
[B.Sc. (Fashion Design)]

COURSE STRUCTURE

INVERTIS UNIVERSITY

INVERTIS VILLAGE, DELHI LUCKNOW HIGHWAY NH-24,
BAREILLY, UTTAR PRADESH PIN - 243 123, INDIA |

B.Sc. Fashion Design Vision and Mission

VISION

To sculpt young minds with design thinking, instill passion and flare for designing and help aspiring students to become successful designers, entrepreneurs, and industry ready professionals.

MISSION

The mission of Fashion, Design and Arts department is to provide education with innovative curriculum, up-to-date technology, pedagogy, industry & foreign collaborations, while pioneering in experimenting and nurturing creativity by incorporating both classic and innovative design concepts.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

PROGRAM OUTCOMES (POs):

	Program Outcomes	
PO1	Fashion Design knowledge	Apply the knowledge of Pattern making,Fabric science, designing fundamentals, and an Design specialization to the solution of complex Design problems.
PO2	Problem analysis	Identify, formulate, review research, and analyze complex Design problems reaching substantiated conclusions using first principles of, natural. Sciences, and manmade sciences.
PO3	Design / development of solutions	Design solutions for complex design problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	Conduct investigations of complex problems	Use research-based knowledge and research methods including design process, analysis and interpretation of design elements, and synthesis of the information to provide valuable product.
PO5	Modern tool usage	Create, select, and apply appropriate techniques, resources, and modern machineries and digital software including prediction and modeling to complex Designing activities with an understanding of the limitations.
PO6	The Designer and society	Understand the impact of the professional designing solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO7	Environment and sustainability	Apply ethical principles and commit to professional ethics and responsibilities and norms of the Designing practice.
PO8	Ethics	Function effectively as an individual, and as a member or Leader in diverse teams, and in multidisciplinary settings.
PO9	Individual and teamwork	Demonstrate knowledge and understanding of the designing and management principles and apply these to One's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

2

STUDY AND EVALUATION SCHEME
Bachelor of Science
[B.Sc. (Fashion Design)]
(Effective from Session 2020-2021)

YEAR I, SEMESTER I

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BFD101	History of Fashion-I	CC	4	0	0	30	70	100	4
BFD102	Fashion Studies	CC	4	0	0	30	70	100	4
BFD151	Basic Drawing & Sketching	GE	0	0	4	15	35	50	2
BFD 152	2D and 3D sketching								
BFD153	Flat Pattern Making-I	CC	0	0	4	15	35	50	2
BFD154	Garment Construction-I	CC	0	0	4	15	35	50	2
BFD155	Fashion Art Illustration-I	SEC	0	2	2	25	50	75	3
BFD156	Elements of Design-I	CC	0	1	2	15	35	50	2
BFD157	Computer Applications	AECC	0	0	2	10	15	25	1
TOTAL			8	3	18	155	345	500	20
L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam									

Note: CC- Core courses, AECC- Ability enhancement course, SEC-Skill enhancement course, DSE – Discipline specific elective, * GE - Elect any one from the prescribed, DSE -elect any two from the prescribed

L=Lecture, T =Tutorial, P= Practical, CA=Continuous Assessment, EE= End Examination.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

3

INVERTIS UNIVERSITY BAREILLY

YEAR I, SEMESTER II

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BFD201	History of Fashion-II	CC	4	0	0	30	70	100	4
BFD202	Fundamental of Textiles	CC	4	0	0	30	70	100	4
BFD203	Traditional Indian Textiles	SEC	4	0	0	30	70	100	4
BFD251	Soft Skills	AECC	0	0	2	10	15	25	1
BFD252	Flat Pattern Making-II	CC	0	0	4	15	35	50	2
BFD253	Garment Construction-II	CC	0	0	4	15	35	50	2
BFD254	Elements of Design-II	CC	0	0	2	10	15	25	1
BFD255	Dyeing and Printing	SEC	0	0	2	10	15	25	1
BFD 256	Fashion Vector Graphics	GE	0	0	2	10	15	25	1
BFD 257	Coral draw								
TOTAL			12	0	16	155	345	500	20
L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam									

Note: CC- Core courses, AECC- Ability enhancement course, SEC-Skill enhancement course, DSE – Discipline specific elective, * GE - Elect any one from the prescribed, DSE -elect any two from the prescribed

L=Lecture, T =Tutorial, P= Practical, CA=Continuous Assessment, EE= End Examination.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS
UNIVERSITY BAREILLY

YEAR II, SEMESTER III

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BFD301	Fashion Forecast	CC	4	0	0	30	70	100	4
BFD302	World Art and Culture	AECC	4	0	0	30	70	100	4
BFD303	Entrepreneurship	AECC	4	0	0	30	70	100	4
BFD351	Fashion Art and Design-I	CC	0	0	2	10	15	25	1
BFD352	Advanced Pattern Making-I	CC	0	0	4	15	35	50	2
BFD353	Kid's Wear	SEC	0	0	4	15	35	50	2
BFD354	Fashion Photography	GE	0	0	2	10	15	25	1
BFD355	Photo Editing								
BFD356	Surface Ornamentation	DSE	0	0	2	10	15	25	1
BFD357	World Famous Paintings								
BFD358	Textiles								
BFD359	Digital Design	CC	0	0	2	10	15	25	1
TOTAL			12	0	16	160	340	500	20
L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam									

Note: CC- Core courses, AECC- Ability enhancement course, SEC-Skill enhancement course, DSE – Discipline specific elective, * GE - Elect any one from the prescribed, DSE -elect any two from the prescribed

L=Lecture, T =Tutorial, P= Practical, CA=Continuous Assessment, EE= End Examination.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

5

INVERTIS UNIVERSITY BAREILLY

YEAR II, SEMESTER IV

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BFD401	Fashion Marketing and Merchandising	GE	2	0	0	15	35	50	2
BFD402	Apparel Industrial Management								
BFD403	Fabric Studies	DSE	4	0	0	30	70	100	4
BFD404	Fundamentals of Textile Design and Finishes								
BFD405	Textile Science and Care								
BFD406	Industrial Learning and Internship	AECC	4	0	0	30	70	100	4
BFD451	Off Loom Techniques	SEC	0	0	2	10	15	25	1
BFD452	Advanced Pattern Making-II	CC	0	0	4	15	35	50	2
BFD453	Women's Wear	SEC	0	0	4	15	35	50	2
BFD455	Accessory Design	GE	0	0	2	10	15	25	1
BFD456	Jewelry Design								
BFD457	Minor Project	CC	0	2	4	4	30	70	4
TOTAL			**10**	**2**	**16**	**155**	**345**	**500**	**20**
L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam									

Note: CC- Core courses, AECC- Ability enhancement course, SEC-Skill enhancement course, DSE – Discipline specific elective, * GE - Elect any one from the prescribed, DSE -elect any two from the prescribed

L=Lecture, T =Tutorial, P= Practical, CA=Continuous Assessment, EE= End Examination.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

6

YEAR III, SEMESTER V

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BFD501	Visual Merchandising	GE	4	0	0	30	70	100	4
BFD 502	Retail management								
BFD 503	Organizational Behavior	AECC	4	0	0	30	70	100	4
BFD504	Environmental Science	AECC	2	0	0	15	35	50	2
BFD551	Product Development	SEC	0	0	4	15	35	50	2
BFD552	Men's Wear	CC	0	0	4	15	35	50	2
BFD553	Functional Clothing	CC	0	0	4	15	35	50	2
BFD554	Draping Techniques	CC	0	0	4	15	35	50	2
BFD555	Grading	CC	0	0	2	10	15	25	1
BFD556	Summer Internship Report	AECC	0	0	2	10	15	25	1
TOTAL			10	0	20	155	345	500	20
L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam									

Note: CC- Core courses, AECC- Ability enhancement course, SEC-Skill enhancement course, DSE – Discipline specific elective, * GE - Elect any one from the prescribed, DSE -elect any two from the prescribed

L=Lecture, T =Tutorial, P= Practical, CA=Continuous Assessment, EE= End Examination.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

7

YEAR III, SEMESTER VI

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BFD651	Graduation Design Collection	CC	0	0	16	50	150	200	8
BFD652	Portfolio	CC	0	1	2	15	35	50	2
BFD653	Material Studies	CC	0	1	2	15	35	50	2
TOTAL			0	2	20	80	220	300	12
L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam									

Note: CC- Core courses, AECC- Ability enhancement course, SEC-Skill enhancement course, DSE – Discipline specific elective, * GE - Elect any one from the prescribed, DSE -elect any two from the prescribed

L=Lecture, T =Tutorial, P= Practical, CA=Continuous Assessment, EE= End Examination.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

8

INVERTIS
UNIVERSITY BAREILLY
BUILDING VIBRANT PERSONALITIES

COURSE STRUCTURE

DEPARTMENT OF JOURNALISM & MASS COMMUNICATION

NAAC CRITERIA 1.2.2

INVERTIS
UNIVERSITY BAREILLY

Established by Govt. of U.P. u/s 2F of UGC Act, 1956 vide U.P. Act 22 of 2010

SCHEME OF INSTRUCTIONS & SYLLABUS

FOR

THE DEGREE

OF
BACHELOR OF JOURNALISM & MASS COMMUNICATION
w.e.f. Session 2016

INVERTIS UNIVERSITY
Invertis Village, NH-24, Bareilly

INVERTIS INSTITUTE OF JOURNALISM & MASS COMMUNICATION
SCHEME OF INSTRUTIONS
Bachelor of Journalism & Mass Communication (B.J.M.C.)

W.E.F. SESSION 2016

Semester I

* L-Lecture, P-Practical, T-Tutorial

S. No.	Subject Code and Name	Hours/ Week			Maximum Marks			Credit Points
	Theory Courses	L	T	P	Final Exam	Sessional	Total	
1	BMC 101 Principles of Communication	3	1	0	70	30	100	4
2	BMC 102 Journalism & Mass Media:History & Growth	3	1	0	70	30	100	4
3	BMC 103 Language Skills for Mass Media	3	1	0	70	30	100	4
4	BMC 104 Computer Application for Mass Media	3	1	0	70	30	100	4
5	BMC 105 Reporting & Editing-I	3	1	0	70	30	100	4
6	BMC 106 Environmental Studies	3	1	0	70	30	100	4
Practical Courses								
7	BMC 151 Communication Lab	-	-	4	35	15	50	2
8	BMC 152 Computer Lab	-	-	4	35	15	50	2
Total						700		28

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

2

Semester II

* L-Lecture, P-Practical, T-Tutorial

S. No.	Subject Code and Name	Hours/ Week			Maximum Marks			Credit Points
	Theory Courses	L	T	P	Final Exam	Sessional	Total	
1	BMC 201 Introduction to Print Journalism	3	1	0	70	30	100	4
2	BMC 202 Introduction to Electronic Journalism & New Media	3	1	0	70	30	100	4
3	BMC 203 Indian Political System	3	1	0	70	30	100	4
4	BMC 204 Reporting & Editing-II	3	1	0	70	30	100	4
5	BMC 205 Mass Media & Technology	3	1	0	70	30	100	4
8	BMC 206 Journalistic English	3	1	0	70	30	100	4
Practical Courses								
6	BMC 251 Reporting & Editing Lab	-	-	4	35	15	50	2
7	BMC 252 Media Technology Lab	-	-	4	35	15	50	2
Total						700		28

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Semester III

* L-Lecture, P-Practical, T-Tutorial

S. No.	Subject Code and Name	Hours/ Week			Maximum Marks			Credit Points
	Theory Courses	L	T	P	Final Exam	Sessional	Total	
1	BMC 301 Development Communication	3	1	0	70	30	100	4
2	BMC 302 Media Organisations & Media Management	3	1	0	70	30	100	4
3	BMC 303 Economic Development & Planning	3	1	0	70	30	100	4
4	BMC 304 Photo Journalism	3	1	0	70	30	100	4
5	BMC 305 Design & Graphics	3	1	0	70	30	100	4
6	BMC 306 Journalistic Hindi	3	1	0	70	30	100	4
Practical Courses								
7	BMC 351 Design & Graphics Lab	-	-	4	35	15	50	2
8	BMC 352 Photography Lab	-	-	4	35	15	50	2
Viva Voce								
9	BMC 354 Internship & Viva Voce	0	0	0	50	50	100	4
Total						750		32

Semester IV

* L-Lecture, P-Practical, T-Tutorial

S. No.	Subject Code and Name	Hours/ Week			Maximum Marks			Credit Points
	Theory Courses	L	T	P	Final Exam	Sessional	Total	
1	BMC 401 Understanding World History	3	1	0	70	30	100	4
2	BMC 402 Radio Journalsim:Production & Program Formats	3	1	0	70	30	100	4
3	BMC 403 TV Journalism:Production & Program Formats	3	1	0	70	30	100	4
4	BMC 404 Media Laws & Ethics	3	1	0	70	30	100	4
5	BMC 405 Specialised Reporting & Current Issues	3	1	0	70	30	100	4
6	BMC 406 Rural Journalism	3	1	0	70	30	100	4
Practical Courses								
6	BMC 451 Radio Production Lab	-	-	4	35	15	50	2
7	BMC 452 TV Production Lab	-	-	4	35	15	50	2
Total						700		28

5

Semester V

* L-Lecture, P-Practical, T-Tutorial

S. No.	Subject Code and Name	Hours/ Week			Maximum Marks			Credit Points
	Theory Courses	L	T	P	Final Exam	Sessional	Total	
1	BMC 501 Event Management	3	1	0	70	30	100	4
2	BMC 502 Advertising & Sales Promotion	3	1	0	70	30	100	4
3	BMC 503 Public Relations & Corporate Communication	3	1	0	70	30	100	4
4	BMC 504 Film Studies	3	1	0	70	30	100	4
5	BMC 505 Cyber Journalism	3	1	0	70	30	100	4
6	BMC 506 Communication Research	3	1	0	70	30	100	4
Practical Courses								
7	BMC 551 Advertising Lab	-	-	4	35	15	50	2
8	BMC 552 Cyber Journalism Lab	-	-	4	35	15	50	2
Viva Voce								
9	BMC 553 Internship & Viva Voce				50	50	100	4
Total							800	32

Santosh.
REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Semester VI

* L-Lecture, P-Practical, T-Tutorial

S. No.	Subject Code and Name	Hours/ Week			Maximum Marks			Credit Points
	Theory Courses	L	T	P	Final Exam	Sessional	Total	
1	BMC 601 Educational Communication	3	1	0	70	30	100	4
2	BMC 602 E1 Sports Journalism	3	1	0	70	30	100	4
	BMC 602 E2 Women & Gender Studies	3	1	0	70	30	100	4
	BMC 602 E3 Business journalism	3	1	0	70	30	100	4
3	BMC 603 Science & Environment Journalism	3	1	0	70	30	100	4
Dissertation								
4	BMC 651 Professional Project	-	-	4	100	50	150	6
Viva Voce								
5	BMC 652 Comprehensive Viva-Voce	-	-	-	100	50	150	6
Total						600		24

