



GOVERNMENT OF PUDUCHERRY
Arignar Anna Government Arts and Science College
Karaikal-609605
(Affiliated to Pondicherry University)
NEHRU NAGAR, KARAIKAL (UT OF PUDUCHERRY) – 609 605



Department: Tamil

Course Name: B.A. Tamil

Programme Outcome

- PO1: To explain letters, words and grammar in Tamil Language.
- PO2: Learn to write Tamil Sentences without grammar mistakes.
- PO3: To develop the Creative writing.
- PO4: To understand the history and Tamil culture.
- PO5: To learn about the specialty of Modern Literatures.
- PO5: To understand the history and Tamil culture
- PO6: To fully understand the grammar of Nannool & Tholkappiyam
- PO7: Will be able to Translate and Compare the World Literature.

Programme Specific Outcomes

- PSO1: Basic concepts like Agam, Puram, Ilakkiya Varalaru and Ilakkana Varalaru etc.
- PSO2: Introduction on Sangam, Kappiyangal, Thirukkural and Modern Literature.
- PSO3: Acquainted with some basic Modern Literature Theories.
- PSO4: Learners will be involved in creative writings and can develop spoken skill by learning such papers like Pechchukkali & Padaippukkali.
- PSO5: To provide computer knowledge for gaining employment through studying Internet Tamil.
- PSO6: Students will learn about Folk literature and gain knowledge about old Tamil culture.
- PSO7: To create awareness about Mass Media.

Name of the Programme: பொதுத்தமிழ்

(அனைத்து இளங்கலை மற்றும் இளம் அறிவியல் பட்டங்களுக்கான அடித்தளப்படிப்பு)

முதலாண்டு		
வ.எண்	பாடம்	பாட நோக்கம்
1.	பொதுத்தமிழ் 1 (இக்கால இலக்கியம்) MIL - 1	- இக்கால இலக்கிய வகைகளையும் வடிவங்களையும் அறிமுகம் செய்தல் - கவிதை, சிறுகதை, நாடகம், உரைநடை, நாவல் ஆகியவற்றின் தோற்றம் மற்றும் வளர்ச்சி நிலைகளை எடுத்துரைத்தல் - இக்கால இலக்கியப் படைப்புகள் குறித்த விமர்சனப் பார்வை பெறுதல்
2.	பொதுத்தமிழ் 2 (காப்பியங்கள் – அற இலக்கியங்கள்) MIL - 2	- காப்பிய இலக்கியங்களின் இலக்கியச் சுவையைப் பயிற்றுவித்தல் - காப்பிய இலக்கியங்களின் வாயிலாக வாழ்வியல் விழுமியங்களை அறியச் செய்தல் - அற இலக்கியங்களின் தேவையை எடுத்துரைத்தல் - அற இலக்கியங்களின் வாயிலாக வாழ்வியல் அறங்களை அறியச் செய்தல்
இரண்டாமாண்டு		
3.	பொதுத்தமிழ் 3 (சமய இலக்கியங்களும் சிற்றிலக்கியங்களும்) MIL - 3	- சமய இலக்கியத் தோற்றத்திற்கான வரலாற்றுப் பின்புலத்தை எடுத்துரைத்தல் - சைவ, வைணவ இலக்கியங்களை அறிமுகப்படுத்துதல் - சிற்றிலக்கியங்களின் தோற்றப் பின்புலத்தை எடுத்துரைத்தல் - சிற்றிலக்கியங்களின் இலக்கியச் சிறப்பைக் கற்பித்தல்
4.	பொதுத்தமிழ் 4 (சங்க இலக்கியம்) MIL - 4	- சங்க இலக்கியங்களின் சிறப்புகளை எடுத்துரைத்தல் - சங்க இலக்கியங்களின் வாயிலாக அகம் மற்றும் புறப் பண்பாடுகளை எடுத்துரைத்தல்

Name of the Programme : இளங்கலைத் தமிழ்

முதலாண்டு முதற்பருவம்			
வ.எண்	பாடம்	Course Code	பாட நோக்கம்
முதன்மைப் பாடம்			
1.	இக்கால இலக்கியம் (கவிதையும் உரைநடையும்)	DSC-1 A	○ மரபுக் கவிதை, புதுக்கவிதை – அறிமுகம் செய்தல் ○ கவிதைகளின் உள்ளடக்கம் மற்றும் அவை தோன்றிய காலச்சூழல், சமூகப் பின்னணி ஆகியவற்றை விளக்குதல் ○ புதுக்கவிதை வடிவங்களையும், உத்திகளையும் விளக்குதல் ○ உரைநடை வளர்ச்சி வரலாறு குறித்து அறிமுகம் செய்தல்
2.	நன்னூல்- எழுத்ததிகாரம்	DSC-2 A	○ தமிழ் இலக்கண அறிமுகம் செய்தல் ○ இலக்கியத்திற்குத் தேவையான இலக்கண அறிவு பெறுதல் ○ நன்னூல் இலக்கணத்தை நுட்பமாகக் கற்று நடைமுறையில் பயன்படுத்துதல்
AECC - 1 / PADM 113			
3.	Public Administration	AECC-1	○ நிர்வாகவியல் குறித்த அறிவு பெறுதல் ○ நிர்வாகத்தின் நோக்கங்கள் குறித்து விளக்குதல்
இரண்டாம் பருவம்			
முதன்மைப் பாடம்			
1.	இக்கால இலக்கியம் (கவிதை, புதினம், சிறுகதை, உரைநடை)	DSC -1B	○ இக்கால இலக்கிய வகைகளையும் வடிவங்களையும் அறிமுகம் செய்தல் ○ கவிதை, சிறுகதை, நாடகம், உரைநடை, நாவல் ஆகியவற்றின் தோற்றம் மற்றும் வளர்ச்சி நிலைகளை எடுத்துரைத்தல் ○ இக்கால இலக்கியப் படைப்புகள் குறித்த விமர்சனப் பார்வை பெறுதல்

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2.	நன்னூல் சொல்லதிகாரம்	DSC - 2B	○ மொழிக் கல்வியை ஊக்குவித்தல் ○ பிழையின்றிப் பேசவும் எழுதவும் நன்னூல் வழிக் கற்பித்தல் ○ மொழியின் அடிப்படைகளைக் கற்றல்
AECC - 2/ENVS 123			
3.	சுற்றுச்சூழலியல் (Environmental Studies)	AECC -2	○ சுற்றுச்சூழலியல் கல்வியின் தேவை / அவசியம் குறித்து விழிப்புணர்வு தருதல் ○ சுற்றுச்சூழல் மாசுகளைத் தடுக்க உதவும் வழிமுறைகளை எடுத்துக்காட்டி அவற்றைப் பின்பற்ற ஊக்குவித்தல் ○ தமிழிலக்கியங்கள் உணர்த்தும் சுற்றுச்சூழல் பாதுகாப்பு முயற்சிகளை உணர்த்துதல்
இரண்டாமாண்டு			
மூன்றாம் பருவம்			
முதன்மைப் பாடம்			
1.	பக்தி இலக்கியம் & சிற்றிலக்கியம்	DSC-1 C	○ சிற்றிலக்கியங்கள், பக்தி இலக்கியங்கள் தோன்றிய காலப் பின்னணி குறித்து விளக்குதல் ○ அவற்றின் பாடுபொருளை எடுத்துரைத்தல் ○ பக்தி இலக்கியங்கள் காட்டும் தனிமனித ஒழுக்கம் குறித்து எடுத்துரைத்தல்
2.	யாப்பருங்கலக்காரிகை	DSC - 2C	○ செய்யுள் உறுப்புகள் குறித்து விளக்குதல் ○ பா வகைகள், பாவினங்கள், அவற்றுக்குரிய ஓசை முதலான இலக்கணங்களைக் கூறுதல் ○ மரபுக் கவிதை எழுதும் ஆற்றலை ஊக்குவித்தல்

