

No.	Name of the Candidate	Age	Sex	Religion	Caste	Education	Occupation	Marital Status	Date of Birth	Date of Admission	Date of Discharge	Remarks
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DEPUTY DIRECTOR

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No.	Name of Candidate	Performance												Overall Rating	Remarks			
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DEPUTY DIRREG. OA
 IKIP TU C AMPUS II SHIF. P. P.

3.1.1 Percentage of programmes where systems are operational during the last two years (2011-2012)

3.1.2 Percentage of programmes in which (Shareholder/Local System/ICDC) system control has been implemented (Yes/No) for the most important systems year

Programme Code	Programme name	Year of introduction	System of implementation of ICDC / selective control system (Y/N/NA)	Year of implementation of ICDC / selective control system	Year of revision of system	System has been installed and is in the effective during last 2 years (Percentage of systems control in operation)	Link to the report document
8 Tech 204 (Engineering)		2011	Yes	2011	NA	NA	Link to the report document http://www.iaea.org/infocentre/records/15112/1/15112_01.pdf GLS-Advanced control.pdf
9 Tech (Nuclear Engineering)		2012	Yes	2012	NA	NA	Link to the report document http://www.iaea.org/infocentre/records/15112/1/15112_01.pdf GLS-Advanced control.pdf
6 Tech 210		2013	Yes	2013	2014	100%	Link to the report document http://www.iaea.org/infocentre/records/15112/1/15112_01.pdf GLS-Advanced control.pdf

3.1.3 Percentage of ICDC in use and 2nd year has been 100% by the end of 2012 (percentage of systems with 2nd year and revision of system and update of GLS for operation according to latest performance in other projects)

Programme in which systems are controlled at the last two years	Number of programmes affected by the installation of the last 2 years
Programme in which systems are controlled at the last two years	2
Programme in which systems are controlled at the last two years	4
Programme in which systems are controlled at the last two years	NA



DEPUTY DIRECTOR

IKGPTU C AMPUS TOSHIYA RPUA

Year	Month											Total	Remarks	Remarks			
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov						
Year 2010-2011																	



DEPUTY DIRECTOR

 KGPPTU & MPUCS, CHM, K. S.

DEPUTY DIRECTOR

No. Urut		Nama		Jenis Kelamin		Agama		Tinggi Badan		Berat Badan		Golongan Darah		Status Perkawinan		Pendidikan		Kategori		Keterangan	
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DEPUTY DIRECTOR
IKGPTU CAMPUS CIBINONG

Activity	2011												Total	Comments	Responsible	Status	
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No	Date	Particulars	Debit												Credit	Balance	Remarks	
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DEPUTY DIRECTOR
 IKSPTU C. AGRIKULTUR ... SHARIPU...

No	Nama	Jenis Kelamin	Tahun												Jumlah	Keterangan	
			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022			
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No	Nama	Jenis Kelamin	Tahun												Jumlah	Keterangan	
			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022			
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No	Nama	Jenis Kelamin	Tahun												Jumlah	Keterangan	
			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022			
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No	Nama	Jenis Kelamin	Tahun												Jumlah	Keterangan	
			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022			
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DEPUTY DIRECTOR

IKOPU CAMPUS ...

Kategori		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099															
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Kategori		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100														
Kategori		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100														
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DEPUTY DIR. C.R
 IKIPPTU C AMPUS SHARAFUR

No	Nama Pegawai	Tahun Kerja												Jumlah	Kategori	Keterangan	
		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982				
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DEPUTY DIRECTOR
 IKPPTU CAMPUS SHIPPIA PUA

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DEPUTY DIRECTOR
IKIP TU CAMPUS SHILAPU

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Table with 13 columns (ID, Name, Birth Date, etc.) and 10 rows of employee data.

Table with 13 columns (ID, Name, Birth Date, etc.) and 10 rows of employee data.

IKGPTU CAMPUS ... SHILA PPT

DEPUTY DIRECTOR



Item Description	06/0	06/1	06/2	06/3	06/4	06/5	06/6	06/7	06/8	06/9	06/10	06/11	06/12	06/13	06/14	06/15	06/16	06/17	06/18	06/19	06/20	06/21	06/22	06/23	06/24	06/25	06/26	06/27	06/28	06/29	06/30	Unit	Year or Frequency / Frequency %	Account Code or Project Name or ID		
Item Description																																None	None	Account Code or Project Name or ID		
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Item Description	06/0	06/1	06/2	06/3	06/4	06/5	06/6	06/7	06/8	06/9	06/10	06/11	06/12	06/13	06/14	06/15	06/16	06/17	06/18	06/19	06/20	06/21	06/22	06/23	06/24	06/25	06/26	06/27	06/28	06/29	06/30	Unit	Year or Frequency / Frequency %	Account Code or Project Name or ID			
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DEPUTY DIRECTOR
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Table with columns: Objective/Outcome, PO 1-13, Skill, Focus on Sustainability, and Assessment Tools to Measure Achievement of CO. Includes sections for General Outcomes, Specific Outcomes, and Performance Objectives.

DEPUTY DIRECTOR
IKPTU MAPUS ...

Exam Title	Exam Dates		Exam Type	Examination Period		Examination Mode	Examination Location	Remarks		
	Start Date	End Date		Start Date	End Date					
Mathematics	2023	2023	Mid-term	2023-06-01	2023-06-02	Online	L12001	Pass		
									2023-06-03	2023-06-04
									2023-06-05	2023-06-06
Science	2023	2023	Mid-term	2023-06-01	2023-06-02	Online	L12002	Pass		
									2023-06-03	2023-06-04
									2023-06-05	2023-06-06
English	2023	2023	Mid-term	2023-06-01	2023-06-02	Online	L12003	Pass		
									2023-06-03	2023-06-04
									2023-06-05	2023-06-06
History	2023	2023	Mid-term	2023-06-01	2023-06-02	Online	L12004	Pass		
									2023-06-03	2023-06-04
									2023-06-05	2023-06-06
Physical Education	2023	2023	Mid-term	2023-06-01	2023-06-02	Online	L12005	Pass		
									2023-06-03	2023-06-04
									2023-06-05	2023-06-06
Art	2023	2023	Mid-term	2023-06-01	2023-06-02	Online	L12006	Pass		
									2023-06-03	2023-06-04
									2023-06-05	2023-06-06
Music	2023	2023	Mid-term	2023-06-01	2023-06-02	Online	L12007	Pass		
									2023-06-03	2023-06-04
									2023-06-05	2023-06-06
Computer Science	2023	2023	Mid-term	2023-06-01	2023-06-02	Online	L12008	Pass		
									2023-06-03	2023-06-04
									2023-06-05	2023-06-06


 DIRECTOR

IKGPTU CAMPUS ...

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DEPUTY DIRECTOR



Position Title	Fiscal Year												Position Type	Supervisory / Administrative	Department / Division	
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018				
Deputy Director	1	1	1	1	1	1	1	1	1	1	1	1	1	SA	Supervisory / Administrative	New York, Department of State
Deputy Director	1	1	1	1	1	1	1	1	1	1	1	1	1	SA	Supervisory / Administrative	New York, Department of State
Deputy Director	1	1	1	1	1	1	1	1	1	1	1	1	1	SA	Supervisory / Administrative	New York, Department of State
Deputy Director	1	1	1	1	1	1	1	1	1	1	1	1	1	SA	Supervisory / Administrative	New York, Department of State
Deputy Director	1	1	1	1	1	1	1	1	1	1	1	1	1	SA	Supervisory / Administrative	New York, Department of State
Deputy Director	1	1	1	1	1	1	1	1	1	1	1	1	1	SA	Supervisory / Administrative	New York, Department of State

Item No.	Description of the work to be done	Status												Responsibility / Deliverables	Focus on	Remarks	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec				
101	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
102	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
103	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
104	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
105	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
106	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
107	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
108	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
109	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
110	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
111	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
112	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
113	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
114	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
115	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
116	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
117	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
118	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
119	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...
120	...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Assessing and...	Yes	...

DEPUTY DIRECTOR
IKGPTU CAMPUS TOSHIBA POUA

Job Title / Objective	Performance Indicators												Focus on Empirical / Entrepreneurial	Assessment Tools / Measurement	
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12			
<ul style="list-style-type: none"> 1.1. Evaluate the concept of communication, communication and collaboration 1.2. Apply the concept of communication, communication and collaboration in the context of professional practice 1.3. Apply the concept of communication, communication and collaboration in the context of professional practice 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	No	New Exam, assignment, End Term Exam
<ul style="list-style-type: none"> 1.4. Apply the concept of communication, communication and collaboration in the context of professional practice 1.5. Apply the concept of communication, communication and collaboration in the context of professional practice 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	No	New Exam, assignment, End Term Exam
<ul style="list-style-type: none"> 1.6. Apply the concept of communication, communication and collaboration in the context of professional practice 1.7. Apply the concept of communication, communication and collaboration in the context of professional practice 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	No	New Exam, assignment, End Term Exam
<ul style="list-style-type: none"> 1.8. Apply the concept of communication, communication and collaboration in the context of professional practice 1.9. Apply the concept of communication, communication and collaboration in the context of professional practice 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	No	New Exam, assignment, End Term Exam
<ul style="list-style-type: none"> 1.10. Apply the concept of communication, communication and collaboration in the context of professional practice 1.11. Apply the concept of communication, communication and collaboration in the context of professional practice 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	No	New Exam, assignment, End Term Exam
<ul style="list-style-type: none"> 1.12. Apply the concept of communication, communication and collaboration in the context of professional practice 1.13. Apply the concept of communication, communication and collaboration in the context of professional practice 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	No	New Exam, assignment, End Term Exam
<ul style="list-style-type: none"> 1.14. Apply the concept of communication, communication and collaboration in the context of professional practice 1.15. Apply the concept of communication, communication and collaboration in the context of professional practice 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	No	New Exam, assignment, End Term Exam
<ul style="list-style-type: none"> 1.16. Apply the concept of communication, communication and collaboration in the context of professional practice 1.17. Apply the concept of communication, communication and collaboration in the context of professional practice 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	No	New Exam, assignment, End Term Exam
<ul style="list-style-type: none"> 1.18. Apply the concept of communication, communication and collaboration in the context of professional practice 1.19. Apply the concept of communication, communication and collaboration in the context of professional practice 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	No	New Exam, assignment, End Term Exam
<ul style="list-style-type: none"> 1.20. Apply the concept of communication, communication and collaboration in the context of professional practice 1.21. Apply the concept of communication, communication and collaboration in the context of professional practice 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	No	New Exam, assignment, End Term Exam
<ul style="list-style-type: none"> 1.22. Apply the concept of communication, communication and collaboration in the context of professional practice 1.23. Apply the concept of communication, communication and collaboration in the context of professional practice 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	No	New Exam, assignment, End Term Exam
<ul style="list-style-type: none"> 1.24. Apply the concept of communication, communication and collaboration in the context of professional practice 1.25. Apply the concept of communication, communication and collaboration in the context of professional practice 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	No	New Exam, assignment, End Term Exam

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IKGPTU CAMPUS WOSHAPUR

[12] Assessment of potential legal basis of enforcement over energy resources		[13] Assessment of potential legal basis of enforcement over water resources		[14] Assessment of potential legal basis of enforcement over land resources		[15] Assessment of potential legal basis of enforcement over forest resources		[16] Assessment of potential legal basis of enforcement over mineral resources		[17] Assessment of potential legal basis of enforcement over fisheries resources		[18] Assessment of potential legal basis of enforcement over other resources		[19] Assessment of potential legal basis of enforcement over other resources		[20] Assessment of potential legal basis of enforcement over other resources		[21] Assessment of potential legal basis of enforcement over other resources	
[12] Assessment of potential legal basis of enforcement over energy resources		[13] Assessment of potential legal basis of enforcement over water resources		[14] Assessment of potential legal basis of enforcement over land resources		[15] Assessment of potential legal basis of enforcement over forest resources		[16] Assessment of potential legal basis of enforcement over mineral resources		[17] Assessment of potential legal basis of enforcement over fisheries resources		[18] Assessment of potential legal basis of enforcement over other resources		[19] Assessment of potential legal basis of enforcement over other resources		[20] Assessment of potential legal basis of enforcement over other resources		[21] Assessment of potential legal basis of enforcement over other resources	
[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]
[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]