Santosh
REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS
UNIVERSITY BAREILLY
BUILDING VIBRANT PERSONALITIES
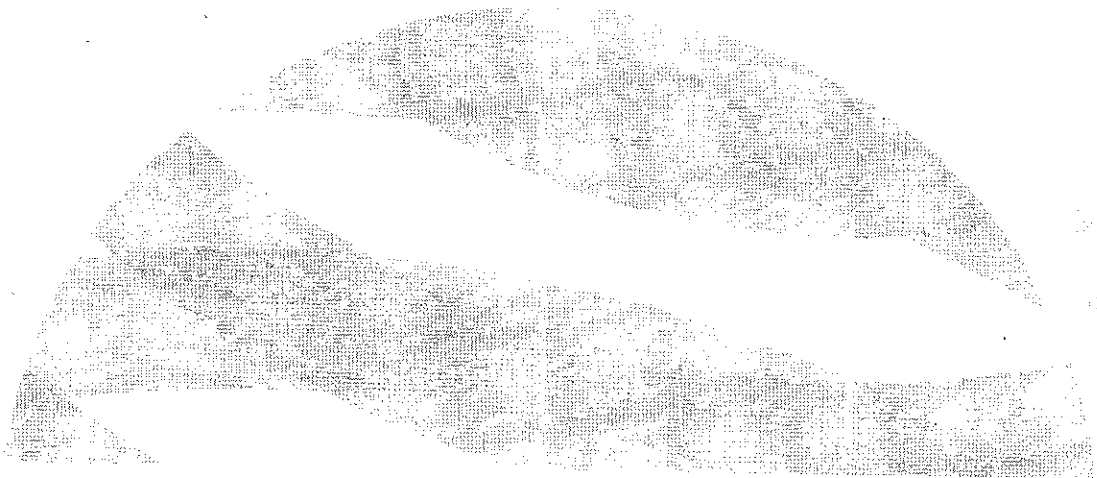
COURSE STRUCTURE

DEPARTMENT OF LAW

NAAC CRITERIA 1.2.2

INVERTIS
UNIVERSITY BAREILLY

Evaluation scheme & syllabus

Of

Bachelors of Laws
(LL.B.)

(w.e.f. Academic session 2019)

Faculty of Law
INVERTIS UNIVERSITY BAREILLY

LL.B.

Programme Outcome of **LL.B.** is produce competent Students who are equipped with the knowledge of various laws through the subject laws and it enable them to pursue their career in legal field. Apply ethical principles and commit to legal professional ethics, responsibilities and norms of the established legal practices.

P01	Explore and explain the substantial & procedural laws in which they are made/ drafted and how students think and understand the legislative setup.
P02	Interpret And Analyze the legal and social problems and work towards finding solutions to the problems by application of laws and regulations.
P03	Inculcate values of Rights and Duties, and transfer these values to real-life through legal and judicial process for promoting community welfare.
P04	Apply ethical principles and commit to legal professional ethics, responsibilities and norms of the established legal practices.
P05	Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broader context of legal change.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

2

COURSE STRUCTURE
LL.B.

SEMESTER 1

S.NO	PAPER CODE	PAPER NAME	MAXIMUM MARKS			HOURS	CREDIT
			EXTERNAL	SESSIONAL	TOTAL	L+T+P	
1	LAW 101	Constitutional Law I	70	30	100	4+1+0	5
2	LAW 102	Law of contract –I(general principals)	70	30	100	4+1+0	5
3	LAW 103	Law of Crime I(Indian Penal Code)	70	30	100	4+1+0	5
4	LAW 104	Family law I(Hindu Law)	70	30	100	4+1+0	5
5	LAW 105	Law of Torts including MV accident and consumer protection laws	70	30	100	4+1+0	5

SEMESTER 2

S.NO	PAPER CODE	PAPER NAME	MAXIMUM MARKS			HOURS	CREDIT
			EXTERNAL	SESSIONAL	TOTAL	L+T+P	
1	LAW 201	Constitutional Law II	70	30	100	4+1+0	5
2	LAW 202	Law of contract – II(Specific contracts)	70	30	100	4+1+0	5
3	LAW 203	Environmental laws	70	30	100	4+1+0	5
4	LAW 204	Family law II(Muslim Law)	70	30	100	4+1+0	5
5	LAW 205	Public International law	70	30	100	4+1+0	5

SEMESTER 3

S.NO	PAPER CODE	PAPER NAME	MAXIMUM MARKS			HOURS	CREDIT
			EXTERNAL	SESSIONAL	TOTAL	L+T+P	
1	LAW 301	Administrative Law	70	30	100	4+1+0	5
2	LAW 302	Company Law	70	30	100	4+1+0	5
3	LAW 303	Labour law I	70	30	100	4+1+0	5
4	LAW	Property law	70	30	100	4+1+0	5

S.NO	PAPER CODE	PAPER NAME	EXTERNAL	SESSIONAL	TOTAL	HOURS L+T+P	CREDIT
	304						
5	LAW 351	Practicle training-I (professional ethics and professional accouting system)	70	30	100	4+1+0	5

SEMESTER 4

S.NO	PAPER CODE	PAPER NAME	MAXIMUM MARKS			HOURS	CREDIT
			EXTERNAL	SESSIONAL	TOTAL	L+T+P	
1	LAW 401	Law of Evidence	70	30	100	4+1+0	5
2	LAW 402	Law of crime-II(Criminal Procedure Code)	70	30	100	4+1+0	5
3	LAW 403	Civil Procedure Code and Limitation Act	70	30	100	4+1+0	5
4	LAW 404	Labour law -II	70	30	100	4+1+0	5
5	LAW 451	Practical training II (alternative dispute resolution)	70	30	100	4+1+0	5

SEMESTER 5

S.NO	PAPER CODE	PAPER NAME	MAXIMUM MARKS			HOURS	CREDIT
			EXTERNAL	SESSIONAL	TOTAL	L+T+P	
1	LAW 501	Jurisprudence	70	30	100	4+1+0	5
2		Optional paper	70	30	100	4+1+0	5
3		Optional paper	70	30	100	4+1+0	5
4		Optional paper	70	30	100	4+1+0	5
5	LAW 551	Practical training III (Drafting, Pleading and Conveyancing)	70	30	100	4+1+0	5

SEMESTER 5
(optional papers)

S.NO	PAPER CODE	PAPER NAME	MAXIMUM MARKS			HOURS	CREDIT
			EXTERNAL	SESSIONAL	TOTAL	L+T+P	
1	LAW 502	Interpretation of statutes and principles of legislation	70	30	100	4+1+0	5
2	LAW 503	Criminology and penology	70	30	100	4+1+0	5

			EXTER NAL	SESSI ONAL	TOTAL	L+T+P	
3	LAW 504	Offences against child and juvenile Offences	70	30	100	4+1+0	5
4	LAW 505	Human rights laws and practice	70	30	100	4+1+0	5
5	LAW 506	Law of Copy Right	70	30	100	4+1+0	5
6	LAW 507	Banking law	70	30	100	4+1+0	5
7	LAW 508	Information Technology law	70	30	100	4+1+0	5

Any of the three papers (subject to availability of faculty

SEMESTER 6

S.NO	PAPER CODE	PAPER NAME	MAXIMUM MARKS			HOURS	CREDIT
			EXTER NAL	SESSI ONAL	TOTAL	L+T+P	
1	LAW 601	Principals of taxation Law	70	30	100	4+1+0	5
2		Optional paper	70	30	100	4+1+0	5
3		Optional paper	70	30	100	4+1+0	5
4		Optional paper	70	30	100	4+1+0	5
5	LAW 651	Practical Training IV (Moot Court exercise and internship)	70	30	100	4+1+0	5
6	LAW 611	General English and legal Language	70	30	100	4+1+0	5

SEMESTER 6 9
(Optional Papers)

S.NO	PAPER CODE	PAPER NAME	MAXIMUM MARKS			HOURS	CREDIT
			EXTER NAL	SESSI ONAL	TOTAL	L+T+P	
1	LAW 602	Land laws including Ceiling and other local laws	70	30	100	4+1+0	5
2	LAW 603	International Organization	70	30	100	4+1+0	5
3	LAW 604	Gender justice and Feminist jurisprudence	70	30	100	4+1+0	5
4	LAW 605	Right to information	70	30	100	4+1+0	5
5	LAW 606	Patent Right creation and registration of patent	70	30	100	4+1+0	5
6	LAW 607	Law of Trust, Equity and Fiduciary Relations	70	30	100	4+1+0	5
7	LAW 608	Insurance law	70	30	100	4+1+0	5

Any of the three papers (subject to availability of faculty)

INVERTIS
UNIVERSITY BAREILLY
BUILDING VIBRANT PERSONALITIES

COURSE STRUCTURE

DEPARTMENT OF MECHANICAL ENGINEERING

NAAC CRITERIA 1.2.2

INVERTIS
UNIVERSITY BAREILLY
Established by Govt. of U.P. u/s 2F of UGC Act, 1956 vide U.P. Act 22 of 2010.

Scheme of Instruction & Syllabi
of
B.Tech+M.Tech
In
Mechanical Engineering

(Specialization in Production Engineering & Thermal Engineering)

IV and V Year
(Effective from 2015-16)

INVERTIS UNIVERSITY, BAREILLY
B.Tech+M.TECH (MECHANICAL ENGINEERING)
(SPECIALIZATION IN PRODUCTION ENGINEERING & THERMAL ENGINEERING EFFECTIVE FROM 2015-16)

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

SPECIALIZATION IN PRODUCTION ENGINEERING

YEAR IV, SEMESTER-VII

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MPE-101	Modern welding Techniques	3	1	0	20	10	30	70	100	4
2	BME-701	Computer Aided Design	3	1	0	20	10	30	70	100	4
3	BME-031	Computer Aided Manufacturing	3	1	0	20	10	30	70	100	4
4	MPE-104	Metal Forming Technology	3	1	0	20	10	30	70	100	4
5	MPE-105	Design Of Experiments	3	1	0	20	10	30	70	100	4
6	MPE-151	Seminar 1	0	2	2	25	-	25	-	25	1
7	BME-751	CAD/CAM Lab			2	25		25		25	1
Total			15	7	4	-	-	-	-	550	22

YEAR IV, SEMESTER-VIII

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	BME-063	Advanced Materials technology	3	1	0	20	10	30	70	100	4
2	BME-801	Power Plant Engineering	3	1	0	20	10	30	70	100	4
3	MPE-204	Fire Technology	3	1	0	20	10	30	70	100	4
4	MPE-205	Advance Machine Tools & Design	3	1	0	20	10	30	70	100	4
5	MOE-204	Modeling Simulation & Optimization	3	1		20	10	30	70	100	4
6	MPE-251	Seminar 2	0	4	0		-	50	-	50	2
	Total		15	9	0	-	-	-	-	550	22

YEAR V, SEMESTER-IX

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MOE-30?	Elective 2	3	1	0	20	10	30	70	100	4
2	MOE-30?	Elective 3	3	1	0	20	10	30	70	100	4
3	MPE -351	Seminar 3	0	4	0	-	-	50	-	50	2
4	MPE-352	Preliminary Thesis	0	16	0	-	-	200	-	200	8
	Total		6	22	0	-	-	-	-	450	18

YEAR V, SEMESTER-X

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MPE-451	THESIS	0	16	0	-	-	100	300	400	16
	Total		0	16	0	-	-	-	-	400	16

SPECIALIZATION IN THERMAL ENGINEERING

INVERTIS UNIVERSITY, BAREILLY
YEAR IV, SEMESTER-VII

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MTE-101	Simulation, Modelling & Analysis	3	1	0	20	10	30	70	100	4
2	BME-701	Computer Aided Design	3	1	0	20	10	30	70	100	4
3	BME-031	Computer Aided Manufacturing	3	1	0	20	10	30	70	100	4
4	MTE-104	Advanced Thermal Engineering	3	1	0	20	10	30	70	100	4
5	MTE-105	Experimental Techniques In Fluid Flow & Heat Transfer	3	1	0	20	10	30	70	100	4
6	MTE-151	Seminar 1	0	2	2	25	-	25	-	25	1
7	BME-751	Advanced Thermal Engineering Lab			2	25		25		25	1
Total			15	7	4	-	-	-	-	550	22

YEAR IV, SEMESTER-VIII

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	BME-063	Advanced Materials technology	3	1	0	20	10	30	70	100	4
2	BME-801	Power Plant Engineering	3	1	0	20	10	30	70	100	4
3	MTE-204	Computational Fluid Dynamics	3	1	0	20	10	30	70	100	4
4	MTE-205	Advanced Heat & Mass Transfer	3	1	0	20	10	30	70	100	4
5	MOE-204	Modeling Simulation & Optimization	3	1		20	10	30	70	100	4
6	MTE-251	Seminar 2	0	4	0		-	50	-	50	2
Total			15	9	0	-	-	-	-	550	22

YEAR V, SEMESTER-IX

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MOE-30?	Elective 2	3	1	0	20	10	30	70	100	4
2	MOE-30?	Elective 3	3	1	0	20	10	30	70	100	4
3	MTE -351	Seminar 3	0	4	0	-	-	50	-	50	2
4	MTE-352	Preliminary Thesis	0	16	0	-	-	200	-	200	8
Total			6	22	0	-	-	-	-	450	18

YEAR V, SEMESTER-X

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MTE-451	THESIS	0	16	0	-	-	100	300	400	16
Total			0	16	0	-	-	-	-	400	16

PRODUCTION ENGINEERING & THERMAL ENGINEERING
1. Materials management
2. Quality Engineering
3. Renewable Energy Systems
4. Total Quality Management
5. Product design and development
6. Industrial metrology and inspection
7. Advanced composite materials
8. Theory of vibration
9. Alternative Fuels & Engine Pollution
10. Refrigeration & Air Conditioning
11. Advanced Fluid Mechanics
12. Gas Dynamics

List of Electives-2 (MOE-30?)
PRODUCTION ENGINEERING & THERMAL ENGINEERING
1. Design of manufacturing and assembly
2. Non-conventional methods of manufacturing
3. Cutting tool engineering
4. Advance casting and welding technologies
5. Hydraulics and pneumatics for production
6. Machine Tool Dynamics
7. Turbo Machines
8. Cryogenic Engineering
9. Advanced I.C. Engines
10. Solar Energy Technology

List of Electives-3 (MOE-30?)
PRODUCTION ENGINEERING & THERMAL ENGINEERING

1. Advanced Finite Element Analysis
2. Fuels, Combustion and Environment
3. Energy Management
4. Equipment Design for Thermal Systems
5. Optimization Techniques & Design of Experiments
6. Experimental Techniques in Fluid Flow & Heat Transfer
7. Convective Heat Transfer
8. Thermal and Nuclear Power Plants Elective – V
9. Thermal Measurements and Process Controls
10. Combustion Technology
11. Environmental Pollution & Its Control
12. Advanced Power Plant Engineering

Santosh.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS UNIVERSITY, BAREILLY

PROPOSED SYLLABUS
FOR

B.Tech. (ME) + MBA

As Per Course Structure to Be Effective From Academic Year 2019
Onward

Year -3   Semester-7

Sl. No.	Paper Code	Paper Name	L+T+P	Maximum marks				Credit
				E	I	P	T	
1	MBA101	Management- Micro and Macro	4+1+0	70	30		100	4
2	MBA102	Market Science	4+1+0	70	30		100	4
3	MBA104	Recording and Analysis of Business Operations	4+1+0	70	30		100	4
4	MBA105	Micro Economics & Economic Planning	4+1+0	70	30		100	4
5	Paper B.Tech.	ME	4+1+0	70	30		100	4
6	Paper B.Tech.	ME	4+1+0	70	30		100	4
		Total		420*	180*		600*	24*

* Two Paper from Btech will be studied by Students in this Semester based on their Course.

