

FACULTY OF COMPUTER SCIENCE & IT

SYLLABUS

of

Bachelor of Science (Information Technology)

(Semester I, III, V)

(Under Continuous Evaluation System)

(12+3 System of Education)

Session 2020-21



The Heritage Institution

**KANYA MAHA VIDYALAYA
JALANDHAR
(Autonomous)**

Program Specific Outcomes

Bachelor of Science (Information Technology) Session 2020-21

PSO1: Demonstrate proficiency in the field of Programming, Web development and IT enabled services.

PSO2: Professional development in IT industry through ethical, defined and innovative techniques.

PSO3: Achieve leadership role and can play different roles as team player in multiple disciplines.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

SCHEME AND CURRICULUM OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAMME

Bachelor of Science (Information Technology)

Session 2020-21

Bachelor of Science (Information Technology) Semester – I							
Course Code	Course Name	Course Type	Marks				Examination Time (in Hours)
			Total	Ext.		CA	
				L	P		
BITL-1421 / BITL-1031/ BITL-1431	Punjabi (Compulsory) / ¹Basic Punjabi/ ²Punjab History & Culture (From Earliest Times to C 320)	C	50	40	-	10	3
BITL-1102	Communication Skills in English	C	50	40	-	10	3
BITL-1113	Introduction to Programming – C	C	75	60	-	15	3
BITL-1114	Fundamentals of Computers	C	75	60	-	15	3
BITL-1335	Applied & Discrete Mathematics	C	75	60	-	15	3
BITP-1116	Practical– PC Computing & C Language–I	C	75	-	60	15	3
AECD-1161	³Drug Abuse: Problem, Management and Prevention (Compulsory)	AC	50	40	-	10	3
SECF-1492	³Foundation Course	AC	25	20	-	05	1
	Total		400				

Note:

C - Compulsory

AC - Audit Course

¹ Special course in lieu of Punjabi (Compulsory)

² Special course in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.

³ Marks of these courses will not be added in total marks and only grades will be provided.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

SCHEME AND CURRICULUM OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAMME

Bachelor of Science (Information Technology)

Session 2020-21

Bachelor of Science (Information Technology) Semester - II							
Course Code	Course Name	Course Type	Marks				Examination Time (in Hours)
			Total	Ext.		CA	
				L	P		
BITL-2421 / BITL-2031/ BITL-2431	Punjabi (Compulsory) / 						

Note:

C - Compulsory

AC - Audit Course

¹ Special course in lieu of Punjabi (Compulsory)

² Special course in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.

³Marks of these courses will not be added in total marks and only grades will be provided.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

SCHEME AND CURRICULUM OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAMME

Bachelor of Science (Information Technology)

Session 2020-21

Bachelor of Science (Information Technology) Semester - III							
Course Code	Course Name	Course Type	Marks				Examination Time (in Hours)
			Total	Ext.		CA	
				L	P		
BITL-3111	Introduction to Python	C	75	60	-	15	3
BITL-3112	Data Structure	C	75	60	-	15	3
BITL-3113	System Analysis & Design	C	75	60	-	15	3
BITP-3114	Programming Lab – I (Python Programming Language)	C	50	-	40	10	3
BITP-3115	Programming Lab – II (Data Structure)	C	25	-	20	05	3
AECE - 3221	* Environmental Studies (Compulsory)	AC	100	60	20	20	3
SECP - 3512	*Personality Development	AC	25	20	-	05	1
	Total		300				

Note:

C - Compulsory

AC - Audit Course

*** Marks of these courses will not be added in total marks and only grades will be provided.**

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

SCHEME AND CURRICULUM OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAMME

Bachelor of Science (Information Technology)

Session 2020-21

Bachelor of Science (Information Technology) Semester - IV							
Course Code	Course Name	Course Type	Marks				Examination Time (in Hours)
			Total	Ext.		CA	
				L	P		
BITL-4111	Database Management System	C	75	60	-	15	3
BITL-4112	Internet Applications	C	75	60	-	15	3
BITL-4113	JAVA Programming Language	C	75	60	-	15	3
BITL-4114	E-Business	C	75	60	-	15	3
BITP-4115	Programming Lab – I (Oracle)	C	50	-	40	10	3
BITP-4116	Programming Lab – II (HTML &JAVA)	C	50	-	40	10	3
SECS - 4522	*Social Outreach	AC	25	-	25	-	1
	Total		400				

Note:

C - Compulsory

AC - Audit Course

*** Marks of these courses will not be added in total marks and only grades will be provided.**

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

SCHEME AND CURRICULUM OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAMME

Bachelor of Science (Information Technology)

Session 2020-21

Bachelor of Science (Information Technology) Semester - V							
Course Code	Course Name	Course Type	Marks				Examination Time (in Hours)
			Total	Ext.		CA	
				L	P		
BITL-5111	Computer Networks	C	100	80	-	20	3
BITL-5112	Web Technologies	C	100	80	-	20	3
BITL-5113	Operating System	C	100	80	-	20	3
BITP-5114	Lab based on Web Technologies	C	50	-	40	10	3
BITP-5115	Lab Based on Operating System	C	50	-	40	10	3
	Total		400				

Note:

C - Compulsory

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

SCHEME AND CURRICULUM OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAMME

Bachelor of Science (Information Technology)

Session 2020-21

Bachelor of Science (Information Technology) Semester - VI							
Course Code	Course Name	Course Type	Marks				Examination Time (in Hours)
			Total	Ext.		CA	
				L	P		
BITL-6111	Computer Graphics	C	75	60	-	15	3
BITL-6112	Software Engineering	C	75	60	-	15	3
BITP-6113	Lab based on Computer Graphics	C	50	-	40	10	3
BITP-6114	Project	C	200	160	-	40	3
	Total		400				

Note:

C - Compulsory

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: BITL-1421

PUNJABI (COMPULSORY)

Course Outcomes:

CO1: ਆਤਮ ਅਨਾਤਮ' ਪੁਸਤਕ ਦੇ ਕਵਿਤਾ ਭਾਗ ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਕਵਿਤਾ ਪ੍ਰਤੀ ਦਿਲਚਸਪੀ, ਸੂਝ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਤਾਂ ਕਿ ਉਹ ਆਧੁਨਿਕ ਦੌਰ ਵਿਚ ਚੱਲ ਰਹੀਆਂ ਕਾਵਿ ਧਾਰਾਵਾਂ ਅਤੇ ਕਵੀਆਂ ਬਾਰੇ ਗਿਆਨ ਹਾਸਿਲ ਕਰ ਸਕਣ।

CO2: ਇਸ ਦਾ ਹੋਰ ਮਨੋਰਥ ਕਵਿਤਾ ਦੀ ਵਿਆਖਿਆ, ਵਿਸ਼ਲੇਸ਼ਣ ਤੇ ਮੁਲੰਕਣ ਦੀ ਪ੍ਰਕਿਰਿਆ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ ਵੀ ਹੈ ਤਾਂ ਕਿ ਉਹ ਸਮਕਾਲੀ ਸਮਾਜ ਦੀਆਂ ਸਮੱਸਿਆਵਾਂ ਨੂੰ ਸਮਝ ਸਕਣ ਅਤੇ ਆਲੋਚਨਾਤਮਕ ਦ੍ਰਿਸ਼ਟੀ ਬਣਾ ਸਕਣ।

CO3: ਗੱਦ ਪ੍ਰਵਾਹ (ਰੇਖਾ ਚਿਤ੍ਰ ਤੇ ਹਲਕੇ ਲੇਖ) ਪੁਸਤਕ ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਿਲ ਕਰ ਕੇ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਅਤੇ ਮੁੱਲਵਾਨ ਇਤਿਹਾਸ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ ਹੈ।

CO4: ਪੈਰ੍ਹਾ ਰਚਨਾ ਅਤੇ ਪੈਰ੍ਹਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉਤਰ ਦੇਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਬੁੱਧੀ ਨੂੰ ਤੀਖਣ ਕਰਦਿਆਂ ਉਨ੍ਹਾਂ ਦੀ ਲਿਖਣ ਪ੍ਰਤਿਭਾ ਨੂੰ ਉਜਾਗਰ ਕਰਨਾ ਹੈ।

CO5: ਧੁਨੀ ਵਿਉਂਤ ਪੜ੍ਹਣ ਨਾਲ ਵਿਦਿਆਰਥੀ ਧੁਨੀਆਂ ਦੀ ਉਚਾਰਨ ਪ੍ਰਣਾਲੀ ਤੋਂ ਵਾਕਫ਼ ਹੋਣਗੇ।

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: BITL-1421

PUNJABI (COMPULSORY)

Examination Time: 3 Hrs.

Max. Marks: 50

Theory: 40

CA: 10

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਸੈਕਸ਼ਨ ਹੋਣਗੇ। ਸੈਕਸ਼ਨ A-D ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ I-IV ਵਿਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਸੈਕਸ਼ਨ ਵਿਚ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਸੈਕਸ਼ਨ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਸੈਕਸ਼ਨ ਵਿਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 08 ਅੰਕ ਹਨ।
4. ਪੇਪਰ ਸੈਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

ਪਾਠ ਕ੍ਰਮ ਅਤੇ ਪਾਠ ਪੁਸਤਕਾਂ

ਯੂਨਿਟ-I

ਆਤਮ ਅਨਾਤਮ (ਕਵਿਤਾ ਭਾਗ), (ਸੰਪ. ਸੁਹਿੰਦਰ ਬੀਰ ਅਤੇ ਵਰਿਆਮ ਸਿੰਘ ਸੰਧੂ) ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।

(ਡਾ. ਜਸਵੰਤ ਸਿੰਘ ਨੇਕੀ, ਡਾ. ਜਗਤਾਰ ਸਿਲੇਬਸ ਦਾ ਹਿੱਸਾ ਨਹੀਂ ਹੈ)

(ਸਾਰ, ਵਿਸ਼ਾ ਵਸਤੂ)

08 ਅੰਕ

ਯੂਨਿਟ-II

ਗੱਦ ਪ੍ਰਵਾਹ (ਰੇਖਾ ਚਿਤ੍ਰ ਤੇ ਹਲਕੇ ਲੇਖ), ਸੰਪਾ. ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ, ਜਸਪਾਲ ਸਿੰਘ ਰੰਧਾਵਾ, ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।

(ਰੇਖਾ ਚਿਤ੍ਰ 1 ਤੋਂ 5) (ਨੰਗੀ ਮੁਸਕਾਨ ਰੇਖਾ ਚਿੱਤਰ ਸਿਲੇਬਸ ਦਾ ਹਿੱਸਾ ਨਹੀਂ ਹੈ)

(ਸਾਰ, ਵਿਸ਼ਾ ਵਸਤੂ)

08 ਅੰਕ

ਯੂਨਿਟ-III

(ੳ) ਪੈਰਾ ਰਚਨਾ (ਅ) ਪੈਰਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉਤਰ।

08 ਅੰਕ

ਯੂਨਿਟ-IV

(ੳ) ਪੰਜਾਬੀ ਧੁਨੀ ਵਿਉਂਤ : ਪਰਿਭਾਸ਼ਾ ਤੇ ਉਚਾਰਨ ਅੰਗ

(ਅ) ਸਵਰ, ਵਿਅੰਜਨ

8 ਅੰਕ

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: BITL-1031

BASIC PUNJABI

Course Outcomes:

CO1: ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਨੂੰ ਸਿਖਾਉਣ ਦੀ ਪ੍ਰਕਿਰਿਆ ਵਿਚ ਪਾ ਕੇ ਇਕ ਹੋਰ ਭਾਸ਼ਾ ਸਿੱਖਣ ਦਾ ਮੌਕਾ ਪ੍ਰਦਾਨ ਕਰਨਾ ਹੈ।