RCPPTU CAMPUS SHANPUR
PROVINCIAL DIRECTOR
 OFFICE OF THE DIRECTOR
 GOVT. COLLEGE, SHANPUR
 DISTRICT: SIKKIM, INDIA
 PIN CODE: 737122

Approved Mechanisms of Study		PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15	PO 16	PO 17	PO 18	PO 19	PO 20	PO 21	PO 22	PO 23	PO 24	PO 25	PO 26	PO 27	PO 28	PO 29	PO 30	PO 31	PO 32	PO 33	PO 34	PO 35	PO 36	PO 37	PO 38	PO 39	PO 40	PO 41	PO 42	PO 43	PO 44	PO 45	PO 46	PO 47	PO 48	PO 49	PO 50			
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150					

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 DEPARTMENT OF MPUC, SHARAPUR

Programme: **Engineering (Mechanical Engineering)**
Subject: 6. Heat Transfer Science and Engineering
Unit: 6.1 Heat Conduction Science and Engineering

Topic	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Conduction																				
Heat transfer through solids																				
Heat transfer through liquids																				
Heat transfer through gases																				
Heat transfer through radiation																				
Heat transfer through composite walls																				
Heat transfer through fins																				
Heat transfer through unsteady state																				
Heat transfer through convection																				
Heat transfer through forced convection																				
Heat transfer through natural convection																				
Heat transfer through radiation																				
Heat transfer through radiation																				
Heat transfer through radiation																				
Heat transfer through radiation																				
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Heat transfer through radiation																				
Heat transfer through radiation																				
Heat transfer through radiation																				
Heat transfer through radiation																				
Heat transfer through radiation																				

With due regard to the above, it is recommended that the student should be awarded the grade of **Pass** for the subject.

Programme: **Engineering (Mechanical Engineering)**
Subject: 6. Heat Transfer Science and Engineering
Unit: 6.2 Heat Conduction Science and Engineering

Topic	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Conduction																				
Heat transfer through solids																				
Heat transfer through liquids																				
Heat transfer through gases																				
Heat transfer through radiation																				
Heat transfer through composite walls																				
Heat transfer through fins																				
Heat transfer through unsteady state																				
Heat transfer through convection																				
Heat transfer through forced convection																				
Heat transfer through natural convection																				
Heat transfer through radiation																				
Heat transfer through radiation																				
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Heat transfer through radiation																				
Heat transfer through radiation																				
Heat transfer through radiation																				
Heat transfer through radiation																				

With due regard to the above, it is recommended that the student should be awarded the grade of **Pass** for the subject.

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 IKOPTYU CAMPUS BANGSHAPUR

Department Computer Science and Engineering
Program B Tech Computer Science and Engineering
COURSE NAME: Introduction to Artificial Intelligence

Sl. No.	Topic	Week	Chapter	Unit	Sub-Unit	Practicals	Assignments	Projects	Case Studies	Quizzes	Exams	Grading	Remarks
1	Engineering Knowledge												
2	Problem Analysis												
3	Design/Development of solutions												
4	Investigation of complex problems												
5	Modern tool usage												
6	The engineer and society												
7	Environment and sustainability												
8	ethics												
9	Individual and team work												
10	Communication												
11	Project management and finance												
12	Health Learning												
13	Health Safety Knowledge												
14	innovation and design												
15	Entrepreneurship Skills												
16	Project values												

Department Computer Science and Engineering
Program B Tech Computer Science and Engineering
COURSE NAME: Introduction to Artificial Intelligence

Sl. No.	Topic	Week	Chapter	Unit	Sub-Unit	Practicals	Assignments	Projects	Case Studies	Quizzes	Exams	Grading	Remarks
1	Engineering Knowledge												
2	Problem Analysis												
3	Design/Development of solutions												
4	Investigation of complex problems												
5	Modern tool usage												
6	The engineer and society												
7	Environment and sustainability												
8	ethics												
9	Individual and team work												
10	Communication												
11	Project management and finance												
12	Health Learning												
13	Health Safety Knowledge												
14	innovation and design												
15	Entrepreneurship Skills												
16	Project values												


 DILEEP A
 IKGITU CAMPUS SILVASSA

CO No.	CO Skill	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	
		Engineering Knowledge																			
		Problem Analysis																			
		Design/development of solutions																			
		Conduct investigations of complex problems																			
		Modern tool usage																			
		The engineer and society																			
		Environment and sustainability																			
		Ethics																			
		Individual and team work																			
		Communication																			
		Project management and finance																			
		Life long Learning																			
		Having Domain Knowledge																			
		Innovation and design																			
		Entrepreneurial Skills																			
		Global context																			

Department Computer Science and Engineering
 Program S Tech Computer Science and Engineering
 4th Sem (2020-21)

CO No.	CO Skill	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	
		Engineering Knowledge																			
		Problem Analysis																			
		Design/development of solutions																			
		Conduct investigations of complex problems																			
		Modern tool usage																			
		The engineer and society																			
		Environment and sustainability																			
		Ethics																			
		Individual and team work																			
		Communication																			
		Project management and finance																			
		Life long Learning																			
		Having Domain Knowledge																			
		Innovation and design																			
		Entrepreneurial Skills																			
		Global context																			

Department Computer Science and Engineering
 Program S Tech Computer Science and Engineering
 4th Sem (2020-21)

CO No.	CO Skill	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	POs	
		Engineering Knowledge																			
		Problem Analysis																			
		Design/development of solutions																			
		Conduct investigations of complex problems																			
		Modern tool usage																			
		The engineer and society																			
		Environment and sustainability																			
		Ethics																			
		Individual and team work																			
		Communication																			
		Project management and finance																			
		Life long Learning																			
		Having Domain Knowledge																			
		Innovation and design																			
		Entrepreneurial Skills																			
		Global context																			

Department Computer Science and Engineering
 Program S Tech Computer Science and Engineering
 4th Sem (2020-21)



Programme Curriculum Structure and Requirements
 Program 3: Civil Engineering (Bachelor of Engineering)
 (3-2-2-2-2) Year 1: Foundation and Core Studies

Year	Semester	Course	Credits					Total	Remarks
			Elective	Core	Foundation	Professional	General		
1	1	Engineering Knowledge	3	3	3	3	12	Approved by the Senate of IIGPTU, 2018	
		Problem Solving	3	3	3	3	12		
	2	Design/development of solution	3	3	3	3	12		
		Oral and written communication	3	3	3	3	12		
	3	Team work	3	3	3	3	12		
		Professional and ethical behaviour	3	3	3	3	12		
	4	Personal and team work	3	3	3	3	12		
		Communication	3	3	3	3	12		
	5	Project management and finance	3	3	3	3	12		
		Industry Learning	3	3	3	3	12		
	6	Industry Domain Knowledge	3	3	3	3	12		
		Innovation and design	3	3	3	3	12		
	7	Entrepreneurship Skills	3	3	3	3	12		
		Global issues	3	3	3	3	12		
	Grand Total			120	120	120	120		

Year	Semester	Course	Credits					Total	Remarks
			Elective	Core	Foundation	Professional	General		
1	1	Engineering Knowledge	3	3	3	3	12	Approved by the Senate of IIGPTU, 2018	
		Problem Solving	3	3	3	3	12		
	2	Design/development of solution	3	3	3	3	12		
		Oral and written communication	3	3	3	3	12		
	3	Team work	3	3	3	3	12		
		Professional and ethical behaviour	3	3	3	3	12		
	4	Personal and team work	3	3	3	3	12		
		Communication	3	3	3	3	12		
	5	Project management and finance	3	3	3	3	12		
		Industry Learning	3	3	3	3	12		
	6	Industry Domain Knowledge	3	3	3	3	12		
		Innovation and design	3	3	3	3	12		
	7	Entrepreneurship Skills	3	3	3	3	12		
		Global issues	3	3	3	3	12		
	Grand Total			120	120	120	120		

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 IIGPTU CAMPUS SHARIPUR


Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

Department: Computer Science and Engineering
 Program: B.Tech. Computer Science and Engineering
 AICTE: (2019) 0133

Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

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 IKGPTU CAMPUS KOSHIKULAPUR



Appendix 1 Computer Science Performance
Appendix 2 Non-Computer Science Performance
 (Both Year 12 and Year 13)

Year	Engineering Knowledge	Problem Analysis	Design and development of solutions	Production and evaluation of complex solutions	Problem Solving	The engineer and society	Environment and sustainability	ethics	Individual and teamwork	Communication	Project management and innovation	Industry Learning	Industry Partner Knowledge	Innovation and design	Entrepreneurship skills	Other skills
Year 12																
Year 13																

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 IKOPPTU CAMPUS SIBOLGA
 SIBOLGA

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	PSO-p	Learning Focus or Assessment Tools to Measure Attainment of CO
CO1	For a given algorithm student will be able to analyze the algorithm to determine the time and computational complexity and verify the correctness.	3	3	2	3	2	3	0	0	0	0	1	3	3	3	1	0	MSTs, ESE, Class/Quiz Tests

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 DEPARTMENT OF CSE

CO4	Students will be able to choose appropriate data structure as applied to specific problem definition	3	3	3	3	3	3	3	3	0	3	3	3	1	0	
		3	3	3	3	3	3	3	3	3	0	3	3	3	3	3
CO5	Demonstrate the reusability of Data Structures for implementing complex iterative problems	3	3	3	3	3	3	3	3	3	3	3	3	3	1	0
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Department Computer Science and Engineering
 Program B.Tech. (Computer Science and Engineering)

B.Tech (type code) (type course name)

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Learning Focus of Assessment Tools to Measure Attainment of CO
		Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Lifelong Learning	Working Domain Knowledge	Innovation and design	Entrepreneurship Skills	Ethical values	


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15

CO1	Identify classes, objects, members of a class and the relationships among them. needed to solve a specific problem operators	3	3	3	3	3	3	3	0	0	0	0	1	3	3	1	0	MSTs, ESE, Class/Quiz Tests
CO2	Demonstrate the concept of constructors and destructors. And create new definitions for some of the operators	3	3	3	1	2	0	0	1	0	1	0	1	3	3	1	0	MSTs, ESE, Class/Quiz Tests
CO3	Create function templates, overload function templates	3	3	3	1	1	0	0	1	0	1	0	3	3	3	1	0	MSTs, ESE, Class/Quiz Tests
CO4	Understand and demonstrate the concept of data encapsulation, inheritance, polymorphism with virtual functions	3	3	3	2	2	0	0	3	0	3	0	3	3	3	1	0	

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CO5	3	3	3	2	2	0	0	3	0	3	3	3	3	1	0
Demonstrate the concept of file operation s, streams in C++ and various IO manipulators															

Department Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 BTCs(type code) : (type course name)

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	PSO-p	Learning Focus of Assessment Tools to Measure Attainment of CO
CO1	Improve practical skills in designing and implementing basic linear data structure algorithm	3	3	3	3	2	3	0	0	0	0	1	3	3	3	1	0	MSTs, ESE, ClassQuiz Tests


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CO2 Improve practical skills in designing and implementing Non-Linear data structure algorithms.	3	3	3	3	3	1	0	1	0	0	0	0	2	1	3	3	3	3	3	1	0	MSTs, ESE, Class/Quiz Tests		
	CO3 Use Linear and Non-Linear data structures to solve relevant problems.	3	3	3	3	3	1	0	1	0	0	0	0	1	1	3	3	3	3	3	1	0	MSTs, ESE, Class/Quiz Tests	
		CO4 Choose appropriate Data Structure as applied to specific problem definition. Implement various searching algorithms and become familiar with their design methods.	3	3	3	3	3	2	0	3	0	0	0	0	2	2	3	3	3	3	3	1	0	
			3	3	3	3	3	2	0	3	0	0	0	0	2	2	3	3	3	3	3	1	0	

Department Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 S(401-18) : Discrete Mathematics


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 DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