Year-3 Semester-8

Sl. No.	Paper Code	Paper Name	L+T+P	Maximum marks			Credit
1	MBA201	Management Science	4+1+0	70	30	100	4
2	MBA202	Market Intelligence	4+1+0	70	30	100	4
3	MBA203	Identification, addition and delivery of Value	4+1+0	70	30	100	4
4	MBA204	Economics of Human Resource	4+1+0	70	30	100	4
5	MBA205	Legal Issues in Business	4+1+0	70	30	100	4
6	MBA206	Financial Issues	4+1+0	70	30	100	4
7	MBA207	Professional Communications and Aptitude	4+1+0	70	30	100	4
		Total		480	210	700	28

**After 2nd Semester, students will undergo 8 weeks summer training compulsorily in Public Sector undertakings or Private Sector, known as Hands on Experience. 100 marks will be on viva of students on their management experience in 3rd Semester.

This is the policy of the university not to allocate students in their home town. In case of extraordinary circumstances specific permission will be necessary from Hon'ble Chancellor.

Year-4 Semester-9

Sl. No.	Paper Code	Paper Name	L+T+P	Maximum marks			Credit
1	MBA301	Strategic Management	4+1+0	70	30	100	4
2	MBA302	Event Management*	2+1+2	40	60	100	4
3		Spec. Group 1 Paper 1	4+1+0	70	30	100	4
4		Spec. Group 1 Paper 2	4+1+0	70	30	100	4
5		Spec. Group 2 Paper 1	4+1+0	70	30	100	4
6		Spec. Group 2 Paper 2	4+1+0	70	30	100	4
7	MBA396	Hands on Experience Viva**		100		100	4
		Total		490	210	700	28

*Event Management being a highly practical subject, student's Organizing capacity evaluation become important. The students will be divided into group of four and these groups are expected to organize at-least one event. Evaluation of the group will be based on the report submitted by the group and viva will be conducted for individual assessment.

It is therefore necessary to reduce the weightage of external written examination to 40 marks and event organized assessment to 60 Marks. Out of 60 marks UTs consist of 20 marks and the rest 40 marks will be on viva of students on their event management experience.

Year-4   Semester-10

Sl. No.	Paper Code	Paper Name	L+T+P	Maximum marks			Credit
1		Spec. Group 1 Paper 3	4+1+0	70	30	100	4
2		Spec. Group 1 Paper 4	4+1+0	70	30	100	4
3		Spec. Group 1 Paper 5	4+1+0	70	30	100	4
4		Spec. Group 2 Paper 3	4+1+0	70	30	100	4
5		Spec. Group 2 Paper 4	4+1+0	70	30	100	4
6		Spec. Group 2 Paper 5	4+1+0	70	30	100	4
7	MBA496	Comprehensive Viva		100		100	4
		Total		520	180	700	28

Note: Students required choosing any two Specializations out of TEN offering by the University. First Specialization chosen by student will be treated as Spec. Group 1 and second Specialization will be treated as Spec. Group 2.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

List of Specializations

Specialization - 1: FINANCE
MBA 311 –Tax planning and Management
MBA 312 -Security Analysis & Portfolio Management
MBA 411- Corporate Restructuring
MBA 412 Banking Operations Management
MBA 413 -Financial Market & Services

Specialization -2: MARKETING
MBA316: Sales and Distribution
MBA317: Service Management
MBA416: CB and IMC
MBA417: Rural Marketing
MBA418: International Marketing

Specialization -3: HUMAN RESOURCE
MBA321: Organizational Change and Development
MBA322: Training & Development and competency mapping
MBA421: Employee welfare and Labour Legislation
MBA422: Strategic Human Resource Management
MBA423: Performance Appraisal and compensation Management

Specialization-4:   INFORMATION TECHNOLOGY
MBA336: Business Intelligence and Data Mining
MBA337: E-Commerce
MBA436: Big Data Analytics
MBA437: IT Project Management
MBA438: Data communication and Networking security

Specialization -5: INTERNATIONAL BUSINESS
MBA326: International Business
MBA327: EXIM Procedure & Documentation
MBA426: International Financial Management
MBA427: Global Business Environment
MBA428: International Logistics

Specialization -6: HOSPITALITY & TOURISM
MBA331: Introduction to Tourism Industry
MBA332: Hospitality and Tourism Planning

MBA431: Travel agency and tour operators
MBA432: Hospitality Information System
MBA433: Tourist Products design and destination development

Specialization -7: RETAIL MANAGEMENT
MBA341: Retail Science
MBA342: Pricing and Branding
MBA441: International Retailing
MBA442: Merchandising and Mall Management
MBA443: Acquiring, Maintaining and Retaining Customer

Specialization -8: HEALTHCARE MANAGEMENT
MBA351: Hospital Planning
MBA352: Medical Terminology and Procedures
MBA451: Hospital Administration
MBA452: Laws Related to Hospital and Medical Services
MBA453: Healthcare and Administration of Clinical and non-clinical Services

Specialization-9: Project Management
Mba371: project formulation and appraisal
Mba372: construction
Planning, scheduling and control.
Mba471: construction personnel management
Mba472: construction project management
Mba473: project safety management

Secialization-10: Rural and Agriculture Management
Mba376: rural economy
Mba377: basics of rural and agricultural marketing
Mba476:distribution strategies for rural and agricultural marketing
Mba477: evolution of agricultural marketing in India
Mba478: rural and agricultural financing

INVERTIS

UNIVERSITY BAREILLY

Established by Govt. of U.P. u/s 2F of UGC Act, 1956 vide U.P. Act 22 of 2010.

Scheme of Instruction & Syllabi
of

Master of Technology
In
Mechanical Engineering

(Specialization in Production Engineering)

I and II Year
(Effective from 2015-16)

INVERTIS UNIVERSITY, BAREILLY
M. TECH (MECHANICAL ENGINEERING)
(SPECIALIZATION IN PRODUCTION ENGINEERING)
EFFECTIVE FROM 2015-16

Revised and updated 1

INVERTIS UNIVERSITY, BAREILLY
YEAR I, SEMESTER-I

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MPE-101	Modern welding Techniques	3	1	0	20	10	30	70	100	4
2	MPE-102	Foundry Technology	3	1	0	20	10	30	70	100	4
3	MPE-103	Modern methods of manufacturing	3	1	0	20	10	30	70	100	4
4	MPE-104	Metal Forming Technology	3	1	0	20	10	30	70	100	4
5	MPE-151	Seminar 1	0	4	0		-	50	-	50	2
Total			12	8	0	-	-	-	-	450	18

YEAR I, SEMESTER-II

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MPE-201	Mathematical Modeling and Optimization	3	1	0	20	10	30	70	100	4
2	MPE-202	Production Planning and Control	3	1	0	20	10	30	70	100	4
3	MPE-203	Advanced Machine Tool Design	3	1	0	20	10	30	70	100	4
4	MOE-20?	Elective 1	3	1	0	20	10	30	70	100	4
3	MPE-251	Seminar 2	0	4	0		-	50	-	50	2
Total			12	8	0	-	-	-	-	450	18

YEAR II, SEMESTER-III

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MOE-30?	Elective 2	3	1	0	20	10	30	70	100	4
2	MOE-30?	Elective 3	3	1	0	20	10	30	70	100	4
3	MPE -351	Seminar 3	0	4	0	-	-	50	-	50	2
4	MPE-352	Preliminary Thesis	0	16	0	-	-	200	-	200	8
Total			6	22	0	-	-	-	-	450	18

YEAR II, SEMESTER-IV

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MPE-451	THESIS	0	16	0	-	-	100	300	400	16
Total			0	16	0	-	-	-	-	400	16

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

2 | Invertis university, Bareilly (effective 2015-16)

List of Electives-1 (MOE-20?)

1. Materials management
2. Quality Engineering
3. Renewable Energy Systems
4. Total Quality Management
5. Product design and development
6. Industrial metrology and inspection
7. Advanced composite materials
8. Theory of vibration

List of Electives-2 (MOE-30?)

1. Design of manufacturing and assembly
2. CNC machines and computer aided inspection
3. Computer integrated manufacturing
4. Non conventional methods of manufacturing
5. Cutting tool engineering
6. Advance casting and welding technologies
7. Hydraulics and pneumatics for production
8. Machine Tool Dynamics

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

List of Electives-3 (MOE-30?)

1. Design of manufacturing and assembly
2. CNC machines and computer aided inspection
3. Computer integrated manufacturing
4. Non conventional methods of manufacturing
5. Cutting tool engineering
6. Advance casting and welding technologies
7. Hydraulics and pneumatics for production
8. Machine Tool Dynamics
9. Materials management
10. Quality Engineering
11. Renewable Energy Systems
12. Total Quality Management
13. Product design and development
14. Industrial metrology and inspection
15. Advanced composite materials
16. Theory of vibration

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS UNIVERSITY, BAREILLY

DEPARTMENT OF MECHANICAL ENGINEERING SCHEME OF INSTRUCTION AND
DETAILED SYLLABI OF
B.TECH PROGRAM IN MECHANICAL ENGINEERING

Effective from the batches admitted in 2014-2015 and onwards

DEPARTMENT OF MECHANICAL ENGINEERING

Vision

To be a global knowledge hub in mechanical engineering education, research, entrepreneurship and industry outreach services.

- To evolve into a premier technological and research institution, molding eminent professionals with creative minds, innovative ideas and sound practical skill, and to shape a future where technology works for the enrichment of mankind.

- To evolve into a centre of excellence by imparting professional education in mechanical engineering with a unique academic and research ambience that fosters innovation, creativity and excellence.

Mission

Impart quality education and training to the nurture globally competitive mechanical engineers.
Provide vital state of the art research facilities to create, interpret, apply and disseminate knowledge.
Develop linkages with world class educational institutions and R&D organizations for excellence in teaching, research and consultancy services.

To implement holistic approach in curriculum and pedagogy through Industry Integrate Interactions to meet the needs of Global Engineering Environment.

To develop students with knowledge, attitude and skill of employability, entrepreneurship (Be Job creators than job seekers), research potential and professionally ethical citizens.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

PROGRAM EDUCATIONAL OBJECTIVES (PEO):-

PEO 1: Demonstrated the ability to analyze, formulate and solve/design engineering/real life problems based on his/her solid foundation in mathematics, science and engineering.

PEO 2: Adapt state-of-the-art mechanical engineering broad-based technologies to work in multi-disciplinary work environments.

PEO 3: Provide socially responsible, environment friendly broad-based solutions to mechanical engineering related problems adapting professional ethics.

PEO 4: Graduates will practice ethical responsibilities and service towards their peers, employers, society and follow these precepts in their daily life.

Program Outcomes: At the end of the program the student will be able to

PO1	Apply knowledge of mathematics, science and engineering to analyze, design and evaluate mechanical components & systems using state -of-the-art IT tools.
PO2	Analyze problems of mechanical engineering including thermal, manufacturing and industrial systems to formulate design requirements.
PO3	To prepare mechanical engineering graduates with an outstanding knowledge of mathematical, scientific, engineering, technology, management, humanities and various other interdisciplinary subjects for a successful career.
PO4	Design and conduct experiments using domain knowledge and analyze data to arrive at valid conclusions.
PO5	To equip students with broad based knowledge to support the service industries, economic development and to address social and engineering challenges of the nation.
PO6	Analyze the local and global impact of modern technologies on individual organizations, society and culture.
PO7	Apply knowledge of contemporary issues to investigate and solve problems with a concern for sustainability and eco friendly environment.
PO8	Exhibit responsibility in professional, ethical, legal, security and social issues.
PO9	Demonstrate appropriate inter-personal skills to function effectively as an individual, as a member or as a leader of a team and in a multi-disciplinary setting.