சார்புப்பாடம்			
1.	படைப்பிலக்கியம்	SEC -1	மாணவர்களுக்குப் படைப்புகளை உருவாக்கும் வகையில் பயிற்சி அளித்தல்
நான்காம் பருவம்			
முதன்மைப் பாடம்			
1.	காப்பியங்கள்	DSC - 1 D	- காப்பிய மரபை அறிதல் - தமிழில் தோன்றியுள்ள பெருங்காப்பியங்கள், சிறுகாப்பியங்கள் வழி வாழ்வியல் விழுமியங்களை உணரச் செய்தல் - காப்பிய மாந்தர்களை மதிப்பீடு செய்தல்
2.	தண்டியலங்காரம்	DSC - 2D	- அணிகள் குறித்து அறிமுகம் செய்தல் - கவிதை இன்பம் பெற அணிகள் பயன்படும் விதம் குறித்து எடுத்துரைத்தல் - அணிகளைப் பயன்படுத்தி எழுதும் ஆற்றலை ஊக்குவித்தல்
சார்புப் பாடம்			
3.	பயன்பாட்டுத் தமிழ்	SEC -2	- கடிதங்கள், கட்டுரைகள் எழுதப்பயிற்றுவித்தல் - மரபுச்சொற்களையும், கலைச்சொற்களையும் கற்பித்தல் - பணி வாய்ப்புப் பெறும் வகையில் மொழித்திறன்மேம்பாட்டுப் பயிற்சி அளித்தல்
மூன்றாமாண்டு ஐந்தாம் பருவம்			
சார்புப் பாடம்			
1.	மொழிபெயர்ப்பு	SEC - 3	- மொழிபெயர்ப்பின் நோக்கங்கள், பயன்கள் குறித்து அறிதல் - பிற மொழி நூல்கள் குறித்து அறிதல் - தமிழில் இருந்து ஆங்கிலத்திற்கும், ஆங்கிலத்தில் இருந்து தமிழுக்கும் கடிதங்கள், கட்டுரைகள் போன்றவற்றை மொழிபெயர்த்துப் பயிற்சி பெறுதல்

முதன்மைப் பாடம்			
2.	சங்க இலக்கியங்கள் (புறம்)	DSE - 1A	- சங்ககால மக்களின் வாழ்வியலை விளக்குதல் - சங்க காலம் காட்டும் நெறிகளைப் போற்றி, அவற்றை மாணவர்தம் வாழ்க்கைக்கு வழிகாட்டியாகக் கொள்ள அறிவுறுத்தல்
3.	புறப்பொருள் வெண்பாமாலை	DSE - 2A	- தமிழுக்கே உரிய பொருளிலக்கணம் குறித்து எடுத்துரைத்தல் - அகம், புறம் - கூறுகளை அறிதல் - பழந்தமிழ்நாட்டின் மரபுகள், பண்பாட்டுக் கூறுகள் ஆகியவற்றை அறிதல்
4.	திருக்குறள்		- அறநூல்கள் - அறிமுகம் - திருக்குறளின் மேன்மை குறித்து மாணவர்கள் அறியச் செய்தல் - திருக்குறளைப் பிற அறநூல்களோடு ஒப்பிட்டு நோக்குதல் - பழந்தமிழ் இலக்கியங்களின் செவ்வியல் தன்மையைப் பல்வேறு புலவர்களின் பாடல்வழி அறியச் செய்தல்
5.	மொழியியல் ஓர் அறிமுகம்	DSE - 3A	- மொழியிலுள்ள அறிவியல்சார் கூறுகளை விளக்குதல் - பேச்சுத் தமிழின் முக்கியத்துவம் குறித்து எடுத்துரைத்தல் - மொழியியல் கோட்பாடுகள் மொழி வளர்ச்சிக்கு உதவும் தன்மையை விளக்குதல்
6.	தமிழக வரலாறும் பண்பாடும்		- பழந்தமிழகத்தின் புவியியல் அமைப்பை அறிதல் - தமிழரின் வரலாறு, பண்பாடு குறித்துத் தெரிந்து கொள்ளுதல் - வரலாற்றுப் பின்புலம் இலக்கியங்களில் ஏற்படுத்திய தாக்கங்கள் குறித்து விளக்குதல்

7.	தமிழ்வழிக்கணினி	GE - 1	○ நவீன ஊடகமாகிய கணினியைப் பயன்படுத்தும் திறனை மேம்படுத்துதல் ○ தமிழ் மொழி வளர்ச்சியில் இணையத்தின் பங்கு குறித்து விளக்குதல் ○ பணி வாய்ப்புப் பெறும் வகையில் திறன்மேம்பாட்டுப் பயிற்சி அளித்தல்
ஆறாம் பருவம்			
சார்புப் பாடம்			
8.	பேச்சுக்கலை	SEC - 4	○ பேச்சுக்கலையின் சிறப்பு மற்றும் தனித்தனமை குறித்து எடுத்துரைத்தல் ○ பேச்சுக்கலையின் தேவையை உணர்த்தி மாணவர்தம் கருத்துக்களைத் தெளிவாக எடுத்துரைக்கப் பயிற்றுவித்தல் ○ ஊடகங்கள் மற்றும் மேடைகளில் பேசும் முறை குறித்துக் கற்பித்தல்
முதன்மைப்பாடம்			
9.	சங்க இலக்கியங்கள் (அகம்)	DSE - 1B	○ சங்க இலக்கியங்களின் சிறப்புகளை எடுத்துரைத்தல் ○ சங்க இலக்கியங்களின் வாயிலாக அகப் பண்பாடுகளை எடுத்துரைத்தல்
10.	நம்பியகப்பொருள்	DSE - 2B	○ அகத்திணையியல் குறித்து விளக்குதல் ○ புறத்திணையியல் குறித்து விளக்குதல் ○ களவியல் - கற்பியல் குறித்து விளக்குதல்
11.	இலக்கியத் திறனாய்வு	DSE - 3B	○ திறனாய்வுக் கொள்கைகளை அறிமுகம் செய்தல் ○ இலக்கியங்களில் திறனாய்வுப் பார்வையை மேம்படுத்துதல் ○ இலக்கிய மதிப்பீட்டுத் திறனை ஊக்குவித்தல்

12.	புலம்பெயர் தமிழர்களின் வாழ்வும் இலக்கியமும்		○ புலம்பெயர்வதற்கான ○ சமூக, பொருளாதார, அரசியல் காரணங்களை விளக்குதல் ○ புலம்பெயர் இலக்கியங்களை அறிமுகம் செய்தல் ○ புலம்பெயர் தமிழர்களின் வாழ்க்கை நிலை குறித்து விவாதித்தல்
13.	புதுச்சேரி விடுதலைப் போராட்ட வரலாறு		○ புதுச்சேரியில் பிரெஞ்சியர் ஆட்சி குறித்து விளக்குதல் ○ பிரெஞ்சிந்திய விடுதலைப் போராட்டங்கள் குறித்து எடுத்துரைத்தல்
14.	பெரியாரியம்		○ பெரியாரின் வாழ்க்கை குறித்து அறிதல் ○ திராவிட இயக்கம் குறித்து அறிதல் ○ பெரியாரின் சிந்தனைகள் குறித்து விளக்குதல்
15.	ஊடகவியல்	GE - 2	○ தகவல் தொடர்பு ஊடகங்கள் குறித்த அறிமுகம் ○ பணிவாய்ப்புப் பெறும் வகையில் ஊடகங்களுக்கு செய்திகள், நிகழ்ச்சிகள் தயாரிக்கப் பயிற்றுவித்தல் ○ திரைப்பட நுணுக்கங்களைக் கற்றுத்தருதல்