15/8/23

CO No.	CO State	Learning Focus of Assessment Tools to Measure Attainment of CO																
		PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PSO-k	PSO-l	PSO-m	PSO-n	PSO-o	PSO-p	
CO1	To be able to express logical sentence in terms of predicate \exists , quantifier \forall , and logical connectives	3	3	3	2		1	1										Understand employability MSTs, ESE, Class/Quiz Tests
CO2	To derive the solution for a given problem using deductive logic and prove the solution based on logical inference	3	3	3	3		1											Design employability MSTs, ESE, Class/Quiz Tests
CO3	For a given mathematical problem, classify its algebraic structure	3	3	3	2													Design employability MSTs, ESE, Class/Quiz Tests


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CO4	To evaluate Boolean functions and simplify expressions using the properties of Boolean algebra.	3	3	3	3	3	2	2	1	1	1	1	1	Design	employability, MSTs, ESE, Class/Quiz Tests
		3	3	3	3	3	2	2	2	2	2	2	2	2	2
CO5	To develop the given problem as graph networks and solve with techniques of graph theory.	3	3	3	3	3	2	2	1	1	1	1	1	Design	employability, MSTs, ESE, Class/Quiz Tests
		3	3	3	3	3	2	2	2	2	2	2	2	2	2

Department Computer Science and Engineering
 Program - B.Tech. (Computer Science and Engineering)
 TCS (BTE5401-18) (Computer Organisation and Architecture)

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	PSO-p	Learning Focus	Assessment Tools to Measure Attainment of CO
CO1	Understand functional block diagram of microprocessor	3	1	2	2	2	1			1	1			3		1		3	3 MSTs, ESE, Class-Quiz Tests


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CO No.	CO State	Learning Focus of Assessment Tools to Measure Attainment of CO																
		PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	
CO1	Explain basic operating system concepts such as overall architecture, system calls, user mode and kernel mode.	3	2	2	1	1	1	1	2	1	1	1	2	2	2	2		
CO2	Distinguish concepts related to processes, threads, process scheduling, race condition and critical sections.	3	3	3	3	3	2	2	1	2	2	2	2	3	3	2	1	



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CO3	Analyze and apply CPU scheduling algorithms, deadlock detection and prevention algorithms.	3	3	3	3	3	3	2	1	2	2	2	3	3	3	3	3	3	1	Design	MSTs, ESE, Class/Quiz Tests	
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
CO4	Examine and categorize various memory management techniques like caching, paging, segmentation, virtual memory, and thrashing.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	Analyse	MSTs, ESE, Class/Quiz Tests
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
CO5	Design and implement file management systems.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	Design	MSTs, ESE, Class/Quiz Tests
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
CO6	Appraise high-level operating systems concepts such as file systems, disk-scheduling algorithms and various file systems.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	Understand	MSTs, ESE, Class/Quiz Tests
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		


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Department Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 BTCS 403-18 : (Design & Analysis of Algorithms)

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Learning Focus	Assessment Tools
CO1	For a give	3	3	1	3									3	2			Understand	MSTs, ESE, Class/Quiz Tests
CO2	Explain w	3	3	3	3									3	2			Analyse	
CO3	Explain m	3	3	3	3									3	2			Analyse	
CO4	Demonstr	3	3	3	3									3	2			Design	
CO5	Examine th	3	3	3	3									3	2			Design	

Department Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 BTCS402-18 : (Computer Organisation and Architecture Lab)

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Learning Focus	Assessment Tools
CO1	Assembl e personal computer	3	2	2	3	2	2	2	1	3	1	1	3	3	1	2	1		3 MSTs, ESE, Class/Quiz Tests

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CO1	Understand and implement basic services and functional ideas of the operating system.	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	2	Understand Employability, ESE, Practical Assignments Tests
CO2	Analyze and simulate CPU Scheduling Algorithms like FCFS, Round Robin, SJF, and Priority.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	3	2	Analyze Employability, ESE, Practical Assignments Tests
CO3	Implement commands for files and directories.	3	3	3	3	3	2	2	2	2	2	2	3	3	2			2	Design Employability, ESE, Practical Assignments Tests
CO4	Understand and implement concepts of shell program.	3	2	3	3	3	3	3	3	2	3	2	3	3	2			2	Understand Employability, ESE, Practical Assignments Tests
CO5	Simulate file allocation and organization techniques.	3	3	3	3	3	3	2	2	2	3	2	2	2	2			2	Understand Employability, ESE, Practical Assignments Tests

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CO6 Understand the concepts of deadlock in operating systems and implement them in multiprocessing system.	1	3	3	3	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	1	Design	Employment, MSTs, ESE, Practical Assignments Tests
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Department: Computer Science and Engineering
 Program: B.Tech. (Computer Science and Engineering)
 BTCS : (DVA Lab)

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Learning Focus of Assessment Techs to Measure Attainment of CO				
																		Design	Employment	Apply		
CO1	Understand	1	3	3	3	3	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
CO2	Understand	1	3	3	3	3	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
CO3	Implement	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	Design and implement it	3	3	3	3	3	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3

Department: Computer Science and Engineering
 Program: B.Tech. (Computer Science and Engineering)
 BTCS (type code): BTCS-501-18 Database Management System

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CO No.	CO State	Learning Focus of Assessment Tools to Measure Attainment of CO																	
		PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PSO-p	PSO-q	
CO1	write relational algebra expressions for a query and optimize the developed expressions design the database using ER method and normalization	1	3	3	2	0	0	0	0	3	3	2	2	3	2	1	0		
																		understand employ MSTs, ESE, Class/Quiz Tests	
CO2	construct the SQL queries for Client and server	1	3	3	2	2	1	1	1	3	3	2	2	3	2	3	1		
																		Analyse employ MSTs, ESE, Class/Quiz Tests	
CO3	Compare DBMS, MYSQL, ORACLE and DB2.	1	2	2	2	2	1	1	1	2	2	2	2	3	2	3	1		
																		design employ MSTs, ESE, Class/Quiz Tests	


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C04 determine the feasibility of the project, estimate the cost, and prepare a detailed project plan.	1	2	1	1	1	0	0	0	3	3	2	2	3	1	1	0
	1	2	1	1	1	0	0	0	3	3	2	2	3	1	1	0
C05 design a system that meets the requirements, and implement it using appropriate hardware and software.	1	2	2	2	1	1	1	3	3	2	2	2	3	2	1	1

Department: Computer Science and Engineering
Program: B.Tech. (Computer Science and Engineering)
5192.16) Formal Language & Automata Theory

CO No.	CO Title	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PO-13	PO-14	PO-15	PO-16	PO-17	PO-18	
C01	Write a formal notation for strings, language and machine.	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1


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CO2	Design from Automata to accept a set of strings of a language	3	3	3	3	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	Design	Employment's ESE, Class/Quiz Tests
CO3	For a given language determine whether the given language is regular or not.	3	3	3	3	3	2	2	2	1	1	1	2	1	2	2	3	3	2	1	Analyse	Employment's ESE, Class/Quiz Tests
CO4	Design context free grammar is to generate strings of context free language	3	2	3	2	2	1	1	1	1	1	1	2	2	1	2	2	2	2	2	Design	Employment's ESE, Class/Quiz Tests
CO5	Determine equivalence of language accepted by Push Down Automata and language generated by context free grammar	2	1	3	3	2	1	2	1	1	1	2	2	1	1	3	3	1	2	1	Design	Employment's ESE, Class/Quiz Tests

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CO4	Identify and apply the principles, processes and main areas known for Software Project Management	3	3	3	3	3	3	3	1	1	1	3	3	3	3	3	1	Design	Enhance MSTs, ESE, Class/Quiz Tests
CO5	Proficiently apply standard standards, CASE tools and techniques for engineering software projects	3	3	3	3	3	3	3	2	2	2	3	3	3	3	3	3	Design	Enhance MSTs, ESE, Class/Quiz Tests

Department Computer Science and Engineering
 Program B.Tech. (Computer Science and Engineering)
 BTCS (type code) BTCS 504 -18UC (Computer Network)

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Learning Focus	Assessment Tools	
CO1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	MSTs, ESE, Class/Quiz Tests
CO2	3	2	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	2	2	MSTs, ESE, Class/Quiz Tests
CO3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	MSTs, ESE, Class/Quiz Tests
CO4	3	3	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	2	2	MSTs, ESE, Class/Quiz Tests

Department Computer Science and Engineering
 Program B.Tech. (Computer Science and Engineering)
 BTCS 512-18 (Web and Open Source Technologies Lab)

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CO No.	CO State	Focus of Assessment Tools to Measure Attainment of CO																	
		PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PSO-p	Learning	Focus of Assessment
CO1	develop web based applications on using suitable client side and server side web technologies	3	2	2	3	3	2	2	3	2	3	3	3	3	3	3	2	3	3 MSTs, ESE, ClassQuiz Tests
CO2	develop solution to complex problems using appropriate algorithm, method, technology, framework like, web services and content management	3	3	3	3	2	1	1	1	3	2	3	3	3	3	3	2	3	3 MSTs, ESE, ClassQuiz Tests

Department Computer Science and Engineering
 Program: B.Tech. (Computer Science and Engineering)
 12-18UC) Programming in Python Lab


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CO No.	CO State	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PO-13	PO-14	PO-15	PO-16	PO-17	PO-18	PO-19	PO-20	Learning Focus of Assessment Tools to Measure Attainment of CO
CO1	Write, Test and Debug Python Program	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	Test and Debug Python Program, ESE, Class/Out Tests
CO2	Implement Conditional statements and Loops for Python Program	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	Implement Python Program, ESE, Class/Out Tests
CO3	Use Functions and regression Comprehending data using Lists, Tuples and Dictionaries	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	Apply Python Program, ESE, Class/Out Tests
CO4	Read and write data from & to files in Python and creating Application using Pygame	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	Design Python Program, ESE, Class/Out Tests

Department Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 BTCS


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CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Ethical values
CO1		1	1	1	2	1	1	1	1	1	3	1	3	2	1	1		
CO2		3	3	3	3	3	3	2	2	3	3	2	3	3	2	2	1	
CO3		3	3	3	3	3	3	1	1	3	3	2	3	3	3	1	1	
CO4		3	2	2	3	3	3	3	3	3	1	2	3	3	3	3	1	

Department Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 BTCS : (Computer Graphics Lab)

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Ethical values
CO1	To implement	3	3	3	3	3	2			2	2			3	2	2		
CO2	To demonstrate	3	3	2	3	3				2	2			3	2	2		
CO3	To apply the	3	3	3	3	3				2	2			3	3	3		
CO4	To implement	3	3	3	3	3				2	2			3	3	3		

Department Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 BTCS(type code) : BTCS-505-18 Database Management System Lab

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CO No.	CO State	Engineering Knowledge										Learning Focus on Assessment Tools to Measure Attainment of CO										
		PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p					
CO1	retrieve data from relational database & using SQL	1	3	2	2	1	1	1	1	1	1	1	1	1	2	2	2	1	Analyse	employability Practicals	Viva	Assignments
CO2	implementation of tables using datatype & design and execute the various data manipulation operations	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	Design	enterprise Practicals	Viva	Assignments
CO3	design and execute the various data manipulation operations	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	Design	employability Practicals	Viva	Assignments
CO4	execute triggers, cursors, stored procedures etc.	1	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	Design	enterprise Practicals	Viva	Assignments

Department Computer Science and Engineering
 Program - B.Tech. (Computer Science and Engineering)
 BTCS(type code) BTCS 507 -18UC (Computer Network Lab)

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CO No.	CO State	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PO-13	PO-14	PO-15	PO-16	PO-17	PO-18	PO-19	PO-20	PO-21	PO-22	PO-23	PO-24	PO-25	PO-26	PO-27	PO-28	PO-29	PO-30	PO-31	PO-32	PO-33	PO-34	PO-35	PO-36	PO-37	PO-38	PO-39	PO-40																
CO1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
CO2		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
CO3		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
CO4		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Department: Computer Science and Engineering
 Program: B.Tech. (Computer Science and Engineering)
 (1-18UC) : Compiler Design