CO2: ਇਸ ਵਿਚ ਵਿਦਿਆਰਥੀ ਨੂੰ ਬਾਰੀਕਬੀਨੀ ਨਾਲ ਭਾਸ਼ਾ ਦਾ ਅਧਿਐਨ ਕਰਵਾਇਆ ਜਾਵੇਗਾ।

CO3: ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਸ਼ਬਦ ਰਚਨਾ ਤੋਂ ਜਾਣੂ ਕਰਵਾਇਆ ਜਾਵੇਗਾ।

CO4: ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨਿੱਤ ਵਰਤੋਂ ਦੀ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ ਬਾਰੇ ਦੱਸਣਾ ਹੈ।

CO5: ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਦਾ ਸ਼ਬਦ ਘੇਰਾ ਵਿਸ਼ਾਲ ਕਰਨਾ ਹੈ।

CO6: ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਵਿਚ ਹਫਤੇ ਦੇ ਸੱਤ ਦਿਨਾਂ ਦੇ ਨਾਂ, ਬਾਰਾਂ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ, ਰੁੱਤਾਂ ਦੇ ਨਾਂ, ਇਕ ਤੋਂ ਸੌ ਤੱਕ ਗਿਣਤੀ ਸ਼ਬਦਾਂ ਵਿਚ ਸਿਖਾਉਣਾ ਹੈ।

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: BITL-1031

BASIC PUNJABI

In lieu of Punjabi (Compulsory)

Examination Time: 3 Hrs.

Max. Marks: 50

Theory: 40

CA: 10

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਸੈਕਸ਼ਨ ਹੋਣਗੇ। ਸੈਕਸ਼ਨ A-D ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ I-IV ਵਿੱਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਸੈਕਸ਼ਨ ਵਿੱਚ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਸੈਕਸ਼ਨ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਸੈਕਸ਼ਨ ਵਿੱਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 08 ਅੰਕ ਹਨ।
4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚ ਕਰ ਸਕਦਾ ਹੈ।

ਪਾਠ ਕ੍ਰਮ

ਯੂਨਿਟ-I

ਪੈਂਤੀ ਅੱਖਰੀ, ਅੱਖਰ ਕ੍ਰਮ, ਪੈਰ ਬਿੰਦੀ ਵਾਲੇ ਵਰਣ ਅਤੇ ਪੈਰ ਵਿਚ ਪੈਣ ਵਾਲੇ ਵਰਣ ਅਤੇ ਮਾਤ੍ਰਵਾਂ (ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ) ਲਗਾਥਰ (ਬਿੰਦੀ, ਟਿੱਪੀ, ਅੱਧਕ) : ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ । 08 ਅੰਕ

ਯੂਨਿਟ-II

ਪੰਜਾਬੀ ਸ਼ਬਦ ਬਣਤਰ : ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ (ਸਾਧਾਰਨ ਸ਼ਬਦ, ਸੰਯੁਕਤ ਸ਼ਬਦ, ਮਿਸ਼ਰਤ ਸ਼ਬਦ, ਮੂਲ ਸ਼ਬਦ, ਅਗੇਤਰ ਅਤੇ ਪਿਛੇਤਰ) 08 ਅੰਕ

ਯੂਨਿਟ-III

ਨਿੱਤ ਵਰਤੋਂ ਦੀ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ : ਬਾਜ਼ਾਰ, ਵਪਾਰ, ਰਿਸ਼ਤੇਨਾਤੇ, ਖੇਤੀ ਅਤੇ ਹੋਰ ਧੰਦਿਆਂ ਆਦਿ ਨਾਲ ਸੰਬੰਧਤ। 08 ਅੰਕ

ਯੂਨਿਟ-IV

ਹਫ਼ਤੇ ਦੇ ਸੱਤ ਦਿਨਾਂ ਦੇ ਨਾਂ, ਬਾਰਾਂ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ, ਰੁੱਤਾਂ ਦੇ ਨਾਂ, ਇਕ ਤੋਂ ਸੌ ਤਕ ਗਿਣਤੀ ਸ਼ਬਦਾਂ ਵਿਚ ।

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: BITL-1431

PUNJAB HISTORY & CULTURE (FROM EARLIEST TIMES TO C 320)

(Special Paper in lieu of Punjabi compulsory)

(For those students who are not domicile of Punjab)

Course Outcomes:

After completing Semester I and course on Punjab History and Culture Students of History will be able to identify a complete grasp on the sources & writings of Ancient Indian History of Punjab.

CO1 Identify and describe the emergence of earliest civilizations in: Indus Valley Civilization and Aryan Societies.

CO2 Identify and analyses the Buddhist, Jain and Hindu faith in the Punjab

CO3 Analyses the emergence of Early Aryans and Later Vedic Period, their Society, Culture, Polity and Economy

CO4 To make students understand the concepts of two faiths Jainism and Buddhism, its principles and their application in present times

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: BITL-1431

PUNJAB HISTORY & CULTURE (FROM EARLIEST TIMES TO C 320)

(Special Paper in lieu of Punjabi compulsory)

(For those students who are not domicile of Punjab)

Examination Time: 3 Hrs.

Max. Marks: 50

Theory: 40

CA: 10

Instructions for the Paper Setters:

1. Question paper shall consist of four Units
2. Examiner shall set 8 questions in all by selecting **Two Questions** of equal marks from each Unit.
3. Candidates shall attempt **5 questions in 600 words**, by at least selecting **One Question** from each Unit and the **5th question** may be attempted from any of the **four Units**.
4. Each question will carry 8 marks.

Unit-I

1. Physical features of the Punjab
2. Sources of the ancient history of Punjab

Unit-II

3. Harappan Civilization: social, economic and religious life of the Indus Valley People.
4. The Indo-Aryans: Original home

Unit-III

5. Social, Religious and Economic life during Early Vedic Age.
6. Social, Religious and Economic life during Later Vedic Age.

