

1.3.2: Number of courses that include experiential learning through project work/field work/internship during the year

Year	2024-25
Number of Courses	30

I.K.G. Punjab Technical University
MBA Batch 2021 onwards

Courses & Examination Scheme

Second Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
MBA 201-18	Core Theory	Business Analytics for Decision Making	4	0	0	40	60	100	4
MBA 202-18	Core Theory	Legal Environment for Business	4	0	0	40	60	100	4
MBA 203-21	Core Theory	Marketing Management	4	0	0	40	60	100	4
MBA 204-18	Core Theory	Human Resource Management	4	0	0	40	60	100	4
MBA 205-18	Core Theory	Production and Operations Management	4	0	0	40	60	100	4
MBA 206-21	Core Theory	Corporate Finance and Policy	4	0	0	40	60	100	4
MBA 207-18	Core Theory	Entrepreneurship and Project Management	4	0	0	40	60	100	4
MBAGE 201-18	General Elective	Computer Applications for Business	2	0	0	40	60	100	2
TOTAL			30	0	0	320	480	825	30

Note: After second semester every student will be required to undergo summer training of six weeks duration in the corporate sector.

Third Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
MBA301-18	Core Theory	Organizational Behavior & Design	4	0	0	40	60	100	4
MBA302-18	Core Theory	Marketing Research	4	0	0	40	60	100	4
	Elective	Major-I	4	0	0	40	60	100	4
	Elective	Major-II	4	0	0	40	60	100	4
	Elective	Minor-I	4	0	0	40	60	100	4
	Elective	Minor-II	4	0	0	40	60	100	4
HVPE101-18	Ability Enhancement Compulsory Course(AECC)	-addiction and Traffic Rules	3	0	0	40	60	100	3
HVPE102-18	Ability Enhancement Compulsory Course(AECC)	-addiction and Traffic Rules (Lab/ Seminar)	0	0	2	25	--	25	1
MBA303-18	Core Theory	Seminar on Summer Training Report	2			50	-	50	2
TOTAL			27	0	2	355	420	775	30

I.K.G.Punjab Technical University
MBA Batch 2021 onwards

Fourth Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
MBA 401-18	Core Theory	Corporate Strategy	4	0	0	40	60	100	4
	Specialization X	Elective-III	4	0	0	40	60	100	4
		Elective-IV	4	0	0	40	60	100	4
	Specialization Y	Elective-III	4	0	0	40	60	100	4
		Elective-IV	4	0	0	40	60	100	4
MBA 402-18	Project/ Dissertation	Viva-Voce for Project / Dissertation	4			--	100	100	4
MBA 403-18	Core Theory	Workshop on Indian Ethos	2	0	0	40	60	100	2
	TOTAL		22	0	4	240	360	600	26

Programme: Master of Business Administration

List of courses that include experiential learning through project work/field work/internship during the year:

S. No.	Course Title	Course Code	Semester
1	Seminar on Summer Training Report	MBA 303-18	Third
2	Viva-Voce for Project/Dissertation	MBA 402-18	Fourth

**I.K.G. Punjab Technical University
MBA Batch 2021 onwards**

MBA 303-18

SEMINAR ON SUMMER TRAINING REPORT

Guidelines for Summer Training Report:

Kindly refer to Annexure A for the suggested guidelines and evaluation criteria of Summer Training Report

**I.K.G. Punjab Technical University
MBA Batch 2021 onwards**

Annexure A

Guidelines for Summer training Report

Summer Training Project Report

on

“PROJECT TITLE”

Submitted to



I.K. GUJRAL PUNJAB TECHNICAL UNIVERSITY

KAPURTHALA

In partial fulfillment of the requirement for the

award of degree of

Master of Business Administration (MBA)

Submitted by

Name of the Student

University Roll no.

Supervisor

Name (Company Guide)

Designation

Logo of the Institute **DEPARTMENT OF**

MANAGEMENT NAME OF THE

INSTITUTE

NAME OF THE CITY

(Batch)

I.K.G. Punjab Technical University
MBA Batch 2021 onwards
MBA 402-18
Viva-Voce for Project/Dissertation

Guidelines for Project / Dissertation:

Kindly refer to Annexure B for the suggested guidelines and evaluation criteria of Project Report

Annexure B

Guidelines for Project / Dissertation:

OBJECTIVE

The objective of the project course is to help the student develop ability to apply multi-disciplinary concepts, tools and techniques to analyze and logically approach the organizational problems.

TYPE OF PROJECT

The project may be from any one of the following types, however, it should preferably be from your area of specialization in MBA:

- i) Comprehensive case study (covering single organization/multifunctional area problem formulation, analysis and recommendations).
- ii) Inter-organizational study aimed at inter-organizational comparison/validation of theory/survey of management practices.
- iii) Field study (empirical study).

PROJECT PROPOSAL

Proposal should be prepared in consultation with the supervisor and submitted before the routine first MST in department.

The Proposal may have the following components:

- a) Introduction, brief background, and Rationale of the topic chosen for the project.
- b) Brief Introduction and vital details of the organization/s understudy.
- c) Statement of the problem.
- d) Objectives of the Project (clearly stated in behavioral terms).
- e) Research Methodology:
 - Research Design
 - Nature and source of data/information to be collected.
 - Sample and sampling technique. Rationale of chosen organization and the sample.
 - Tools and Techniques to be used for data collection – details of the tools/questionnaire to be used and its relevance with the objectives of the project.
 - Method/s to be used for data collection
 - Data handling and analysis
 - Statistical tools to be used for analysis
 - Relevance of statistical tools with the objectives of the project.
- f) Limitation of the proposed project, if any.
- g) Any other relevant detail which will help better appreciation and understanding of the project proposal.

PROJECT PROPOSAL EVALUATION:

The project proposal will be evaluated by the panel of three teachers immediately after first MST in presence of student, who will give the presentation to the panel.

In case of non-approval of the proposal the comments/suggestions for reformulating the project proposal will be communicated to the student. In such case, the revised project proposal should be submitted within 7 days, which shall be evaluated on similar guidelines.

PROJECT PRE-SUBMISSION:

After approval of the project proposal, the students shall complete their projects and submit the completed Project Report (Spiral bound) for final internal evaluation before 2nd MST.

The guidelines for project report are as follows:

- ✓ The length of the report may be about 50 to 60 double spaced typed pages not exceeding approximately 18,000 words (excluding appendices and exhibits). However, rational variation on either side is permissible.
- ✓ The Project Report may have the following:
 - Cover Page – must have the Title of the Project, Name & logo of college / university, Name and University Roll No of the Student and the Name of the Guide, along with the designation and department.
 - Detailed table of contents with page nos.
 - All pages of the Project Report must be numbered as reflected in the table of contents.
 - Project Proposal, properly bound in the project and not just stapled. Please note that project with stapled Proposal will not be accepted.
 - Certificate of originality- duly signed by the student and the guide with dates.
 - Introduction to the Project and Review of Literature along with brief details of the organization/s under study.
 - Rationale
 - Statement of problem
 - Objectives of the Project
 - Scope of the study
 - Research Methodology
 - Research Design
 - Nature and Source of data/information collected
 - Sample and Sampling method with rationale
 - Details of the tools:
 - The Questionnaire and other methods used and their purpose
 - Reliability and Validity of the tools used
 - Administration of tools and techniques
 - Data collection
 - Data Handling, Statistical tools used for Data Analysis

- Data Interpretation and Findings
 - Recommendations
 - Summary and Conclusion
 - Limitations of the Project
 - Direction for further research (optional)
 - Reference/Bibliography
 - Annexures/Appendices (Questionnaire used etc.)
- ✓ Note: Research Methodology of the Project Report must have elaborate detail of all the components of the methodology.

The spiral bound project report will be evaluated by the panel of three teachers before second MST in presence of student, who will give the presentation to the panel before second MST.

In case of non-approval of the final project report, the comments/suggestions for revising the project report will be communicated to the student. In such case, the revised project report should be submitted within 7 days, which shall be evaluated on similar guidelines.

SUBMISSION OF FINAL PROJECT REPORT:

After incorporating changes, if any, pointed out during internal evaluation, the final Project Report in Hard Bound form (3 copies) shall be submitted by the student atleast 3 working days before final viva voce. After signing of certificate by student and supervisor, one copy will be retained by the supervisor, second copy by the student and third copy shall be produced at the time of viva-voce, which shall be maintained by the department as record.

