

### III SEMESTER

S. No.	Subject Code	Name of the Subject	Periods			Evaluation Scheme				Subject Total	Credits
			L	T	P	Sessional Assessment			ESE		
						CT	TA	Total			
<b>THEORY SUBJECT</b>											
1	NAS-301/ NOE-031 to NOE-039	Engg Mathematics-III/ Science Based Elective	3	1	0	30	20	50	100	150	4
2	NCE-301	Fluid Mechanics	3	1	0	30	20	50	100	150	4
3	NCE-302	Building Materials & Construction	3	1	0	30	20	50	100	150	4
4	NME-302	Mechanics of Solids	3	1	0	30	20	50	100	150	4
5	NHU-301/ NHU-302	Industrial Psychology/ Industrial Sociology	2	0	0	15	10	25	50	75	2
6	NCE-303	Surveying-I	2	1	0	15	10	25	50	75	3
	AUC-001/ AUC-002	<i>Human Value &amp; Professional Ethics/Cyber Security</i>	2	0	0	15	10	25	50	75*	
<b>PRACTICAL/DESIGN/DRAWING SUBJECTS</b>											
7	NCE-351	Fluid Mechanics Lab.	0	0	3	10	10	20	30	50	1
8	NCE-352	Building Materials Lab	0	0	2	10	10	20	30	50	1
9	NCE-353	Surveying Lab	0	0	3	10	10	20	30	50	1
10	NCE-354	Building Planning & Drawing	0	0	2	10	10	20	30	50	1
11	NGP-301	NGP						50		50	
		<b>TOTAL</b>	<b>18</b>	<b>5</b>	<b>10</b>					<b>1000</b>	<b>25</b>

*NOTE: Up to IV semesters – common to Mechanical and related branches (such as Production, Industrial, Manufacturing, Automobile, Aeronautical etc.).*

**Science Based Open Elective:**

- NOE031 Introduction to Soft Computing (Neural Network, Fuzzy Logic and Genetic Algorithm)
- NOE032 Nano Sciences
- NOE033 Laser Systems and Applications
- NOE034 Space Sciences
- NOE035 Polymer Science & Technology
- NOE036 Nuclear Science
- NOE037 Material Science
- NOE038 Discrete Mathematics
- NOE039 Applied Linear Algebra

\*Human values & Professional Ethics /Cyber Security will be offered as a compulsory audit course for which passing marks are 30% in End Semester Examination and 40% in aggregate.

## IV SEMESTER

S. No.	Subject Code	Name of the Subject	Periods			Evaluation Scheme				Subject Total	Credits
			L	T	P	Sessional Assessment			ESE		
						CT	TA	Total			
<b>THEORY SUBJECT</b>											
1	NOE-041 to NOE-049/ NAS-401	Science Based Elective/ Engg Mathematics-III	3	1	0	30	20	50	100	150	4
2	NCE-401	Structural Analysis-I	3	1	0	30	20	50	100	150	4
3	NCE-402	Geo-informatics	3	1	0	30	20	50	100	150	4
4	NCE-403	Hydraulics & Hydraulic Machines	3	1	0	30	20	50	100	150	4
5	NHU-402/ NHU-401	Industrial Sociology/Industrial Psychology	2	0	0	15	10	25	50	75	2
6	NCE-404	Engineering Geology	2	1	0	15	10	25	50	75	3
	AUC-002/ AUC-001	<i>Cyber Security/Human Value &amp; Professional Ethics</i>	2	0	0	15	10	25	50	75*	
<b>PRACTICAL/DESIGN/DRAWING SUBJECT</b>											
7	NCE-451	Structural Analysis Lab	0	0	3	10	10	20	30	50	1
8	NCE-452	Geo-informatics Lab	0	0	3	10	10	20	30	50	1
9	NCE-453	Hydraulics & Machine Lab	0	0	2	10	10	20	30	50	1
10	NCE-455	CBSNT Lab	0	0	2	10	10	20	30	50	1
11	NGP-401	NGP						50		50	
		TOTAL	18	5	10					1000	25
		<b>Industrial Training-I of 4 weeks after IV semester or Minor fabrication project involving work for nearly 4 weeks , which will be evaluated in VII semester</b>									