SCHEME OF INSTRUCTION
B.Tech. (Mechanical Engineering) Course Structure

B. Tech. I - Year I - Semester

S. No.	Course Code	SUBJECT	L	T	P	Credits	
1	BAS-103	Mathematics-I	3	1	0	4	
2	BAS-102 or BME-102	Engg. Chemistry Or Engg. Mechanics	3	1	0	4	
3	BEE-101 or BCS-101	Electrical Engg. Or Computer fundamentals & programming in C	3	1	0	4	
4	BEC-101 or BHU-101	Electronics Engineering Or Professional Communication	3	1	0	4	
5	BAS-101	Engg. Physics-I	3	1	0	4	
6	BME-101 or BAS-104	Manufacturing Process Or Environment & Ecology	2	0	0	2	
7	BME-151 Or BCE-151	Workshop Practice Or Engg. Drawing & Computer Graphics	0	1	3	2	
8	BAS-152 Or BCE-151	Engg. Chemistry Lab Or Engg. Mechanics Lab	0	0	2	1	
9	BEE-151 Or BCS-151	Electrical Engg. Lab Or Computer fundamentals & Programming in C lab	0	0	2	1	
10	BAS-151 Or BHU-151	Physics Lab Or Professional Communication Lab	0	0	2	1	
11	GP-101	General Proficiency	-	-	-	1	
Total			17	6	9	28	

B. Tech. I - Year II - Semester

S. No.	Course Code	SUBJECT	L	T	P	Credits	
1	BAS-203	Mathematics-II	3	1	0	4	
2	BME-202 or BAS-202	Engg. Mechanics -I Or Engg. Chemistry	3	1	0	4	
3	BCS-201 or BEE-201	Computer Fundamentals & Programming in C Or Electrical Engg.	3	1	0	4	
4	BHU-201 or BEC-201	Professional Communication Or Electronics Engineering	3	1	0	4	
5	BAS-201	Engg. Physics-II	3	1	0	4	
6	BAS-204 Or BME-201	Environment & Ecology Or Manufacturing Process	2	0	0	2	
7	BCE-251 Or BME-251	Engg. Drawing & Computer Graphics Or Workshop Practice	0	1	3	2	
8	BME-252 Or BAS-252	Engg. Mechanics Lab Or Engg. Chemistry Lab	0	0	2	1	
9	BCS-251 Or BEE-251	Computer Fundamentals & Programming in C Lab Or Electrical Engg. Lab	0	0	2	1	
10	BHU-251 Or BAS-251	Professional Communication Lab Or Physics Lab	0	0	2	1	
11	GP-201	General Proficiency	-	-	-	1	
		Total	17	6	9	28	

B. Tech. II - Year III - Semester

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credit
						SESSIONAL EXAM.			End - SEM		
			L	T	P	CT	TA	TOTAL			
THEORY											
1	BHU-301/BHU-302	Industrial Psychology/Industria l Sociology	2	1	0	10	5	15	35	50	2
2	BAS-301/BOE-031-BOE-038	Mathematics-III	3	1	0	20	10	30	70	100	4
3	BCE-301	Fluid Mechanics	3	1	0	20	10	30	70	100	4
4	BME-301	Material Science Engineering	3	1	0	20	10	30	70	100	4
5	BME-302	Strength of Materials	3	1	0	20	10	30	70	100	4
6	BME-303	Thermodynamics	2	1	0	10	5	15	35	50	2
PRACTICAL/DESIGN/DRAWING											
7	BME-351	Material Science & Testing Lab	0	1	2	-	-	10	15	25	1
8	BME-352	Machine Drawing Lab	1	0	2	-	-	15	35	50	2
8	BME-353	Thermodynamics Lab	0	0	2	-	-	10	15	25	1
9	BCE-351	Fluid Mechanics Lab	0	0	3	-	-	10	15	25	1
11	GP-301	General Proficiency	0	0	0	-	-	25	-	25	1
Total			15	6	9	100	50	220	430	650	20

B. Tech. II - Year IV - Semester

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			End-SEM		
			L	T	P	CT	TA	TOTAL			
THEORY											
1	BHU-402/ BHU-401	Industrial Psychology/Industrial Sociology	2	0	0	10	5	15	35	50	2
2	BAS-401/ BOE 041-BOE-048	Science Electives/Mathematics-III	3	1	0	20	10	30	70	100	4
3	BEE-409	Electrical Machines & Automatic Control Engineering	3	1	0	20	10	30	70	100	4
4	BME-401	Applied Thermodynamics	3	1	0	20	10	30	70	100	4
5	BME-402	Manufacturing Science	3	1	0	20	10	30	70	100	4
6	BME-403	Measurement & Metrology	2	1	0	10	5	15	35	50	2
PRACTICAL/DESIGN/DRAWING											
7	BME-451	Machine Drawing-II	1	0	2			15	35	50	2
8	BME-452	Manufacturing Science Lab	0	0	3			10	15	25	1
9	BME-453	Measurement & Metrology Lab	0	0	2			10	15	25	1
10	BEE-459	Electrical Machines & Automatic Control Lab	0	0	2			10	15	25	1
11	GP-401	General Proficiency	0	0	0			25	-	25	1
Total			12	3	12	-	-	220	430	650	26

B. Tech. III - Year V – Semester

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			End - SEM		
			L	T	P	CT	TA	TOTAL			
THEORY											
1	BHU-501	Engineering & Managerial Economics	3	1	0	20	10	30	70	100	4
2	BME-501	Theory of Machines-I	2	1	0	10	5	15	35	50	2
3	BME-502	Machine Design-I	3	1	0	20	10	30	70	100	4
4	BME-503	Manufacturing Science-II	3	1	0	20	10	30	70	100	4
5	BME-504	Heat & Mass Transfer	3	1	0	20	10	30	70	100	4
6	BME-505	I.C. Engine & Compressor	2	1	0	10	5	15	35	50	2
PRACTICAL/DESIGN/DRAWING											
7	BME-551	Machine Design-I Lab	0	0	2	-	-	10	15	25	1
8	BME-552	Seminar	0	0	2	-	-	25	-	25	1
9	BME-553	Manufacturing Science- II Lab	0	0	2	-	-	10	15	25	1
10	BME-554	Heat & Mass Transfer Lab	0	0	2	-	-	10	15	25	1
11	GP-501	General Proficiency	0	0	0	-	-	25	-	25	1
Total			16	6	8	100	50	230	395	625	25

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

B. Tech. III - Year VI - Semester

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			End - SEM		
			L	T	P	CT	TA	TOTAL			
THEORY											
1	BHU-601	Industrial Management	2	1	0	10	5	15	35	50	2
2	BME-011 to BME-014	Departmental Elective-I	3	1	0	20	10	30	70	100	4
3	BME-021 to BME-024	Departmental Elective-II	2	1	0	10	5	15	35	50	2
4	BME-602	Machine Design-II	3	1	0	20	10	30	70	100	4
5	BME-603	Theory of Machines-II	3	1	0	20	10	30	70	100	4
6	BME-604	Refrigeration & Air-conditioning	3	1	0	20	10	30	70	100	4
PRACTICAL/DESIGN/DRAWING											
7	BME-651	Fluid Machinery Lab	0	0	2	-	-	10	15	25	1
8	BME-652	Machine Design-II Lab	0	0	2	-	-	10	15	25	1
9	BME-653	Theory of Machines Lab	0	0	2	-	-	10	15	25	1
10	BME-654	Refrigeration & Air conditioning Lab	0	0	2	-	-	10	15	25	1
11	GP-601	General Proficiency	-	-	-	-	-	25		25	1
Total			16	6	8	100	50	215	410	625	25

B. Tech. IV - Year VII - Semester

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credit
						SESSIONAL EXAM.			End - SEM		
			L	T	P	CT	TA	TOTAL			
THEORY
1	BOE-071 to BOE-074	Open Elective-I**	3	1	0	20	10	30	70	100	4
2	BME-031 to BME-036	Departmental Elective-III	3	1	0	20	10	30	70	100	4
3	BME-041 to BME-046	Departmental Elective-IV	3	1	0	20	10	30	70	100	4
4	BME-701	Computer Aided Design	3	1	0	20	10	30	70	100	4
5	BME 702	Automobile Engineering	3	1	0	20	10	30	70	100	4
PRACTICAL/DESIGN/DRAWING
7	BME-751	CAD/CAM Lab	0	0	2	-	-	10	15	25	1
8	BME-752	I.C. Engine & Automobile Lab	0	0	2	-	-	10	15	25	1
9	BME-753	Project	0	0	2	-	-	10	15	25	1
10	BME-754	Industrial training I & II Evaluation and Viva	0	0	2	-	-	10	15	25	1
11	GP-701	General Proficiency	0	0	0	0	0	25	-	25	1
	Total	15	5	8	100	50	215	410	625	25

REGISTRAR
INVERTIS UNIVERSITY

B. Tech. IV - Year VIII - Semester

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			End - SEM		
			L	T	P	CT	TA	TOTAL			
THEORY											
1	BOE-081 to BOE-084	Open Elective-II	3	1	0	20	10	30	70	100	4
2	BME-051 to BME-056	Departmental Elective-V	3	1	0	20	10	30	70	100	4
3	BME-041 to BME-046	Departmental Elective-VI	3	1	0	20	10	30	70	100	4
4	BME-801	Quality Control	3	1	0	20	10	30	70	100	4
PRACTICAL/DESIGN/DRAWING											
7	BME-851	Project	0	0	12	0	50	50	150	200	8
	GP-601	General Proficiency	0	0	0	-	-	25	0	25	1
Total			12	3	12	80	40	195	430	625	25

Syllabus of 4th Year

OPEN ELECTIVES – I

BOE-071 Entrepreneurship Development BOE-072 Quality Management

BOE-073 Operations Research

BOE-074 Introduction to Biotechnology

DEPARTMENT ELECTIVE - III

BME-031 Computer Aided Manufacturing
BME-032 Project Management
BME-033 Advanced Fluid Mechanics
BME-034 Experimental Stress Analysis
BME-035 Advanced Dynamics of Machines
BME-036 Management Information System

DEPARTMENT ELECTIVE - IV

BME-041 Total Quality Management
BME-042 Thermal Turbo Machines
BME-043 Mechanical System Design
BME-044 Tribology
BME-045 Industrial Ergonomics
BME-046 Concurrent Engineering

OPEN ELECTIVES – II

BOE-081 Non Conventional Energy Resources BOE-082 Nonlinear Dynamic Systems

BOE-083 Product Development BOE-084 Automation and Robotics

DEPARTMENTAL ELECTIVES-V:

BME-051 Operations Research
BME-052 Maintenance Engineering &Management
BME-053 Design of Thermal Systems
BME-054 Advanced Synthesis of Mechanisms
BME-055 Six Sigma Methods &Applications
BME-056 Concepts of Modern Physics

DEPARTMENT ELECTIVE-VI

BME-061 Finite Element Method

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

BME-062 Non-Destructive Testing
BME-063 Advanced Materials Technology
BME-064 Production & Operations Management
BME-065 Energy Management
BME-066 Fundamentals of Bio Medical Engineering

INVERTIS
UNIVERSITY BAREILLY
BUILDING VIBRANT PERSONALITIES

COURSE STRUCTURE

DEPARTMENT OF MANAGEMENT

NAAC CRITERIA 1.2.2

INVERTIS
UNIVERSITY BAREILLY

BACHELOR OF COMMERCE [B.Com.]

COURSE STRUCTURE

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS UNIVERSITY

Invertis Village, Delhi Lucknow Highway NH-24,
Bareilly, Uttar Pradesh Pin - 243 123, India |

B.Com.

Programme outcome of B.Com is to produce competent in the area of management who can employ and implement their knowledge base in business processes and applications which will profoundly influence or utilized for existing paradigm of management, industry, Corporate and whole society to provide sustainable competitive edge to present scenario. Students will exhibit contemporary knowledge in various fields of business management and students will be eligible for doing jobs in various sectors of business, Insurance, industries and other trades of society

Programme Outcome of B.Com Programme:

PO1. Management knowledge: Apply the knowledge of businesses, industries, Functions of management, entrepreneurship fundamentals and many more.

PO2. Problem analysis: Identify, formulate, research literature, and analyze complex managerial problems reaching substantiated conclusions using first principles of management i.e. Planning.

PO3. Design/development of solutions: Design solutions for complex business problems and design system approaches or processes that meet the specified needs with appropriate consideration for the social upliftment, and the cultural, and environmental considerations.

PO4. Environment and sustainability: Understand the impact of the professional solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development of the companies as well as society as a whole.

PO5. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the management practice.

PO6. Value-based Development: To impart quality and need based education our objective is to sensitize the students to their changing roles in society through awareness raising activities.

PO7. Learners will be able to recognize features and roles of businessmen, entrepreneur, managers, consultant, which will help learners to possess knowledge and other soft skills and to react aptly when confronted with critical decision making.

PO8. Learners will be able to prove proficiency with the ability to engage in competitive exams like CA, CS, ICWA and other courses.

1

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

STUDY AND EVALUATION SCHEME
Bachelor of Commerce
[B.Com.]
(Effective from Session 2020-2021)

YEAR I, SEMESTER I

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BCR101	Principles of Business Management	CC 1	3	1	0	30	70	100	4
BCR102	Book Keeping and Basic Accounting	CC 2	3	1	0	30	70	100	4
BCR103	Principles of Economics	CC 3	3	1	0	30	70	100	4
BCR*	GE-1	GE	3	1	0	30	70	100	4
BCR**	SEC-1	SEC	3	1	0	30	70	100	4
TOTAL			15	5	0	150	350	500	20

L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam

YEAR I, SEMESTER II

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BCR201	Financial Accounting	CC 4	3	1	0	30	70	100	4
BCR202	Business Laws	CC 5	3	1	0	30	70	100	4
BCR203	Business Statistics	CC 6	3	1	0	30	70	100	4
BCR204	Business Environment	CC 7	3	1	0	30	70	100	4
BCR241	Environmental Science	AECC	2	0	0	15	35	50	2
BCR291	Comprehensive Viva Voce	Practical	0	0	0	0	50	50	2
TOTAL			14	4	0	135	365	500	20

L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam

UNIVERSITY BAREILLY

YEAR II, SEMESTER III

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BCR301	Corporate Accounting	CC 8	3	1	0	30	70	100	4
BCR302	Corporate Laws	CC 9	3	1	0	30	70	100	4
BCR303	Cost Accounting	CC 10	3	1	0	30	70	100	4
BCR*	GE-2	GE	3	1	0	30	70	100	4
BCR**	SEC-2	SEC	3	1	0	30	70	100	4
TOTAL			15	5	0	150	350	500	20

L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam

YEAR II, SEMESTER IV

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BCR401	Human Resource Management	CC11	3	1	0	30	70	100	4
BCR402	Income Tax Law and Accounts	CC 12	3	1	0	30	70	100	4
BCR403	Public Finance	CC 13	3	1	0	30	70	100	4
BCR404	Research Methodology	CC14	3	1	0	30	70	100	4
BCR441	Professional Skills Enhancement	AECC	0	0	2	15	35	50	2
BCR**	SEC-3	SEC	3	1	0	30	70	100	4
TOTAL			15	5	2	165	385	550	22

L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam

NOTE: At the end of fourth semester, students will undergo 1 month summer training compulsorily during summer vacation in Public Sector/Private Sector Undertakings known as Industrial Training/Internship.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

3

INVERTIS UNIVERSITY BAREILLY

YEAR III, SEMESTER V

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BCR501	Management Accounting	CC 15	3	1	0	30	70	100	4
BCR502	Goods & Service Tax (GST)	CC16	3	1	0	30	70	100	4
BCR541	Summer Internship Project	AECC	0	0	0	30	70	100	4
BCR***	DSE 1	DSE	3	1	0	30	70	100	4
BCR***	DSE 2	DSE	3	1	0	30	70	100	4
BCR***	DSE 3	DSE	3	1	0	30	70	100	4
TOTAL			15	5	0	180	420	600	24

L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam

YEAR III, SEMESTER VI

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BCR601	Financial Management	CC 17	3	1	0	30	70	100	4
BCR602	E-Commerce	CC18	3	1	0	30	70	100	4
BCR***	DSE 4	DSE	3	1	0	30	70	100	4
BCR***	DSE 5	DSE	3	1	0	30	70	100	4
BCR***	DSE 6	DSE	3	1	0	30	70	100	4
BCR691	Comprehensive Viva Voce	Practical	0	0	0	0	50	50	2
TOTAL			15	5	0	150	400	550	22