Note:

1. **Wherever it is felt that there is not sufficient time to complete the project after approval of project proposal, the phases of Project till "Project Proposal Evaluation" may be completed in third semester at department level.**
2. **For further details on references, bibliography and formatting of the report, you may refer the Guidelines for Summer Training Report.**

Programme: Master of Computer Applications

List of courses that include experiential learning through project work/field work/internship during the year:

S. No.	Course Title	Course Code	Semester
1	Summer/Institutional Training	PGCA1969	Third
2	Research/Technical Seminar	PGCA1961	Fourth
3	Project	PGCA1962	Fourth

FirstSemester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
PGCA-B1	Bridge Course*	Computer Programming using C	2	0	0	50	-	50	S/US
PGCA-B2	Bridge Course*	Computer Science Essentials	2	0	0	50	-	50	S/US
PGCA1917	Core Theory	Discrete Structures& Optimization	4	0	0	30	70	100	4
PGCA1951	Core Theory	ProgramminginPython	4	0	0	30	70	100	4
PGCA1952	Core Theory	Advanced Data Structures	4	0	0	30	70	100	4
PGCA1953	Core Theory	Advanced Database Management System	4	0	0	30	70	100	4
PGCA1905	Ability Enhancement Compulsory Course (AECC)	Technical Communication	3	0	0	30	70	100	3
PGCA1954	Core Practical/Laboratory	DataStructuresusing Python Laboratory	0	0	4	70	30	100	2
PGCA1955	Core Practical/Laboratory	Advanced Database Management System Laboratory	0	0	4	70	30	100	2
PGCA1908	Ability Enhancement Compulsory Course (AECC)	Technical Communication Laboratory	0	0	2	30	20	50	1
	TOTAL		19	0	10	320	430	750	24

***Bridgecoursesarenotapplicabletoallthestudents,pleasereferMCAeligibilitygiven above in order to offer bridge courses to students.**

Second Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
PGCA1909	Core Theory	Web Technologies	4	0	0	30	70	100	4
PGCA1920	Core Theory	Design&Analysisof Algorithms	4	0	0	30	70	100	4
PGCA1918	Core Theory	Advanced Java	4	0	0	30	70	100	4
PGCA1956	Core Theory	Linux Administration	4	0	0	30	70	100	4
PGCA1932	Core Theory	Information Security & Cyber Law	4	0	0	30	70	100	4
PGCA1914	Core Practical/Laboratory	Web Technologies Laboratory	0	0	4	70	30	100	2
PGCA1922	Core Practical/Laboratory	Advanced Java Laboratory	0	0	4	70	30	100	2
PGCA1957	Core Practical/Laboratory	Linux Administration Laboratory	0	0	4	70	30	100	2
	TOTAL		20	0	12	360	440	800	26

Students will under go 4weeks Summer Training after 2nd semester.Examination will be conducted along with 3rd semester practical.

Third Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
PGCA1925	Core Theory	Advanced Computer Networking	4	0	0	30	70	100	4
PGCA1926	Core Theory	Artificial Intelligence & Soft Computing	4	0	0	30	70	100	4
PGCA1927	Core Theory	Theory of Computation	4	0	0	30	70	100	4
	Elective-I		4	0	0	30	70	100	4
	Elective-II		4	0	0	30	70	100	4
PGCA1928	Core Practical/ Laboratory	Advanced Computer Networking Laboratory	0	0	4	70	30	100	2
PGCA1929	Core Practical/ Laboratory	Artificial Intelligence & Soft Computing Laboratory	0	0	4	70	30	100	2
	Elective-II Laboratory		0	0	4	70	30	100	2
PGCA1969		**Summer/Institutional Training	0	0	4	70	30	100	2
	TOTAL		20	0	16	430	470	900	28

Elective-I	
Course Code	Course Title
PGCA1930	Software Project Management
PGCA1971	Optimization Techniques
PGCA1972	Data Mining and Business Intelligence
PGCA1973	Enterprise Resource Planning

Elective-II	
Course Code	Course Title
PGCA1933	Mobile Applications Development
PGCA1935	Simulation & Modelling
PGCA1921	e-Commerce and Digital Marketing
PGCA1931	Software Testing & Quality Assurance

Elective-III Laboratory	
Course Code	Course Title
PGCA1934	Mobile Applications Development Laboratory
PGCA1936	Simulation & Modelling Laboratory
PGCA1974	e-Commerce and Digital Marketing Laboratory
PGCA1975	Software Testing & Quality Assurance Laboratory

I.K. Gujral Punjab Technical University
Master of Computer Applications (MCA)

Fourth Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
PGCA1976	Core Theory	Machine Learning & Data Analytics using Python	4	0	0	30	70	100	4
PGCA1958	Core Theory	Advanced Web Technologies	4	0	0	30	70	100	4
PGCA1977	Core Practical/Laboratory	Machine Learning & Data Analytics using Python Laboratory	0	0	4	70	30	100	2
PGCA1960	Core Practical/Laboratory	Advanced Web Technologies Laboratory	0	0	4	70	30	100	2
	Elective–III		4	0	0	30	70	100	4
	Elective–III Laboratory		0	0	4	70	30	100	2
PGCA1961		Research/Technical Seminar	0	0	2	0	100	100	1
PGCA1962		Project	0	0	8	180	120	300	4
	TOTAL		12	0	22	480	520	1000	23

Elective–III	
Course Code	Course Title
PGCA1937	Cloud Computing
PGCA1963	Digital Image Processing
PGCA1965	NLP and Speech Recognition
PGCA1967	IOT & Blockchain Technology

Elective–III Laboratory	
Course Code	Course Title
PGCA1938	Cloud Computing Laboratory
PGCA1964	Digital Image Processing Laboratory
PGCA1966	NLP and Speech Recognition Laboratory
PGCA1968	IOT & Blockchain Technology Laboratory

I.K.Gujral Punjab Technical University
Master of Computer Applications(MCA)

CourseCode: PGCA1961

CourseName:Research/Technical seminar

Program: MCA	L: 0 T: 0 P:2
Branch: Computer Applications	Credits: 1
Semester: 4 th	Contacthours: 2hoursperweek
Internalmax.marks: 0	Theory/Practical: Practical
Externalmax.marks: 100	Duration of EndSemesterExam(ESE): 3hrs
Totalmarks: 100	Elective status:

Prerequisite:-NA-

Co requisite:-NA-

AdditionalmaterialrequiredinESE:-NA- Project:

Students may be encouraged to take up internship projects in industry or research/academic institutions.

Students may be offered software/hardware development or research oriented projects if taken in house.

Faculty members may offer project proposals from their side and students may choose from them.

I.K.Gujral Punjab Technical University
Master of Computer Applications(MCA)

Students may also submit project proposals not covered in the faculty provided list, which may be guided by the interested faculty members.

Co-guidance with external institutes/ industry may also be allowed.

Same project ideas may be submitted by more than one student group, but may be unique at the implementation level, as per the judgment of the department.

Students may be encouraged to take up more innovative projects involving contemporary technologies, leading to research paper and/or patent publications.

Minor Projects from the previous semester may also be carried forward with significant up gradations.

Technical seminar:

Industry seminars are suggested to enable the students of MCA to appreciate the software developments which are going on in industries in India. These seminars will help the students to face interviews with some confidence. The students should attend these and submit a report. The following points are listed to enable the college to organize these seminars.

1. Three to four organizations (Industry, Public sector organizations, Govt. organizations) are requested to present a detailed case study of one or many applications in their organization.
2. Presentation covers in detail all aspects of a project from conception to implementation and maintenance. Design is discussed to cover all factors that influenced the design. Planned and achieved benefits of the application are also stressed.
3. In order that the students take the presentations seriously, groups of students are assigned to prepare a detailed synopsis of each presentation, copies of which are distributed to others.
4. One session could be a survey of new applications in the Indian environment during the past year, as ascertained from a survey of news paper articles. This is to be done by a group of students.
5. College can invite potential employers to participate in the inauguration- and valediction of the seminar so that the efforts of the college get noticed by employers.
6. It is neither necessary nor possible to have an examination on the seminar. Idea is that the motivated students get an opportunity to seek answers to questions on worthwhile computerization on our economy.