CO No.	CO State	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PO-13	PO-14	PO-15	PO-16	PO-17	PO-18	PO-19	PO-20	PO-21	PO-22	PO-23	PO-24	PO-25	PO-26	PO-27	PO-28	PO-29	PO-30	PO-31	PO-32	PO-33	PO-34	PO-35	PO-36	PO-37	PO-38	PO-39	PO-40															
CO1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

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CO2	3	3	2	3	3	3	2	1	3	1	2	2	3	2	3	2	3	1	Create	Entrepreneur MSTs, ESE, Class/Quiz Tests
CO3	3	2	2	2	2	2	1	1	2	2	2	2	3	2	3	2	2	1	Create	Entrepreneur MSTs, ESE, Class/Quiz Tests
CO4	3	3	3	3	3	3	2	1	3	1	1	3	3	3	3	3	3	1	Create	Entrepreneur MSTs, ESE, Class/Quiz Tests
CO5	3	2	1	2	2	2	3	2	2	2	2	2	2	2	2	2	3	Create	Entrepreneur MSTs, ESE, Class/Quiz Tests	

Department Computer Science and Engineering
 Program : B.Tech (Computer Science and Engineering)
 02-18UC) : Artificial Intelligence

Engineering Knowledge	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Ethical values
Problem Analysis																	
Design/development of solutions																	
Conduct investigations of complex problems																	
Modern tool usage																	
The engineer and society																	
Environment and sustainability																	
Ethics																	
Individual and team work																	
Communication																	
Project management and finance																	
Lifelong Learning																	
honing Domain Knowledge																	
Innovation and design																	
Entrepreneurship Skills																	


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Tools to Measure Attainment of CO

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	PSO-p	Learning Focus or Assessment Tools
CO1	Explain artificial intelligence, its characteristics and its applications areas.	3	2	2	1	2	2	3	2	2	2	2	3	3	3	1	2	Understand/Practical Assignments
CO2	Formulate real-world problems as state space problems	3	3	3	3	3	2	2	3	2	2	2	3	3	3	3	2	Design/Practical Assignments
CO3	Select and apply appropriate algorithms and AI techniques to solve complex problems	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	Design/Practical Assignments


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CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s																				
CO4		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Department Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 BTCS(type code) : BTCS BTCS606-1BUC (Network Security and Cryptography)

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s																															
CO1		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3									
CO2		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3				
CO3		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO4		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Department Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 BTCS(type code) : BTCS BTCS609-1BUC (Network Security and Cryptography Lab)

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s																																			
CO1		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3				
CO2		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
CO3		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
CO4		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3


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CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Learning	Focus of Assessment Tools to Measure Attainment of CO
CO1	Apply data set	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	Apply	MSTs, ESE, Class/Quiz Tests
CO2	Formal algorithm	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	Design	MSTs, ESE, Class/Quiz Tests
CO3	Formal knowl	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	Apply	MSTs, ESE, Class/Quiz Tests
CO4	Explore new	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	Design	MSTs, ESE, Class/Quiz Tests

Department Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 BTCS : (Data mining I/II)

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Learning	Focus of Assessment Tools to Measure Attainment of CO
CO1	Apply data set	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	Apply	MSTs, ESE, Class/Quiz Tests
CO2	Formal algorithm	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	Design	MSTs, ESE, Class/Quiz Tests
CO3	Formal knowl	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	Apply	MSTs, ESE, Class/Quiz Tests
CO4	Explore new	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	Design	MSTs, ESE, Class/Quiz Tests

Department Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 BTCS (type code) : BTCS-612-18 Cloud Computing Lab

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Learning	Focus of Assessment Tools to Measure Attainment of CO
CO1	Use the cloud tools	1	1	2	1	3	1	1	1	1	1	1	3	3	1	1	1	Knowledge	Employat, Practicals



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CO2	Apply source coding techniques as	3	3	3	3	3	3	2	2	1	2	2	2	2	3	3	3	3	1	Create	Entrepreneurial MSTs, ESE, Class/Quiz Tests
CO3	Compute the capacity of various types of channels	3	3	3	3	2	2	2	2	2	2	1	2	2	3	3	3	3	1	Design	Entrepreneurial MSTs, ESE, Class/Quiz Tests
CO4	Understand and construct codes using different error control techniques.	3	2	2	3	3	2	2	2	1	2	2	2	3	3	3	3	3	3	Understand	Entrepreneurial MSTs, ESE, Class/Quiz Tests
CO5	Apply various coding schemes for text, speech and audio.	3	2	3	3	3	2	2	2	2	3	3	3	3	3	3	3	2	Understand	Entrepreneurial MSTs, ESE, Class/Quiz Tests	

Department Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 115-18UC : Information Theory and Coding Lab

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Learning Focus or Assessment Tools to Measure Attainment of CO
		Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long Learning	Honing Domain Knowledge	Innovation and design	Entrepreneurship Skills	Ethical values	



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CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	PSO-p	Learning Focus	Focus of Assessment Tools to Measure Attainment of CO
CO1	Plan the projects in the domain of data science.	1	3	2	3	2	2	1	1	3	3	3	3	3	3	3	1	Analyze	Employer-MSTs, ESE, Class/Out Tests
CO2	Use data analytics tools towards problem solving and solution analysis.	1	1	3	1	3	1	1	1	1	1	2	3	3	2	3	1	Knowledge	Employer-MSTs, ESE, Class/Out Tests
CO3	Apply Mathematical sciences and recent technologies in Computer Science to solve real life problems	3	3	3	3	1	2	1	1	2	3	3	3	3	3	3	1	Apply	Employer-MSTs, ESE, Class/Out Tests
CO4	Apply data science concepts and methods to solve problems in real world context.	3	3	3	3	1	2	1	1	2	3	3	3	3	2	3	1	Apply	Employer-MSTs, ESE, Class/Out Tests

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Department Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 BTCS 614-18UC : (Soft Computing)

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	PSO-p	Learning Focus of Assessment Tools to Measure Attainment of CO
CO1	Understand	3	2	1	3									3	1			Understand
CO2	Design	3	2	3	1		1							3	2			Design
CO3	Construct	3	2	3	3		2							3	2			Apply
CO4	Apply	3	2	3	3		1							3	2			Apply
CO5	Review	3	2	3	3		2							3	2			Design

MSTs, ESE, Class/Quiz Tests

Department Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 12-18UC : (Soft Computing Lab)

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	PSO-p	Learning Focus of Assessment Tools to Measure Attainment of CO
	Engineering Knowledge																	
	Problem Analysis																	
	Design/development of solutions																	
	Conduct investigations of complex problems																	
	Modern tool usage																	
	The engineer and society																	
	Environment and sustainability																	
	Ethics																	
	Individual and team work																	
	Communication																	
	Project management and finance																	
	Lifelong Learning																	
	Honing Domain Knowledge																	
	Innovation and design																	
	Entrepreneurship Skills																	
	Ethical values																	



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CO1	Reveal different applications of these models to solve engineering or other problems	3	3	3	3	3	3	2	1	1	1	2	2	1	2	2	1	2	2	Estimate	Employab	MSTs, ESE, ClassQuiz Tests
CO2	Apply fuzzy logic and reasoning to handle uncertainty and solve engineering problems	3	3	3	3	3	3	2	1	1	1	2	2	3	3	2	1	1	1	Apply	Employab	MSTs, ESE, ClassQuiz Tests
CO3	Apply genetic algorithm to combinatorial optimization problems	3	3	3	3	3	3	2	1	2	1	2	2	3	2	2	1			Design	Employab	MSTs, ESE, ClassQuiz Tests
CO4	Effectively use existing software tools to solve real problems using a soft computing approach	3	3	3	3	3	3	1	1	1	1	2	2	3	3	2	1	1	1	Compare	Employab	MSTs, ESE, ClassQuiz Tests
CO5	Evaluate and compare solutions by various soft computing approaches for a given problem	3	3	3	3	3	3	2	1	1	1	2	3	3	3	2	1			Evaluate	Employab	MSTs, ESE, ClassQuiz Tests



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CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Learning Focus	Tools to Measure Attainment of CO
CO1	Solve problems using the machine learning models	1	2	2	2	3	1	1	1	2	1	2	3	2	2	2	1	Apply	Employment, MSTs, ESE, Class/Quiz Tests
CO2	Apply various machine learning models to solve real life complex problems.	2	3	2	2	2	1	1	1	2	2	2	3	3	3	2	1	Apply	Employment, MSTs, ESE, Class/Quiz Tests
CO3	Identify the various types of deep neural network model	1	2	2	1	3	1	1	1	2	1	2	3	2	1	1	1	Knowledge	Employment, MSTs, ESE, Class/Quiz Tests
CO4	Implement and supervised models through programming language	1	2	2	2	3	1	1	1	2	1	2	3	2	2	2	1	Apply	Employment, MSTs, ESE, Class/Quiz Tests



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Department Computer Science and Engineering
 Program B.Tech. (Computer Science and Engineering)
 BTCS (type code) Speech and Natural Language Processing

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Learning Focus or Assessment Tools to Measure Attainment of CO
CO1	3	2	3	2	2	2	2	1	1	3	3	2	3	2	2	3	1	MSTs, ESE, Class/Out Tests
CO2	2	3	3	3	2	2	1	1	3	3	2	2	2	2	2	2	1	MSTs, ESE, Class/Out Tests
CO3	2	3	3	3	2	2	1	1	3	3	2	2	2	2	2	2	1	MSTs, ESE, Class/Out Tests
CO4	2	1	1	1	2	2	2	2	1	2	2	2	2	1	2	2	1	MSTs, ESE, Class/Out Tests

Department Computer Science and Engineering
 Program B.Tech. (Computer Science and Engineering)
 M3-18UC Blockchain Technology Lab

CO No.	CO State	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Learning Focus or Assessment Tools to Measure Attainment of CO
CO1	Interact with a blockchain system by sending and receiving transactions.	3	3	2	2	3	3	3	2	3	2	2	3	3	3	2	2	Understand Employability Practical Assignments

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CO2	Design, build, and deploy a distributed application.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	Design	Entrepreneurial Assignments
CO3	Evaluate security, privacy, and efficiency of a given Blockchain system.	3	3	3	3	3	3	2	3	3	3	3	3	3	3	Design	Entrepreneurial Assignments

Department: Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 BTCS 614-18UC : (Software Defined Networks)

CO No. / CO State	Program Outcomes (POs)										Assessment Tools to Measure Attainment of CO						
	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	
CO1 To define	3																
CO2 To describe	3		1														
CO3 To provide	3	2	3	1						1							
CO4 To design	3	2	3	1													
CO5 To develop	3	2	3	1													
CO6 To identify	3	2															

Department: Computer Science and Engineering
 Program : B.Tech. (Computer Science and Engineering)
 BTCS712-18UC : (Digital Image Processing)

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CO No.	CO Skills	Learning Focus of Assessment Tools to Measure Attainment of CO										Learning Focus of Assessment Tools												
		PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j		PO-k	PO-l	PO-m	PO-n	PO-o	PO-p						
CO1	Understand the basic concepts of DIP	2	1	2	1	1	2	3										3	3	MSTs, ESE, Class-Quiz Tests				
CO2	Improve the quality of digital images	3	2	3	3	2	1													2	2	MSTs, ESE, Class-Quiz Tests		
CO3	Understand and remove Digital Noise from images	2	3	3	2	1	1													2	1	2	MSTs, ESE, Class-Quiz Tests	
CO4	Segment digital images and extract various features from digital images	2	2	2	2	3	1													2	1	1	3	MSTs, ESE, Class-Quiz Tests

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DK

Department: Civil Engineering
 Program: B.Tech. (Civil Engineering)
 BTCH10: Chemistry-I (Theory)
 1-18

CO No.	CO Statement	Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long Learning	Learning Level	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1	Analyse microscopic chemistry in terms of atomic and molecular orbital and intermediate molecular systems	✓	✓	✓	✓	✓		✓						Understand & Analyse	yes	Class, Quiz, Tests and viva
CO2	Appreciate the bulk properties and processes using thermodynamic concepts	✓	✓	✓	✓	✓								Understand & Analyse	yes	Class, Quiz, Tests and viva

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Category Name	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
C03 Name ranges of the electrode both transmission used for electrode different mechanical energy begets to various specific type as follows	✓	✓	✓	✓	✓	✓	✓	✓	✓				Class. Case Tests and viva
C04 Name ranges of the electrode both transmission used for electrode different mechanical energy begets to various specific type as follows	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			Class. Case Tests and viva
C05 Name ranges of the electrode both transmission used for electrode different mechanical energy begets to various specific type as follows	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			Class. Case Tests and viva

Name of the Department: Civil Engg.