**NOTE:** Practical summer training-I of 4-weeks after IV –semester or Minor fabrication project will be evaluated in VII semester

### Science Based Open Elective:

NOE-041	Introduction to Soft Computing (Neural Network, Fuzzy Logic and Genetic Algorithm)
NOE-042	Nano Sciences
NOE-043	Laser Systems and Applications
NOE-044	Space Sciences
NOE-045	Polymer Science & Technology
NOE-046	Nuclear Science
NOE-047	Material Science
NOE-048	Discrete Mathematics
NOE-049	Applied Linear Algebra

\*Human values & Professional Ethics /Cyber Security will be offered as a compulsory audit course for which passing marks are 30% in End Semester Examination and 40% in aggregate.

## V SEMESTER

S.No	Course Code	Subject	Period			Evaluation Scheme				Subject Total	Credit
						Sessional Exam			ESE		
			L	T	P	CT	TA	Total			
<b>THEORY SUBJECTS</b>											
1	NHU 501	Engineering Economics	2	0	0	15	10	25	50	75	2
2	NCE 501	Geotechnical Engineering	3	1	0	30	20	50	100	150	4
3	NCE 502	Transportation Engineering-1	3	1	0	30	20	50	100	150	4
4	NCE 503	Environmental Engineering-1	2	1	0	15	10	25	50	75	3
5	NCE 504	Structural Analysis-2	3	1	0	30	20	50	100	150	4
6	NCE 505	Design of Concrete Structure-1	3	1	0	30	20	50	100	150	4
<b>PRACTICAL/DRAWING/DESIGN</b>											
7	NCE 551	Geotechnical Engineering Lab	-	-	3	10	10	20	30	50	1
8	NCE 552	Transportation Engineering Lab	-	-	3	10	10	20	30	50	1
9	NCE 553	CAD Lab-1	-	-	3	10	10	20	30	50	1
10	NCE 554	Estimation Costing & Valuation			3	10	10	20	30	50	1
11	NGP 501	General Proficiency	-	-	-	-	-	50	-	50	
		<b>TOTAL</b>	<b>16</b>	<b>5</b>	<b>12</b>					<b>1000</b>	<b>25</b>

## VI SEMESTER

S. No	Course Code	Subject	Period			Evaluation Scheme				Subject Total	Credit
			L	T	P	Sessional Exam			ESE		
						CT	TA	Total			
<b>THEORY SUBJECTS</b>											
1	NHU 601	Industrial Management	2	0	0	15	10	25	50	75	2
2	NCE 601	Design of Concrete Structure-2	3	1	0	30	20	50	100	150	4
3	NCE 602	Environmental Engineering-2	3	1	0	30	20	50	100	150	4
4	NCE 603	Construction Technology & Management	3	1	0	30	20	50	100	150	4
5	NCE 011 -014	Departmental Elective-1	3	1	0	30	20	50	100	150	4
6	NCE 021-024	Departmental Elective-2	2	1	0	15	10	25	50	75	3
<b>PRACTICAL/DRAWING/DESIGN</b>											
7	NCE 651	Structural Detailing Lab	0	0	3	10	10	20	30	50	1
8	NCE 652	Environmental Engineering Lab	0	0	3	10	10	20	30	50	1
9	NCE 653	CAD Lab-2	0	0	3	10	10	20	30	50	1
10	NCE 654	Survey Camp*	0	0	0	0	0	50		50	1
11	NGP 601	General Proficiency	0	0	0	0	0	50	-	50	
		<b>TOTAL</b>	<b>16</b>	<b>5</b>	<b>9</b>					<b>1000</b>	<b>25</b>

Note:\*The teaching load of survey camp will be counted as equivalent to 0-0-3.