UNIT-IV

7. Teachings of Buddhism
8. Teachings of Jainism

References/Textbooks:

1. *L. Joshi (ed): History and Culture of the Punjab, Art-I, Patiala, 1989 (3rd edition)*
2. *L.M. Joshi and Fauja Singh (ed); History of Punjab , Vol.I, Patiala 1977.*
3. *Budha Parkash : Glimpses of Ancient Punjab, Patiala, 1983.*
4. *B.N. Sharma: Life in Northern India, Delhi. 1966.*
5. *Chopra, P.N., Puri, B.N., & Das, M.N.(1974). A Social, Cultural & Economic History of India, Vol. I, New Delhi: Macmillan India.*

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: BITL-1102

COMMUNICATION SKILLS IN ENGLISH

Course Outcomes:

At the end of this course, the students will develop the following Skills:

CO 1: Reading skills that will facilitate them to become an efficient reader

CO 2: The ability to realise not only language productivity but also the pleasure of being able to articulate well

CO 3: The power to analyse, interpret and infer the ideas in the text

CO 4: The ability to have a comprehensive understanding of the ideas in the text and enhance their critical thinking

CO 5: Writing skills of students which will make them proficient enough to express ideas in clear and grammatically correct English

CO 6: Ability to plan, organise and present ideas coherently on a given topic

CO 7: The skill to use an appropriate style and format in writing letters (formal and informal)

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: BITL-1102

COMMUNICATION SKILLS IN ENGLISH

Examination Time: 3 Hrs.

Max. Marks: 50

Theory: 40

CA: 10

Instructions for the paper setter and distribution of marks:

The question paper will consist of four sections. The candidate will have to attempt five questions in all selecting one from each section and the fifth question from any of the four sections. Each question will carry 8 marks.

Section-A: Two questions of theoretical nature will be set from Unit I.

Section-B: Two comprehension passages will be given to the students based on Unit II.

Section-C: Two questions will be given from Unit III.

Section-D: Two questions will be set from Unit IV.

(8 x 5 = 40)

The syllabus is divided in four units as mentioned below:

Unit I

Reading Skills: Reading Tactics and strategies; Reading purposes–kinds of purposes and associated comprehension; Reading for direct meanings.

Unit II

Reading for understanding concepts, details, coherence, logical progression and meanings of phrases/ expressions.

Activities:

- Comprehension questions in multiple choice format
- Short comprehension questions based on content and development of ideas

Unit III

Writing Skills: Guidelines for effective writing; writing styles for application, personal letter, official/ business letter.

Activities

- Formatting personal and business letters.
- Organising the details in a sequential order

Unit IV

Resume, memo, notices etc.; outline and revision.

Activities:

- Converting a biographical note into a sequenced resume or vice-versa
- Ordering and sub-dividing the contents while making notes.
- Writing notices for circulation/ boards

References/Textbooks:

1. *Oxford Guide to Effective Writing and Speaking* by John Seely.
2. *Business Communication*, by Sinha, K.K. Galgotia Publishers, 2003.
3. *Business Communication* by Sethi, A and Adhikari, B., McGraw Hill Education 2009.
4. *Communication Skills* by Raman, M. & S. Sharma, OUP, New Delhi, India (2011).
5. *English Grammar in Use: A Self Study Reference and Practice Book Intermediate Learners Book* by Raymond Murphy, Cambridge University Press.

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: BITL-1113

INTRODUCTION TO PROGRAMMING - C

Course Outcomes:

After passing course the student will be able to:

CO1: Understand formulation of algorithms and flowcharts for problem solution and different programming constructs.

CO2: Have knowledge of execution flow of a C program for programming and maintenance.

CO3: Apply programming concepts to provide solution in different problem domains.

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: BITL-1113

INTRODUCTION TO PROGRAMMING - C

Examination Time: 3 Hrs.

Max. Marks: 75

Theory: 60

CA: 15

Instructions for Paper Setter -

Eight questions of equal marks(12 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts(not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section

UNIT-I

Fundamentals: Character set, Identifiers and Key Words, Data types, Constants, Variables, Expressions, Statements, Symbolic Constants.

Operations and Expressions: Arithmetic operators, Unary operators, Relational Operators, Logical Operators, Assignment and Conditional Operators, Library functions. Data Input and Output statements

UNIT -II

Control Statements: Preliminaries, While, Do-while and for statements, Nested loops, If-else, Switch, Break – Continue statements.

Program Structure Storage Class: Storage Classes- Auto, extern, register and static
. about library functions.

UNIT-III

Functions: Brief overview, defining, accessing functions, passing arguments to function, specifying argument data types, function prototypes, recursion.

Arrays: Defining, processing an array, passing arrays to a function, multi-dimensional arrays.

Strings: String declaration, string functions and string manipulation.

UNIT - IV

Structures & Unions: Defining and processing a structure, user defined data types, structures and pointers, passing structures to functions, self referenced structure, unions.

Pointers: Fundamentals, pointer declaration, passing pointer to a function, pointer and one dimensional arrays, operation on pointers, pointers & multi-dimensional arrays of pointers, passing functions, other functions, more about pointer declarations.

References/Textbooks:

1. *E Balagurusamy, Programming in ANSI C, Tata McGraw-Hill, 2002.*
2. *Byron Gottfried, Schaum's Outline Programming with C, McGraw Hill, 1996.*
3. *Brian W. Kernighan, Dennis M. Ritchie, The C Programming language, Prentice Hall, 1988.*
4. *Stephen G. Kochan, Programming in C, Pearson Education, 2015.*

Note: The latest editions of the books should be followed.

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: BITL-1114

FUNDAMENTALS OF COMPUTERS

Course Outcomes:

After passing course the student will be able to:

CO1: Have knowledge of Computer fundamentals, operating system concepts and office automation software.

CO2: Apply office automation software to create professional and academic documents and presentations.

CO3: work on Spreadsheet application for office tasks.

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: BITL-1114

FUNDAMENTALS OF COMPUTERS

Examination Time: 3 Hrs.