முதலாண்டு முதற்பருவம்

வ.எண்	பாடம்	Course Code	பாட நோக்கம்
முதன்மைப் பாடம்			
1.	இக்கால இலக்கியம் (கவிதையும் உரைநடையும்)	DSC-1 A	○ மரபுக் கவிதை, புதுக்கவிதை – அறிமுகம் செய்தல் ○ கவிதைகளின் உள்ளடக்கம் மற்றும் அவை தோன்றிய காலச்சூழல், சமூகப் பின்னணி ஆகியவற்றை விளக்குதல் ○ புதுக்கவிதை வடிவங்களையும், உத்திகளையும் விளக்குதல்

			○ உரைநடை வளர்ச்சி வரலாறு குறித்து அறிமுகம் செய்தல்
2.	நன்னூல்- எழுத்ததிகாரம்	DSC-2 A	○ தமிழ் இலக்கண அறிமுகம் செய்தல் ○ இலக்கியத்திற்குத் தேவையான இலக்கண அறிவு பெறுதல் ○ நன்னூல் இலக்கணத்தை நுட்பமாகக் கற்று நடைமுறையில் பயன்படுத்துதல்
AECC - 1 / PADM 113			
3.	Public Administration	AECC-1	○ நிர்வாகவியல் குறித்த அறிவு பெறுதல் ○ நிர்வாகத்தின் நோக்கங்கள் குறித்து விளக்குதல்
இரண்டாம் பருவம்			
முதன்மைப் பாடம்			
4.	இக்கால இலக்கியம் (கவிதை, புதினம், சிறுகதை, உரைநடை)	DSC -1B	○ இக்கால இலக்கிய வகைகளையும் வடிவங்களையும் அறிமுகம் செய்தல் ○ கவிதை, சிறுகதை, நாடகம், உரைநடை, நாவல் ஆகியவற்றின் தோற்றம் மற்றும் வளர்ச்சி நிலைகளை எடுத்துரைத்தல் ○ இக்கால இலக்கியப் படைப்புகள் குறித்த விமர்சனப் பார்வை பெறுதல்
5.	நன்னூல் சொல்லதிகாரம்	DSC - 2B	○ மொழிக் கல்வியை ஊக்குவித்தல் ○ பிழையின்றிப் பேசவும் எழுதவும் நன்னூல் வழிக் கற்பித்தல் ○ மொழியின் அடிப்படைகளைக் கற்றல்

AECC - 2/ENVS 123			
6.	சுற்றுச்சூழலியல் (Environmental Studies)	AECC -2	○ சுற்றுச்சூழலியல் கல்வியின் தேவை / அவசியம் குறித்து விழிப்புணர்வு தருதல் ○ சுற்றுச்சூழல் மாசுகளைத் தடுக்க உதவும் வழிமுறைகளை எடுத்துக்காட்டி அவற்றைப் பின்பற்ற ஊக்குவித்தல் ○ தமிழிலக்கியங்கள் உணர்த்தும் சுற்றுச்சூழல் பாதுகாப்பு முயற்சிகளை உணர்த்துதல்
இரண்டாமாண்டு மூன்றாம் பருவம்			
முதன்மைப் பாடம்			
7.	பக்தி இலக்கியம் & சிற்றிலக்கியம்	DSC-1 C	○ சிற்றிலக்கியங்கள், பக்தி இலக்கியங்கள் தோன்றிய காலப் பின்னணி குறித்து விளக்குதல் ○ அவற்றின் பாடுபொருளை எடுத்துரைத்தல் ○ பக்தி இலக்கியங்கள் காட்டும் தனிமனித ஒழுக்கம் குறித்து எடுத்துரைத்தல்
8.	யாப்பருங்கலக்காரிகை	DSC - 2C	○ செய்யுள் உறுப்புகள் குறித்து விளக்குதல் ○ பா வகைகள், பாவினங்கள், அவற்றுக்குரிய ஓசை முதலான இலக்கணங்களைக் கூறுதல் ○ மரபுக் கவிதை எழுதும் ஆற்றலை ஊக்குவித்தல்

சார்புப்பாடம்			
1.	படைப்பிலக்கியம்	SEC -1	மாணவர்களுக்குப் படைப்புகளை உருவாக்கும் வகையில் பயிற்சி அளித்தல்
நான்காம் பருவம்			
முதன்மைப் பாடம்			
2.	காப்பியங்கள்	DSC - 1 D	- காப்பிய மரபை அறிதல் - தமிழில் தோன்றியுள்ள பெருங்காப்பியங்கள், சிறுகாப்பியங்கள் வழி வாழ்வியல் விழுமியங்களை உணரச் செய்தல் - காப்பிய மாந்தர்களை மதிப்பீடு செய்தல்
3.	தண்டியலங்காரம்	DSC - 2D	- அணிகள் குறித்து அறிமுகம் செய்தல் - கவிதை இன்பம் பெற அணிகள் பயன்படும் விதம் குறித்து எடுத்துரைத்தல் - அணிகளைப் பயன்படுத்தி எழுதும் ஆற்றலை ஊக்குவித்தல்
சார்புப் பாடம்			
4.	பயன்பாட்டுத் தமிழ்	SEC -2	- கடிதங்கள், கட்டுரைகள் எழுதப்பயிற்றுவித்தல் - மரபுச்சொற்களையும், கலைச்சொற்களையும் கற்பித்தல் - பணி வாய்ப்புப் பெறும் வகையில் மொழித்திறன்மேம்பாட்டுப் பயிற்சி அளித்தல்

மூன்றாமாண்டு ஐந்தாம் பருவம்			
சார்புப் பாடம்			
5.	மொழிபெயர்ப்பு	SEC - 3	○ மொழிபெயர்ப்பின் நோக்கங்கள், பயன்கள் குறித்து அறிதல் ○ பிற மொழி நூல்கள் குறித்து அறிதல் ○ தமிழில் இருந்து ஆங்கிலத்திற்கும், ஆங்கிலத்தில் இருந்து தமிழுக்கும் கடிதங்கள், கட்டுரைகள் போன்றவற்றை மொழிபெயர்த்துப் பயிற்சி பெறுதல்
முதன்மைப் பாடம்			
6.	சங்க இலக்கியங்கள் (புறம்)	DSE - 1A	○ சங்ககால மக்களின் வாழ்வியலை விளக்குதல் ○ சங்க காலம் காட்டும் நெறிகளைப் போற்றி, அவற்றை மாணவர்தம் வாழ்க்கைக்கு வழிகாட்டியாகக் கொள்ள அறிவுறுத்தல்
7.	புறப்பொருள் வெண்பாமாலை	DSE - 2A	○ தமிழுக்கே உரிய பொருளிலக்கணம் குறித்து எடுத்துரைத்தல் ○ அகம், புறம் – கூறுகளை அறிதல் ○ பழந்தமிழ்நாட்டின் மரபுகள், பண்பாட்டுக் கூறுகள் ஆகியவற்றை அறிதல்