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Course C CO1: Able to verify the theoretical concepts/laws learnt in theory courses.	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Level	Focus on Employee Tools to	Assessment
	Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Lifelong Learning	Analysis and Design Skill	Research and Innovation	Sustainable Outlook			Minor Exams, Quiz, End Term Exams
																understandings		Minor Exams, Quiz, End Term Exams

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CO 3: Understand the methods used for estimation and dealing with experimental uncertainties and systematic "errors".											Minor Exams, Quiz, End Term Exams		
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	apply	yes
CO 4: Learn to draw conclusions from data and develop skills in experimental design.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	apply <th>yes</th>	yes
CO 5: Document a technical report which communicates scientific information in a clear and concise manner.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	apply <th>yes</th>	yes
													Minor Exams, Quiz, End Term Exams

Name of the Department: Civil Engg.

Paper
BTPH101-
18
Mechanics of Solids


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2021

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Level	Focus on Employability	Assessment Tools
Understand the vector mechanics for a classical system.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Minor Exams, Quiz, End Term Exams
Identify various types of forces in nature, frames of reference, and conservation laws.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Minor Exams, Quiz, End Term Exams
Know the simple harmonic, damped, and forced simple harmonic oscillator for a mechanical system.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Minor Exams, Quiz, End Term Exams
Engineering Knowledge	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Level	Focus on Employability	Assessment Tools
Problem Analysis	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Learning Level	Focus on Employability	Assessment Tools
Design/development of solutions	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	Learning Level	Focus on Employability	Assessment Tools
Conduct investigations of complex problems	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	Learning Level	Focus on Employability	Assessment Tools
Modern tool usage	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	Learning Level	Focus on Employability	Assessment Tools
The engineer and society	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	Learning Level	Focus on Employability	Assessment Tools
Environment and sustainability	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	Learning Level	Focus on Employability	Assessment Tools
Ethics	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	Learning Level	Focus on Employability	Assessment Tools
Individual and team work	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	PO-w	Learning Level	Focus on Employability	Assessment Tools
Communication	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	PO-w	PO-x	Learning Level	Focus on Employability	Assessment Tools
Project management and finance	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	PO-w	PO-x	PO-y	Learning Level	Focus on Employability	Assessment Tools
Life-long Learning	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	PO-w	PO-x	PO-y	PO-z	Learning Level	Focus on Employability	Assessment Tools
Analysis and Design Skill	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	PO-w	PO-x	PO-y	PO-z	PO-aa	Learning Level	Focus on Employability	Assessment Tools
Research and Innovation	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	PO-w	PO-x	PO-y	PO-z	PO-aa	PO-ab	Learning Level	Focus on Employability	Assessment Tools
Sustainable Outlook	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	PO-w	PO-x	PO-y	PO-z	PO-aa	PO-ab	PO-ac	Learning Level	Focus on Employability	Assessment Tools


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	Minor Exams, Quiz, End Term Exams	apply	yes	Minor Exams, Quiz, End Term Exams
Analyze the planar rigid body dynamics for a mechanical system.	✓	✓	✓	✓
Apply the knowledge obtained in this course to the related problems.	✓	✓	✓	✓

Department : Civil Engineering
 Program : B.Tech. (Civil Engineering)
 BTCH102-18 : Chemistry-I (Lab)

CO	Statement	Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Lifelong Learning	Learning Level	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO No. 02-18: Chemistry-I (Lab)	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p

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CO1	Estimate rate constants of reactions from concentration of reactants/products as a function of time	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand & Analyze	yes	Practical Exam, Class/Quiz Tests
CO2	Measure molecular/system properties such as surface tension, viscosity, conductance of solutions, redox potentials, chloride content of water, etc	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand & Analyze <td>yes <td>Practical Exam, Class/Quiz Tests, VIVA</td> </td>	yes <td>Practical Exam, Class/Quiz Tests, VIVA</td>	Practical Exam, Class/Quiz Tests, VIVA
CO3	Synthesize a small drug molecule and analyse a sample	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand & Analyze <td>yes <td>Practical Exam, Class/Quiz Tests, VIVA</td> </td>	yes <td>Practical Exam, Class/Quiz Tests, VIVA</td>	Practical Exam, Class/Quiz Tests, VIVA

Name of the Department: Civil Engg.

Paper BTAM101-1: Mathematics-I (Calculus and Linear algebra)



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	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	Skill	Focus on Assessment Tools to Measure Attainment of CO	Minor Exams, Quiz, End Term Exams	
CO 4: To deal with functions of several variables that are essential in most branches of engineering.																
CO 5: The essential tool of matrices and linear algebra in a comprehensive manner.																

Name of the Department: Mechanical Engineering

Paper BTME101-18 Engineering Graphics & Design

Course C PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10 PO 11 PO 12 Skill Focus on Assessment Tools to Measure Attainment of CO



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	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	Skill	Focus on Assessment Tools to Measure Attainment of CO	
CO 1: Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Design	Yes	Minor Exams, Quiz, Assignments, End Term Exams
CO 2: To prepare to communicate effectively.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Communicate	Yes	Minor Exams, Quiz, Assignments, End Term Exams
CO 3: In preparing to use the techniques, skills, and modern engineering tools necessary for engineering practice.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	Minor Exams, Quiz, Assignments, End Term Exams

Paper BTMP 101-18 Workshop/Manufacturing Practices

Course C PO 1 PO 2 PO 3 PO 4 PO 5 PO 6 PO 7 PO 8 PO 9 PO 10 PO 11 PO 12 Skill Focus on Assessment Tools to Measure Attainment of CO


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<p>CO1: Gain knowledge of the different manufacturing processes which are common & employed in the industry, to fabricate composite parts using different materials.</p> <p>CO2: able to fabricate composite parts with their own hands.</p> <p>CO3: Get practical knowledge of the dimensions, accuracy and tolerance & how far it is possible with different manufacturing processes</p>																						

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Students will																																
Students will acquire basic proficiency in listening and speaking skills.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO 3: Students will be able to understand spoken English language, particularly the language of their chosen technical field.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO 4: They will be able to converse fluently.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO 5: They will be able to produce on their own clear and coherent texts.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mid Semester Exams, Assignment, End Term Exams																																
Mid Semester Exams, Assignment, End Term Exams																																
Mid Semester Exams, Assignment, End Term Exams																																
Mid Semester Exams, Assignment, End Term Exams																																



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Head of the Department: Civil Engg.

Paper BTAM201-18 Mathematics-II (Differential Equations)

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus of Assessment Tools to Measure Attainment of CO
CO1: The mathematical tools needed in evaluating multiple integrals and their usages.	✓	✓	✓	✓	✓	✓										Minor Exams, Quiz, End Term Exams
CO 2: The effective mathematical tools for the solutions of differential equations that model physical processes	✓	✓	✓	✓	✓	✓										Minor Exams, Quiz, End Term Exams
Engineering Knowledge																
Problem Analysis																
Design/development of solutions																
Conduct investigations of complex																
Modern tool usage																
The engineer and society																
Environment and sustainability																
Ethics																
Individual and team work																
Communication																
Project management and finance																
Lifelong Learning																
Analysis and Design Skill																
Research and Innovation																
PSO-n																
PSO-m																
PSO-o																
Sustainable Outlook																


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the of different ation and integratio n of functions that are used in various technique s dealing engineering problems.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Minor Exams, Quiz, End Term Exams
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Name of the Department: **Civil Engg.**

Paper **BTCE-301-18 Surveying & Geomatics**

Understand the concept, various methods and techniques of surveying	PO-a	Engineering Knowledge	PO-b	Problem Analysis	PO-c	Design/development of solutions	PO-d	Conduct investigations of complex problems	PO-e	Modern tool usage	PO-f	The engineer and society	PO-g	Environment and sustainability	PO-h	Ethics	PO-i	Individual and team work	PO-j	Communication	PO-k	Project management and finance	PO-l	Lifelong Learning	PO-m	Analysis and Design Skill	PO-n	Research and Innovation	PO-o	Sustainable Outlook	Learning Focus of Assessment Tools to Measure Achievement of CO	Understands	Minor Exams, Quiz, End Term Exams
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CO 2: Compute angles, distances and levels for given area.	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	Minor Exams, Quiz, End Term Exams
CO 3: Apply the concepts of tachometry survey in difficult and hilly terrain.	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	Minor Exams, Quiz, End Term Exams
CO 4: Select appropriate instruments for data collection and survey purpose.	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	Minor Exams, Quiz, End Term Exams
CO 5: Analyze and retrieve the information from remotely sensed data and interpret the data for survey.	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	Minor Exams, Quiz, End Term Exams
CO 6: Understand the concepts related to GIS and GPS and analyze the geographical data.	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	Minor Exams, Quiz, End Term Exams


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Name of the Department: Civil Engg.

Paper BTCE- 302-18 Solid Mechanics

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	Learning Focus or Assessment Tools to Measure Attainment of CO
CO1: Understand the concept of static equilibrium, determine lam, and explain concepts of behavior																Understand
Engineering Knowledge									Individual							
Problem Analysis																
Design/development of solutions																
Conduct investigations of complex problems																
Modern tool usage																
The engineer and society																
Environment and sustainability																
Ethics																
Individual and team work																
Communication																
Project management and finance																
Life-long Learning																
Analysis and Design Skill																
Research and Innovation																
Sustainable Outlook																

Minor Exams, Quiz, End Term Exams

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	Minor Exams, Quiz, End Term Exams									
CO 2: Describe the concepts of stress, strain and elastic behaviour of materials including Hooke's law relationships to analyze structural members subjected to tension, compression and torsion.	Understand	Yes								
CO 3: Apply the concept of Mohr's circle in the stress/strain calculations.	Understand	Yes	✓	✓	✓	✓	✓	✓	✓	✓
CO 4: Develop IJF and IAF for different type of beams subjected to different types of loads.	Analyze	Yes						both	✓	✓
			both							

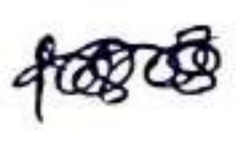
	Minor Exams, Quiz, End Term Exams													
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analyse	yes	
CO 5: Plot elastic curves for beams under different loadings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO 6: Understand the behaviour of columns and struts under axial loading.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Name of the Department: Civil Engg.

Paper BTCE- 303-18 Fluid Mechanics

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus of Assessment Tools to Measure Attainment of CO
Engineering Knowledge	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Sustainable Outlook
Problem Analysis	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Research and Innovation
Design/development of solutions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analysis and Design Skill
Conduct investigations of complex problems	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Life-long Learning
Modern tool usage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Project management and finance
The engineer and society	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Communication
Environment and sustainability	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Individual and team work
Ethics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Individual and team work


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	Understand	Apply	Analyze	Minor Exams, Quiz, End Term Exams
and the basic terms used in fluid mechanics and its broad principles	✓			
CO 2: Estimate the forces induced on a plane/submerged bodies	✓	✓	✓	Minor Exams, Quiz, End Term Exams
CO 3: Formulate expressions using dimensionless approach and able to determine design parameters by creating replica of prototype	✓	✓	✓	Minor Exams, Quiz, End Term Exams
scale	✓			

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Name of the Department: Civil Engg.