Departmental Elective -1 (Full Unit Course with Credit: 4)

Sl.No.	Code and Course
5 (A)	NCE 011 – Advanced Foundation Design
5 (B)	NCE 012 – Matrix Analysis of Structures
5 (C)	NCE 013 – Environmental Management for Industries
5 (D)	NCE 014 – Principals of Town Planning and Architecture

Departmental Elective – 2 (Half Unit Course with Credit: 3)

Sl.No.	Code and Course
6 (A)	NCE 021 – Advanced Concrete Design
6 (B)	NCE 022 – Earth and Earth Retaining Structure
6 (C)	NCE 023 – Transportation System and Planning
6 (D)	NCE 024 – Rural Water supply and Sanitation

## VII SEMESTER

S No	Course Code	SUBJECT	PERIODS			Evaluation Scheme				Subject Total	Credit
			L	T	P	Sessional Exam			ESE		
						CT	TA	Total			
THEORY SUBJECT											
1	NOE071- NOE074	Open Elective – I	3	1	0	30	20	50	100	150	4
2	NCE031- NCE035	Department Elective-III	3	1	0	30	20	50	100	150	4
3	NCE041- NCE044	Department Elective-IV	3	1	0	30	20	50	100	150	4
4	NCE701	Design of Steel Structures	3	1	0	30	20	50	100	150	4
5	NCE702	Water Resources Engg	3	1	0	30	20	50	100	150	4
PRACTICAL / DESIGN / DRAWING											
6	NCE751	Seminar	0	0	4		-	50	-	50	1
7	NCE752	Industrial Training**					-	50	-	50	1
8	NCE753	Project#	0	0	4		-	100	-	100	3
9	NGP 701	General Proficiency	-	-	-	-	-	50	-	50	1
		Total	15	5	8					1000	26

\*\* 4 weeks Industrial Training after VI semester to be evaluated in VII semester.

# Project should be initiated in VII semester beginning and should be completed by the end of VIII semester.

Departmental Elective-3 (Full Unit Course with Credit: 4)

S. No.	Code and Course
2 (A)	NCE 031 - Bridge Engineering
2 (B)	NCE 032 - Finite Element Methods
2(C)	NCE 033 - Environmental Geo-technology
2(D)	NCE 034 - Industrial Pollution Control & Env. Audit
2 (E)	NCE 035 – Engineering Hydrology

Departmental Elective-4 (Full Unit Course with Credit: 4)

S. No.	Code and Course
3 (A)	NCE 041 - Precast and Modular Construction Practices
3 (B)	NCE 042 - Plastic Analysis of Structures
3 (C)	NCE 043 - Open Channel Flow
3 (D)	NCE 044 – Tunnel Engineering

## VIII SEMESTER

S No	Course Code	SUBJECT	PERIODS			Evaluation Scheme				Subject Total	Credit
			L	T	P	Sessional Exam			ESE		
						CT	TA	Total			
THEORY SUBJECT											
1	NOE081- NOE084	Open Elective – II	3	1	0	30	20	50	100	150	4
2	NCE051- NCE054	Departmental Elective-V	3	1	0	30	20	50	100	150	4
3	NCE061- NCE064	Departmental Elective-VI	3	1	0	30	20	50	100	150	4
4	NCE801	Transportation Engineering -II	3	1	0	30	20	50	100	150	3
PRACTICAL / DESIGN / DRAWING											
5	NCE851	Project	0	0	12		100	100	250	350	8
6	NGP 801	General Proficiency	-	-	-	-	-	50	-	50	1
		Total	12	4	12					1000	24

### Departmental Elective-5 (Full Unit Course with Credit: 4)

S. No.	Code and Course
2 (A)	NCE 051 - Computer Aided Design
2 (B)	NCE 052 - Analysis and Design of Hydraulic Structures
2 (C)	NCE 053 - Water Resources Systems
2 (D)	NCE 054 - Machine Foundation Design

### Departmental Elective-6 (Full Unit Course with Credit: 4)

S. No.	Code and Course
3 (A)	NCE061 - Ground Improvement Techniques
3 (B)	NCE 062 - River Engineering
3 (C)	NCE 063 – Groundwater Management
3 (D)	NCE 064 - Earthquake Resistant Design of Structures

## **List of Open Electives for B. Tech. Courses**

### **OPEN ELECTIVE-I**

NOE -071	Entrepreneurship Development
NOE-072	Quality Management
NOE-073	Operations Research
NOE-074	Introduction to Biotechnology

### **OPEN ELECTIVE-II**

NOE-081	Non Conventional Energy Resources
NOE-082	Nonlinear Dynamic Systems
NOE-083	Product Development
NOE-084	Automation & Robotics