L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam
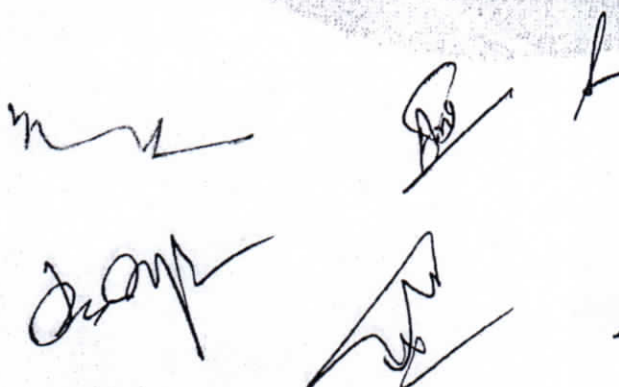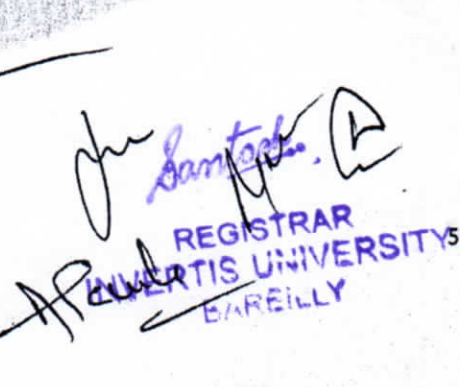
REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

4

LIST OF SKILL ENHANCEMENT COURSE (SEC)

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCR121	SEC-1	Fundamentals of Computer
2	BCR122	SEC-1	Cyber Crimes and Laws
3	BCR123	SEC-1	Personal Finance and Planning
4	BCR321	SEC-2	Fundamentals of Entrepreneurship
5	BCR322	SEC-2	Digital Marketing
6	BCR323	SEC-2	Training and Development
7	BCR421	SEC-3	Auditing
8	BCR422	SEC-3	Collective Bargaining and Negotiation Skills
9	BCR423	SEC-3	E-Filing of Returns

LIST OF GENRIC ELECTIVES (GE)

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCR131	GE-1	Human Values & Business Ethics
2	BCR132	GE-1	Fundamentals of Marketing
3	BCR331	GE-2	Principles of Marketing
4	BCR332	GE-2	Investing in Stock Markets
5	BCR333	GE-2	Finance for Non-Finance Executives

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

LIST OF ABILITY ENHANCEMENT COMPULSORY COURSE (AECC)

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCR241	AECC	Environmental Science
2	BCR441	AECC	Professional Skills Enhancement
3	BCR541	AECC	Summer Internship Project

LIST OF DISCIPLINE SPECIFIC ELECTIVE (DSE)

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCR511	DSE-1	Indian Economy
2	BCR512	DSE-1	Financial Markets, Institutions and Financial Services
3	BCR513	DSE-2	Banking & Insurance
4	BCR514	DSE-2	Management of Working Capital
5	BCR515	DSE-3	Advertisement & Personal Selling
6	BCR516	DSE-3	Rural Marketing
7	BCR611	DSE-4	Fundamentals of Investment
8	BCR612	DSE-4	Consumer Behavior
9	BCR613	DSE-5	International Business
10	BCR614	DSE-5	Organisational Behaviour
11	BCR615	DSE-6	Industrial Relation & Labour Laws
12	BCR616	DSE-6	Stress Management

* represents students can choose subject from SEC List.

** represents students can choose subject from GE List.

*** represents students can choose subject from DSE List.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS
UNIVERSITY BAREILLY

Evaluation Scheme & Syllabus

Of

Bachelor of Business Administration

(B.B.A)

(W.e.f. Academic Session 2020-21)

Faculty of Management

INVERTIS UNIVERSITY

Bareilly

B.B.A

Bachelor of Business Administration (BBA) degree program with emphasis on theories, concepts and applications. This program is suitable for students who are interested in learning business strategy and principles, preparing them to work in a professional business environment. The programme is designed to offer practical broad knowledge of functional aspects of a company and how the interactions of these aspects are successfully executed from a middle management capacity. The programme intends to train the students to become competent enough for entry level management professionals. Its basic aim to impart basic and operational knowledge on all functional areas of management makes the programme unique.

Program outcome of BBA Programme

BBA Programme has been designed to prepare graduates for attaining the following specific outcomes:

PO1: **Critical Thinking Skills:** Demonstrate the critical thinking mindset and the ability to identify and formulate research problems, research literature, design tools, analyze and interpret data, and synthesize the information to provide valid conclusions and contextual approaches across a variety of subject matter.

PO2: **Communication Skills:** Students are able to conceptualize a complex issue into a coherent written statement and oral presentation.

PO3: **Technology Skills:** Students are competent in the uses of technology in modern organizational operations.

PO4: **Entrepreneurship and Innovation:** Students can demonstrate the fundamentals of creating and managing innovation, new business development, and high-growth potential entities.

PO5: **Business Knowledge:** Students can demonstrate technical competence in domestic and global business through the study of major disciplines within the fields of business

PO6: **Ethical Behavior and Social Responsibility:** Identify and analyze ethical conflicts and social responsibility issues involving different stakeholders. Develop viable alternatives and make effective decisions relating to business ethics and social responsibility.

PO7: **Project management:** An ability to use skills and management principles to do work as a member and leader in a team, to manage projects and demonstrate capabilities in new venture creation

PO8: **Life-long learning:** Recognition of the need for, Achieve higher levels of proficiency and self-actualization through pursuing lifelong learning.

INVERTIS
UNIVERSITY BAREILLY

STUDY AND EVALUATION SCHEME
BBA (Bachelor of Business Administration)
(Effective from session 2020-2021)

YEAR I, SEMESTER I

Course Code	Course Title	Course Category	Hours			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
BBA101	Fundamentals of Management	CC 1	3	1	0	30	70	100	4
BBA102	Principles of Economics	CC 2	3	1	0	30	70	100	4
BBA103	Business Mathematics	CC 3	3	1	0	30	70	100	4
BBA104	Accounting and Financial Analysis	CC 4	3	1	0	30	70	100	4
BBA 111	Human Values & Business Ethics	AECC	2	0	0	15	35	50	2
BBA**	GE 2	GE	3	1	0	30	70	100	4
Total			17	5	0	165	385	550	22

YEAR I, SEMESTER II

Course Code	Course Title	Course Category	Hours			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
BBA201	Indian Economy	CC 5	3	1	0	30	70	100	4
BBA202	Environmental Science	AECC	2	0	0	15	35	50	2
BBA203	Quantitative Decision Making	CC 6	3	1	0	30	70	100	4
BBA204	Marketing Management	CC 7	3	1	0	30	70	100	4
BBA205	Organizational Behaviour	CC 8	3	1	0	30	70	100	4
BBA*	SEC 1	SEC	2	0	2	50	50	100	4
Total			16	4	2	165	365	550	22

L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam

YEAR II, SEMESTER III

Course Code	Course Title	Course Category	Hours			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
BBA301	Economics for Managers	CC 9	3	1	0	30	70	100	4
BBA302	Banking & Business Environment	CC 10	3	1	0	30	70	100	4
BBA303	Cost & Management Accounting	CC 11	3	1	0	30	70	100	4
BBA304	Human Resource Management	CC 12	3	1	0	30	70	100	4
BBA**	GE 3	GE	3	1	0	30	70	100	4
BBA**	GE 4	GE	3	1	0	30	70	100	4
Total			18	6	0	180	420	600	24

YEAR II, SEMESTER IV

Course Code	Course Title	Course Category	Hours			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
BBA401	Operations Research	CC 13	3	1	0	30	70	100	4
BBA402	Consumer Behavior	CC 14	3	1	0	30	70	100	4
BBA403	Financial Management	CC 15	3	1	0	30	70	100	4
BBA404	International Business	CC 16	3	1	0	30	70	100	4
BBA405	Research Methodology	CC 17	3	1	0	30	70	100	4
BBA406	Income Tax Law & Practices	CC 18	3	1	0	30	70	100	4
BBA495	Industry Readiness	AECC	0	0	2	15	35	50	2
Total			18	6	2	180	470	650	26

L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Sem Exam

*After this semester will undergo one month compulsory Internship.

YEAR III, SEMESTER V

Course Code	Course Title	Course Category	Hours			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
BBA501	Business Policy	CC 19	3	1	0	30	70	100	4
BBA*	SEC 2	SEC	3	1	0	30	70	100	4
BBA595	Summer Internship Project & Viva	AECC	0	0	0	30	70	100	4
BBA***	Specialization 1	DSE 1	3	1	0	30	70	100	4
BBA***	Specialization 2	DSE 2	3	1	0	30	70	100	4
BBA***	Specialization 1	DSE 3	3	1	0	30	70	100	4
BBA***	Specialization 2	DSE 4	3	1	0	30	70	100	4
Total			18	6	0	210	490	700	28

YEAR III, SEMESTER VI

Course Code	Course Title	Course Category	Hours			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
BBA601	Productions & Operations Management	CC 20	3	1	0	30	70	100	4
BBA*	SEC 3	SEC	3	1	0	30	70	100	4
BBA695	Project Work & Viva	AECC	0	0	2	30	70	100	4
BBA***	Specialization 3	DSE 5	3	1	0	30	70	100	4
BBA***	Specialization 4	DSE 6	3	1	0	30	70	100	4
BBA***	Specialization 3	DSE 7	3	1	0	30	70	100	4
BBA***	Specialization 4	DSE 8	3	1	0	30	70	100	4
Total			18	6	2	210	490	700	28

L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Sem Exam

BBA* represents **Specialization Papers from Specialization Group**

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Discipline Specific Specializations (DSE)

DISCIPLINE SPECIFIC ELECTIVE – MARKETING

COURSE CODE	SUBJECTS	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BBA511	Service Marketing	DSE	3	1	0	30	70	100	4
BBA512	Sales & Distribution Management	DSE	3	1	0	30	70	100	4
BBA513	Customer Relationship Management	DSE	3	1	0	30	70	100	4
BBA514	Advertisement Management	DSE	3	1	0	30	70	100	4

DISCIPLINE SPECIFIC ELECTIVE – FINANCE

COURSE CODE	SUBJECTS	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BBA521	Indian Financial Management	DSE	3	1	0	30	70	100	4
BBA522	Fundamentals of Stock Market	DSE	3	1	0	30	70	100	4
BBA523	Working Capital Management	DSE	3	1	0	30	70	100	4
BBA524	Banking & Insurance	DSE	3	1	0	30	70	100	4

DISCIPLINE SPECIFIC ELECTIVE – HUMAN RESOURCE

COURSE CODE	SUBJECTS	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BBA531	Cross Cultural Management	DSE	3	1	0	30	70	100	4
BBA532	Performance Management	DSE	3	1	0	30	70	100	4
BBA533	Recruitment & Selection	DSE	3	1	0	30	70	100	4
BBA534	Conflict Management	DSE	3	1	0	30	70	100	4

DISCIPLINE SPECIFIC ELECTIVE – HOSPITALITY & TOURISM MANAGEMENT

COURSE CODE	SUBJECTS	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BBA541	Emerging Trends in Hospitality Industry	DSE	3	1	0	30	70	100	4
BBA542	Legal & Social Practices in Hospitality	DSE	3	1	0	30	70	100	4
BBA543	Hospitality Marketing & Sales	DSE	3	1	0	30	70	100	4
BBA544	Strategic Hospitality Management	DSE	3	1	0	30	70	100	4

DISCIPLINE SPECIFIC ELECTIVE – MARKETING (MKTG.)

COURSE CODE	SUBJECTS	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BBA611	Rural Marketing	DSE	3	1	0	30	70	100	4
BBA612	Retail Management	DSE	3	1	0	30	70	100	4
BBA613	International Marketing	DSE	3	1	0	30	70	100	4
BBA614	Product & Brand Management	DSE	3	1	0	30	70	100	4

DISCIPLINE SPECIFIC ELECTIVE – FINANCE

COURSE CODE	SUBJECTS	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BBA621	Goods & Services Tax (GST)	DSE	3	1	0	30	70	100	4
BBA622	Security & Investment Management	DSE	3	1	0	30	70	100	4
BBA623	Marketing of Financial Products	DSE	3	1	0	30	70	100	4
BBA624	Personal Finance Planning	DSE	3	1	0	30	70	100	4

DISCIPLINE SPECIFIC ELECTIVE – HUMAN RESOURCE (HR)

COURSE CODE	SUBJECTS	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BBA631	Industrial Relations	DSE	3	1	0	30	70	100	4
BBA632	Organizational Development & Change	DSE	3	1	0	30	70	100	4
BBA633	Compensation & Reward Management	DSE	3	1	0	30	70	100	4
BBA634	International HRM	DSE	3	1	0	30	70	100	4

DISCIPLINE SPECIFIC ELECTIVE – HOSPITALITY & TOURISM MANAGEMENT

COURSE CODE	SUBJECTS	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BBA641	Tourism & Travel Management	DSE	3	1	0	30	70	100	4
BBA642	Hotel & Catering Management	DSE	3	1	0	30	70	100	4
BBA643	Leisure Management	DSE	3	1	0	30	70	100	4
BBA644	Health & Wellness Management	DSE	3	1	0	30	70	100	4

LIST OF SKILL ENHANCEMENT COURSE (SEC)

SEC 1 (BBA 222)	MS- Office for Managers
SEC 1 (BBA 223	Computer Fundamentals
SEC 2 (BBA 555)	E- Commerce
SEC 2 (BBA 556)	Hacking and Cyber Security
SEC 3 (BBA 666)	Fundamental of Digital Marketing
SEC 3 (BBA 667)	Business Documentation

LIST OF GENRIC ELECTIVES (GE)

GE 1 (BBA 112)	Basics of Management
GE 2 (BBA 113)	Business Law
GE 2 (BBA 114	Fundamental of Marketing
GE3 (BBA 331)	Indian Social Issues
GE 3 (BBA 332)	Fundamental of Finance
GE 4 (BBA 333)	Family Business & Entrepreneurship Management
GE 4 (BBA 334)	Fundamental of Human Resource Management

LIST OF ABILITY ENHANCEMENT COMPULSORY COURSE (AECC)

AECC BBA 111	Human Values and Business Ethics		
AECC BBA202	Environmental Science		
AECC BBA495	Industry Readiness		
AECC BBA595	Summer Internship Project & Viva		
AECC BBA695	Project work & Viva		

* Represents students can choose subject from SEC List.

** Represents students can choose subject from GE List.

*** Represents students can choose subject from DSE List.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS
UNIVERSITY BAREILLY

BACHELOR OF COMMERCE (HONOURS)
[B.Com. (H)]

COURSE STRUCTURE

INVERTIS UNIVERSITY

Invertis Village, Delhi Lucknow Highway NH-24,
Bareilly, Uttar Pradesh Pin - 243 123, India |

B.Com. (Hons)

This program aim to provide students with specific knowledge and skills relevant to their discipline and careers. After completing three years for Bachelors in Commerce (B.Com) Hons programme, students would gain a thorough grounding in the fundamentals of Commerce and Finance which offers a number of specializations and practical exposures for the students to face the modern-day challenges in different professional bodies. The broader perspective of this programme offers a number of value based and job oriented courses which ensure that the students are trained into up-to-date. In advanced accounting courses beyond the introductory level, provide students with the analytical, evaluative and problem-solving skills commensurate with degree level higher education.