Paper BTAM- 301-18Mathematicsl (Transform & Discrete

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus of Assessment Tools to Measure Attainment of CO
CO1: Understand the basic results on vector function, their properties and fields so as to apply them for solving problems of engineering.	✓	✓	✓			✓										Minor Exams, Quiz, End Term Exams
CO 2: Find length, area and volume using integral calculus that is an important application in engineering.	✓	✓	✓	✓												Minor Exams, Quiz, End Term Exams

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Paper
 BTCC-305
 18 Basic
 Electronic
 1 &
 applications
 in Civil
 Engineering
 18

Learning Focus of Assessment Tools to Measure Attainment of CO

Course ID	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus	Assessment Tools
CO1: Understand and construct an of diodes and their rectifier applicatio ns.	1	1		1									1	2		Analyze	MTTs, ESE, Class/Quiz Tests
CO 2 Appreciat e the construct on and working bipolar junction transistor 1 and 1 and	3	3		1									3	2		Understand	MTTs, ESE, Class/Quiz Tests

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Course Objective	3	3	2	3	3	3	3	3	3	3	1	Analyze No	MSTs, ESE, Class/Quiz Tests
CO-4 Comprehend working of basic elements of digital electronic circuits and circuits.	3	3	1	2							2	Understand No	MSTs, ESE, Class/Quiz Tests
To acquire the basic knowledge of digital logic levels and application of knowledge to understand digital electronics circuits.	3	3									2	Understand No	MSTs, ESE, Class/Quiz Tests
To acquire the basic knowledge of electrical machines and transformers.	3	3									2	Understand No	MSTs, ESE, Class/Quiz Tests

Name of the Department: Civil Engg.

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132-18
 Civil
 Engineering
 Introduction,
 Action,
 Societal &
 Global
 Impact

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus of Assessment Tools to Measure Attainment of CO	Minor Exams, Quiz, End Term Exams
CO1: Introduction to what constitutes Civil Engineering	Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Lifelong Learning	Analysis and Design Skill	Research and Innovation	Sustainable Outlook	Understand	Minor Exams, Quiz, End Term Exams
CO 2: Understanding the vast interfaces this field has with the society at large																Understand	Minor Exams, Quiz, End Term Exams


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<p>Application for graduation in the field of Surveying and Geomatics Engineering. This form is to be filled out by the student and submitted to the Department of Surveying and Geomatics Engineering. The form is to be filled out by the student and submitted to the Department of Surveying and Geomatics Engineering. The form is to be filled out by the student and submitted to the Department of Surveying and Geomatics Engineering.</p>	<p>Minor Exams, Out. End Term Exams</p>	<p>Application</p>	<p>Minor Exams, Out. End Term Exams</p>
<p>CO 4: Need to think innovatively to ensure Sustainability</p>			
<p>CO 5: Highlighting the depth of engagement possible within civil engineering and exploration of various possibilities of a career in this field</p>			

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Name of the Department: Civil Engg

Paper BTCE-306-18 Surveying & Geomatics Lab

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Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	Learning Focus or Assessment Tools to Measure Attainment of CO		
																Application	Minor Exams, Quiz, End Term Exams	
CO1: Assess horizontal & vertical angles by Theodolite	✓	✓	✓														Application Yes	Minor Exams, Quiz, End Term Exams
CO 2: Survey the area using different methods of plane table, compass survey and to adjust the traverse graphically	✓	✓	✓						Team work								Application Yes	Minor Exams, Quiz, End Term Exams
CO 3: Compute the reduce levels using various methods of leveling.	✓	✓	✓	✓					Team work								Application Yes	Minor Exams, Quiz, End Term Exams

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Learning Outcome	Minor Exams, Quiz, End Term Exams	Application	Team work	Minor Exams, Quiz, End Term Exams
CO 5: Setting out curves in the field	✓	Application Yes	Team work	Minor Exams, Quiz, End Term Exams
CO 6: Use electronic survey instrument	✓	Application Yes	Team work	Minor Exams, Quiz, End Term Exams

Name of the Department: Civil Engg.

Paper BTCE-307-18 Fluid Mechanics Lab

Course PO	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	Learning Focus or Assessment Tools to Measure Attainment of CO	
Engineering Knowledge	✓																
Problem Analysis		✓															
Design/development of solutions			✓														
Conduct investigations of complex problems				✓													
Modern tool usage					✓												
The engineer and society						✓											
Environment and sustainability							✓										
Ethics								✓									
Individual and team work									✓								
Communication										✓							
Project management and finance											✓						
Lifelong Learning												✓					
Analysis and Design Skill													✓				
Research and Innovation														✓			
Sustainable Outlook															✓		

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Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	Learning Focus or Assessment Tools to Measure Attainment of CO
CO1: Understand the importance of physical properties of steel.	✓	✓				✓	✓		Individual			✓			✓	Applicable Yes Minor Exams, Quiz, End Term Exams
CO 2: Identify and comprehend code provisions for testing different properties of steel	✓	✓	✓	✓		✓	✓		Individual			✓	✓	✓	✓	Applicable Yes Minor Exams, Quiz, End Term Exams
CO 3: Develop stress-strain curve for axial compression, axial tension and shear.	✓	✓	✓	✓		✓	✓		Both			✓	✓	✓	✓	Applicable Yes Minor Exams, Quiz, End Term Exams
CO 4: Assess hardness and impact strength of steel.	✓	✓	✓	✓		✓	✓		Both			✓	✓	✓	✓	Applicable Yes Minor Exams, Quiz, End Term Exams

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Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams		Minor Exams, Quiz, End Term Exams		Minor Exams, Quiz, End Term Exams		Minor Exams, Quiz, End Term Exams		Minor Exams, Quiz, End Term Exams	
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Both	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Both	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Name of the Department: **Civil Engg.**

Paper BTCE-401 Concrete Technology

Course Code	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	Learning Focus of Assessment Tools to Measure Attainment of CO	Minor Exams, Quiz, End Term Exams
CO1: Understand the relevance of different properties of constituent materials on properties of concrete	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Engineering Knowledge	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Problem Analysis	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Design/development of solutions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Conduct investigations of complex problems	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Modern tool usage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
The engineer and society	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Environment and sustainability	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ethics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Individual and team work	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Communication	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Project management and finance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Life-long Learning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Analysis and Design Skill	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Research and Innovation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Qualifying Output	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



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	Minor Exams, Quiz, End Term Exams										
Understand the behavior and durability aspects of concrete under different loading and exposure conditions.	✓	✓	✓	✓	✓	✓	Individual	✓	✓	✓	YES
CO 3: Understand the issues involved in production and use of concrete	✓	✓	✓	✓	✓	✓	Both	✓	✓	✓	Analyse and design YES
CO 4: Design of concrete mixes as per BIS specifications	✓	✓	✓	✓	✓	✓	Both	✓	✓	✓	Analyse and design YES
CO 5: Understand various testing methods for concrete and their applicability	✓	✓	✓	✓	✓	✓	Individual	✓	✓	✓	YES
CO 6: Knowledge of special type of non-conventional concretes	✓	✓	✓	✓	✓	✓	Both	✓	✓	✓	Understand YES


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Name of the Department: Civil Engg.

Paper BTCE-402 Material, Testing & Evaluation

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus or Assessment Tools to Measure Attainment of CO
CO1- Appraisal about the role of materials in civil engineering	✓					✓	✓		Individual			✓		✓	✓	Undersat Yes
CO 2 Introduce common measurement instruments, equipments and devices to capture the material response under loading	✓	✓			✓	✓	✓		Both			✓	✓	✓	✓	Undersat Yes
																Minor Exams, Quiz, End Term Exams



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CO 3: Exposure to a variety of established material testing procedure & technical codes of practice	✓	✓	✓	✓	✓	✓	Both	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Understand	Minor Exams, Quiz, End Term Exams
																						Minor Exams, Quiz, End Term Exams
CO 4: Ability to write a technical laboratory report.	✓	✓	✓	✓	✓	✓	Individual	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Understand	Minor Exams, Quiz, End Term Exams

Name of the Department: Civil Engg.

Paper BTCE-403 Hydrology & Water Resources

Course CO1: Understand the interaction among various processes in the hydrological cycle	✓	Engineering Knowledge	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams
																					Minor Exams, Quiz, End Term Exams
Engineering Knowledge	✓	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams
System Analysis	✓	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams
Design/development of solutions	✓	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams
Conduct investigations of complex problems	✓	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams
Modern tool usage	✓	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams
The engineer and society	✓	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams
Environment and sustainability	✓	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams
Ethics	✓	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	PO-w	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams
Individual and team work	✓	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	PO-w	PO-x	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams
Communication	✓	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	PO-w	PO-x	PO-y	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams
Project management and finance	✓	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	PO-w	PO-x	PO-y	PO-z	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams
Life-long Learning	✓	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	PO-w	PO-x	PO-y	PO-z	PO-aa	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams
Analysis and Design Skill	✓	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	PO-w	PO-x	PO-y	PO-z	PO-aa	PO-ab	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams
Research and Innovation	✓	PO-n	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	PO-w	PO-x	PO-y	PO-z	PO-aa	PO-ab	PO-ac	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams
Sustainable Outlook	✓	PO-o	PO-p	PO-q	PO-r	PO-s	PO-t	PO-u	PO-v	PO-w	PO-x	PO-y	PO-z	PO-aa	PO-ab	PO-ac	PO-ad	Learning Focus of Assessment Tools to Measure Attainment of CO	Understand	Understand	Minor Exams, Quiz, End Term Exams


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Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Assessment Tools to Measure Attainment of CO		
																Learning	Focus of Assessment	
Understand the distribution of canal and various components of irrigation system	V																Understand	Yes
COE: Classify dams and spillways, their problems and able to determine forces exerted by fluid on dams.																		

Name of the Department: Civil Engg.

Paper BTCE-404 Transportation Engineering

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o
Engineering Knowledge															
Problem Analysis															
Design/development of solutions															
Conduct investigations of complex problems															
Modern tool usage															
The engineer and society															
Environment and sustainability															
Ethics															
Individual and team work															
Communication															
Project management and finance															
Life-long Learning															
Analysis and Design Skill															
Research and Innovation															
Sustainable Outlook															

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	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams
CO 1: Appreciate the importance of different modes of transport and characterize the road transport.				
CO 2: Alignment and geometry of pavement as per Indian Standards according to topography.				
CO 3: Assess the properties of highway materials in laboratory.				
CO 4: Understand the importance of railway infrastructure planning and design.				

CO 2: Demonstrate the understanding of various phases of disaster management cycle and create vulnerability and risk maps.		Understand																		Minor Exams, Quiz, End Term Exams
CO 3: Understand the use of emergency management system to tackle the problems		Analyse					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				Minor Exams, Quiz, End Term Exams
CO 4: Discuss the role of media, various agencies and organizations for effective disaster management.		Understand							✓	✓	✓									Minor Exams, Quiz, End Term Exams

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5. Design early warning system and understand the utilization of advanced technologies in disaster management.	✓								✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Design	Yes
CO 6. Compare different models for disaster management and plan & design of infrastructure for effective disaster management.	✓																					Analyse and D	Yes

Minor Exams, Quiz, End Term Exams

Minor Exams, Quiz, End Term Exams

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Name of the Department: Civil Engg.
 Paper EVS-101-18 Environment Science (Non-credit)

21

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus or Assessment Tools to Measure Attainment of CO
CO1: Students will be able to understand environmental problems at local and national level through literature and general awareness	Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long Learning	Analysis and Design Skill	Research and Innovation	Sustainable Outlook	Understand

Minor Exams, Quiz, End Term Exams

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	Minor Exams, Quiz, End Term Exams
Understand	
✓	✓
✓	✓
✓	✓

Students will gain practical knowledge by visiting wildlife areas, environmental institutes and various personalities who have done practical work on various environmental issues.

CO 3: The students will apply interdisciplinary approach to understand key environmental issues and critically analyze them to explore the possibilities to mitigate these problems.

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	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams
CO 2: Conduct experiments and check the acceptability criteria (if any).	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	YES
CO 3: Design concrete mixes as per BIS provisions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analyse and design YES
CO 4: Analyse the properties of concrete in fresh and hardened state.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analyse and design YES
CO 5: Create a well organized document and present the results appropriately.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	YES
CO 6: Understand and apply non-destructive testing (NDT) for evaluating concrete quality.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand YES

Name of the Department: Civil Engg.