8.	திருக்குறள்		○ அறநூல்கள் - அறிமுகம் ○ திருக்குறளின் மேன்மை குறித்து மாணவர்கள் அறியச் செய்தல் ○ திருக்குறளைப் பிற அறநூல்களோடு ஒப்பிட்டு நோக்குதல் ○ பழந்தமிழ் இலக்கியங்களின் செவ்வியல் தன்மையைப் பல்வேறு புலவர்களின் பாடல்வழி அறியச் செய்தல்
9.	மொழியியல் ஓர் அறிமுகம்	DSE - 3A	○ மொழியிலுள்ள அறிவியல்சார் கூறுகளை விளக்குதல் ○ பேச்சுத் தமிழின் முக்கியத்துவம் குறித்து எடுத்துரைத்தல் ○ மொழியியல் கோட்பாடுகள் மொழி வளர்ச்சிக்கு உதவும் தன்மையை விளக்குதல்
10.	தமிழக வரலாறும் பண்பாடும்		○ பழந்தமிழகத்தின் புவியியல் அமைப்பை அறிதல் ○ தமிழரின் வரலாறு, பண்பாடு குறித்துத் தெரிந்து கொள்ளுதல் ○ வரலாற்றுப் பின்புலம் இலக்கியங்களில் ஏற்படுத்திய தாக்கங்கள் குறித்து விளக்குதல்
11.	தமிழ்வழிக்கணினி	GE – 1	○ நவீன ஊடகமாகிய கணினியைப் பயன்படுத்தும் திறனை மேம்படுத்துதல் ○ தமிழ் மொழி வளர்ச்சியில் இணையத்தின் பங்கு குறித்து விளக்குதல் ○ பணி வாய்ப்புப் பெறும் வகையில் திறன்மேம்பாட்டுப் பயிற்சி அளித்தல்

ஆறாம் பருவம்			
சார்புப் பாடம்			
12.	பேச்சுக்கலை	SEC - 4	- பேச்சுக்கலையின் சிறப்பு மற்றும் தனித்தனமை குறித்து எடுத்துரைத்தல் - பேச்சுக்கலையின் தேவையை உணர்த்தி மாணவர்தம் கருத்துக்களைத் தெளிவாக எடுத்துரைக்கப் பயிற்றுவித்தல் - ஊடகங்கள் மற்றும் மேடைகளில் பேசும் முறை குறித்துக் கற்பித்தல்
முதன்மைப்பாடம்			
13.	சங்க இலக்கியங்கள் (அகம்)	DSE - 1B	- சங்க இலக்கியங்களின் சிறப்புகளை எடுத்துரைத்தல் - சங்க இலக்கியங்களின் வாயிலாக அகப் பண்பாடுகளை எடுத்துரைத்தல்
14.	நம்பியகப்பொருள்	DSE - 2B	- அகத்தினையியல் குறித்து விளக்குதல் - புறத்தினையியல் குறித்து விளக்குதல் - களவியல் - கற்பியல் குறித்து விளக்குதல்
15.	இலக்கியத் திறனாய்வு	DSE - 3B	- திறனாய்வுக் கொள்கைகளை அறிமுகம் செய்தல் - இலக்கியங்களில் திறனாய்வுப் பார்வையை மேம்படுத்துதல் - இலக்கிய மதிப்பீட்டுத் திறனை ஊக்குவித்தல்

16.	புலம்பெயர் தமிழர்களின் வாழ்வும் இலக்கியமும்		- புலம்பெயர்வதற்கான சமூக, பொருளாதார, அரசியல் காரணங்களை விளக்குதல் - புலம்பெயர் இலக்கியங்களை அறிமுகம் செய்தல் - புலம்பெயர் தமிழர்களின் வாழ்க்கை நிலை குறித்து விவாதித்தல்
17.	புதுச்சேரி விடுதலைப் போராட்ட வரலாறு		- புதுச்சேரியில் பிரெஞ்சியர் ஆட்சி குறித்து விளக்குதல் - பிரெஞ்சிந்திய விடுதலைப் போராட்டங்கள் குறித்து எடுத்துரைத்தல்
18.	பெரியாரியம்		- பெரியாரின் வாழ்க்கை குறித்து அறிதல் - திராவிட இயக்கம் குறித்து அறிதல் - பெரியாரின் சிந்தனைகள் குறித்து விளக்குதல்
19.	ஊடகவியல்	GE - 2	- தகவல் தொடர்பு ஊடகங்கள் குறித்த அறிமுகம் - பணிவாய்ப்புப் பெறும் வகையில் ஊடகங்களுக்கு செய்திகள், நிகழ்ச்சிகள் தயாரிக்கப் பயிற்றுவித்தல் - திரைப்பட நுணுக்கங்களைக் கற்றுத்தருதல்

DEPARTMENT OF ENGLISH

COURSE: BA English Language and Literature

PROGRAMME OBJECTIVES:

The following are the BA English Language and Literature objectives:

- To enrich the students with the knowledge of English Language and Literature.
- To familiarize the students with major as well as minor authors from various nations across globe, different genres, cultures, historical contexts, literary criticism and contemporary theories
- To enhance the abilities of the students in communication skills.
- To enable the learners to meet their professional requirements like content writing, academic writing, creative writing, and others.
- To concentrate on the holistic development of the students so that they shall become the responsible and sensible individuals in the society.

COURSE OBJECTIVES:

	Course Code	Course Title	Course Outcomes	
SEMESTER I				
DSC-1A	ENGL 111	Indian Writing in English	CO 1	To introduce students to different genres of Indian writing in English
			CO 2	To explain the beauty and communicative power of Indian Authors in English.
			CO 3	To acquire the basic insights of Indianness.
DSC-2A	ENGL 112	Prose	CO 1	To Introduce British prose writings of various periods
			CO 2	To understand different prose writers.
			CO 3	To develop integral view of language and literature

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AECC-1	PADM 113	Public Administration	CO 1	To make students aware about the constitutional values of India and about their rights and duties
			CO 2	To understand the federal structure of the country and various state apparatuses functioning within it
			CO 3	To teach students about the working of Union Territories administration specially Pondicherry
			CO 4	To understand the changing role of administration with advent of new concepts like good governance, grassroots democracy, public private partnership, social audit etc.
SEMESTER II				
DSC-1B	ENGL 121	Poetry	CO 1	To introduce students to the poetic thought down the ages
			CO 2	To explain elements of poetry
			CO 3	To elucidate features of English Poetry
DSC-2B	ENGL 122	Fiction	CO 1	To familiarize students with some masterpieces of British Fiction
			CO 2	To define the aesthetics of fiction
			CO 3	To know the types and characteristics of fiction
AECC-2	ENVS123	Environmental Studies	CO 1	To understand the basic concepts of Environmental Policies, Practices, Environmental Laws and relationship between Human communities and the Environment
			CO 2	To study different kinds of Ecosystems, Renewable and Nonrenewable resources, Biodiversity and Conservation aspects
			CO 3	To gain basic knowledge on different kinds of Pollution, Nuclear hazards causes, effects and control measures
			CO 4	To make a field visit to river, forests, local polluted sites, and nearby ecosystems for live study of environmental issues
			CO 5	To study the ultrastructure of Eukaryotic cell and important cell organelles with their structure and function

SEMESTER III				
DSC-1C	ENGL 231	History of English Literature	CO 1	To facilitate an appreciation of literature by providing a brief survey of British literature through ages
			CO 2	To introduce students to the best works of each age
			CO 3	To acquaintthe students with features ofBritish Literature
DSC-2C	ENGL 232	English Language and Linguistics	CO 1	To introduce students to the sound system and the structure of English Language
			CO 2	To introduce the technical terms of linguistics
SEC-1	ENGL 233	Communication Skills	CO 1	To familiarize the students with the patterns of English Language
			CO 2	To introduce oral and written communication
SEMESTER IV				
DSC-1D	ENGL 241	British Drama	CO 1	To introduce students to British Drama
			CO 2	To examine major dramatic movements from Pre- Shakespeare Theatre to 20 th Century drama
DSC-2D	ENGL 242	Literary Forms	CO 1	To Introduce students to various types of Drama and Literary Terms
			CO 2	To explainelements of major forms of literature
SEC -2	ENGL 243	Writing Skills	CO 1	To impart writing skills
			CO 2	To provide exposure to various types of writtenCommunication
			CO 3	To train the students in note making
SEMESTER V				
SEC-3	ENGL 351	English for Competitive Examinations	CO 1	To create awareness about the questions frequently asked of English Grammar in the various competitive exams
			CO 2	To make the students confident to face the English Grammar section in the competitive exams
			CO 3	To train the students in Reading comprehension and foreign expressions