Programme Outcome of B.Com. (Hons) Programme:

B.Com (Hons) programme has been designed to prepare graduates for attaining the following specific outcomes:

PO1. Academic excellence: Our primary objective is to enable every student to cope up with the latest developments in contemporary, national and global level through effective transaction of the curricular and co-curricular aspects.

PO2. Professional Excellence: Motivates molds and prepares the students for positions of leadership in business organizations at the local, national and international levels.

PO3. Students will learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

PO4. Holistic Development: Exposure to learners in the latest trends in relevant branches of knowledge, competence and creativity to face global challenges.

PO5. Students will learn relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

PO6. Value-based Development: To impart quality and need based education our objective is to sensitize the students to their changing roles in society through awareness raising activities.

PO7. Learners will be able to recognize features and roles of businessmen, entrepreneur, managers, consultant, which will help learners to possess knowledge and other soft skills and to react aptly when confronted with critical decision making.

PO8. Learners will be able to prove proficiency with the ability to engage in competitive exams like CA, CS, ICWA and other courses.

1

STUDY AND EVALUATION SCHEME
Bachelor of Commerce (Hons.)
[B.Com. (H)]
(Effective from Session 2020-2021)

YEAR I, SEMESTER 1

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BCM101	Business Organization and Management	CC 1	4	1	0	30	70	100	5
BCM102	Financial Accounting	CC 2	4	1	0	30	70	100	5
BCM103	Micro Economics	CC 3	4	1	0	30	70	100	5
BCM104	Business Laws	CC 4	4	1	0	30	70	100	5
BCM*	SEC-1	SEC	4	1	0	30	70	100	5
BCM*	SEC-1 (LAB)	SEC	0	0	2	0	50	50	2
TOTAL			20	5	2	150	400	550	27

L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam

YEAR I, SEMESTER II

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BCM201	Business Mathematics and Statistics	CC 5	4	1	0	30	70	100	5
BCM202	Cost Accounting	CC 6	4	1	0	30	70	100	5
BCM203	Macro Economics	CC 7	4	1	0	30	70	100	5
BCM204	Corporate Laws	CC 8	4	1	0	30	70	100	5
BCM*	GE-1	GE	4	1	0	30	70	100	5
TOTAL			20	5	0	150	350	500	25

L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam

OTE: Students shall undertake 1-month project work compulsorily with any registered NGO across the country
ıring summer vacation, at the end of the second semester.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

2

YEAR II, SEMESTER III

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BCM301	Principles of Marketing	CC 9	4	1	0	30	70	100	5
BCM302	Corporate Accounting	CC 10	4	1	0	30	70	100	5
BCM303	Financial Management	CC 11	4	1	0	30	70	100	5
BCM304	Income Tax Law and Practice	CC 12	4	1	0	30	70	100	5
BCM381	Environmental Science	AECC	2	1	0	15	35	50	2
BCM382	Human Values and Ethics	AECC	2	0	0	15	35	50	2
BCM383	NGO Project	AECC	0	0	0	0	50	50	2
TOTAL			20	5	0	150	400	550	26

L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam

YEAR II, SEMESTER IV

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BCM401	E-Commerce	CC 13	4	1	0	30	70	100	5
BCM402	Management Accounting	CC 14	4	1	0	30	70	100	5
BCM403	Indian Economy	CC 15	4	1	0	30	70	100	5
BCM404	Goods and Service Tax (GST) and Custom Laws	CC 16	4	1	0	30	70	100	5
BCM481	Professional Skills Enhancement	AECC	0	0	2	15	35	50	2
BCM*	GE-2	GE	4	1	0	30	70	100	5
TOTAL			20	5	2	165	385	550	27

L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam

NOTE: At the end of the fourth semester, students will undergo 1 month summer training compulsorily during summer vacation in the Public Sector/ Private Sector Undertakings known as Industrial Training/ Internship.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

YEAR III SEMESTER V

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BCM501	Auditing	CC 17	4	1	0	30	70	100	5
BCM*	SEC-2	SEC	4	1	0	30	70	100	5
BCM***	Specialization Elective 1	DSE 1	4	1	0	30	70	100	5
BCM***	Specialization Elective 2	DSE 2	4	1	0	30	70	100	5
BCM***	Specialization Elective 3	DSE 3	4	1	0	30	70	100	5
BCM581	Summer Internship Project	AECC	0	0	0	30	70	100	5
TOTAL			20	5	0	180	420	600	30

L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam

NOTE: Student has to select one specialization for fifth and sixth semester and has to choose three papers out of the four given in that particular specialization. Specialization group for the fifth and sixth semester must be same.

YEAR III SEMESTER VI

COURSE CODE	COURSE TITLE	COURSE CATEGORY	HOURS			EVALUATION SCHEME		SUBJECT TOTAL	CREDIT
			L	T	P	CA	EE		
BCM601	International Business	CC 18	4	1	0	30	70	100	5
BCM*	SEC3	SEC	4	1	0	15	35	50	3
BCM*	SEC3 (Practical)	SEC	0	0	0	0	50	50	2
BCM***	Specialization Elective 4	DSE 4	4	1	0	30	70	100	5
BCM***	Specialization Elective 5	DSE 5	4	1	0	30	70	100	5
BCM***	Specialization Elective 6	DSE 6	4	1	0	30	70	100	5
TOTAL			20	5	0	135	365	500	25

L - Lecture, T - Tutorial, P - Practical, CA - Continuous Assessment, EE - End Semester Exam

4

Electives - Fifth Semester

DISCIPLINE SPECIFIC ELECTIVE: - ACCOUNTING & FINANCE

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCM511	DSE	Financial Markets, Institutions and Financial services
2	BCM512	DSE	Personal Tax Planning
3	BCM513	DSE	Management of Working Capital
4	BCM514	DSE	Personal Finance & Planning

DISCIPLINE SPECIFIC ELECTIVE: - APPLIED ECONOMICS

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCM521	DSE	Business & Economic Environment
2	BCM522	DSE	Public Finance
3	BCM523	DSE	Industrial Economics
4	BCM524	DSE	Money and Financial System

DISCIPLINE SPECIFIC ELECTIVE: - FINANCIAL MARKETS

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCM531	DSE	Equity Valuation and Debt Valuation
2	BCM532	DSE	Mutual Funds
3	BCM533	DSE	Investment Banking & Venture Capital
4	BCM534	DSE	Portfolio Management

5

DISCIPLINE SPECIFIC ELECTIVE - BANKING & INSURANCE

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCM541	DSE	Banking Laws & Environment
2	BCM542	DSE	E-Banking
3	BCM543	DSE	Banking & Insurance
4	BCM544	DSE	Principles & Practices of Life Insurance

DISCIPLINE SPECIFIC ELECTIVE - HUMAN RESOURCE & MARKETING MANAGEMENT

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCM551	DSE	Service & Retail Marketing
2	BCM552	DSE	Consumer Behavior
3	BCM553	DSE	Training and Development
4	BCM554	DSE	Stress Management

6

Electives - Sixth Semester

DISCIPLINE SPECIFIC ELECTIVE - ACCOUNTING & FINANCE

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCM611	DSE	Financial reporting and Analysis
2	BCM612	DSE	Corporate Tax Planning
3	BCM613	DSE	Fundamentals of Investment
4	BCM614	DSE	E-filing of returns

DISCIPLINE SPECIFIC ELECTIVE - APPLIED ECONOMICS

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCM621	DSE	International Economics
2	BCM622	DSE	Agriculture Economics
3	BCM623	DSE	Development Economics
4	BCM624	DSE	Rural Economics

DISCIPLINE SPECIFIC ELECTIVE - FINANCIAL MARKETS

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCM631	DSE	Fundamental and Technical Analysis
2	BCM632	DSE	Marketing and Selling of Financial Services
3	BCM633	DSE	Financial Risk Management
4	BCM634	DSE	Derivatives Market

DISCIPLINE SPECIFIC ELECTIVE - BANKING & INSURANCE

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCM641	DSE	Insurance Laws & Environment
2	BCM642	DSE	Management of Commercial Bank
3	BCM643	DSE	Marketing of Financial Product & Services
4	BCM644	DSE	Principles & Practices of General Insurance

DISCIPLINE SPECIFIC ELECTIVE - HUMAN RESOURCE & MARKETING MANAGEMENT

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCM 651	DSE	Strategic Human Resource Management
2	BCM 652	DSE	Compensation Management
3	BCM 653	DSE	Rural Marketing
4	BCM 654	DSE	Advertising and Personal Selling

8

LIST OF SKILL ENHANCEMENT COURSE (SEC)

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCM161	SEC-1	Computer Applications in Business
2	BCM191	SEC-1 (LAB)	Computer Applications in Business Lab
3	BCM162	SEC-1	Computerised Accounting System
4	BCM192	SEC-1 (LAB)	Computerised Accounting System Lab
5	BCM561	SEC-2	Digital Marketing
6	BCM562	SEC-2	Cyber Crimes & Laws
7	BCM563	SEC-2	Collective Bargaining and Negotiation Skills
8	BCM661	SEC-3	Business Research Methods and Project Work
9	BCM691	SEC-3 (PRACTICAL)	Project Work Viva Voce
10	BCM662	SEC-3	Personal Finance
11	BCM663	SEC-3	Communication and Documentation in Business

LIST OF GENRIC ELECTIVES (GE)

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCM271	GE-1	Entrepreneurship
2	BCM272	GE-1	Business Ethics and Sustainability
3	BCM471	GE-2	Human Resource Management
4	BCM472	GE-2	Basics of Accounting
5	BCM473	GE-2	Fundamentals of Marketing

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

9

LIST OF ABILITY ENHANCEMENT COMPULSORY COURSE (AECC)

S. NO.	COURSE CODE	COURSE CATEGORY	COURSE TITLE
1	BCM381	AECC	Environmental Science
2	BCM382	AECC	Human Values and Ethics
3	BCM383	AECC	NGO Project
4	BCM481	AECC	Professional Skills Enhancement
5	BCM581	AECC	Summer Internship Project

* represents students can choose subject from SEC List.

** represents students can choose subject from GE List.

*** represents students can choose subject from DSE List.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

10

INVERTIS UNIVERSITY, BAREILLY

SYLLABUS

FOR

Master of Business Administration

Master Of Business Administration Syllabus As Per Course Structure
To Be Effective From Academic Year 2020 Onwards

STATEMENTS OF PEOs, POs AND PSOs

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO 1- PROFESSIONAL DEVELOPMENT

To develop students' capacity to acquire managerial knowledge and apply it professionally within realistic constraints across the industry with ethical responsibility.

PEO 2- DEVELOPING CORE PROFICIENCY

To impart knowledge of Management theory and practice for providing ability to identify, comprehend, analyze, design and formulate solutions for various issues withhands on experience from the industry.

PEO3- MANAGERIAL SKILL ACCOMPLISHMENTS

To develop ability to design, simulate, experiment, analyze, optimize and interpret managerial tools for decision making required for solving complex managerial problems through multidisciplinary concepts and contemporary learning.

PEO4- PROFESSIONALISM

To provide exposure and awareness on importance of soft skills for holistic personality development and development of professional attitude so as to produce industry ready graduates having the highest regard for Personal & Institutional Integrity, Social Responsibility, Teamwork and Continuous Learning.

PEO5- LEARNING ENVIRONMENT

To provide students with an academic environment and make them aware of excellence, develop the urge of discovery, creativity, leadership, and entrepreneurial capability.

		Program Outcomes (POs)
PO1	Managerial knowledge	An ability to apply knowledge of management
PO2	Problem analysis	An ability to analyze and interpret problems
PO3	Interpersonal Skills	An ability to utilize interpersonal skills to lead/manage employees in an organizational setting.
PO4	Critical thinking Skills	An ability to demonstrate critical thinking skills.
PO5	Conduct investigations of problems	An ability to identify, formulate, comprehend, analyse, and synthesise information to solve managerial problems and provide valid conclusions.
PO6	Use of Modern tools	An ability to use the contemporary techniques, skills and modern tools necessary for managerial decisions.
PO7	Ethics	Understand the ethical implications of business decision making and recognize ethical dilemmas.
PO8	Individual and teamwork	Exhibit the leadership capacity and teamwork skills for business decision making.
PO9	Communication skill	An ability to demonstrate effective communication.
PO10	Project management and finance	An ability to use skills and management principles, develop an ability to work as a member and leader in a team, to manage projects and demonstrate capabilities in new venture creation.
PO11	Holistic Development	Ensuring holistic and sustainable development of students
PO12	Life-long learning	Achieving higher levels of proficiency and self-actualization through pursuing lifelonglearning.

YEAR -1	SEMESTER-I							
Course Code	Course Title	Course Category	L+T+P	CA	EE	TOTAL	CREDIT
MBA101	Management- Micro and Macro	DSC	4+1+0	30	70	100	4
MBA102	Market Science	DSC	4+1+0	30	70	100	4
MBA103	Computing Techniques	AECC	2+0+0	15	35	50	2
MBA104	Recording and Analysis of Business Operations	DSC	4+1+0	30	70	100	4
MBA105	Micro Economics & Economic Planning	DSC	4+1+0	30	70	100	4
MBA106	Managerial Communication Skills	SEE	2+0+0	15	35	50	2
MBA107	Quantitative Skills	AECC	4+1+0	30	70	100	4
LAB							
MBA151	MS-Office Lab	SEE	0+0+3	15	35	50	2
MBA152	Managerial Communication Lab	SEE	0+0+3	15	35	50	2
	TOTAL			210	490	700	28

L= Lecture, T= Tutorial, P=Practical, EE=End Sem Exam, CA = Continuous Assessment

Year -1	Semester-II						
Course Code	Course Title	Course Category	L+T+P	CA	EE	Total	Credit
MBA201	Management Science	DSC	3+0+0	15	35	50	2
MBA202	Market Intelligence	GEC	4+1+0	30	70	100	4
MBA203	Identification, addition and delivery of Value	DSC	4+1+0	30	70	100	4
MBA204	Economics of Human Resource	DSC	4+1+0	30	70	100	4
MBA205	Legal Issues in Business	DSC	4+1+0	30	70	100	4
MBA206	Financial Issues	DSC	4+1+0	30	70	100	4
MBA207	Digital Marketing	SEE	4+1+0	30	70	100	4
MBA208	Analytical Ability and Professional Communication	AECC	3+0+0	15	35	50	2
LAB							
MBA251	R Lab	SEE	0+0+2	15	35	50	2
MBA252	Written Analysis And Communication Lab	SEE	0+0+3	15	35	50	2
	Total			240	560	800	32

L= Lecture, T= Tutorial, P=Practical, EE=End Sem Exam, CA = Continuous Assessment

**After 2nd Semester, students will undergo 6-8 weeks of summer training compulsorily in Public Sector undertakings or Private Sector, known as Hands on Experience. Evaluation will be on the basis of the performance feedback received from the Industry mentor, project report (40 marks) and performance in the Viva (60 marks).