Paper BTCE-407-18 Transportation Lab

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Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus of Assessment Tools to Measure Attainment of CO
CO1: Characterize the pavement materials as per the Indian Standard Guidelines	✓								✓							Minor Exams, Quiz, End Term Exams
CO 2: Evaluate the strength of subgrade soil by CBR test.		✓							✓							Minor Exams, Quiz, End Term Exams
CO 3: Conduct experiments to evaluate aggregate properties.	✓			✓					✓							Minor Exams, Quiz, End Term Exams
CO 4: Determine properties of bitumen material and mixes	✓			✓					✓							Minor Exams, Quiz, End Term Exams

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CO 5: Evaluate the pavement condition by rough meter and Benkelma beam test.	V																			
CO 6: Create a well organized report and present the results appropriately.	V																			
Minor Exams, Quiz, End Term Exams																				
Minor Exams, Quiz, End Term Exams																				

Name of the Department: Civil Engng.

Paper BTCE-501-18 Engineering Geology

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	Learning Focus of Assessment Tools to Measure Attainment of CO
	Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Lifelong Learning	Analysis and Design Skill	Research and Innovation	Sustainable Outlook	

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Understand	Minor Exams, Quiz, End Term Exams												
CO1: The basic concepts of geological processes and their importance in civil Engineering	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO 2: Identification of rocks and minerals and their characteristics	✓												
CO 3: Significance of geological structures in civil engineering	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO 4: Site characterization and geologic considerations in construction	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Analysis	Yes												
Yes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Analysis and D	Yes												
Yes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Analysis and D	Yes												
Yes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Analysis and D	Yes												
Yes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Analysis and D	Yes												
Yes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Analysis and D	Yes												
Yes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Analysis and D	Yes												
Yes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Analysis and D	Yes												
Yes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Name of the Department: Civil Engg.
 Paper BTCE-502-18 Elements of Earthquake Engineering

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08/03

Learning Focus of Assessment Tools to Measure Attainment of CO

Course C	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PO-13	PO-14	PO-15	PO-16	PO-17	PO-18	PO-19	PO-20	PO-21	PO-22	PO-23	PO-24	PO-25	PO-26	PO-27	PO-28	PO-29	PO-30					
Engineering Knowledge																																			
Problem Analysis																																			
Design/Development of Solutions																																			
Conduct Investigations of Complex Problems																																			
Modern Tool Usage																																			
The Engineer and Society																																			
Environment and Sustainability																																			
Ethics																																			
Individual and Team Work																																			
Communication																																			
Project Management and Finance																																			
Lifelong Learning																																			
Analysis and Design																																			
Research and Innovation																																			
Qualitative Criteria																																			

Minor Exams, Quiz, End Term Exams

Minor Exams, Quiz, End Term Exams



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	Minor Exams, Quiz, End Term Exams											
Evaluate and analyze Degree of Freedom, Spring action, Damping, Equations of motions, Lateral Force analysis, Floor Diaphragm action, Moment resisting frames and Shear walls.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analyse	Yes
CO 4: Apply various codal provisions related to seismic design of buildings.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Design	Yes
CO 5: Acquire new basic knowledge in earthquake engineering.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	No

Name of the Department: Civil Engg.
 Paper BTCE-503-18 Construction Engineering & Management

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Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	Learning Focus or Assessment Tools to Measure Attainment of CO
CO1: An understanding of modern construction practices	Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long Learning	Analysis and Design Skill	Research and Innovation	Sustainable Customs	Minor Exams, Quiz, End Term Exams
CO 2.A good idea of basic construction dynamics various stakeholders, project objectives, processes, resources required and project economic																Minor Exams, Quiz, End Term Exams



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Ability to plan, control and monitor construction projects with respect to time and cost	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams*	Minor Exams, Quiz, End Term Exams
CO 4: An idea of how to optimise construction projects based on costs				
CO 5: An idea how construction projects are administe red with respect to contract structures and issues				
CO 6: An ability to put forward ideas and understan dings to others with effective communi cation processes				

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Name of the Department: Civil Engg.

Paper BTCE 504-18 Environmental Engineering

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus or Assessment Tools to Measure Attainment of CO
CO1: Understand the impact of humans on environment and environment on humans	✓					✓			✓							Understand Yes Minor Exams, Quiz, End Term Exams
CO 2: Be able to identify and value the effect of the pollutants on the environment: atmosphere, water and soil.	✓					✓			✓							Evaluate Yes Minor Exams, Quiz, End Term Exams
CO 3 Be able to plan strategies to control, reduce and monitor pollution	✓					✓			✓							Create Yes Minor Exams, Quiz, End Term Exams


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Course	CO-a	CO-b	CO-c	CO-d	CO-e	CO-f	CO-g	CO-h	CO-i	CO-j	CO-k	CO-l	CO-m	CO-n	CO-o	Learning Focus of Assessment Tools to Measure Attainment of CO	Minor Exams, Quiz, End Term Exams
Be able to select the most appropriate technique for the treatment of water, wastewater, solid waste and waste and contaminated air.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Create	Yes
CO-5: Be conversant with basic environmental legislation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes

Name of the Department: Civil Engg.

Paper BTCE-505-18 Structural Engineering

Course	CO-a	CO-b	CO-c	CO-d	CO-e	CO-f	CO-g	CO-h	CO-i	CO-j	CO-k	CO-l	CO-m	CO-n	CO-o	Learning Focus of Assessment Tools to Measure Attainment of CO
Engineering Knowledge	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand
Problem Analysis	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand
Design/development of solutions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand
Conduct investigations of complex problems	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand
Modern tool usage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand
The engineer and society	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand
Environment and sustainability	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand
Ethics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand
Individual and team work	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand
Communication	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand
Project management and finance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand
Life-long Learning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand
Analysis and Design Skill	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand
Research and Innovation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand
Sustainable Outlook	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand

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Learning Outcomes	Minor Exams, Quiz, End Term Exams													
	1	2	3	4	5	6	7	8	9	10				
CO 1: Able to apply their knowledge of structural mechanics in addressing design problems of structural engineering	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Individual	✓	Analyze and design	YES
CO 2: Ability to understand difference between Working stress and Limit State philosophy by calculation of various design parameters	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Individual	✓	Analyze and design	YES
CO 3: Design the reinforced concrete beams and slabs using limit state design guidelines of Indian standards	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Individual	✓	Analyze and Design	YES

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They will possess the skills to analyse and design steel structure members	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO 5: They will have knowledge of structural engineering	✓																				Individual					YES
																					Individual					YES

Minor Exams, Quiz, End Term Exams

Minor Exams, Quiz, End Term Exams

Name of the Department: Civil Engg.

Paper BTCE 506-18 Geotechnical Engineering

Course Code	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o
Engineering Knowledge															
Problem Analysis															
Design/development of solutions															
Conduct investigations of complex problems															
Modern tool usage															
The engineer and society															
Environment and sustainability															
Ethics															
Individual and team work															
Communication															
Project management and finance															
Lifelong Learning															
Analysis and Design Skill															
Research and Innovation															
Sustainable Outlook															

Learning Focus of Assessment Tools to Measure Attainment of CO



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2022

Apply the various specifications of compaction of soils in the construction of highways and earthen dams. CO 4: Able to apply the knowledge of consolidation, soil deformation parameters, and calculate settlement magnitude and rate of settlement.																								Minor Exams, Quiz, End Term Exams
CO 5: Design the embankment slopes and check the stability of finite slopes.																								Minor Exams, Quiz, End Term Exams

Name of the Department: Civil Engg.
 Paper BTCE-507-18 Geotechnical Lab

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Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	Learning Focus of Assessment Tools to Measure Attainment of CO
ENR Interpret the results of compaction test for relative compaction in the field	v	v														Minor Exams, Quiz, End Term Exams
ENR Evaluate the index properties of soil.	v	v														Minor Exams, Quiz, End Term Exams
ENR Understand the procedure for classifying coarse grained and fine grained soils.		v														Minor Exams, Quiz, End Term Exams


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Learning Outcomes	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams	Minor Exams, Quiz, End Term Exams
Determine the engineering properties of soil.			
CO5: Conduct experiments to evaluate Shear Strength of Soil			
CO6: Apply modern engineering tools effectively and efficiently for geotechnical engineering analysis			

Name of the Department: Civil Engg.

Paper BTCE-508-18 Environmental Engineering Lab

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus of Assessment Tools to Measure Attainment of CO
	Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Lifelong Learning	Analysis and Design Skill	Research and Innovation	PSO-o	Sustainable Outlook


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3	3	3	0	1	3	3	1	0	1	0	0
0	0	0	2	2	1	3	2	2	2	2	3
0	0	0	2	2	1	3	2	2	2	2	3

Conduct experiments as per standard methods of sampling and analysis.

CO 2: Demonstrate the expertise to characterize water and wastewater samples.

CO 3: Understand the importance of laboratory analysis as a controlling factor in the treatment of water and wastewater.

Understand & Analyze	yes	Practical Exam, Class/Quiz Tests
Understand & Analyze	yes	Practical Exam, Class/Quiz Tests, Viva
Understand & Analyze	yes	Practical Exam, Class/Quiz Tests, Viva


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2026

Understand & Analyze	YES	Practical Exam, Class/Quiz Tests, Viva
Understand & Analyze	YES	Practical Exam, Class/Quiz Tests, Viva
Understand & Analyze	YES	Practical Exam, Class/Quiz Tests, Viva

Record the experimental observations and interpret the analysis results.	3	2	2	2	2	1	2	3	2	3	2	2	3	2	3
CO 5: Use the analysis results for making informed decisions about the drinkability of water and disposal of wastewater etc.	1	0	0	3	1	1	1	2	0	0	0	1	3	1	3

CO 6: Evaluate and compare different techniques of experimental analysis	2	3	3	1	2	0	0	2	1	1	1	3	1	3	1
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Name of the Department: Civil Engg.

Paper BTCE-509-18 Structural Lab

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2020

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	Learning Focus of Assessment Tools to Measure Attainment of CO
CO1: Describe fundamental concepts and principles and practices of Management																Minor Exams, Quiz, End Term Exams
CO 2: Explain the role and responsibilities of managers and adapt to the various styles of management across organizations.																Minor Exams, Quiz, End Term Exams
CO 3: Develop analytical abilities to face the business situations																Minor Exams, Quiz, End Term Exams



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<p>CO 1: Describe fundamental concepts and principles and practices of Management.</p>	<p>Minor Exams, Quiz, End Term Exams</p>
<p>CO 2: Explain the role and responsibilities of managers and adapt to the various styles of management across organizations.</p>	<p>Minor Exams, Quiz, End Term Exams</p>
<p>CO 3: Develop analytical abilities to face the business situations.</p>	<p>Minor Exams, Quiz, End Term Exams</p>
<p>CO 4: Apply various tools that would facilitate the decision making process in the business.</p>	<p>Minor Exams, Quiz, End Term Exams</p>

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Develop peer based learning and working in groups and teams.																							
	Minor Exams, Quiz, End Term Exams																						

Name of the Department: Civil Engg.

Paper BTCE-601-18 Engineering Economic Estimation & Costing

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus or Assessment Tools to Measure Attainment of CO	Minor Exams, Quiz, End Term Exams
CO1	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Analysis and Design Skill	Research and innovation	Sustainable Civiok	Understands	



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	Minor Exams, Quiz, End Term Exams													
													Analyse and application	Yes
CO 2: Be able to carry out and evaluate benefit/cost, life cycle and breakeven analysis on one or more economic alternatives.	✓													
CO 3: Be able to understand the technical specifications for various works to be performed for a project and how they impact the cost of a structure.	✓													

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IKGPTU CAMPUS, MACHILIPATNAM

2009

CO 4: Be able to quantify the worth of a structure by evaluating quantities of constituents, derive their cost rates and build up the overall cost of the structure.																			Minor Exempt, Quilt, End Term Exempt
																			Minor Exempt, Quilt, End Term Exempt

Name of the Department: Civil Engrg.
 Paper PECE 6625. 11 Decive (Foundation Engineering)


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2023

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	Learning Focus or Assessment Tools to Measure Attainment of CO
CO1: Understand the methods of surface and subsoil exploration and to prepare investigation report.	v			v						v	v	v	Minor Exams, Quiz, End Term Exams
CO 2: Estimate the stresses in soils and bearing capacity of soil for shallow foundation													Minor Exams, Quiz, End Term Exams
CO 3: Design various types of shallow foundation and to estimate settlement.	v	v	v										Minor Exams, Quiz, End Term Exams
Engineering Knowledge													
Problem Analysis													
Design/development of solutions													
Conduct investigations of complex problems													
Modern tool usage													
The engineer and society													
Environment and sustainability													
Ethics													
Individual and team work													
Communication													
Project management and finance													
Life-long Learning													
Analysis and Design Skill													
Research and Innovation													
PSO-n													
PSO-m													
PSO-o													
Sustainable Outlook													

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Minor Exams, Quiz, End Term Exams																					
Apply the concepts of deep foundation and solve problems related with pile foundation.	V	V	V																		

Name of the Department: Civil Engg.