Course Code: PGCA1962

Course Name: Project

Program: MCA	L: 0 T: 0 P: 8
Branch: Computer Applications	Credits: 4
Semester: 4 th	Contact hours: 8 hours per week
Internal max. marks: 180	Theory/Practical: Practical
External max. marks: 120	Duration of End Semester Exam (ESE): 3hrs
Total marks: 300	Elective status:

Prerequisite: - NA-

Co requisite: -NA-

Additional material required in ESE: -NA-

Annexure A

OBJECTIVE

The objective of the project course is to help the student develop ability to apply multi-disciplinary concepts, tools and techniques to analyze and logically approach the organizational problems.

PROJECT PROPOSAL EVALUATION:

The project proposal/Synopsis will be submitted within 2 weeks from start of semester and evaluated by the panel of three teachers in the presence of student, who will give the presentation to the panel.

In case of non-approval of the Synopsis the comments/suggestions for reformulating the Synopsis will be communicated to the student. In such case, the revised Synopsis should be submitted within 7 days, which shall be evaluated on similar guidelines.

Then after period of 1 Month Progress report 1 has been evaluated by Guide on the basis of following:

1. Problem Definition
2. Need & Scope of the Study
3. Methodology & Objectives
4. Data Analysis & Findings

Then after period of 2 Month Progress report 2 has been evaluated by Guide on the basis of following:

1. Testing & Implementations
2. Suggestions and Conclusions
3. Overall Report Writing & Layout

PROJECT PRE-SUBMISSION:

After approval of the Synopsis, student shall complete their projects and submit the completed Project Report (Spiral bound) for final internal evaluation before 2nd MST.

The guidelines for project report are as follows:

- ▮ The length of the report may be about 60 to 80 double spaced typed pages not exceeding approximately 18,000 words (excluding appendices and exhibits). However, rational variation on either side is permissible.
- ▮ The Project Report may have the following:
 - Cover Page – must have the Title of the Project, Name & logo of college / university, Name and University Roll No of the Student and the Name of the Guide, along with the designation and department.
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 - Certificate of originality- duly signed by the student and the guide with dates.
 - Introduction to the Project and Review of Literature along with brief details of the organization/s understudy.
 - Rationale
 - Statement of problem
 - Objectives of the Project
 - Scope of the study
 - Research Methodology
 - Research Design
 - Nature and Source of data/information collected
 - Sample and Sampling method with rationale
 - Details of the tools:
 - The Questionnaire and other methods used and their purpose
 - Reliability and Validity of the tools used
 - Administration of tools and techniques
 - Data collection
 - Data Handling, Statistical tools used for Data Analysis
 - Data Interpretation and Findings
 - Recommendations
 - Summary and Conclusion
 - Limitations of the Project
 - Direction for further research (optional)
 - Reference/Bibliography
 - Annexures/Appendices (Questionnaire used etc.)
- ▮ Note: Research Methodology of the Project Report must have elaborate detail of all the components of the methodology.

The spiral bound project report will be evaluated by the panel of three teachers before second MST in presence of student, who will give the presentation to the panel before second MST.

In case of non-approval of the final project report, the comments/suggestions for revising the project report will be communicated to the student. In such case, the revised project report should be submitted within 7 days, which shall be evaluated on similar guidelines.

SUBMISSION OF FINAL PROJECT REPORT:

After incorporating changes, if any, pointed out during internal evaluation, the final Project Report in Hard Bound form (3 copies) shall be submitted by the student at least 3 working days before final viva voce. After signing of certificate by student and supervisor, one copy will be retained by the supervisor, second copy by the student and third copy shall be produced at the time of viva-voce, which shall be maintained by the department as record.

Note:

- 1. Wherever it is felt that there is not sufficient time to complete the project after approval of Synopsis, the phases of Project till "Project Proposal Evaluation" may be completed in third semester at department level.**
- 2. Minor Projects from the previous semester may also be carrying forwarded with significant up gradations with the consent of HOD.**
- 3. For further details on references, bibliography and formatting of the report, you may refer the Guidelines for Project Report.**

Programme: Bachelor of Business Administration

List of courses that include experiential learning through project work/field work/internship during the year:

S. No.	Course Title	Course Code	Semester
1	Mentoring and Professional Development	BMPD102-18	First
2	Mentoring and Professional Development	BMPD202-18	Second
3	Mentoring and Professional Development	BMPD302-18	Third
4	Mentoring and Professional Development	BMPD402-18	Fourth
5	Mentoring and Professional Development	BMPD502-18	Fifth
6	Mentoring and Professional Development	BMPD602-18	Sixth

I.K.Gujral Punjab Technical University
Bachelor of Business Administration(BBA)

Courses & Examination Scheme:

First Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BBA101-18	CoreTheory1	PrinciplesandPracticesof Management	5	1	0	40	60	100	6
BBA102-18	CoreTheory2	Basic Accounting	5	1	0	40	60	100	6
BBAGE101-18	General Elective 1	ManagerialEconomicsI	5	1	0	40	60	100	6
BTHU103/18	Ability Enhancement Compulsory Course (AECC)	English	1	0	0	40	60	100	1
BTHU104/18	Ability Enhancement Compulsory Course (AECC)	English Practical/Laboratory	0	0	2	30	20	50	1
HVPE101-18	Ability Enhancement Compulsory Course (AECC)	Human Values, De-addictionandTrafficRules	3	0	0	40	60	100	3
HVPE102-18	Ability Enhancement Compulsory Course (AECC)	Human Values, De-addictionandTrafficRules (Lab/ Seminar)	0	0	2	25	--**	25	1
BMPD102-18		MentoringandProfessional Development	0	0	2	25	--**	25	1
	TOTAL		19	3	6	280	320	600	25

**The Human Values, De-addiction and Traffic Rules (Lab/ Seminar) and Mentoring and Professional Development course will have internal evaluation only.

Note: One each seminar will be organized on Drug De-addiction and Traffic Rules. Eminent scholar and experts of the subject will be called for the seminar at least once during the semester. It will be binding for all students to attend the seminar.

I.K.Gujral Punjab Technical University
Bachelor of Business Administration(BBA)

Second Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BBA201-18	CoreTheory3	Business Statistics	5	1	0	40	60	100	6
BBA202-18	CoreTheory4	Business Environment	5	1	0	40	60	100	6
BBAGE201-18	GeneralElective2	ManagerialEconomicsII	5	1	0	40	60	100	6
EVS102-18	Ability Enhancement Compulsory Course(AECC)-III	Environmental Studies	2	0	0	40	60	100	2
BMPD202-18		Mentoringand Professional Development	0	0	2	25	--**	25	1
	TOTAL		17	3	2	195	240	425	21

Third Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BBA301-18	CoreTheory5	Organizational Behavior	5	1	0	40	60	100	6
BBA302-18	CoreTheory6	Marketing Management	5	1	0	40	60	100	6
BBA303-18	CoreTheory7	Cost Management Accounting	5	1	0	40	60	100	6
BBAGE301-18	GeneralElective3	Production and Operation Management	5	1	0	40	60	100	6
BBASEC301-18	Skill Enhancement Course-1	ITtoolsforBusiness	2	0	0	40	60	100	2
BMPD302-18		Mentoring and Professional Development	0	0	2	25	--**	25	1
	TOTAL		22	4	2	225	300	525	27

I.K.Gujral Punjab Technical University
Bachelor of Business Administration(BBA)

Fourth Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BBA401-18	CoreTheory8	Business Research Methods	5	1	0	40	60	100	6
BBA402-18	CoreTheory9	Human Resource Management	5	1	0	40	60	100	6
BBA403-18	CoreTheory10	Financial Management	5	1	0	40	60	100	6
BBAGE401-18	GeneralElective4	Entrepreneurship Development	5	1	0	40	60	100	6
BBASEC401-18	Skill Enhancement Course-2	BusinessEthicsand Corporate Social Responsibility	2	0	0	40	60	100	2
BMPD402-18		Mentoring and Professional Development	0	0	2	25	--**	25	1
	TOTAL		22	4	2	425	300	525	27

Fifth Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BBA501-18	CoreTheory11	Operation Research	5	1	0	40	60	100	6
BBA502-18	CoreTheory12	Mercantile Law	5	1	0	40	60	100	6
	Discipline Specific Elective1	Elective–I	5	1	0	40	60	100	6
	Discipline Specific Elective2	Elective–II	5	1	0	40	60	100	6
BMPD502-18		Mentoring and Professional Development	0	0	2	25	--**	25	1
	TOTAL		20	4	2	225	240	425	25