DSE-1A, 2A, 3A	ENGL 352	Literary Criticism	CO 1	To introduce students to the evolution of critical thoughts
			CO 2	To define principles and functions of literary criticism
			CO 3	To introduce new trends in 20th century criticism
	ENGL 353	Shakespeare	CO 1	To introduce students to the works of Shakespeare
			CO 2	To introduce new trends in 20th century criticism
			CO 3	To comment on the Shakespearean Theatre
	ENGL 354	American Literature	CO 1	To give an overview of American writings
			CO 2	To illustrate major trends in American Literature
	ENGL 355	Post-Colonial Literature	CO 1	To introduce the literature of the marginalized and the subaltern
			CO 2	To understand the marginalized literature
	ENGL 356	English for Mass Media	CO 1	To explain elements of major types of media
			CO 2	To illustrate the major devices used in visual media
			CO 3	To comment on the characteristics of print media
GE-1	ENGL 357	Soft Skills	CO 1	To understand the significance of soft skills
			CO 2	To deliver practical outcomes of soft skills
			CO 3	To develop stage daring and leadership qualities
SEMESTER- VI				
SEC – 4	ENGL 361	Translation Studies	CO 1	To acquaint the students with theories of Translation
			CO 2	To understand the history of translation
			CO 3	To discuss the major problems of translation
*DSE– 1B, 2B, 3B	ENGL 362	Literature Translation in	CO 1	To introduce students to the art of Translation through works of Literature
			CO 2	To lead them to National and Global Literature through Translation

			CO 3	To introduce the students to regional literatures
	ENGL 363	Contemporary Literary Theories	CO 1	To understand the basics of literary theories
			CO 2	To introduce different theories to the students
			CO 3	To make the students to realize the significance of approaches to literature
	ENGL 364	Advanced English Grammar and Usage	CO 1	To enable the students to practice advanced grammar in spoken and written form practically
			CO 2	To acquaint the students with the usages of tenses
			CO 3	To know the elements of advanced grammar
	ENGL365	Women Writing	CO 1	To take an overview of women writing
			CO 2	To study major trends in women writing
			CO 3	To able to comment on select works of women writing
GE-2	ENGL 366	Green Literature	CO 1	To create Environmental Consciousness through a study of Literature
			CO 2	To explain the values of Environment through literature
			CO 3	To undertake a detailed analysis of texts through the lenses of environment
	ENGL 367	Indian Culture Through Literature	CO 1	To Introduce the students to notions of Culture and familiarize them with the history of Indian Culture through Literature
			CO 2	To enable the students to undertake the study of major Indian writers
			CO 3	To comment on Indian mythologies

Department: Economics

Course Name : B.A. Economics

Programme Outcomes (POs):

Upon completion of the B.A. Degree Programme, the graduate will be able to

PO1: Understand and analyze the fundamental concept of economics and economic behavior in practice.

PO2: Equip and learn the economic practices in local, national and international needs.

PO3: Perform basic quantitative analysis using tools appropriate for the programme.

PO4: Demonstrate an understanding of the basic functioning of the national and global economy.

PO5: Apply supply and demand analysis to examine the impact of government regulation.

Programme Specific Outcomes (PSOs):

Upon completion of these courses the student would

PSO1: Be able to adopt and evaluate economic models to solve economic problems.

PSO2: Be able to predict the impact of fiscal and monetary policy on the overall economic performance of the country.

PSO3: Be able to acquire more knowledge on national and international trade.

PSO4: Be able to analyze the economic problems and suggest policy measures for the development of the economy.

PSO5: Be able to analyze and attain exact data to assess economic variables with statistical tools and techniques.

PSO6: Be able to acquire the entrepreneurial skills and become successful entrepreneurs.

Course Outcomes

FIRST SEMESTER			
Course Code	Course	Course Outcomes	
ECON 111	Towards Understanding Economics	CO1	Explain what Economics is and explain why it is important
		CO2	Explain how Economists use economic concepts in policy making
		CO3	To make students understand the demand & supply concepts
		CO4	Students will be able to understand the links between household behavior and the economic models of demand
		CO5	Explain the Elasticity of demand and supply

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ECON 112	Statistical Methods I	CO1	Understanding the data and methods of data collection
		CO2	Understand how to compute average and standard deviation
		CO3	To know the relationship between economic variables
		CO4	Students will be able to understand basic theoretical principles of statistics
		CO5	Demonstrate skewness and kurtosis with their applications
ECON S02	Population studies	CO1	To make the students aware of the importance of population in economic development
		CO2	Explain various theories that explain the growth of population in a country
		CO3	Enlighten the students on the quantitative and qualitative aspects of population
		CO4	To understand the characteristics of the population through various population techniques
		CO5	To understand the population trends, family structure and Govt. policies related to population in India
PADM 113	Public Administration	CO1	To make students aware about the constitutional values of India and about their rights and duties
		CO2	To understand the federal structure of the country and various state apparatuses functioning within it
		CO3	to teach students about the working of Union Territories administration specially Pondicherry
		CO4	to understand the changing role of administration with advent of new concepts like good governance, grassroots democracy, public private partnership, social audit etc.
SECOND SEMESTER			
ECON 121	Microeconomics I	CO1	Understand the fundamentals of Micro Economics
		CO2	Get an introduction to supply and the demand and the basic forces that determine equilibrium in a market economy
		CO3	To understand introductory micro economic theory in a local, regional, national & international scenario

		CO4	To understand basic micro economic problems related to the operation of real economy
		CO5	To understand different types of markets
ECON 122	Mathematics for Economists I	CO1	The aim of the course is to introduce fundamental concept of sequence, series of real numbers and their convergence, continuity, differentiability of real valued functions
		CO2	To learn the basic ideas of abstract algebra and techniques with proof and its use in economics
		CO3	Evaluate determinants and use them to discriminate between invertible and noninvertible matrices
		CO4	Use the basic concepts of vector and matrix algebra including linear dependence/independence, basis and dimension of a subspace, rank and nullity for analysis of matrices and systems of linear equations
		CO5	To understand Inverse of a matrix and Cramer's rule
ECON S03	Environmental Economics	CO1	Understand the interrelationships between environment & economy
		CO2	Students get to know application of microeconomic principles to the environmental problems
		CO3	To understand the environmental resource problems
		CO4	Get exposed to the problem of valuation of environmental resources
		CO5	To understand the concept of Solid waste management and role of an individual to prevent pollution
ENVS 123	Environmental Studies	CO1	To understand the basic concepts of Environmental Policies, Practices, Environmental Laws and relationship between Human communities and the Environment.
		CO2	To study different kinds of Ecosystems, Renewable and Non-renewable resources, Biodiversity and Conservation aspects.
		CO3	To gain basic knowledge on different kinds of Pollution, Nuclear hazards causes, effects and control measures
		CO4	To make a field visit to river, forests, local polluted sites, and nearby ecosystems for live study of environmental issues.