Year-2	Semester-III						
Course Code	Course Title	Course Category	L+T+P	CA	EE	Total	Credit
MBA301	Strategic Management	DSC	4+1+0	30	70	100	4
MBA302	Event Management*	GEC	2+1+2	60	40	100	4
MBA303	Entrepreneurial Development & Innovation	AECC	4+1+0	30	70	100	4
MBA*	Spec. Group 1 Paper 1	DSE	4+1+0	30	70	100	4
MBA*	Spec. Group 1 Paper 2	DSE	4+1+0	30	70	100	4
MBA*	Spec. Group 2 Paper 1	DSE	4+1+0	30	70	100	4
MBA*	Spec. Group 2 Paper 2	DSE	4+1+0	30	70	100	4
MBA396	Hands on Experience Viva**	AECC		40	60	100	4
	Total			280	520	800	32

L=Lecture, T= Tutorial, P=Practical, EE=End Sem Exam, CA = Continuous Assessment

*Event Management being a highly practical subject, student's Organizing capacity evaluation become important. The students will be divided into group of four and these groups are expected to organize at-least one event. Evaluation of the group will be based on the report submitted by the group and viva will be conducted for individual assessment. It is therefore necessary to reduce the weightage of external written examination to 40 marks and event organized assessment to 60 Marks. Out of 60 marks UTs consist of 20 marks and the rest 40 marks will be on viva of students on their event management experience.

MBA* represents **Specialization Papers from Specialization Group**

Year-2	Semester-IV						
Course Code	Course Title	Course Category	L+T+P	CA	EE	Total	Credit
MBA**	Spec. Group 1 Paper 3	DSE	4+1+0	30	70	100	4
MBA**	Spec. Group 1 Paper 4	DSE	4+1+0	30	70	100	4
MBA**	Spec. Group 1 Paper 5	DSE	4+1+0	30	70	100	4
MBA**	Spec. Group 2 Paper 3	DSE	4+1+0	30	70	100	4
MBA**	Spec. Group 2 Paper 4	DSE	4+1+0	30	70	100	4
MBA**	Spec. Group 2 Paper 5	DSE	4+1+0	30	70	100	4
MBA496	Comprehensive Viva	AECC	NA	NA	100	100	4
	Total		NA	180	520	700	28

L=Lecture, T= Tutorial, P=Practical, EE=End Sem Exam, CA = Continuous Assessment

MBA** represents Specialization Papers from Specialization Group

Note: Students are required to choose any two specializations. The first specialization chosen by student will be treated as Spec. Group 1 and second specialization will be treated as Spec. Group 2.

A course on Human Values & Ethics of 2 Credits will be conducted as a compulsory course once during the entire Programme.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

Scanned with CamScanner

Functional Specialization

DISCIPLINE SPECIFIC ELECTIVE - MARKETING (MKTG.)

Course Code	Course Title	Category	L+T+P	CA	EE	Total	Credit	Semester
MBA316	Sales And Distribution	DSE	4+1+0	30	70	100	4	III
MBA317	Service Management	DSE	4+1+1	30	70	100	4	III
MBA318	Marketing Of Financial Services	DSE	4+1+2	30	70	100	4	III
MBA319	Personal Selling Lab	DSE	4+1+2	30	70	100	4	III
MBA416	CB AND IMC	DSE	4+1+1	30	70	100	4	IV
MBA417	Rural Marketing	DSE	4+1+2	30	70	100	4	IV
MBA418	International Marketing	DSE	4+1+3	30	70	100	4	IV
MBA419	Marketing Analytics	DSE	4+1+4	30	70	100	4	IV

DISCIPLINE SPECIFIC ELECTIVE - HUMAN RESOURCE (HR)

Course Code	Course Title	Category	L+T+P	CA	EE	Total	Credit	Semester
MBA321	Organizational Diagnosis & Development	DSE	4+1+0	30	70	100	4	III
MBA322	Training & Development And Competency Mapping	DSE	4+1+0	30	70	100	4	III
MBA323	Current Trends & Cases In Human Resource Management	DSE	4+1+1	30	70	100	4	III
MBA421	Employee Welfare And Labour Legislation	DSE	4+1+1	30	70	100	4	IV
MBA422	Strategic Human Resource Management	DSE	4+1+2	30	70	100	4	IV
MBA423	Performance Appraisal And Compensation Management	DSE	4+1+3	30	70	100	4	IV
MBA424	HR Analytics	DSE	4+1+4	30	70	100	4	IV

DISCIPLINE SPECIFIC ELECTIVE - FINANCE (FIN)

Course Code	Course Title	Category	L+T+P	CA	EE	Total	Credit	Semester
MBA311	Tax Planning and Management	DSE	4+1+0	30	70	100	4	III
MBA312	Security Analysis & Portfolio Management	DSE	4+1+0	30	70	100	4	III
MBA313	Technical Analysis Of Financial Markets	DSE	4+1+1	30	70	100	4	III
MBA411	Corporate Restructuring	DSE	4+1+1	30	70	100	4	IV
MBA412	Banking Operations Management	DSE	4+1+2	30	70	100	4	IV
MBA413	Financial Market & Services	DSE	4+1+3	30	70	100	4	IV
MBA414	Mutual Fund	DSE	4+1+4	30	70	100	4	IV
MBA415	Business Valuation And Risk Management	DSE	4+1+5	30	70	100	4	IV

DISCIPLINE SPECIFIC ELECTIVE - INFORMATION TECHNOLOGY (IT)

Course Code	Course Title	Category	L+T+P	CA	EE	Total	Credit	Semester
MBA336	Business Intelligence And Data Mining	DSE	4+1+0	30	70	100	4	III
MBA337	E-Commerce	DSE	4+1+0	30	70	100	4	III
MBA338	Artificial Intelligence In Business Applications	DSE	4+1+1	30	70	100	4	III
MBA436	Big Data Analytics	DSE	4+1+1	30	70	100	4	IV
MBA437	It Project Management	DSE	4+1+2	30	70	100	4	IV
MBA438	Data Communication And Networking Security	DSE	4+1+3	30	70	100	4	IV
MBA439	Machine Learning & Cognitive Intelligence Using Python	DSE	4+1+4	30	70	100	4	IV

DISCIPLINE SPECIFIC ELECTIVE - INTERNATIONAL BUSINESS (IB)

Course Code	Course Title	Category	L+T+P	CA	EE	Total	Credit	Semester
MBA326	International Business	DSE	4+1+0	30	70	100	4	III
MBA327	Exim Procedure & Documentation	DSE	4+1+0	30	70	100	4.	III
MBA328	Global Competitiveness And Strategic Alliances	DSE	4+1+1	30	70	100	4	III
MBA426	International Financial Management	DSE	4+1+1	30	70	100	4	IV
MBA427	Environment & Global Competitiveness	DSE	4+1+2	30	70	100	4	IV
MBA428	Global Logistics & Supply Chains	DSE	4+1+3	30	70	100	4	IV
MBA429	International Marketing	DSE	4+1+4	30	70	100	4	IV

DISCIPLINE SPECIFIC ELECTIVE - PROJECT MANAGEMENT (PM)

Course Code	Course Title	Category	L+T+P	CA	EE	Total	Credit	Semester
MBA371	Project Formulation And Appraisal	DSE	4+1+0	30	70	100	4	III
MBA372	Construction Planning, Scheduling And Control.	DSE	4+1+0	30	70	100	4	III
MBA471	Construction Personnel Management	DSE	4+1+1	30	70	100	4	IV
MBA472	Construction Project Management	DSE	4+1+2	30	70	100	4	IV
MBA473	Project Safety Management	DSE	4+1+3	30	70	100	4	IV

Sectoral Specialization

DISCIPLINE SPECIFIC ELECTIVE - RETAIL MANAGEMENT (RM)

Course Code	Course Title	Category	L+T+P	CA	EE	Total	Credit	Semester
MBA341	Retail Science	DSE	4+1+0	30	70	100	4	III
MBA342	Pricing And Branding	DSE	4+1+0	30	70	100	4	III
MBA343	Retail Credit Management-Lending & Recovery	DSE	4+1+1	30	70	100	4	III
MBA441	International Retailing	DSE	4+1+1	30	70	100	4	IV
MBA442	Merchandising And Mall Management	DSE	4+1+2	30	70	100	4	IV
MBA443	Acquiring, Maintaining And Retaining Customer	DSE	4+1+3	30	70	100	4	IV
MBA444	Retail Analytics	DSE	4+1+4	30	70	100	4	IV

DISCIPLINE SPECIFIC ELECTIVE - HEALTHCARE MANAGEMENT (HM)

Course Code	Course Title	Category	L+T+P	CA	EE	Total	Credit	Semester
MBA351	Hospital Planning	DSE	4+1+0	30	70	100	4	III
MBA352	Medical Terminology And Procedures	DSE	4+1+0	30	70	100	4	III
MBA353	Information Technology In Pharma And Healthcare	DSE	4+1+1	30	70	100	4	III
MBA451	Hospital Administration	DSE	4+1+1	30	70	100	4	IV
MBA452	Laws Related To Hospital And Medical Services	DSE	4+1+2	30	70	100	4	IV
MBA453	Healthcare And Administration Of Clinical And Non-Clinical Services	DSE	4+1+3	30	70	100	4	IV
MBA454	Entrepreneurship In Pharma And Healthcare	DSE	4+1+4	30	70	100	4	IV

DISCIPLINE SPECIFIC ELECTIVE - RURAL AND AGRICULTURE MANAGEMENT (RAM)

Course Code	Course Title	Category	L+T+P	CA	EE	Total	Credit	Semester
MBA376	Rural Economy	DSE	4+1+0	30	70	100	4	III
MBA377	Basics Of Rural And Agricultural Marketing	DSE	4+1+0	30	70	100	4	III
MBA378	ICT For Agriculture Management	DSE	4+1+1	30	70	100	4	III
MBA476	Distribution Strategies For Rural And Agricultural Marketing	DSE	4+1+1	30	70	100	4	IV
MBA477	Evolution Of Agricultural Marketing In India	DSE	4+1+2	30	70	100	4	IV
MBA478	Rural And Agricultural Financing	DSE	4+1+3	30	70	100	4	IV
MBA479	Agri – Entrepreneurship	DSE	4+1+4	30	70	100	4	IV

DISCIPLINE SPECIFIC ELECTIVE - HOSPITALITY & TOURISM MANAGEMENT (HTM)

CourseCode	Course Title	Category	L+T+P	CA	EE	Total	Credit	Semester
MBA331	Introduction To Tourism Industry	DSE	4+1+0	30	70	100	4	III
MBA332	Hospitality And Tourism Planning	DSE	4+1+0	30	70	100	4	III
MBA333	Revenue Management	DSE	4+1+1	30	70	100	4	III
MBA431	Travel Agency And Tour Operators	DSE	4+1+1	30	70	100	4	IV
MBA432	Hospitality Information System	DSE	4+1+2	30	70	100	4	IV
MBA433	Tourist Products Design And Destination Development	DSE	4+1+3	30	70	100	4	IV
MBA434	Strategic Hospitality Management	DSE	4+1+4	30	70	100	4	IV

LIST OF DISCIPLINE SPECIFIC CORE COURSE

Sl No	COURSE CATEGORY	COURSE NAME
1	DSC	Management- Micro and Macro
2	DSC	Micro Economics & Economic Planning
3	DSC	Management Science
4	DSC	Identification, addition and delivery of Value
5	DSC	Legal Issues in Business
6	DSC	Strategic Management
7	DSC	Economics of Human Resource
8	DSC	Market Science
9	DSC	Financial Issues
10	DSC	Recording and Analysis of Business Operations

LIST OF SKILL ENHANCEMENT ELECTIVE COURSE

Sl No	COURSE CATEGORY	COURSE NAME
1	SEE	Managerial Communication Skills
2	SEE	Digital Marketing
3	SEE	Analytical Ability and Professional Communication
4	SEE	MS-Office Lab
5	SEE	Managerial Communication Lab
6	SEE	R Lab
7	SEE	Written Analysis And Communication Lab

LIST OF ABILITY ENHANCEMENT COMPULSORY COURSE

Sl No	COURSE CATEGORY	COURSE NAME
1	AECC	Computing Techniques
2	AECC	Quantitative Skills
3	AECC	Hands on Experience Viva
4	AECC	Comprehensive Viva Voce
5	AECC	Entrepreneurial Development & Innovation
6	AECC	Human Values & Ethics

LIST OF GENERIC ELECTIVE COURSE

Sl No	COURSE CATEGORY	COURSE NAME
1	GEC	Event Management
2	GEC	Market Intelligence
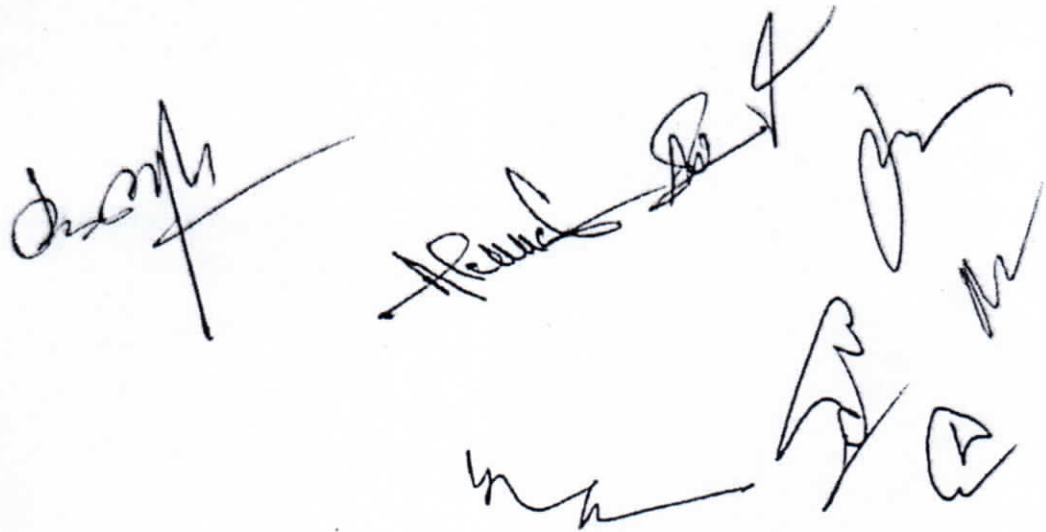
LIST OF CROSS CUTTING COMPULSORY COURSE