Sixth Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BBA601-18	CoreTheory13	Strategy Management	5	1	0	40	60	100	6
BBA602-18	CoreTheory14	Company Law	5	1	0	40	60	100	6
	Discipline Specific Elective3	Elective–III	5	1	0	40	60	100	6
	Discipline Specific Elective4	Elective–IV	5	1	0	40	60	100	6
BMPD602-18		MentoringandProfessional Development	0	0	2	25	--**	25	1
	TOTAL		20	4	2	185	240	425	25

BMPD102-18 Mentoring and Professional Development

Guidelines regarding Mentoring and Professional Development

The objective of mentoring will be development of:

- ‖ Overall Personality
- ‖ Aptitude (Technical and General)
- ‖ General Awareness (Current Affairs and GK)
- ‖ Communication Skills
- ‖ Presentation Skills

The course shall be split in two sections i.e. outdoor activities and class activities.
For achieving the above, suggestive list of activities to be conducted are:

**Part – A (Class
Activities)**

1. Expert and video lectures
2. Aptitude Test
3. Group Discussion
4. Quiz (General/Technical)
5. Presentations by the students
6. Team building Exercises

**Part – B (Outdoor
Activities)**

1. Sports/NSS/NCC
2. Field project.
3. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc.

Note: Evaluation shall be based on rubrics for Part – A & B.
Mentors/Faculty incharges shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department.

I.K.G. Punjab Technical University
BBA Batch 2018
BMPD202-18 Mentoring and Professional Development

Guidelines regarding Mentoring and Professional Development

The objective of mentoring will be development of:

- ‖ Overall Personality
- ‖ Aptitude (Technical and General)
- ‖ General Awareness (Current Affairs and GK)
- ‖ Communication Skills
- ‖ Presentation Skills

The course shall be split in two sections i.e. outdoor activities and class activities.

For achieving the above, suggestive list of activities to be conducted are:

Part – A (Class Activities)

1. Expert and video lectures
2. Aptitude Test
3. Group Discussion
4. Quiz (General/Technical)
5. Presentations by the students
6. Team building Exercises

Part – B (Outdoor Activities)

4. Sports/NSS/NCC
5. Field Project
6. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc.

Note: Evaluation shall be based on rubrics for Part – A & B.

Mentors/Faculty incharges shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department.

BMPD302-18 Mentoring and Professional Development

Guidelines regarding Mentoring and Professional Development

The objective of mentoring will be development of:

- ‖ Overall Personality
- ‖ Aptitude (Technical and General)
- ‖ General Awareness (Current Affairs and GK)
- ‖ Communication Skills
- ‖ Presentation Skills

The course shall be split in two sections i.e. outdoor activities and class activities.
For achieving the above, suggestive list of activities to be conducted are:

**Part – A
(Class Activities)**

1. Expert and video lectures
2. Aptitude Test
3. Group Discussion
4. Quiz (General/Technical)
5. Presentations by the students
6. Team building Exercises

**Part – B
(Outdoor Activities)**

7. Sports/NSS/NCC
8. Field project.
9. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc.

Note: Evaluation shall be based on rubrics for Part – A & B.

Mentors/Faculty incharges shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department.

BMPD402-18 Mentoring and Professional Development

Guidelines regarding Mentoring and Professional Development

The objective of mentoring will be development of:

- ▮ Overall Personality
- ▮ Aptitude (Technical and General)
- ▮ General Awareness (Current Affairs and GK)
- ▮ Communication Skills
- ▮ Presentation Skills

The course shall be split in two sections i.e. outdoor activities and class activities.
For achieving the above, suggestive list of activities to be conducted are:

Part – A (Class Activities)

1. Expert and video lectures
2. Aptitude Test
3. Group Discussion
4. Quiz (General/Technical)
5. Presentations by the students
6. Team building Exercises

Part – B (Outdoor Activities)

10. Sports/NSS/NCC
11. Field project.
12. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc.

Note: Evaluation shall be based on rubrics for Part – A & B.
Mentors/Faculty incharges shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department.

BMPD502-18 Mentoring and Professional Development

Guidelines regarding Mentoring and Professional Development

The objective of mentoring will be development of:

Overall Personality

- Aptitude (Technical and General)
- General Awareness (Current Affairs and GK)
- Communication Skills
- Presentation Skills
- The course shall be split in two sections i.e. class activities and outdoor activities.

For achieving the above, suggestive list of activities to be conducted are:

Part – A (Class Activities)

1. Expert and video lectures (The experts can be from the fields of industrial practices, professionals, recognized motivational speakers to speak on ethics, self-development, situation handling skills etc The choice of topics will be a matter of choice for the teachers)
2. Aptitude Test (with respect to business practices, emotional quotient, learning abilities, placement aptitude, job culture aptitude etc)
3. Group Discussion (The students can be divided of not more than 8 in a group, a write up as a case study, cuttings of news series, current affairs etc followed by a GD).
4. Quiz (General/Technical) (quizzes can be oral using a PPT, written MCQs/short answer type questions covering general knowledge (Business world, economic affairs) and current affairs)
5. Presentations by the students (Preferably to an individual student or at the most more than a group of 2 students; Topics can be success stories of business personalities, Resilience of business houses, caselets etc)
6. Team building Exercises (team events within the class for problem solving)

Part – B (Outdoor Activities) (A brief report of minimum 10-15 pages must be submitted at the end of semester)

1. Sports/NSS/NCC
2. Field project (surveys, social awareness campaigns etc); The whole class can be made to visit to a mall, village, specific locality etc).
3. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc. 9Group events in the form of social campaigns, humanitarian activities, making students turn Samaritans etc)

Note: Evaluation shall be based on rubrics for Part – A & B. Mentors/Faculty incharges shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department.

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BBA Batch 2018 onwards
BMPD 602-18 Mentoring and Professional Development

Guidelines regarding Mentoring and Professional Development

The objective of mentoring will be development of:

Overall Personality

- Aptitude (Technical and General)
- General Awareness (Current Affairs and GK)
- Communication Skills
- Presentation Skills
- The course shall be split in two sections i.e. class activities and outdoor activities.

For achieving the above, suggestive list of activities to be conducted are:

Part – A (Class Activities)

1. Expert and video lectures (The experts can be from the fields of industrial practices, professionals, recognized motivational speakers to speak on professionalism, discipline, time management etc. The choice of topics will be a matter of choice for the teachers)
2. Aptitude Test (with respect to business practices, intellectual creativity, team skills, Decision making skills, leadership skills etc)
3. Group Discussion (The students can be divided of not more than 8 in a group, a write up as a case study, cuttings of news series, current affairs etc followed by a GD).
4. Quiz (General/Technical) (quizzes can be oral using a PPT, written MCQs/short answer type questions covering general knowledge (latest business developments and key announcements by government/autonomous bodies, world bodies etc
5. Presentations by the students (Preferably to an individual student or at the most more than a group of 2 students; Topics can be success stories of business personalities, Resilience of business houses, caselets etc)
6. Team building Exercises (team events within the class for problem solving)

Part – B (Outdoor Activities) (A brief report of minimum 10-15 pages must be submitted at the end of semester)

1. Sports/NSS/NCC
2. Field project (may be general topics, business topics or awareness about government social schemes, health and hygiene, UGC social initiatives etc).
3. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc. (Group events in the form of social campaigns, humanitarian activities, making students turn Samaritans etc)

Note: Evaluation shall be based on rubrics for Part – A & B. Mentors/Faculty in-charge will maintain proper record student wise of each activity conducted and the same shall be submitted to the department.