Max. Marks: 75

Theory: 60

CA: 15

Instructions for Paper Setter -

Eight questions of equal marks (12 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts(not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT I

Fundamentals of Computer: Introduction to computer, Applications of computer, Components of computers (Input unit, Output Unit, Memory Unit & CPU).

Software: Application Software, Service software, System software -operating system (Types & Function of OS), Translators (compiler, interpreter, assembler), Booting a System.

UNIT II

Input Devices: Keyboards, Mouse, Joystick, Track Ball, Light Pen and Data Scanning devices (scanner, OCR, OMR, MICR, Bar Code Reader, Card Reader)

Output Devices: Monitor, Printers (laser printer, dot matrix printer, ink jet printer)

Memories: Primary Memory-RAM (How data is stored in a RAM & Types of RAM), ROM (Types of ROM) &**Secondary Memory-** Hard Disk (Structure of a hard disk, how data is stored in a hard disk, concept of tracks, sectors, clusters, cylinders), CD, DVD.

UNIT III

Word Processing: Introduction to Office, word processing & its features, Parts of window of word (Title bar, menu bar, status bar, and ruler), Understanding the Ribbon, Use of Office Button and Quick Access Toolbar, Creation of new documents, opening document, insert a document into another document. Page setup, margins, gutters, font properties, Alignment, page breaks, header

&footer, deleting, moving, replace, editing text in document, saving a document, spell checker, printing a document. Creating a table, entering and editing, Text in tables. Changing format of table, height, width of row/column. Editing, deleting Rows, columns in table. Adding picture, page colors and Watermarks, Borders, shading, Templates, wizards, drawing objects.

Presentation: Introduction to PowerPoint, Exploring menus, starting a new slide, saving presentation, moving/rearranging slides, printing slides. Applying theme to presentation, Views (slide View, slide sorter, notes view, outline view), Formatting & enhancing text formatting. Creating a graph, displaying slide show, adding multimedia. Slide transitions, applying Animation, Timing slide display, adding movies & sounds. Using a pick look Wizards to change format.

UNIT IV

Spreadsheet: Introduction to Worksheet/Spreads, Features of excel, Describe the excel Window, Creating a new workbook, different functions on different data in excel, creation of graphs, editing it and formatting, changing chart type to 2d chart or 3d chart, pivot table, creation of worksheet, adding, deleting, moving the text in worksheet, linking different sheets, sorting the data, querying the data, filtering the data (auto and advance filters), What-if analysis, To open an already existing workbook, Saving workbook, printing a worksheet, Closing the workbook & exiting.

References/Textbooks:

1. *Joyce Cox, Joan Lambert and Curtis Frye, Microsoft office Professional 2010 Step by Step, Microsoft Press, 2010.*
2. *V. Rajaraman, Neeharika Adabala, Fundamentals of Computers, PHI Learning, 2015.*
3. *P.K. Sinha, Computer Fundamentals, BPB Publications, 2004.*
4. *Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.*
5. *Peter Norton, Peter Norton's Computing Fundamentals, McGraw-Hill Technology Education, 2006.*

Note: The latest editions of the books should be followed.

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: BITL-1335

APPLIED & DISCRETE MATHEMATICS

Course Outcomes:

Student will be able to:

CO1: Have knowledge of matrices, sets, relations, propositional logic and Boolean algebra.

CO 2: Represent world knowledge in symbolic notation through propositional calculus.

CO 3: Apply discrete mathematical concepts to obtain analytical and numerical solutions.

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: BITL-1335

APPLIED & DISCRETE MATHEMATICS

Examination Time: 3 Hrs.

Max. Marks: 75

Theory: 60

CA: 15

Instructions for Paper Setter -

Eight questions of equal marks (12 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts(not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section

UNIT-I

Sets and Relations: Definition of sets, subsets, complement of a set, universal set, intersection and union of sets, De-Morgan's laws, Cartesian products, Equivalent sets, Countable and uncountable sets, minset, Partitions of sets, Relations: Basic definitions, graphs of relations, properties of relations

UNIT-II

Logic and Propositional Calculus: Proposition and Compound Propositions, basic Logical Operations, Propositions and Truth Tables, Tautologies and Contradictions, Logical Equivalence, Duality law, Algebra of propositions, Conditional and Bi conditional Statements, Arguments, Logical Implication, Propositional Functions, Predicates and Quantifiers, Negation of Quantified Statements, Inference theory of the predicates calculus.

UNIT-III

Boolean Algebra: Boolean algebra and its duality, Duality, Boolean Algebra as Lattices, Boolean identities, sub-algebra, Representation Theorem, Sum-of-Products Form for Sets, Sum of-Products Form for Boolean Algebra, Minimal Boolean Expressions, Prime Implicants, Boolean Functions, Karnaugh Maps.

UNIT-IV

Matrices: Introduction of a Matrix, its different kinds, matrix addition and scalar multiplication, multiplication of matrices, transpose etc. Square matrices, inverse and rank of a square matrix, Matrix Inversion method.

References/Textbooks:

1. Seymour Lipschutz, Marc Lars Lipson, *Discrete Mathematics (Schaum's outlines Series)*, McGraw-Hill, 1997.
2. Bernard Kolman, Robert C. Busby, *Discrete Mathematical structures for Computer Science*, Prentice-Hall, 1984.
3. Alan Doerr, Kenneth Levasseur, *Applied Discrete Structures for Computer Science*, Galgotia Publications, 1989.
4. J.P.Tremblay. and R Manohar, *Discrete Mathematical Structures with Applications to Computer Science*, McGraw-Hill, 1997.

Note: The latest editions of the books should be followed.

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: BITP-1116

PC COMPUTING AND C LANGUAGE-I

Examination Time: 3 Hrs.

Max. Marks: 75

Practical: 60

CA: 15

Practical – C Language Part I & PC Computing

Bachelor of Science (Information Technology) Semester- I

Session 2020-21

COURSE CODE: AECD-1161

**DRUG ABUSE: PROBLEM, MANAGEMENT AND PREVENTION
(COMPULSORY PAPER)**

Problem of Drug Abuse

Examination Time: 3 Hrs.