		CO5	To study the ultrastructure of Eukaryotic cell and important cell organelles with their structure and function.
THIRD SEMESTER			
ECON 231	Microeconomics II	CO1	To understand basic micro economic problems related to the operation of real economy
		CO2	To understand introductory micro economic theory in a local, regional, national & international scenario
		CO3	It will also help in understanding the efficiency and equity implications of market interference including government policy
		CO4	It will result in understanding the micro and macro theories of distribution, welfare economics, general equilibrium in closed and open system and analysis of economic behavior under uncertainty
		CO5	Understand how factor market works, illustrate basic tools in welfare economics and understand the concept of social welfare functions.
ECON 232	Macroeconomics I	CO1	To make students aware of the basic theoretical framework underlying the field of macroeconomics
		CO2	It helps students to study the aggregates and to provide overall idea about national economic policies and its implications
		CO3	Students get to know about the determination of equilibrium income
		CO4	Understand the money supply, money demand and interest rate
		CO5	Understanding the various theories of interest and applications.
ECON 233	Statistical Methods II	CO1	To understand the uncertain occurrence situations with logical manner
		CO2	Recognize common probability distributions for discrete and continuous variables
		CO3	To learn variety of probability and non-probability sampling methods for selecting a sample from a population
		CO4	Fostering understanding through real world statistical applications
		CO5	Theoretical probability distribution models

ECON 234	Economics of Insurance	CO1	To understand the concepts and principles of insurance
		CO2	To know the various types of insurance and insurance business in India
		CO3	To become aware of insurance legislation in India
		CO4	Students will be able to propose regulatory and market solutions that are based on economic theory (as well as practical and legal considerations).
		CO5	Evaluate the Growth of Life Insurance and General Insurance and Role of IRDA
FOURTH SEMESTER			
ECON 241	Money and Banking	CO1	Students learn about the concepts of money and banking
		CO2	Get exposed to the theories of demand for and supply of money
		CO3	Learn about functions of central bank and methods of credit control
		CO4	Study about conduct of monetary policy in India monetary policy
		CO5	Understand the recent developments in the Indian Banking System
ECON 242	Macroeconomics II	CO1	Understand various theories of consumption
		CO2	It enables students to understand determination of equilibrium income and interest rates
		CO3	To derive aggregate demand and supply curves and get expose to wage models
		CO4	Understanding the concept of inflation and Learn about open economy models
		CO5	To understand monetary Policy, Rule vs discretion
ECON 243	Mathematics for Economists II	CO1	To compute and analyze limits, derivatives and integrals function
		CO2	To understand the type of variable and usefulness in the development of the function
		CO3	To recognize the appropriate tools for calculus to solve applied problems
		CO4	The student is exposed to economic concepts in mathematical format through simple illustrations & prepares the ground for more scientific study.

ECON 244	Economics of Insurance – Practice	CO1	Students will be able to describe the economic characteristics of risk mitigation and insurance
		CO2	Students will develop an understanding of risk management as well as of agency theory and market failure due to information asymmetry, as well as the economic rationale for regulatory intervention to improve market efficiency.
		CO3	Student will also examine case studies in the insurance market which regulatory failure has arisen
		CO4	Students will be able to propose regulatory and market solutions that are based on economic theory (as well as practical and legal considerations).
		CO5	Project Presentation
FIFTH SEMESTER			
ECON 351	International Economics I	CO1	The student will be acquainted with economic concepts and models of international trade
		CO2	Study about the emergence of international trade
		CO3	Understand various international trade theories
		CO4	Learn about gains from international trade and terms of trade
		CO5	Analyzing need, importance and effects of tariff and dumping
ECON 352	Public Finance I	CO1	Get to know basics of public finance
		CO2	Understand externalities, public goods and merit goods
		CO3	Get exposed to principles of taxation in various theories
		CO4	It will help in understanding analyzing the impact of public policy on the allocation of resources
		CO5	Understand the needs of public borrowing from all possible sources to meet the necessary public expenditure.
ECON 353	Basic Econometrics	CO1	Apply simple linear regression model to real life examples
		CO2	Understand multiple regression models with applications
		CO3	To learn the development of null & alternative hypothesis & types of errors,

		CO4	To understand the concepts of multicollinearity, autocorrelation and heteroscedasticity
		CO5	Relaxing the assumptions of Classical Linear Regression Model
ECON 354	Indian Economy I	CO1	Develop ideas of the basic characteristics of Indian economy, its potential on natural resources
		CO2	Understand the importance, caused and impact of population growth and its distribution, translate and relate them with economic development
		CO3	It will result in comprehensive understanding of Indian economy
		CO4	Student will be able to understand govt. policies and sectoral programmes
		CO5	Justify the growth rate of the economy on account of planning
ECON 355	Entrepreneurial Development	CO1	The students develop and can systematically apply an entrepreneurial way of thinking that will allow them to identify and create business opportunities that may be commercialized successfully.
		CO2	Have the ability to discern distinct entrepreneurial traits
		CO3	Know the parameters to assess opportunities and constraints for new business ideas
		CO4	Understand the systematic process to select and screen a business idea
		CO5	To understand the various forms of business ownership.
ECON S05	Development Economics	CO1	Understand meaning of economic development and its measurement
		CO2	To explain economic growth theories, international trade development theories and related economic development theories
		CO3	Student will be able to understand the landscape of Indian economic structure
		CO4	To get exposed to Indian social structure and development
		CO5	To understand the application of development models in Indian context
ECON S07	Society and Economy	CO1	This course attempts to facilitate the students to relate socio-religious institutions and the economy
		CO2	To understand how does social institutions determine people access to productive resources

		CO3	Students get to know human society, evolution of culture and how it plays a role in socio economic structures
		CO4	Understand the functions of village, caste, family, kinship in determining access to resources
ECON 356	Gender Studies	CO1	Analyze complex interconnections of gender, race, class, sexuality, ability, and other categories of power and identity in various spheres of human endeavor ranging from the sociopolitical to the aesthetic
		CO2	Demonstrate an openness to learning about people, cultures, and societies different from themselves and their own worlds
		CO3	Situate themselves among various strands of feminist thought and envision themselves as participants in a multidisciplinary dialogue with activists, artists, and academics regarding social, political, and cultural issues of gender and sexuality
		CO4	Apply central concepts and theories from Gender Studies to their own life experiences and the world around them
SIXTH SEMESTER			
ECON 361	International Economics II	CO1	The course is helpful to develop a systematic exposition of models that try to explain composition, direction and consequences of international trade
		CO2	The student will be acquainted with economic concepts and models of international trade
		CO3	Understand about international trade blocks and their importance
		CO4	Get exposed to economic environment of international trade
		CO5	Analyze the need & criteria for Market Segmentation
ECON 362	Public Finance II	CO1	Get exposed to sources of public revenue
		CO2	Understand trend and pattern the of public expenditure
		CO3	Get to know about Centre and state financial relationships
		CO4	Understand and analyze the distribution of income in the economy
		CO5	Understand the role of PAC AND CAG,FRBM Act

ECON 363	Indian Economy II	C01	It helps in developing understanding of the students relate to different sectors of Indian Economy
		C02	After studying the structural aspects of Indian economy students will be able to understand how planning and infrastructure support can develop an economy
		C03	To give in depth knowledge of banking and finance to the students
		C04	Student will be able to understand govt. policies and sectoral programmes
		C05	Explain the need of industrial planning and growth to foster Economic Development
ECON 364	History of Economic Thought	C01	to learn and discuss, at an advanced undergraduate level, how the economic thought has evolved over time
		C02	Introducing students to the critical comparison of the contributions of the main schools of economics: the classical, the marginalist revolution and its application to the theories of general and partial equilibrium, the current macroeconomic debate between the neo-classical and the Keynesian school
		C03	to understand specific contributions on themes of economic analysis and concerning figures of economists still important in the international economic debate at the international level
		C04	Through selected readings of their texts and linking the different positions of economic thought to philosophical foundations and political implications.
		C05	Extracting the contributions of Marginal school and Historical School to economic thought
ECON 365	Entrepreneurial Development – Practice	C01	Develop idea generation, creative and innovative skills
		C02	Learn how to start an enterprise and design business plans those are suitable for funding by considering all dimensions of business.
		C03	Understand entrepreneurial process by way of studying different case studies and find exceptions to the process model of entrepreneurship.