Programme: Bachelor of Computer Applications

List of courses that include experiential learning through project work/field work/internship during the year:

S. No.	Course Title	Course Code	Semester
1	Mentoring and Professional Development	BMPD102-18	First
2	Mentoring and Professional Development	BMPD202-18	Second
3	Mentoring and Professional Development	BMPD302-18	Third
4	Web Designing Laboratory	UGCA1928	Fourth
5	Mentoring and Professional Development	BMPD402-18	Fourth
6	Minor Project	--	Fifth
7	Institutional Summer Training	--	Fifth
8	Mentoring and Professional Development	BMPD502-18	Fifth
9	Programming in Java Laboratory	UGCA1938	Fifth
10	Computer Graphics Laboratory	UGCA1940	Fifth
11	Cloud Computing Laboratory	UGCA1942	Fifth
12	Major Project	--	Sixth
13	Mentoring and Professional Development	BMPD602-18	Sixth

I. K. Gujral Punjab Technical University
Bachelor of Computer Applications (BCA)

First Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
UGCA1901	Core Theory	Mathematics	3	1	0	40	60	100	4
UGCA1902	Core Theory	Fundamentals of Computer and IT	3	1	0	40	60	100	4
UGCA1903	Core Theory	Problem Solving using C	3	1	0	40	60	100	4
UGCA1904	Practical/Laboratory	Workshop on Desktop Publishing	0	0	4	60	40	100	2
UGCA1905	Core Practical/Laboratory	Problem Solving using C Laboratory	0	0	4	60	40	100	2
UGCA1906	Core Practical/Laboratory	Fundamentals of Computer and IT Laboratory	0	0	4	60	40	100	2
BTHU103/18	Ability Enhancement Compulsory Course (AECC)-I	English	1	0	0	40	60	100	1
BTHU104/18	Ability Enhancement Compulsory Course (AECC)	English Practical/Laboratory	0	0	2	30	20	50	1
HVPE101-18	Ability Enhancement Compulsory Course (AECC)	Human Values, De-addiction and Traffic Rules	3	0	0	40	60	100	3
HVPE102-18	Ability Enhancement Compulsory Course (AECC)	Human Values, De-addiction and Traffic Rules (Lab/ Seminar)	0	0	1	25	--**	25	1
BMPD102-18		Mentoring and Professional Development	0	0	1	25	--**	25	1
	TOTAL		13	3	16	460	440	900	25

****The Human Values, De-addiction and Traffic Rules (Lab/ Seminar) and Mentoring and Professional Development course will have internal evaluation only. (See guidelines at the last page of this file)**

I. K. Gujral Punjab Technical University
Bachelor of Computer Applications (BCA)

Second Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
UGCA1907	Core Theory	Fundamentals of Statistics	3	1	0	40	60	100	4
UGCA1908	Core Theory	Computer System Architecture	3	1	0	40	60	100	4
UGCA1909	Core Theory	Object Oriented Programming using C++	3	1	0	40	60	100	4
UGCA1910	Core Practical/Laboratory	Object Oriented Programming using C++ Laboratory	0	0	4	60	40	100	2
UGCA1911	Core Practical/Laboratory	Fundamentals of Statistics Laboratory	0	0	4	60	40	100	2
UGCA1912	Core Practical/Laboratory	Computer System Architecture Laboratory	0	0	4	60	40	100	2
EVS102-18	Ability Enhancement Compulsory Course (AECC) -III	Environmental Studies	2	0	0	40	60	100	2
BMPD202-18		Mentoring and Professional Development	0	0	1	25	--	25	1
TOTAL			11	3	13	365	360	725	21

I. K. Gujral Punjab Technical University
Bachelor of Computer Applications (BCA)

Third Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
UGCA1913	Core Theory	Computer Networks	3	1	0	40	60	100	4
UGCA1914	Core Theory	Programming in Python	3	1	0	40	60	100	4
UGCA1915	Core Theory	Data Structures	3	1	0	40	60	100	4
UGCA1916	Core Practical/Laboratory	Computer Networks Laboratory	0	0	4	60	40	100	2
UGCA1917	Core Practical/Laboratory	Programming in Python Laboratory	0	0	4	60	40	100	2
UGCA1918	Core Practical/Laboratory	Data Structures Laboratory	0	0	4	60	40	100	2
UGCA1919	Skill Enhancement Course-I	PC Assembly & Troubleshooting	3	0	0	40	60	100	3
UGCA1920	Skill Enhancement Course- Laboratory	PC Assembly & Troubleshooting Laboratory	0	0	2	30	20	50	1
BMPD302-18		Mentoring and Professional Development	0	0	1	25	--	25	1
	TOTAL		12	3	15	395	380	775	23

I. K. Gujral Punjab Technical University
Bachelor of Computer Applications (BCA)

Fourth Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
UGCA1921	Core Theory	Software Engineering	3	1	0	40	60	100	4
UGCA1922	Core Theory	Database Management Systems	3	1	0	40	60	100	4
UGCA1923	Core Theory	Operating Systems	3	1	0	40	60	100	4
UGCA1924	Core Practical/Laboratory	Software Engineering Laboratory	0	0	4	60	40	100	2
UGCA1925	Core Practical/Laboratory	Database Management Systems Laboratory	0	0	4	60	40	100	2
UGCA1926	Core Practical/Laboratory	Operating Systems Laboratory	0	0	4	60	40	100	2
UGCA1927	Skill Enhancement Course-II	Web Designing	3	0	0	40	60	100	3
UGCA1928	Skill Enhancement Course- Laboratory	Web Designing Laboratory	0	0	2	30	20	50	1
BMPD402-18		Mentoring and Professional Development	0	0	1	25	--	25	1
	TOTAL		12	03	15	395	380	775	23
Students will undergo 4 weeks Institutional Summer Training* after 4th semester. Examination will be conducted along with 5th semester practical.									

I. K. Gujral Punjab Technical University
Bachelor of Computer Applications (BCA)

Fifth Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
UGCA1929	Skill Enhancement Course-III	Programming in PHP	3	0	0	40	60	100	3
UGCA1930	Skill Enhancement Course-Laboratory	Programming in PHP Laboratory	0	0	2	30	20	50	1
	Open Elective-I		3	1	0	40	60	100	4
	Elective-I		3	1	0	40	60	100	4
	Elective-II		3	1	0	40	60	100	4
	Elective-I Laboratory		0	0	4	60	40	100	2
	Elective-II Laboratory		0	0	4	60	40	100	2
	Project	Minor Project	0	0	2	60	40	100	1
	Institutional Summer Training*		0	0	2	60	40	100	1
BMPD502-18		Mentoring and Professional Development	0	0	1	25	--	25	1
	TOTAL		12	03	15	455	420	875	23

Elective -I	
Course Code	Course Title
UGCA1931	Data Warehouse and Mining
UGCA1932	Programming in Java
UGCA1933	Internet of Things

Elective -II	
Course Code	Course Title
UGCA1934	Computer Graphics
UGCA1935	Linux Operating System
UGCA1936	Cloud Computing

Elective-I Laboratory	
Course Code	Course Title
UGCA1937	Data Warehouse and Mining Laboratory
UGCA1938	Programming in Java Laboratory
UGCA1939	Internet of Things Laboratory

Elective-II Laboratory	
Course Code	Course Title
UGCA1940	Computer Graphics Laboratory
UGCA1941	Linux Operating System Laboratory
UGCA1942	Cloud Computing Laboratory

I. K. Gujral Punjab Technical University
Bachelor of Computer Applications (BCA)

Sixth Semester

Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Credits
			L	T	P	Internal	External		
UGCA1943	Skill Enhancement Course-IV	Android Programming	3	0	0	40	60	100	3
UGCA1944	Skill Enhancement Course-Laboratory	Android Programming Laboratory	0	0	2	30	20	50	1
	Open Elective-II		3	1	0	40	60	100	4
	Elective-III		3	1	0	40	60	100	4
	Elective-IV		3	1	0	40	60	100	4
	Elective-III Laboratory		0	0	4	60	40	100	2
	Elective-IV Laboratory		0	0	4	60	40	100	2
	Project	Major Project	0	0	4	120	80	200	4
BMPD602-18		Mentoring and Professional Development	0	0	1	25	--	25	1
	TOTAL		10	03	15	455	485	875	25

Elective -III	
Course Code	Course Title
UGCA1945	Artificial Intelligence
UGCA1946	R Programming
UGCA1947	Digital Marketing

Elective -IV	
Course Code	Course Title
UGCA1948	Information Security
UGCA1949	Cyber Laws & IPR
UGCA1950	Machine Learning

Elective -III	
Course Code	Course Title
UGCA1951	Artificial Intelligence Laboratory
UGCA1952	R Programming Laboratory
UGCA1953	Digital Marketing Laboratory

Elective -IV	
Course Code	Course Title
UGCA1954	Information Security Laboratory
UGCA1955	Cyber Laws & IPR Laboratory
UGCA1956	Machine Learning Laboratory

Open Electives	
Course Code	Course Title
UGCA1902	Fundamentals of Computer and IT
UGCA1903	Problem Solving using C
UGCA1909	Object Oriented Programming using C++
UGCA1913	Computer Networks
UGCA1922	Database Management Systems
UGCA1957	Software Project Management

***The above list of Open Elective Courses is particularly designed to offer to other disciplines such as Physics, Chemistry, Mathematics, Management or any other area of expertise in their Under-Graduate Programs.**

***In case Open Elective-I and Open Elective-II are not offered by any other discipline/branch in the Institute/College, then student may opt Open Elective courses from given lists of Elective courses (Theory only).**

Guidelines regarding Mentoring and Professional Development

The objective of mentoring will be development of:

- Overall Personality
- Aptitude (Technical and General)
- General Awareness (Current Affairs and GK)
- Communication Skills
- Presentation Skills

The course shall be split in two sections i.e. outdoor activities and class activities.
For achieving the above, suggestive list of activities to be conducted are:

Part – A (Class Activities)

1. Expert and video lectures
2. Aptitude Test
3. Group Discussion
4. Quiz (General/Technical)
5. Presentations by the students
6. Team building Exercises

Part – B (Outdoor Activities)

1. Sports/NSS/NCC
2. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc.

Evaluation shall be based on rubrics for Part – A & B

Mentors/Faculty incharges shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department.