Max. Marks: 50

Theory: 40

CA: 10

Instructions for the Paper Setter

Eight questions of equal marks (08 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

1) Meaning of Drug Abuse: Meaning, Nature and Extent of Drug Abuse in India and Punjab.

UNIT-II

2) Consequences of Drug Abuse for:

Individual : Education, Employment, Income.

Family : Violence.

Society : Crime

Nation : Law and Order problem.

UNIT-III

3) Management of Drug Abuse

Medical Management: medication for treatment and to withdrawal effects.

UNIT-IV

4) Psychiatric Management: Counselling, Behavioural and Cognitive therapy.

Social Management: Family, Group therapy and Environmental Intervention.

References/Textbooks:

1. Ahuja, Ram (2003), *Social Problems in India*, Rawat Publication, Jaipur.
2. *Extent, Pattern and Trend of Drug Use in India*, Ministry of Social Justice and Empowerment, Government of India, 2004.
3. Inciardi, J.A. 1981. *The Drug Crime Connection*. Beverly Hills: Sage Publications.
4. Kapoor. T. (1985) *Drug epidemic among Indian Youth*, New Delhi: Mittal Pub.
5. Modi, Ishwar and Modi, Shalini (1997) *Drugs: Addiction and Prevention*, Jaipur: Rawat Publication.
6. *National Household Survey of Alcohol and Drug abuse*. (2003) New Delhi, Clinical Epidemiological Unit, All India Institute of Medical Sciences, 2004.
7. Sain, Bhim 1991, *Drug Addiction Alcoholism, Smoking obscenity* New Delhi: Mittal Publications.
8. Sandhu, Ranvinder Singh, 2009, *Drug Addiction in Punjab: A Sociological Study*. Amritsar: Guru Nanak Dev University.
9. Singh, Chandra Paul 2000. *Alcohol and Dependence among Industrial Workers*: Delhi: Shipra.
10. Sussman, S and Ames, S.L. (2008). *Drug Abuse: Concepts, Prevention and Cessation*, Cambridge University Press.

Bachelor of Science (Information Technology) Semester – III

Session 2020-21

**COURSE CODE: BITL-3111
INTRODUCTION TO PYTHON**

Course Outcomes:

After passing course the student will be able to:

CO1: Understand the formulation of algorithms and programs for problem solving.

CO2: Gain understanding of various programming constructs like data types, operators, string processing and control structures.

CO3: Have knowledge of object oriented programming paradigms.

CO4: Have understanding of file handling, exception handling and SQLite database connectivity in Python.

Bachelor of Science (Information Technology) Semester – III

Session 2020-21

**COURSE CODE: BITL-3111
INTRODUCTION TO PYTHON**

Examination Time: 3 Hrs.

Max. Marks: 75

Theory: 60

CA: 15

Instructions for Paper Setter -

Eight questions of equal marks (12 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

Unit- I

Introduction to Python: Process of Computational Problem Solving, Python Programming Language.

Data and Expressions: Literals, Variables and Identifiers, Operators, Expressions, Statements and Data Types.

Control Structures: Boolean Expressions (Conditions), Logical Operators, Selection Control, Nested conditions, Debugging.

Unit- II

Lists: List Structures, Lists (Sequences) in Python, Iterating Over Lists (Sequences) in Python.

Iteration: While statement, Definite loops using For, Loop Patterns, Recursive Functions, Recursive Problem Solving, Iteration vs. Recursion.

Dictionaries: Dictionaries and Files, Looping and dictionaries, Advanced text parsing.

Unit- III

Functions: Fundamental Concepts, Program Routines, Flow of Execution, Parameters & Arguments.

Files: Opening Files, Using Text Files, String Processing, Exception Handling.

Unit- IV

Objects and Their Use: Introduction to Object Oriented Programming.

Modular Design: Modules, Top-Down Design, Python Modules.

Using Databases and SQL: Database Concepts, SQLite Manager Firefox Add-on, SQL basic summary, Basic Data modeling, Programming with multiple tables.

References/Textbooks:

1. Charles Severance, *Python for Informatics, Version 0.0.7*.
2. Charles Dierbach, *Introduction to Computer Science Using Python: A Computational Problem-Solving Focus*, Wiley Publications, 2012.
3. Guttag John V, *Introduction To Computation And Programming Using Python*, PHI, 2014.
4. Jeeva Jose and Sojan P. Lal, *Introduction to Computating & Problem Solving Through Python*, Khanna Publishers, 2015.
5. Mark J. Guzdial, *Introduction to Computing and Programming in Python*, Pearson Education, 2015.
6. Kenneth Lambert, *Fundamentals of Python*, Course Technology, Cengage Learning, 2015
7. Mark Lutz, *Learning Python*, O'Reilly Media, 2013

Note: The latest editions of the books should be followed.

Bachelor of Science (Information Technology) Semester – III

Session 2020-21

COURSE CODE: BITL–3112

DATA STRUCTURE

Course Outcomes:

After passing course the student will be able to:

CO1: Get familiarized with basic data structures.

CO2: Analyze algorithms to determine their efficiency.

CO3: Handle operations on various data structures.

CO4: Choose appropriate data structures according to real world problems.

Bachelor of Science (Information Technology) Semester – III

Session 2020-21

COURSE CODE: BITL–3112

DATA STRUCTURE

Examination Time: 3 Hrs.

Max. Marks: 75

Theory: 60

CA: 15

Instructions for Paper Setter -

Eight questions of equal marks (12 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT-I

Basic Data Structure: Introduction to elementary Data Organization, Common Operation on Data Structures, Algorithm Complexity, Big O Notation, Time – Space tradeoff between Algorithms.

Arrays: Array Defined, Representing Arrays in Memory, Various Operations on Linear Arrays, Multidimensional Arrays.