Paper PECE- 602C-18 Elective - III(Advance Soil Mechanics)

Course	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus or Assessment Tools to Measure Attainment of CO	Minor Exams, Quiz, End Term Exams
CO1: On learn about the different stability analysis for all kind of drainage condition.	Engineering Knowledge	Problem Analysis	Design/development of solutions	Context investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long Learning	Analysis and Design Skill	Research and Innovation	Sustainable Outlook		

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QW

CO 2: Do stability analysis of any kind of slope and its projection	Minor Exams, Quiz, End Term Exams																						
CO 1: Understand the earth pressure theories and able to calculate lateral earth pressure for different conditions	Minor Exams, Quiz, End Term Exams																						
CO 3: Evaluate design of embankment, cut, pile foundation, anchored sheet piles	Minor Exams, Quiz, End Term Exams																						
CO 4: Evaluate design of machine foundation	Minor Exams, Quiz, End Term Exams																						

Name of the Department: Civil Engg.

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Paper
 PCE
 602D-18
 Open
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Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus or Assessment Tools to Measure Attainment of CO
CO1: Identify the functions of geosynthetic tasks																Minor Exams, Quiz, End Term Exams
CO 2: Select the geosynthetic products																Minor Exams, Quiz, End Term Exams
CO 3: Identify the testing methods for geosynthetic tasks																Minor Exams, Quiz, End Term Exams
CO 4: Design with geosynthetic products																Minor Exams, Quiz, End Term Exams
																Minor Exams, Quiz, End Term Exams

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 DEPTU (MPU) - MPUI

2006

Name of the Department: Civil Engg.

Paper BTMC-101-18 Constitution of India

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PSO-m	PSO-n	PSO-o	Learning Focus of Assessment Tools to Measure Attainment of CO
CO1: Understand the Philosophy of Indian constitution, like Sovereignty, Secular, Republic, Socialist and Democratic.	Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long Learning	Analysis and Design Skill	Research and Innovation	Sustainable Outlook	Understand
CO 2: Understand the Rights and Duties of Citizens, Fundamental Rights and Human Rights.																Understand

Minor Exams, Quiz, End Term Exams

Minor Exams, Quiz, End Term Exams



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2008

CO 3: Examine the Forms of government, Parliamentary form of Govt. & Presidential Form of Govt, powers and position of President and Prime Minister.			Minor Exams, Quiz, End Term Exams
CO 4: The Course will also be helpful in preparation of Competitive exams National wide and state level, like IAS, IPS and others.	understand		Minor Exams, Quiz, End Term Exams Minor Exams, Quiz, End Term Exams

Name of the Department: Civil Engg.

Paper
BTCE-
PECE -
603A-
18(Design
of
Concrete
Structure
)


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2023

Course C	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus	Assessment Tools to Measure Attainment of CO
CO1: To apply the loads on building frames and analyse them using direct and indirect methods.	✓	✓	✓					✓	Individual				✓			Analyse and Design	Minor Exams, Quiz, End Term Exams
CO 2: To analyse the concrete composite slabs i.e. continuous beams, flat slabs, tanks and retaining walls, etc	✓	✓	✓					✓	Individual				✓			Analyse and Design	Minor Exams, Quiz, End Term Exams
CO 3: To design and detail the concrete composite slabs i.e. curved beams, flat slabs, tanks and retaining walls, etc	✓	✓	✓					✓	Individual				✓			Analyse and Design	Minor Exams, Quiz, End Term Exams



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CO 4: To analyze and design the special foundations i.e. raft, pile and machine foundations.	✓	✓	✓	✓	✓	Individual	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analyze and Design	yes	Minor Exams, Quiz, End Term Exams
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Name of the Department: Civil Engg.

Paper BTCE-PECE-603B-18 (Design of Steel Structures)

Course C	Learning Focus of Assessment Tools to Measure Attainment of CO														Learning Focus of Assessment Tools to Measure Attainment of CO	Minor Exams, Quiz, End Term Exams			
	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n			PO-o		
CO1: To apply the knowledge for analysis and design of various components of a plate girder.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analyze and Design	yes	Minor Exams, Quiz, End Term Exams
Engineering Knowledge	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Individual and team work	✓	Minor Exams, Quiz, End Term Exams
Problems Analysis	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Communication	✓	Minor Exams, Quiz, End Term Exams
Design/development of solutions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Project management and finance	✓	Minor Exams, Quiz, End Term Exams
Conduct investigations of complex problems	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Life-long Learning	✓	Minor Exams, Quiz, End Term Exams
Modern tool usage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analysis and Design Skill	✓	Minor Exams, Quiz, End Term Exams
The engineer and society	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Research and Innovation	✓	Minor Exams, Quiz, End Term Exams
Environment and sustainability	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Sustainable Outlook	✓	Minor Exams, Quiz, End Term Exams
Ethics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Individual and team work	✓	Minor Exams, Quiz, End Term Exams


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 VIGNITIA UNIVERSITY, SRIHARIKOTTA



2001

CO 2: To analyse, evaluate and design the different types of beam-column connections.	✓	✓	✓	✓	Individual	✓	✓	✓	✓	✓	✓	✓	Analyse and Design	yes	Minor Exams, Quiz, End Term Exams
CO 3: To design the column bases and footings for a steel structure under various loading conditions	✓	✓	✓	✓	Individual	✓	✓	✓	✓	✓	✓	✓	Analyse and Design	yes	Minor Exams, Quiz, End Term Exams
CO 4: To analyse the loads and design various elements of industrial buildings.	✓	✓	✓	✓	Individual	✓	✓	✓	✓	✓	✓	✓	Analyse and Design	yes	Minor Exams, Quiz, End Term Exams
CO 5: To demonstrate the basic knowledge of plastic analysis of simple steel elements.	✓	✓	✓	✓	Individual	✓	✓	✓	✓	✓	✓	✓	Analyse and Design	yes	Minor Exams, Quiz, End Term Exams

PW

Name of the Department: Civil Engg.

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TECHNICAL UNIVERSITY OF TEXAS AT ARLINGTON

2009

Paper
 BTCE-
 PECE-
 ESTC
 18/Advise
 and
 Structural
 Analysis

Course Code	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus or Assessment Tools to Measure Attainment of CO
CO1: To evaluate the systems in each of three different types of building structures	✓	✓	✓					✓	Individual		✓		✓			Analyse and Design Minor Exams, Quiz, End Term Exams
CO 2 To analyze and design trusses and flexibility matrices for beams and frames.	✓	✓	✓					✓	Individual		✓		✓			Analyse and Design Minor Exams, Quiz, End Term Exams


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Course	Minor Exams, Quiz, End Term Exams										Minor Exams, Quiz, End Term Exams								
	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-k									
CO 3: To analyse beams and frames using flexibility and stiffness matrix method	✓	✓	✓					✓		✓			✓						Analysis and Design
CO 4: To apply the concept of finite element method to basic civil engineering structures	✓	✓	✓					✓		✓			✓						Analysis and Design

Name of the Department: Civil Engg.

Paper BTCE-PECE-6030-18(Structural Analysis and Design)

Course	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus or Assessment Tools to Measure Attainment of CO
	Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long Learning	Analysis and Design Skill	Research and Innovation	Sustainable Outcomes

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Minor Exams, Quiz, End Term Exams		Analysis and Design			
Minor Exams, Quiz, End Term Exams	✓	✓	Inductia ✓	✓	CO1: To understand and determine in the industry of different types of structures
Minor Exams, Quiz, End Term Exams	✓	Analysis and Design	Inductia ✓	✓	CO2: To calculate forces and moments in indeterminate structures due to static as well as moving loads.
Minor Exams, Quiz, End Term Exams	✓	Analysis and Design	Inductia ✓	✓	CO3: To analyse and design concrete structure (e.g. column subjected to moment, foundation, retaining walls, etc.

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 KRGPTU CAMPUS KUSHIAPUR

PO-4: To analyse and design the street structures i.e. column bases, beam-column joints, plate girders and roof trusses.	Minor Exams, Quiz, End Term Exams																																	
	✓	✓	✓															Individual	✓		✓	✓												

Name of the Department: Civil Engg.

Paper BTCE-PFCE-603E-18(Prestressed Concrete)

Learning Focus of Assessment Tools to Measure Attainment of CO	Attainment																																					
	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	PO-p	PO-q	PO-r																				
Engineering Knowledge	✓																																					
Problem Analysis																																						
Design/development of solutions																																						
Conduct investigations of complex problems																																						
Modern tool usage																																						
The engineer and society																																						
Environment and sustainability																																						
Ethics																																						
Individual and team work																																						
Communication																																						
Project management and finance																																						
Lifelong Learning																																						
Analysis and Design Skill																																						
Research and Innovation																																						
Sustainable Outlook																																						


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 MRCPTU CAMPUS-THIRUVARUR

2023/24

	Minor Exams, Quiz, End Term Exams
CO1: Recognize the materials for prestressed concrete and its properties.	✓
Advantages and applications in contrast to normally reinforced concrete.	✓
CO 2: Comprehend the concept of pre-tensioning and post-tensioning of prestressed concrete.	✓
Types of prestressed members (prestressing systems and its components).	✓
Individual	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
	Minor Exams, Quiz, End Term Exams
Analyse and Design	Analyse and Design
✓	✓
✓	✓
Individual	Individual
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓

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 PUNJAB UNIVERSITY OF ARCHITECTURE

	Minor Exams, Quiz, End Term Exams										
Analyze the prestress, its losses, and determine the strength of a prestressed concrete sections using Indian Standards (IS) Guidelines under flexure, shear and torsion.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analyze and Design
CO 4: Evaluate the strength and serviceability requirements of different prestressed concrete members i.e. beam, slab and anchor blocks.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analyze and Design

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	Minor Exams, Quiz, End Term Exams																			
Analyse the prestress, its losses, and determine the strength of a prestressed concrete sections using Indian Standards (IS) Guidelines under flexure, shear and torsion. CO 4: Evaluate the strength and serviceability requirements of different prestressed concrete members i.e. Beams, slab and anchor blocks.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analyse and Design								
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		Analyse and Design							
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			Analyse and Design						
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				Analyse and Design					
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					Analyse and Design				
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						Analyse and Design			
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							Analyse and Design		
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓								Analyse and Design	
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓									Analyse and Design
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Course C	Assessment Tools to Measure Attainment of CO																
	PO-a	PO-b	PO-c	PO-d	PO-e	PO-f	PO-g	PO-h	PO-i	PO-j	PO-k	PO-l	PO-m	PO-n	PO-o	Learning Focus	Minor Exams, Quiz, End Term Exams
CO1: Understand the cause of deterioration of concrete structures	✓					✓	✓		Individual			✓	✓	✓	✓	Understand Yes	Minor Exams, Quiz, End Term Exams
CO 2: Able to assess the damage for different types of structure	✓	✓	✓	✓		✓	✓		Individual			✓	✓	✓	Understand Yes	Minor Exams, Quiz, End Term Exams	
CO 3: Summarize the principles of repair and rehabilitation of structures	✓					✓	✓		Individual			✓	✓	✓	Understand Yes	Minor Exams, Quiz, End Term Exams	

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