I. K. Gujral Punjab Technical University
Bachelor of Computer Applications (BCA)

Course Code: UGCA1928

Course Name: Web Designing Laboratory

Program: BCA	L: 0 T: 0 P: 2
Branch: Computer Applications	Credits: 1
Semester: 4 th	Contact hours: 2 hours per week
Theory/Practical: Practical	Percentage of numerical/design problems: 80%
Internal max. marks: 30	Duration of End Semester Exam (ESE): 3hrs
External max. marks: 20	Elective status: Skill Enhancement
Total marks: 50	

Prerequisite: Students must have the knowledge of editors like Notepad etc.

Co requisite: Knowledge of Networking, Internet, Client Server concepts, Static & Dynamic environment of the websites etc.

Additional material required in ESE:

- Demonstration of the website of college/ specific department/specific cells etc. will be presented by the students during the final practical.
- Developed Website/s must be made online by the student/s.
- Printouts of the Main Page of the website must be arranged on Practical file during daily lab work and must be submitted in the final examinations.

Course Outcomes: After studying this course, students will be able to:

CO#	Course Outcomes
CO1	Design pages with simple tags in HTML

I. K. Gujral Punjab Technical University
Bachelor of Computer Applications (BCA)

CO2	Create web pages with Audio and Video content in it.
CO3	Illustrate the movement from one web page to another
CO4	Implement advanced web designing concepts using java script
CO5	Execute a small web based project for the benefit of society

Instructions: Instructor can increase/decrease the experiments as per the requirement.

1.	Create a simple HTML page to demonstrate the use of different tags.
2.	Design index page of a book on web designing.
3.	Display Letter Head of your college on a web page.
4.	Create a Hyperlink to move around within a single page rather than to load another page.
5.	Display letter using different Text formatting Tags.
6.	Design Time Table of your department and highlights of most important periods.
7.	Use Tables to provide layout to your web page.
8.	Embed Audio and Video into your web page.
9.	Divide a web page vertically and horizontally and display logo of your college in left pane and logo of university in right pane.
10.	Create a student Bio- Data.
11.	Design front page of hospital with different style sheets.
12.	Design a web page and display two different pages at a time.
13.	Write a program to create a login form. On submitting the form, the user should get navigated to a profile page using JavaScript.
14.	Write a code to create a Registration Form. On submitting the form, the user should be asked to login with the new credentials using JavaScript.
15.	Write an HTML code to create your Institute website/Department website/ Tutorial website for specific subject. Also use Java Script for validation.

Reference Books:

1. Greenlaw R; Hepp E, "Fundamentals of Internet and www", 2nd Edition, Tata. McGraw-Hill, 2007.
2. A Beginner's Guide to HTML
<http://www.Ncsa.Nine.Edit/General/Internet/www/>
 - a. html.prmter.

Online Experiment material:

1. https://www.w3schools.com/html/html_examples.asp
2. https://www.cs.uct.ac.za/mit_notes/web_programming.html

I. K. Gujral Punjab Technical University
Bachelor of Computer Applications (BCA)

Course Code: UGCA1938

Course Name: Programming in Java Laboratory

Program: BCA	L: 0 T: 0 P: 4
Branch: Computer Applications	Credits: 2
Semester: 5 th	Contact hours: 4 hours per week
Theory/Practical: Practical	Percentage of numerical/design problems: 90%
Internal max. marks: 60	Duration of end semester exam (ESE): 3hrs
External max. marks: 40	Elective status: Core
Total marks: 100	

Prerequisite: - Basic knowledge of Programming language like Programming in C.

Co requisite: - Knowledge of Object Oriented Concepts through any language like C++.

Additional material required in ESE: - Minor Project.

Course Outcomes: Students will be able to

CO#	Course Outcomes
CO1	Execute Core Java concepts.
CO2	Illustrate the role of different data type, operators and control statement in java with the help of programs.
CO3	Write programs to handle exceptions
CO4	Implement multithreading in java
CO5	Execute interfaces and packages.

Instructions: All programs are to be developed in Java programming language.

List of assignments:

1.	Write a program to perform following operations on two numbers input by the user: 1) Addition 2) subtraction 3) multiplication 4) division
2.	Write a Java program to print result of the following operations. 1. -15 + 58 * 45 2. (35+8) % 6 3. 24 + -5*3 / 7 4. 15 + 18 / 3 * 2 - 9 % 3
3.	Write a Java program to compute area of: 1) Circle 2) rectangle 3) triangle 4) square
4.	Write a program to convert temperature from Fahrenheit to Celsius degree using Java.
5.	Write a program through Java that reads a number in inches, converts it to meters.
6.	Write a program to convert minutes into a number of years and days.
7.	Write a Java program that prints current time in GMT.
8.	Design a program in Java to solve quadratic equations using if, if else
9.	Write a Java program to determine greatest number of three numbers.

**I. K. Gujral Punjab Technical University
Bachelor of Computer Applications (BCA)**

10.	Write program that gets a number from the user and generates an integer between 1 and 7 subsequently should display the name of the weekday as per that number.
11.	Construct a Java program to find the number of days in a month.
12.	Write a program to sum values of an Single Dimensional array.
13.	Design & execute a program in Java to sort a numeric array and a string array.
14.	Calculate the average value of array elements through Java Program.
15.	Write a Java program to test if an array contains a specific value.
16.	Find the index of an array element by writing a program in Java.
17.	Write a Java program to remove a specific element from an array.
18.	Design a program to copy an array by iterating the array.
19.	Write a Java program to insert an element (on a specific position) into Multidimensional array.
20.	Write a program to perform following operations on strings: 1) Compare two strings. 2) Count string length. 3) Convert upper case to lower case & vice versa. 4) Concatenate two strings. 5) Print a substring.
21.	Developed Program & design a method to find the smallest number among three numbers.
22.	Compute the average of three numbers through a Java Program.
23.	Write a Program & design a method to count all vowels in a string.
24.	Write a Java method to count all words in a string.
25.	Write a method in Java program to count all words in a string.
26.	Write a Java program to handle following exceptions: 1) Divide by Zero Exception. 2) Array Index Out Of B bound Exception.
27.	To represent the concept of <i>Multithreading</i> write a Java program.
28.	To represent the concept of all types of inheritance supported by Java, design a program.
29.	Write a program to implement <i>Multiple Inheritance</i> using interface.
30.	Construct a program to design a package in Java.
31.	To write and read a plain text file, write a Java program.
32.	Write a Java program to append text to an existing file.
33.	Design a program in Java to get a list of all file/directory names from the given.
34.	Develop a Java program to check if a file or directory specified by pathname exists or not.
35.	Write a Java program to check if a file or directory has read and write permission.

Text Books:

1. Programming with Java A Primer, 5th Edition, E. Balagurusamy, TMH.
2. Java Programming for Core and Advanced Learners, Sagayaraja, Denis, Karthik, Gajalakshmi, Universities Press.