		CO4	Student will also examine case studies in the field of entrepreneurship development
ECON S08	Indian Financial Institutions and Markets	CO1	To understand the conceptual framework of financial markets & institutions of India
		CO2	Students will be able to understand the nature of financial instruments and their usage
		CO3	To give in depth knowledge of banking and finance to the students
		CO4	Students get to know about money and capital market functioning in India
		CO5	To understand the derivatives market in India

Department: Public Administration

Course Name : B.A. Public Administration

Programme Outcomes (POs):

- PO1:** Provide students with learning experiences that develop broad knowledge and understanding of key concepts of Public Administration and equip them with advanced knowledge and understanding for analysing and performing the tasks concerning public affairs.
- PO2:** Develop students' ability to apply the acquired knowledge and skills to the solution of specific theoretical and applied problems in Public Administration settings.
- PO3:** Develop abilities in students to come up with innovative prescriptions/solutions for the benefit of society, by diligence, leadership, teamwork and lifelong learning.
- PO4:** Demonstrate critical thinking, research, and communication skills as applied to the public and private sectors.
- PO5:** Explain the cross-cultural context of public and private institutions operating in a global.

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Programme Specific Outcomes (PSOs):

PSO1: Understand the Evolution of Public Administration Theories, Approaches, different levels of Administration and functions of Government Machinery.

PSO2: Increase knowledge of the Classical, Neo-Classical and Motivational Theories with Indian context

PSO3: Analyse the New Public Management concept on Non-Governmental Organization and Human Resource Management.

PSO4: Understand the Evolution of Development Administration Principles through E-Governance in Financial, Police, Social Welfare & Labour Welfare Administration.

PSO5: Understand the Principles of Political Science and Compare the Asian Political System

PSO6: Explain the Research and analytical skills, including the ability to think critically; to construct logical arguments; to collect, analyze, and interpret evidence and data; and to formulate reasoned conclusions.

Course Outcomes

FIRST SEMESTER			
BPAD 111	Constitution of India	CO1	Enumerating the historical background of constitution-making and its importance in building a democratic India.
		CO2	Explain the functioning of the three branches of government: executive, legislative, and judiciary.
		CO3	Explain the value of fundamental rights and duties for becoming a responsible citizen of India.
		CO4	Analyse the distribution of power between the central, state, and local self-government.
		CO5	Apply knowledge to strengthen constitutional institutions such as the Comptroller and Auditor General (CAG), Election Commission, and Union Public Service Commission (UPSC) to sustain democracy.
BPAD 112	Administrative Thinkers	CO1	To Appreciate the nature, scope and changing paradigms of Public Administration.
		CO2	Grasp the administrative theories, concepts and principles of eminent thinkers to make sense of administrative Practices with emerging trends.
		CO3	Understand the world of public administration from the public perspective and provide foundation for further studies in Public Administration.
		CO4	Understand the synthesizing nature of knowledge of public administration from public Perspective.

PAD M 113	Introduction to Public Administration	CO1	Explain meaning, nature and scope of Public Administration.
		CO2	Illustrate the strategies and techniques of organizational development and discuss various approaches of Public Administration.
		CO3	Understand the contemporary administrative theories of Organization.
		CO4	To acquaint with the theories, approaches, concepts and principles of Public Administration
		CO5	To Understand public administration theory and concepts from multiple perspectives
II SEMESTER			
BPAD 121	Principles of Public Administration	CO1	Understand the public and private administration and public administration related with other social sciences
		CO2	Explain the organizational principles and integration of administrations
		CO3	Evaluation of executive functions of corporations, commissions and boards.
		CO4	Explain the management functions and public relations
		CO5	Estimate the control over public administration and human rights
BPAD 122	Public Personnel Administration	CO1	Understand the theories and concepts of Public Personnel Administration.
		CO2	Identify the need for and importance of personnel planning in India.
		CO3	Analyse the various types of recruitment processes and evaluate the mechanisms for civil service training in India.
		CO4	Identify the motivational factors related to public personnel system in India and elaborate on the disciplinary actions.
		CO5	Identify the motivational factors related to public personnel system in India and elaborate on the disciplinary actions.
ENVS 123	Environmental Administration	CO1	This course intends to aware the student about the basics of environment, Environmental administration, regulations, and policies in India
		CO2	To analyse the environmental degradation and India's concern on environmental protection.
		CO3	To examine the environmental policy on pre independence and post-independence.
		CO4	To aware about the NGO's, pollution control board and movement's role and responsibilities to protect environment.
		CO5	To know about environment policies and to evaluate Constitutional aspects of Environmental

SEMESTER - III			
BPAD 231	Indian Administration	CO1	To understand the historical evolution and socio-economic, political, cultural and global context of Indian Administration
		CO2	To identify the trans-formative role of Indian Administration
		CO3	To make out the multidimensional problems and processes of Indian Administration
		CO4	To understand the form and substance of Indian Administration
		CO5	To appreciate the emerging issues in Indian Administration in the context of changing role of state, market and civil society
BPAD 232	Development Administration	CO1	Explain the basic concepts of Meaning, Nature, Scope of Development Administration
		CO2	Understanding the ideas of context of Development Administration and Political, Economic, Cultural, Administrative and Social
		CO3	Explain the Decentralization of Powers in India, State Planning and District administration and Field Agencies
		CO4	Analyse the Reforming Administrative System, Autonomy and Accountability of Administration and Corruption in Administration
		CO5	Analyse the Gender in development process gender related terms and concepts women in development
BPAD 233	Electoral System and Political Parties	CO1	Identify the major electoral systems in use around the world.
		CO2	Determine the exclusions present and past within a given electoral system and study the innovations that have emerged to overcome those exclusions.
		CO3	Engage with the experiences and practices of different electoral systems.
		CO4	Provides a foundational understanding of Indian politics.
		CO5	Studies the nature of party systems and electoral politics at the state level
FOURTH SEMESTER			
BPAD 241	Modern Administrative Systems	CO1	Explain meaning, nature and scope of Public Administration
		CO2	Discuss various approaches of Public Administration
		CO3	Explain concepts of administrative theory

		CO4	Describe Good Governance and Citizen’s Charter
		CO5	Discuss concepts New Public Administration and new Public Management
BPAD 242	Public Policy Administration	CO1	Explain Meaning, nature, scope of Public Policy
		CO2	Discuss Role of Executive in public policy making
		CO3	Explain Objectives and Goals of Public Policy
		CO4	Discuss Policy Making Characteristics
		CO5	Discuss Citizens Participation in Policy Implementation
BPAD 243	Ancient Indian Political Thought	CO1	Students gain insights into the political ideas of ancient Indian thinkers.
		CO2	They explore the works of philosophers, sages, and scholars who shaped India’s political thought.
		CO3	Students learn to contextualize ancient ideas within contemporary realities.
		CO4	By studying ancient Indian political thought, students can identify ways to advance and protect national interests.
		CO5	They develop the capacity to suggest effective domestic policies based on historical wisdom.
SEMESTER –V			
BPAD 351	Principles of Organisation	CO1	Students development into the work of major contributors to management theory
		CO2	This includes understanding the contributions of pioneers like Frederick W. Taylor, Max Weber, and Mary Parker Follett
		CO3	Students learn individual and group decision-making processes.
		CO4	Students identify common organizational structures and their pros and cons.
		CO5	They understand how external factors impact organizational strategy.
BPAD 352	Social Welfare Administration in India	CO1	Explain basic concept of Social Welfare Administration
		CO2	Discuss Social problems and the laws implemented to solve them
		CO3	Describe concept of social welfare planning and role of voluntary organizations at The Centre, State and Local levels
		CO4	Discuss Administrative Structures in Social Welfare Administration

		CO5	Explain different personnel roles in the welfare of Social Welfare administration
BPAD 353	Labour Welfare Administration	CO1	Students gain a deep understanding of labor laws, regulations, and policies.
		CO2	Students develop analytical skills to assess and address current labor-related challenges
		CO3	Students learn about various welfare facilities provided to workers.
		CO4	They learn how these legal frameworks apply in diverse workplace settings
		CO5	Students explore labour welfare measures specific to India.
BPAD 354	Democracy and Good Governance	CO1	Understanding the core concept and nature of democracy
		CO2	Analysing the various forms of democracy and its impact on developing countries
		CO3	Learners will be able to define governance and understand the principles underlying good governance.
		CO4	They will explore the measurement criteria for assessing good governance
		CO5	Discussing the adequate control mechanisms prevent misuse of power and resources.
BPAD 355	Modern Indian Political Thought	CO1	Tracing the evolution of Indian political thought
		CO2	Analysing the nationalist thought of Raja Ram mohan Roy
		CO3	Assessing the nationalist thought of Bankim, Vivekananda and Tagore
		CO4	Discussing the nationalism of Gandhi, M. N. Roy, Narendra Deva and Syed Ahmed Khan.
		CO5	Discussing the roots of communalism- Savarkar and Hindu Nationalism and Jinnah and the two-nation theory
SEMESTER –VI			
BPAD 361	Public Financial Administration	CO1	Gain conceptual clarity on Financial Administration in India.
		CO2	Explain the concept of Budget and its economic and social implications.