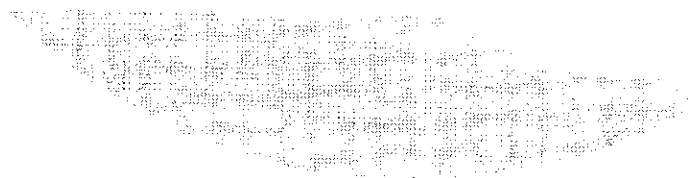| Sl No	COURSE CATEGORY	COURSE NAME
1	CCC	Entrepreneurship Development
2	CCC	Human Values & Ethics

INVERTIS
UNIVERSITY BAREILLY
BUILDING VIBRANT PERSONALITIES
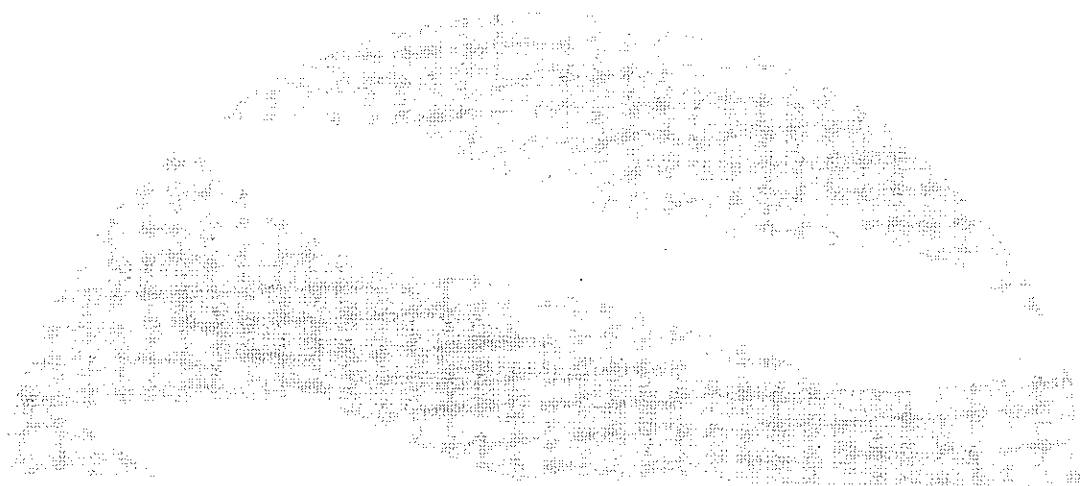
COURSE STRUCTURE

DEPARTMENT OF PHARMACY

NAAC CRITERIA 1.2.2

Pharmacy Council of India
New Delhi

Draft Rules & Syllabus for the Bachelor of Pharmacy (B. Pharm) Course

[Framed under Regulation 6, 7 & 8 of the Bachelor of Pharmacy (B. Pharm) course regulations 2014]

CHAPTER- I: REGULATIONS

1. Short Title and Commencement

These regulations shall be called as "The Revised Regulations for the B. Pharm. Degree Program (CBCS)of the Pharmacy Council of India, New Delhi". They shall come into effect from the Academic Year 2016-17. The regulations framed are subject to modifications from time to time by Pharmacy Council of India.

2. Minimum qualification for admission

2.1 First year B. Pharm:

Candidate shall have passed 10+2 examination conducted by the respective state/central government authorities recognized as equivalent to 10+2 examination by the Association of Indian Universities (AIU) with English as one of the subjects and Physics, Chemistry, Mathematics (P.C.M) and or Biology (P.C.B / P.C.M.B.) as optional subjects individually. Any other qualification approved by the Pharmacy Council of India as equivalent to any of the above examinations.

2.2. B. Pharm lateral entry (to third semester):

A pass in D. Pharm. course from an institution approved by the Pharmacy Council of India under section 12 of the Pharmacy Act.

3. Duration of the program

The course of study for B.Pharm shall extend over a period of eight semesters (four academic years) and six semesters (three academic years) for lateral entry students. The curricula and syllabi for the program shall be prescribed from time to time by Pharmacy Council of India, New Delhi.

4. Medium of instruction and examinations

Medium of instruction and examination shall be in English.

5. Working days in each semester

Each semestershall consist of not less than 100 working days. The odd semesters shall be conducted from the month of June/July to November/December and the even semesters shall be conducted from December/January to May/June in every calendar year.

6. Attendance and progress

A candidate is required to put in at least 80% attendance in individual courses considering theory and practical separately. The candidate shall complete the prescribed course satisfactorily to be eligible to appear for the respective examinations.

7. Program/Course credit structure

As per the philosophy of Credit Based Semester System, certain quantum of academic work viz. theory classes, tutorial hours, practical classes, etc. are measured in terms of credits. On satisfactory completion of the courses, a candidate earns credits. The amount of credit associated with a course is dependent upon the number of hours of instruction per week in that course. Similarly, the credit associated with any of the other academic, co/extra-curricular activities is dependent upon the quantum of work expected to be put in for each of these activities per week.

7.1. Credit assignment
7.1.1. Theory and Laboratory courses

Courses are broadly classified as Theory and Practical. Theory courses consist of lecture (L) and /or tutorial (T) hours, and Practical (P) courses consist of hours spent in the laboratory. Credits (C) for a course is dependent on the number of hours of instruction per week in that course, and is obtained by using a multiplier of one (1) for lecture and tutorial hours, and a multiplier of half (1/2) for practical (laboratory) hours. Thus, for example, a theory course having three lectures and one tutorial per week throughout the semester carries a credit of 4. Similarly, a practical having four laboratory hours per week throughout semester carries a credit of 2.

7.2. Minimum credit requirements

The minimum credit points required for award of a B. Pharm. degree is 208. These credits are divided into Theory courses, Tutorials, Practical, Practice School and Projectover the duration of eight semesters. The credits are distributed semester-wise as shown in Table IX. Courses generally progress in sequences, building competencies and their positioning indicates certain academic maturity on the part of the learners. Learners are expected to follow the semester-wise schedule of courses given in the syllabus.

The lateral entry students shall get 52 credit points transferred from their D. Pharm program. Such students shall take up additional remedial courses of 'Communication Skills' (Theory and Practical) and 'Computer Applications in Pharmacy' (Theory and Practical) equivalent to 3 and 4 credit points respectively, a total of 7 credit points to attain 59 credit points, the maximum of I and II semesters.

8. Academic work

A regular record of attendance both in Theory and Practical shall be maintained by the teaching staff of respective courses.

3

9. PROGRAM OUTCOMES

- **PO.1 Pharmacy Knowledge:** Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.

- **PO.2 Planning Abilities:** Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.

- **PO.3 Problem analysis:** Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.

- **PO.4 Modern tool usage:** Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.

- **PO.5 Leadership skills:** Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and well- being.

- **PO.7 Pharmaceutical Ethics:** Honor personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.

- **PO.8 Communication:** Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.

- **PO.9 Pharmacist and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.

10. Course of study

The course of study for B. Pharm shall include Semester Wise Theory & Practical as given in Table – I to VIII. The number of hours to be devoted to each theory, tutorial and practical course in any semester shall not be less than that shown in Table – I to VIII.

Table-I: Course of study for semester I

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP101T	Human Anatomy and Physiology I– Theory	3	1	4
BP102T	Pharmaceutical Analysis I – Theory	3	1	4
BP103T	Pharmaceutics I – Theory	3	1	4
BP104T	Pharmaceutical Inorganic Chemistry – Theory	3	1	4
BP105T	Communication skills – Theory *	2	-	2
BP106RBT BP106RMT	Remedial Biology/ Remedial Mathematics – Theory*	2	-	2
BP107P	Human Anatomy and Physiology – Practical	4	-	2
BP108P	Pharmaceutical Analysis I – Practical	4	-	2
BP109P	Pharmaceutics I – Practical	4	-	2
BP110P	Pharmaceutical Inorganic Chemistry – Practical	4	-	2
BP111P	Communication skills – Practical*	2	-	1
BP112RBP	Remedial Biology – Practical*	2	-	1
Total		32/34^S/36$^\#$	4	27/29^S/30$^\#$

$^\#$Applicable ONLY for the students who have studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB)course.

^{S}Applicable ONLY for the students who have studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM)course.

* Non University Examination (NUE)

Table-II: Course of study for semester II

Course Code	Name of the course	No. of hours	Tutorial	Credit points
BP201T	Human Anatomy and Physiology II – Theory	3	1	4
BP202T	Pharmaceutical Organic Chemistry I – Theory	3	1	4
BP203T	Biochemistry – Theory	3	1	4
BP204T	Pathophysiology – Theory	3	1	4
BP205T	Computer Applications in Pharmacy – Theory *	3	-	3
BP206T	Environmental sciences – Theory *	3	-	3
BP207P	Human Anatomy and Physiology II –Practical	4	-	2
BP208P	Pharmaceutical Organic Chemistry I– Practical	4	-	2
BP209P	Biochemistry – Practical	4	-	2
BP210P	Computer Applications in Pharmacy – Practical*	2	-	1
	Total	**32**	**4**	**29**

*Non University Examination (NUE)

Table-III: Course of study for semester III

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP301T	Pharmaceutical Organic Chemistry II – Theory	3	1	4
BP302T	Physical Pharmaceutics I – Theory	3	1	4
BP303T	Pharmaceutical Microbiology – Theory	3	1	4
BP304T	Pharmaceutical Engineering – Theory	3	1	4
BP305P	Pharmaceutical Organic Chemistry II – Practical	4	-	2
BP306P	Physical Pharmaceutics I – Practical	4	-	2
BP307P	Pharmaceutical Microbiology – Practical	4	-	2
BP 308P	Pharmaceutical Engineering –Practical	4	-	2
	Total	**28**	**4**	**24**

Table-IV: Course of study for semester IV

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP401T	Pharmaceutical Organic Chemistry III– Theory	3	1	4
BP402T	Medicinal Chemistry I – Theory	3	1	4
BP403T	Physical Pharmaceutics II – Theory	3	1	4
BP404T	Pharmacology I – Theory	3	1	4
BP405T	Pharmacognosy and Phytochemistry I– Theory	3	1	4
BP406P	Medicinal Chemistry I – Practical	4	-	2
BP407P	Physical Pharmaceutics II – Practical	4		2
BP408P	Pharmacology I – Practical	4	-	2
BP409P	Pharmacognosy and Phytochemistry I – Practical	4	-	2
	Total	31	5	28

Table-V: Course of study for semester V

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP501T	Medicinal Chemistry II – Theory	3	1	4
BP502T	Industrial PharmacyI– Theory	3	1	4
BP503T	Pharmacology II – Theory	3	1	4
BP504T	Pharmacognosy and Phytochemistry II– Theory	3	1	4
BP505T	Pharmaceutical Jurisprudence – Theory	3	1	4
BP506P	Industrial PharmacyI – Practical	4	-	2
BP507P	Pharmacology II – Practical	4	-	2
BP508P	Pharmacognosy and Phytochemistry II – Practical	4	-	2
	Total	27	5	26

Table-VI: Course of study for semester VI

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP601T	Medicinal Chemistry III – Theory	3	1	4
BP602T	Pharmacology III – Theory	3	1	4
BP603T	Herbal Drug Technology – Theory	3	1	4
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	3	1	4
BP605T	Pharmaceutical Biotechnology – Theory	3	1	4
BP606T	Quality Assurance –Theory	3	1	4
BP607P	Medicinal chemistry III – Practical	4	-	2
BP608P	Pharmacology III – Practical	4	-	2
BP609P	Herbal Drug Technology – Practical	4	-	2
	Total	**30**	**6**	**30**

Table-VII: Course of study for semester VII

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP701T	Instrumental Methods of Analysis – Theory	3	1	4
BP702T	Industrial PharmacyII – Theory	3	1	4
BP703T	Pharmacy Practice – Theory	3	1	4
BP704T	Novel Drug Delivery System – Theory	3	1	4
BP705P	Instrumental Methods of Analysis – Practical	4	-	2
BP706PS	Practice School*	12	-	6
	Total	**28**	**5**	**24**

* Non University Examination (NUE)

Table-VIII: Course of study for semester VIII

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP801T	Biostatistics and Research Methodology	3	1	4
BP802T	Social and Preventive Pharmacy	3	1	4
BP803ET	Pharma Marketing Management			
BP804ET	Pharmaceutical Regulatory Science			
BP805ET	Pharmacovigilance			
BP806ET	Quality Control and Standardization of Herbals	3 + 3 = 6	1 + 1 = 2	4 + 4 = 8
BP807ET	Computer Aided Drug Design			
BP808ET	Cell and Molecular Biology			
BP809ET	Cosmetic Science			
BP810ET	Experimental Pharmacology			
BP811ET	Advanced Instrumentation Techniques			
BP812ET	Dietary Supplements and Nutraceuticals			
BP813PW	Project Work	12	-	6
	Total	24	4	22

Table-IX: Semester wise credits distribution

Semester	Credit Points
I	$27/29^{\$}/30^{\#}$
II	29
III	26
IV	28
V	26
VI	26
VII	24
VIII	22
Extracurricular/ Co curricular activities	01*
Total credit points for the program	$209/211^{\$}/212^{\#}$

* The credit points assigned for extracurricular and or co-curricular activities shall be given by the Principals of the colleges and the same shall be submitted to the University. The criteria to acquire this credit point shall be defined by the colleges from time to time.

$^{\$}$Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics course.

$^{\#}$Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology course.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

8

INVERTIS INSTITUTE OF PHARMACY, INVERTIS UNIVERSITY

BAREILLY

Course Structure and Syllabi for Pre-PhD

Part I

Compulsory for all   **Credit: 04**

S.No	Paper	Paper Code
1.	Research Methodology	PhDRM 101

Part II

Choose any one subject of the following   **Credit: 04**

S.No	Paper	Paper Code
1.	Advanced Pharmaceutics	PhDPH 102
2.	Modern Pharmaceutical Sciences	PhDPH 103
3.	Advanced Pharmacology and Toxicology	PhDPH 104
4.	Biological Screening Method	PhDPH 105
5.	Advanced Medicinal Chemistry	PhDPH 106
6.	Modern Pharmaceutical Chemistry	PhDPH 107
7.	Modern Pharmacogonosy	PhDPH 108
8.	Phytochemistry and Phytopharmaceuticals	PhDPH 109

Note: (i) Part II paper will be chosen by the research scholar on the advice of the Supervisor/Co-Supervisor(s).

(ii) Evaluation of the course will be based on university ordinance.

REGISTRAR
INVERTIS UNIVERSITY
BAREILLY

INVERTIS INSTITUTE OF PHARMACY, INVERTIS UNIVERSITY,
BAREILLY