I. K. Gujral Punjab Technical University
Bachelor of Computer Applications (BCA)

3. Java Fundamentals, A Comprehensive Introduction, H. Schildt, D. Skrien, TMH.

Reference Books:

1. Java, The complete Reference, H. Schildt, 7th Edition, TMH.
2. Data Analytics using R, Seema Acharya, TMH.

**I. K. Gujral Punjab Technical University
Bachelor of Computer Applications (BCA)**

Course Code: UGCA1940

Course Name: Computer Graphics Laboratory

Program: BCA	L: 0 T: 0 P: 4
Branch: Computer Applications	Credits: 2
Semester: 5 th	Contact hours: 4 hours per week
Theory/Practical: Practical	Percentage of numerical/design problems: --
Internal max. marks: 60	Duration of end semester exam (ESE): 3hrs
External max. marks: 40	Elective status: Elective
Total marks: 100	

Prerequisite: -NA-

Co requisite: -NA-

Additional material required in ESE: -NA-

Course Outcomes:

CO#	Course outcomes
CO1	Implement algorithms for drawing basic shapes like circle, line and point.
CO2	Write programs to implement 2-D and 3-D corrdibate transformations.
CO3	Design basic shapes for logo's
CO4	Develop programs for basic animations using C or C++
CO5	Design a small gaming project.

Instructions:

1.	Use of basic functions of graphic available like circle, putpixel, rectangle, arc, ellipse, floodfill, setcolor etc.
2.	Design a logo/poster using primitive functions.
3.	Draw a 3 D object using palettes.
4.	Line Drawing Algorithm : Direct method and DDA
5.	Bresenham's Line Drawing Algorithm
6.	Circle Generating Algorithm : Equation and trigonometric function.
7.	Bresenham's Circle Generating Algorithm

I. K. Gujral Punjab Technical University
Bachelor of Computer Applications (BCA)

8.	Draw an ellipse using Midpoint Algorithm.
9.	Translation transformation on a polygon.
10.	Scaling transformation on a polygon.
11.	Rotation transformation on a polygon.
12.	Reflection transformation on a polygon.
13.	Shearing transformation on a polygon.
14.	Mixed transformation on an object
15.	Minor project (eg Game/ Animation etc.)

Reference Books:

1. D. Hearn and M.P. Baker, *Computer Graphics*, PHI New Delhi.
2. J.D. Foley, A.V. Dam, S.K. Feiner, J.F. Hughes,. R.L Phillips, *Computer Graphics Principles & Practices*, Second Edition, Pearson Education, 2007.
3. R.A. Plastock and G. Kalley, *Computer Graphic*, McGraw Hill, 1986.
4. Mark Lutz, *Learning Python*, O'REILY

**I. K. Gujral Punjab Technical University
Bachelor of Computer Applications (BCA)**

Course Code: UGCA1942

Course Name: Cloud Computing Laboratory

Program: BCA	L: 0 T: 0 P: 4
Branch: Computer Applications	Credits: 2
Semester: 5 th	Contact hours: 4 hours per week
Theory/Practical: Practical	Percentage of numerical/design problems: --
Internal max. marks: 60	Duration of end semester exam (ESE): 3hrs
External max. marks: 40	Elective status: Elective
Total marks: 100	

Prerequisite: Working Knowledge of Linux Operating system

Co requisite: -NA-

Additional material required in ESE: -NA-

Course Outcomes:

CO#	Course outcomes
CO1	Identify major commercial projects in the field of cloud computing
CO2	Design basic cloud applications
CO3	Execute basic functionalities of open source tools like Open Stack.
CO4	Implement virtualization
CO5	Define major services provided by cloud service provider.

Instructions:

1.	Enlist various companies in cloud business and the corresponding services provided by them and tag them under SaaS , PaaS & IaaS.
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I. K. Gujral Punjab Technical University
Bachelor of Computer Applications (BCA)

2.	Create a warehouse application using tools supplied by any SaaS provider.
3.	Implementation of Para-Virtualization using VM Ware's Workstation/ Oracle's Virtual Box and Guest O.S. Learn creation, migration, cloning and managing of virtual machines.
4.	Using public cloud service providers tools for exploring the usage of IaaS, PaaS and SaaS cloud services.
5.	Setting up a private cloud using open source tools (Eucalyptus/Open Stack etc.).

Programme: Bachelor of Commerce

List of courses that include experiential learning through project work/field work/internship during the year:

S. No.	Course Title	Course Code	Semester
1	Mentoring and Professional Development	BMPD102-18	First
2	Mentoring and Professional Development	BMPD202-18	Second
3	Mentoring and Professional Development	BMPD302-18	Third
4	Mentoring and Professional Development	BMPD402-18	Fourth
5	Mentoring and Professional Development	BMPD502-18	Fifth
6	Mentoring and Professional Development	BMPD602-18	Sixth

I.K.G.Punjab Technical University
Bachelor of Commerce (Hons.) Batch 2018 onwards

Courses & Examination

Scheme: First Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BCOM101-18	Core Theory 1	Business Organization and Management	5	1	0	40	60	100	6
BCOM102-18	Core Theory 2	Financial Accounting	5	1	0	40	60	100	6
BCOMGE101-18	General Elective 1	Managerial Economics	5	1	0	40	60	100	6
BTHU103/18	Ability Enhancement Compulsory Course (AECC)	English	1	0	0	40	60	100	1
BTHU104/18	Ability Enhancement Compulsory Course (AECC)	English Practical/Laboratory	0	0	2	30	20	50	1
HVPE101-18	Ability Enhancement Compulsory Course (AECC)	Human Values, De-addiction and Traffic Rules	3	0	0	40	60	100	3
HVPE102-18	Ability Enhancement Compulsory Course (AECC)	Human Values, De-addiction and Traffic Rules (Lab/Seminar)	0	0	2	25	--**	25	1
BMPD102-18		Mentoring and Professional Development	0	0	2	25	--**	25	1
	TOTAL		19	3	6	280	320	600	25

**The Human Values, De-addiction and Traffic Rules (Lab/ Seminar) and Mentoring and Professional Development course will have internal evaluation only.

Note: One each seminar will be organized on Drug De-addiction and Traffic Rules. Eminent scholar and experts of the subject will be called for the seminar at least once during the semester. It will be binding for all students to attend the seminar.

I.K.G.Punjab Technical University
Bachelor of Commerce (Hons.) Batch 2018 onwards

Second Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BCOM201-18	Core Theory 3	Cost Accounting	5	1	0	40	60	100	6
BCOM202-18	Core Theory 4	Business Environment	5	1	0	40	60	100	6
BCOMGE201-18	General Elective 2	Business Statistics	5	1	0	40	60	100	6
EVS102-18	Ability Enhancement Compulsory Course (AECC) -III	Environmental Science	2	0	0	40	60	100	2
BMPD202-18		Mentoring and Professional Development	0	0	2	25	--**	25	1
TOTAL			17	3	2	195	240	425	21

Third Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BCOM301-18	Core Theory 5	Management Accounting	5	1	0	40	60	100	6
BCOM302-18	Core Theory 6	Mercantile Law	5	1	0	40	60	100	6
BCOM303-18	Core Theory 7	Human Resource Management	5	1	0	40	60	100	6
BCOMGE301-18	General Elective 3	Indian Economy	5	1	0	40	60	100	6
BCOMSEC301-18	Skill Enhancement Course-1	Workshop on IT tools for Business & E-Commerce	2	0	0	40	60	100	2
BMPD302-18		Mentoring and Professional Development	0	0	2	25	--**	25	1
TOTAL			22	4	2	225	300	525	27

I.K.G.Punjab Technical University
Bachelor of Commerce (Hons.) Batch 2018 onwards

Fourth Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BCOM401-18	Core Theory 8	Corporate Accounting	5	1	0	40	60	100	6
BCOM402-18	Core Theory 9	Company Law	5	1	0	40	60	100	6
BCOM403-18	Core Theory 10	Income Tax Law & Practice	5	1	0	40	60	100	6
BCOMGE401-18	General Elective 4	Entrepreneurship Development	5	1	0	40	60	100	6
BCOMSEC401-18	Skill Enhancement Course-2	Workshop on Computerized Accounting	2	0	0	40	60	100	2
BMPD402-18		Mentoring and Professional Development	0	0	2	25	--**	25	1
	TOTAL		22	4	2	425	300	525	27

Fifth Semester

Course Code	Course Type	Course Title	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BCOM501-18	Core Theory 11	Financial Management	5	1	0	40	60	100	6
BCOM502-18	Core Theory 12	Goods and Services Tax	5	1	0	40	60	100	6
	Discipline Specific Elective 1	Elective-I	5	1	0	40	60	100	6
	Discipline Specific Elective 2	Elective-II	5	1	0	40	60	100	6
BMPD502-18		Mentoring and Professional Development	0	0	2	25	--**	25	1
	TOTAL		20	4	2	225	240	425	25

I.K.G.PunjabTechnicalUniversity
BachelorofCommerce (Hons.)Batch2018onwards

SixthSemester

Course Code	CourseType	CourseTitle	Load Allocations			Marks Distribution		Total Marks	Credits
			L*	T*	P	Internal	External		
BCOM601-18	CoreTheory13	IndustrialRelations and Labour Laws	5	1	0	40	60	100	6
BCOM602-18	CoreTheory14	OperationResearch	5	1	0	40	60	100	6
	DisciplineSpecific Elective 3	Elective–III	5	1	0	40	60	100	6
	DisciplineSpecific Elective 4	Elective–IV	5	1	0	40	60	100	6
BMPD602-18		Mentoringand Professional Development	0	0	2	25	--**	25	1
	TOTAL		20	4	2	185	240	425	25

I.K.G. Punjab Technical University
Bachelor of Commerce (Hons.) Batch 2018 onwards

BMPD102-18 MENTORING AND PROFESSIONAL DEVELOPMENT

Guidelines regarding Mentoring and Professional Development

The objective of mentoring will be development of:

- Overall Personality
- Aptitude (Technical and General)
- General Awareness (Current Affairs and GK)
- Communication Skills
- Presentation Skills

The course shall be split in two sections i.e. outdoor activities and class activities.