UNIT-II

Sorting and Searching: Sorting Algorithms, Bubble Sort, Insertion Sort, Selection Sort, Merge Sort, Searching Algorithms, Linear Search and Binary Search.

Hashing: Hash Functions, Division Method, MidSquare Method, Folding Method.

Linked Lists Types of Linked Lists, Representing Linked Lists in Memory, Advantages of using Linked Lists over Arrays, Various Operations on Linked Lists.

UNIT-III

Stacks: Description of STACK structure, Implementation of Stack using Arrays and Linked Lists, Applications of Stacks – Converting Arithmetic expression from infix notation to polish and their subsequent evaluation, Quicksort Technique to sort an array.

Queues: Description of queue structure, Implementation of queue using arrays and linked lists, Description of priorities of queues, Dequeues.

UNIT-IV

Trees: Description of Tree Structure and its Terminology, Binary Trees and Binary Search Trees and their representation in Memory, Heapsort.

Graphs: Description of Graph Structure, Implement Graphs in Memory using Adjacency Matrix, PathMatrix, graph traversal techniques - DFS, BFS.

References/Textbooks:

1. *Seymour Lipschutz, Data Structures, Schaum's Outline Series, McGraw Hill Company, 2013.*
2. *Aaron M. Tenenbaum, Data Structures using C, Pearson Education, 1990.*

Note: The latest editions of the books should be followed.

Bachelor of Science (Information Technology) Semester – III

Session 2020-21

COURSE CODE: BITL–3113

SYSTEM ANALYSIS & DESIGN

Course Outcomes:

After passing course the student will be able to:

CO1: Gather data to analyze and specify the requirements of a system.

CO2: Design database for storing data and user interface for data input and output,

CO3: Build modular and structured design of a system and in designing a model.

CO4: Identify the quality assurance and documentation tools.

Bachelor of Science (Information Technology) Semester – III

Session 2020-21

**COURSE CODE: BITL–3113
SYSTEM ANALYSIS & DESIGN**

Examination Time: 3 Hrs.

Max. Marks: 75

Theory: 60

CA: 15

Instructions for Paper Setter -

Eight questions of equal marks (12 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I

System Planning and Analysis: Introduction to systems development life cycle and role of different stages. Requirement analysis, Problem definition, Feasibility Study and its importance. Information Gathering Tools, Cost Benefit Analysis, Role and Responsibilities of System Analyst.

UNIT–II

System Design: Introduction to Architectural Design, User Interface Design, Data Design, Tools for Structured design and System design considerations.

UNIT–III

System Testing: Introduction to testing and its types, Types of Documentation and Documentation Tools.

UNIT–IV

System Implementation: Quality Assurance, Managing system implementation, Transition to new system.

System Maintenance: Concept of maintenance and its importance, types of maintenance.

References/Textbooks:

1. *Marvin R. Gore and John W. Stubbe, Elements of System Analysis, Dubuque, Iowa Wm.C. Brown 1988.*
2. *Thapliyal M.P., System Analysis and Design, JBD Publisher, 2002.*
3. *Hoffer, Modern Systems Analysis and Design, George and Valacich, Pearson, 2014.*
4. *Dorny C. Nelson, Understanding Dynamic System: Approaches to Modelling, Analysis and Design, Pearson, 1993.*
5. *Perry Edwards, System Analysis and Design, McGraw-Hill, 1993.*
6. *Elias M. Awad, System Analysis and Design, Galgotia Publications, 1997.*
7. *James A. Senn, Analysis and Design of Information Systems, McGraw-Hill, 1989.*

Note: The latest editions of the books should be followed.

Bachelor of Science (Information Technology) Semester – III

Session 2020-21

COURSE CODE: BITP-3114

PROGRAMMING LAB – I (PYTHON PROGRAMMING LANGUAGE)

Examination Time: 3 Hrs.

Max. Marks: 50

Practical: 40

CA: 10

Lab-I: Lab based on Python Programming Language.

Bachelor of Science (Information Technology) Semester- III

Session 2020-21

COURSE CODE: BITP-3115

PROGRAMMING LAB – II (DATA STRUCTURE)

Examination Time: 3 Hrs.

Max. Marks: 25

Practical: 20

CA: 05

Lab – II: Lab based on Data Structure.

Bachelor of Science (Information Technology) Semester – V

Session 2020-21

COURSE CODE: BITL-5111

Computer Networks

Course Outcomes:

After passing course the student will be able to:

CO1: Describe the functions of each layer in OSI and TCP/IP model.

CO2: Understand the types of transmission media with real time applications

CO3: Describe the Data Link layer and Network layer design issues.

CO4: Explain the functions of Transport layer and Application layer protocols.

CO5: Have a basic knowledge of the use of cryptography and network security.

Bachelor of Science (Information Technology) Semester – V

Session 2020-21

COURSE CODE: BITL-5111

COMPUTER NETWORKS

Examination Time: 3 Hrs.

Max. Marks: 100

Theory: 80

CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (16 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT – I

Basic concepts of Computer Networks, Basic Components of a Network, Network types and topologies.

OSI Reference Model, TCP/IP Model, Comparison between TCP/IP and OSI model

Transmission Media: Coaxial Cable, Twisted Pair Cable, Fiber Optics & Satellites.

UNIT – II

Network Devices - Hub, Switch, Repeaters, Bridges, Routers, Gateways.

Introduction to Analog and Digital Transmission: Telephone system, Modems, Types of modems, pulse code modulation. Multiplexing and its types, Circuit Switching, Packet Switching, Message Switching, ISDN service transmission.

UNIT - III

Data Link Layer Design Issues: Framing, Error Control, Flow Control, Error Detection & Correction, Media Access Protocols: ALOHA, CSMA, CSMA/CD, CSMA/CA. IEEE standards 802: Token Bus, Token Ring, FDDI.

Design Issues of Network Layer: Routing, IPv4: Notation, Classful addressing, Header Format, IPv6 addressing.