For achieving the above, suggestive list of activities to be conducted are:

**Part – A (Class
Activities)**

1. Expert and video lectures
2. Aptitude Test
3. Group Discussion
4. Quiz (General/Technical)
5. Presentations by the students
6. Team building Exercises

**Part – B
(Outdoor Activities)**

1. Sports/NSS/NCC
2. Field project.
3. Society Activities of various professional student chapters, Cultural Clubs, etc.

Note: Evaluation shall be based on rubrics for Part – A & B.

Mentors/Faculty incharges shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department and details shall be uploaded on websites of the institutions.

I.K.G. Punjab Technical University
Bachelor of Commerce (Hons.) Batch 2018 onwards

BMPD202-18 Mentoring and Professional Development

Guidelines regarding Mentoring and Professional Development

The objective of mentoring will be development of:

- / Overall Personality
- / Aptitude (Technical and General)
- / General Awareness (Current Affairs and GK)
- / Communication Skills
- / Presentation Skills

The course shall be split in two sections i.e. outdoor activities and class activities.

For achieving the above, suggestive list of activities to be conducted are:

**Part – A (Class
Activities)**

1. Expert and video lectures
2. Aptitude Test
3. Group Discussion
4. Quiz (General/Technical)
5. Presentations by the students
6. Team building Exercises

**Part – B (Outdoor
Activities)**

1. Sports/NSS/NCC
2. Field Project
3. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc.

Note: Evaluation shall be based on rubrics for Part – A & B.

Mentors/Faculty incharges shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department.

I.K.G. Punjab Technical University
Bachelor of Commerce (Hons.) Batch 2018 onwards

BMPD302-18 Mentoring and Professional Development

Guidelines regarding Mentoring and Professional Development

The objective of mentoring will be development of:

- ✓ Overall Personality
- ✓ Aptitude (Technical and General)
- ✓ General Awareness (Current Affairs and GK)
- ✓ Communication Skills
- ✓ Presentation Skills

The course shall be split in two sections i.e. outdoor activities and class activities.

For achieving the above, suggestive list of activities to be conducted are:

Part – A (Class Activities)

1. Expert and video lectures
2. Aptitude Test
3. Group Discussion
4. Quiz (General/Technical)
5. Presentations by the students
6. Team building Exercises

Part – B (Outdoor Activities)

4. Sports/NSS/NCC
5. Field project.
6. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc.

Note: Evaluation shall be based on rubrics for Part – A & B.

Mentors / Faculty incharges shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department.

I.K.G. Punjab Technical University
Bachelor of Commerce (Hons.) Batch 2018 onwards

BMPD402-18 Mentoring and Professional Development

Guidelines regarding Mentoring and Professional Development

The objective of mentoring will be development of:

- ✓ Overall Personality
- ✓ Aptitude (Technical and General)
- ✓ General Awareness (Current Affairs and GK)
- ✓ Communication Skills
- ✓ Presentation Skills

The course shall be split in two sections i.e. outdoor activities and class activities. For achieving the above, suggestive list of activities to be conducted are:

Part – A (Class Activities)

1. Expert and video lectures
2. Aptitude Test
3. Group Discussion
4. Quiz (General/Technical)
5. Presentations by the students
6. Team building Exercises

Part – B (Outdoor Activities)

1. Sports/NSS/NCC
2. Field project.
3. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc.

Note: Evaluation shall be based on rubrics for Part – A & B.

Mentors / Faculty incharges shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department.

I.K.G. Punjab Technical University
Bachelor of Commerce (Hons.) Batch 2018 onwards
BMPD502-18
Mentoring and Professional Development

Guidelines regarding Mentoring and Professional Development

The objective of mentoring will be development of:

Overall Personality

- Aptitude (Technical and General)
 - General Awareness (Current Affairs and GK)
 - Communication Skills
 - Presentation Skills
- The course shall be split in two sections i.e. class activities and outdoor activities.
For achieving the above, suggestive list of activities to be conducted are:

Part – A (Class Activities)

1. Expert and video lectures (The experts can be from the fields of industrial practices, professionals, recognized motivational speakers to speak on ethics, self-development, situation handling skills etc The choice of topics will be a matter of choice for the teachers)
2. Aptitude Test (with respect to business practices, emotional quotient, learning abilities, placement aptitude, job culture aptitude etc)
3. Group Discussion (The students can be divided of not more than 8 in a group, a write up as a case study, cuttings of news series, current affairs etc followed by a GD).
4. Quiz (General/Technical) (quizzes can be oral using a PPT, written MCQs/short answer type questions covering general knowledge (Business world, economic affairs) and current affairs)
5. Presentations by the students (Preferably to an individual student or at the most more than a group of 2 students; Topics can be success stories of business personalities, Resilience of business houses, caselets etc)
6. Team building Exercises (team events within the class for problem solving)

Part – B (Outdoor Activities)

(A brief report of minimum 10-15 pages must be submitted at the end of semester)

1. Sports/NSS/NCC
2. Field project (surveys, social awareness campaigns etc); The whole class can be made to visit to a mall, village, specific locality etc).
3. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc. Group events in the form of social campaigns, humanitarian activities, making students turn Samaritans etc)

Note: Evaluation shall be based on rubrics for Part – A & B. Mentors/Faculty incharges shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department.

I.K.G. Punjab Technical University
Bachelor of Commerce (Hons.) Batch 2018 onwards
BMPD 602-18
Mentoring and Professional Development

Guidelines regarding Mentoring and Professional Development

The objective of mentoring will be development of:

Overall Personality

- Aptitude (Technical and General)
- General Awareness (Current Affairs and GK)
- Communication Skills
- Presentation Skills
- The course shall be split in two sections i.e. class activities and outdoor activities.

For achieving the above, suggestive list of activities to be conducted are:

Part – A (Class Activities)

1. Expert and video lectures (The experts can be from the fields of industrial practices, professionals, recognized motivational speakers to speak on professionalism, discipline, time management etc. The choice of topics will be a matter of choice for the teachers)
2. Aptitude Test (with respect to business practices, intellectual creativity, team skills, Decision making skills, leadership skills etc)
3. Group Discussion (The students can be divided of not more than 8 in a group, a write up as a case study, cuttings of news series, current affairs etc followed by a GD).
4. Quiz (General/Technical) (quizzes can be oral using a PPT, written MCQs/short answer type questions covering general knowledge (latest business developments and key announcements by government/autonomous bodies, world bodies etc
5. Presentations by the students (Preferably to an individual student or at the most more than a group of 2 students; Topics can be success stories of business personalities, Resilience of business houses, caselets etc)
6. Team building Exercises (team events within the class for problem solving)

Part – B (Outdoor Activities)

(A brief report of minimum 10-15 pages must be submitted at the end of semester)

1. Sports/NSS/NCC
2. Field project (may be general topics, business topics or awareness about government social schemes, health and hygiene, UGC social initiatives etc).
3. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc. (Group events in the form of social campaigns, humanitarian activities, making students turn Samaritans etc)

Note: Evaluation shall be based on rubrics for Part – A & B. Mentors/Faculty in-charge will maintain proper record student wise of each activity conducted and the same shall be submitted to the department.