UNIT – IV

Design issues of Transport Layer: TCP, UDP

Network Security and Privacy: Brief Introduction to Cryptography.

Network Services: File transfer, Access & Management, Electronic Mail, Remote login.

References/Textbooks:

1. *Tanenbaum , A.S., Computer Networks, Prentice Hall, 2010.*
2. *Stallings, W., Local Networks: An Introduction: Macmillan Publishing Co, 1990.*
3. *Stallings W., Data and Computer Communications, Prentice Hall, 2011.*
4. *Forouzan B., Data Communications and networking, McGraw Hill, 2007.*

Note: The latest editions of the books should be followed.

Bachelor of Science (Information Technology) Semester – V

Session 2020-21

COURSE CODE: BITL-5112

WEB TECHNOLOGIES

Course Outcomes:

After passing course the student will be able to:

CO1: Understand the basics of websites and use of different markup languages.

CO2: Gain knowledge of different client side technologies.

CO3: Develop single page application through React.

Bachelor of Science (Information Technology) Semester – V

Session 2020-21

COURSE CODE: BITL-5112

WEB TECHNOLOGIES

Examination Time: 3 Hrs.

Max. Marks: 100

Theory: 80

CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (16 Marks) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT I

Web Essentials – Client/Server Architecture, Web Server, Webpage, Website, Internet, Protocol, OSI model, IP Addresses, Port, HTTP Method, HTTP Response/Request, HTTPS, URL, Browser Architecture, E-mail Protocols, World Wide Web, DNS.

HTML – Basics, Program Structure, Headings, Paragraph, Styling, Formatting, Hyperlink, Image, Table, List, Frame, Block, Entities, Form, Form Elements, Introduction To XHTML.

CSS – Types, Selector, Colors, Background, Box Model, Text, Font, Display, Position, Float, Clear, Rounded Corners.

UNIT - II

Javascript Language – Basics, Features, Advantages, Limitations, Types, Basics, Functions, Control Statement, Arrays, JavaScript Objects, Host Objects.

DOM – Introduction, Methods, Accessing HTML and CSS, Events, Event Listener, Nodes and Collection.

BOM – Window, Screen, History, Navigation.

UNIT – III

ES6 – Variables, Arrow functions, Class and Inheritance.

Introduction to React - Render HTML, JSX.

React Components – Web component, Class, Function, Constructor, nested Component.

UNIT IV

Data Handling – Props, Props Validation, State, Fetching Data through API.

Lifecycle of React Components, Form Handling in React, Event Handling in React, React Sass.

References/Textbooks:

1. *Jeffery C Jackson, Web Technology- A Computer Science perspective, Pearson Education, 2007.*
2. *Chris Bates, Web Programming- Building Internet Applications, Wiley India, 2006.*
3. *Achyut S Godbole and AtulKahate, Web technologies, Tata McGraw Hill, 2002.*
4. *Uttam K Roy, Web Technologies, Oxford University Press, 2010.*
5. *Kirupa Chinnathambi, Learning React, Addison-Wesley Professional, 2019.*
6. *Alex Banks, Eve Porcello, Learning React: Functional Web Development with React and Redux, O'Reilly Media, 2017.*

Note: The latest editions of the books should be followed.

Bachelor of Science (Information Technology) Semester – V

Session 2020-21

COURSE CODE: BITL-5113

OPERATING SYSTEM

Course Outcomes:

After passing course the student will be able to:

CO1: Describe, contrast and compare different types of Operating System.

CO2: Understand the process management policies and CPU scheduling.

CO3: Describe and analyze the memory management and its allocation policies.

CO4: Gain knowledge of operating system concepts that includes virtual memory, mutual exclusion algorithms and deadlock handling.

Bachelor of Science (Information Technology) Semester – V

Session 2020-21

COURSE CODE: BITL-5113

OPERATING SYSTEM

Examination Time: 3 Hrs.

Max. Marks: 100

Theory: 80

CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (16 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT – I

Introduction: Definition, Batch Processing, Multi programming, Time Sharing Systems, Multitasking, multiprocessing, Parallel Systems, Distributed Systems, Real–time Systems.

Processes: Process Concepts, Process Scheduling, Threads, System Calls.

UNIT - II

CPU–Scheduling: Basic concepts, Scheduling Criteria, Scheduling Algorithms, Algorithm Evaluation: Response Time, Turnaround Time, Waiting Time, Throughput.

Process Synchronization: Critical-section problem, semaphores and its Types (Binary and Counting), Classical problems of synchronization and their solutions.

UNIT – III

Deadlocks: System Model, Deadlock characterization, Methods for handling deadlocks, Deadlocks Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock, Approach to Deadlock handling.

Memory Management: Background, Logical v/s Physical Address Space, Swapping, Continuous Allocation, Paging, Segmentation.

UNIT – IV

Virtual Memory: Background, Page Fault, Demand Paging, Page Replacement, Page Replacement Algorithms, Thrashing.

Secondary Storage Structures: Disk structures, Disk scheduling.

References/Textbooks:

1. *Avi Silberschatz, Peter Baer Galvin, Greg Gagne, Operating System Concepts, Wiley, 2013.*
2. *Charles Crowley, Operating Systems: A Design-Oriented Approach , Tata McGraw Hill, 2001.*
3. *Deitel, An Introduction to Operating Systems, Second Edition, Addison Wesley, 1990.*
4. *William Stallings, Operating Systems: Internals and Design Principles, Pearson Education Limited, 2014.*

Note: The latest editions of the books should be followed.

Session 2020-21
COURSE CODE: BITP-5114
LAB BASED ON WEB TECHNOLOGIES

Examination Time: 3 Hrs.

Max. Marks: 50

Practical: 40

CA: 10

Lab Based on Web Technologies.

Bachelor of Science (Information Technology) Semester – V

Session 2020-21

COURSE CODE: BITP-5115

LAB BASED ON OPERATING SYSTEM

Examination Time: 3 Hrs.

Max. Marks: 50

Practical: 40

CA: 10

Lab Based on Operating System.