		CO3	Discuss the concept of financial federalism and gain clarity on centre- state financial relations.
		CO4	Evaluate the role of Finance Ministry and especially Financial Management Committees in socio-economic Development
		CO5	Develop understanding about the role of Finance Commission and Reserve Bank of India in Monetary and Fiscal Policies of India.
BPAD 362	Police Administration	CO1	Understanding the meaning nature, scope and significance of police administration.
		CO2	Examine the work ethics role of police in Indian democracy, Police ethics and code of conduct and police culture
		CO3	Evaluate the role of police in civil service judiciary and politics and police and Election process in India
		CO4	Analyses of the various wings of the police force in both the centre and the state
		CO5	Assess the special procedures pertaining to the recruitment and training of women police.
BPAD 363	Local Government in India	CO1	Understand the evolution of local self-government in India
		CO2	Appreciate the rural and urban institutional arrangements for development
		CO3	Understand the processes and results of systems of delivery of welfare programmes
		CO4	Critically appreciate the relationship of local governance and development
		CO5	Identify the challenges of development and the administrative responses
BPAD 364	Human Rights	CO1	Understand the historical growth of the idea of human rights
		CO2	Demonstrate an awareness of the international context of human rights
		CO3	Demonstrate an awareness of the position of human rights in the UK prior to 1998
		CO4	Understand the importance of the Human Rights Act 1998
		CO5	Analyse and evaluate concepts and ideas.
BPAD 365	International Law	CO1	Get Knowledge about the different Specialized Agencies of UNO
		CO2	Understand the working of UN agencies related to Development and Disaster Reduction.

		CO3	Acquire knowledge about the different Issues of United Nations like Sustainable Development, Climate Change, Global Health Crisis and Terrorism.
		CO4	Analyse the role of UN in issues of Human Rights, Women, Democracy and Disarmament.
		CO5	Would Develop competence to understand the role of UN Financial & Trade Organizations

Department: Commerce

Course Name : B.Com

Programme Outcomes (POs):

PO1: Knowledge Base

Demonstrate comprehensive knowledge and understanding of fundamental concepts, theories, and principles in various areas of commerce, including accounting, finance, economics, management, marketing, and business law.

PO2: Analytical Skills

Apply analytical and critical thinking skills to evaluate complex business problems, make informed decisions, and develop strategic solutions in diverse organizational contexts.

PO: 3 Communication Skills

Communicate effectively and professionally through oral, written, and technological means, demonstrating the ability to convey complex business ideas and information to diverse stakeholders.

PO: 4 Quantitative Skills

Utilize quantitative techniques and tools to analyze financial data, interpret statistical information, and solve numerical problems related to business decision-making and financial management.

PO5: Ethical and Social Responsibility

Recognize ethical dilemmas in business practices and demonstrate a commitment to ethical conduct, social responsibility, and sustainability in decision-making processes.

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PO6: Global Perspective

Understand the impact of globalization on business operations and develop awareness of cultural diversity, international trade policies, and global economic trends affecting the business environment.

PO7: Entrepreneurial Mindset

Cultivate entrepreneurial skills and attitudes, including creativity, innovation, risk-taking, and adaptability, to identify and capitalize on business opportunities and foster organizational growth.

PO8: Research and Information Literacy

Conduct independent research using appropriate methodologies, critically evaluate academic and professional literature, and effectively utilize information resources to support business analysis and decision-making.

Programme Specific Outcomes (PSOs):**PSO1: Curriculum Alignment:**

Demonstrate alignment between the B.Com curriculum and contemporary industry requirements, regulatory standards, and emerging trends in commerce and business.

PSO2: Skill Development:

Develop practical skills in areas such as financial accounting, taxation, auditing, financial management, cost accounting, business law, and management accounting, among others, to prepare students for employment or further studies.

PSO3: Research Orientation:

Foster a research-oriented approach among students through projects, case studies, and assignments, enabling them to critically analyze business problems, apply theoretical knowledge to practical scenarios, and propose viable solutions.

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PSO4: Industry Interaction:

Facilitate industry interactions, internships, guest lectures, and industrial visits to expose students to real-world business environments, enhance their understanding of industry practices, and bridge the gap between theory and practice.

PSO5: Ethical Values:

Instill ethical values, integrity, and professionalism in students, emphasizing the importance of ethical conduct, corporate governance, social responsibility, and sustainable business practices in commerce and industry.

PSO6: Communication Proficiency:

Enhance communication skills, including verbal, written, and interpersonal communication, to enable students to effectively articulate ideas, negotiate, and collaborate with stakeholders in various business settings.

PSO7: Technology Integration:

Integrate technology tools and software applications relevant to commerce and business operations, enabling students to proficiently utilize information technology for data analysis, financial reporting, and business decision-making.

Course Outcomes

FIRST SEMESTER			
Course Code	Course	CourseOutcomes	
BCGN 111	Financial Accounting	CO1	Demonstrate thorough understanding of the fundamental concepts
		CO2	Prepare and analyze financial statements, including the income statement, balance sheet, and cash flow statement
		CO3	Record business transactions systematically using appropriate accounting journals, ledgers, and subsidiary books
		CO4	Liability Measurement
		CO5	Comply with relevant accounting standards
BCGN 112	Business Law	CO1	Analyze legal issues and apply relevant laws to real-world business scenarios
		CO2	Interpret contractual agreements and evaluate their enforceability.
		CO3	Demonstrate an understanding of key legal concepts such as torts, contracts, and business entities.
		CO4	Identify potential legal risks and liabilities in business operations and propose risk mitigation strategies.
		CO5	Evaluate the ethical implications of legal decisions and demonstrate ethical reasoning in business contexts.

PADM 113	Public Administration	CO1	Understand key legal concepts in business.
		CO2	Apply legal principles to real-world scenarios
		CO3	Analyze legal issues critically.
		CO4	Communicate effectively about legal matters.
		CO5	Navigate ethical dilemmas within legal frameworks.

SECOND SEMESTER

Course Code	Course	Course Outcomes	
BCGN 121	Business Management	CO1	Master core business concepts for real-world application.
		CO2	Enhance communication and ethical decision-making skills.
		CO3	Foster teamwork and leadership in diverse settings
		CO4	Apply strategic thinking to tackle complex challenges.
		CO5	Utilize technology and data analytics for informed decision-making.
BCGN 122	Company Law	CO1	Understand key legal concepts in business.
		CO2	Apply legal principles to real-world scenarios
		CO3	Analyze legal issues critically.
		CO4	Communicate effectively about legal matters.
		CO5	Navigate ethical dilemmas within legal frameworks.

THIRD SEMESTER

BCGN 122	Goods and Services Tax	CO1	Comprehend GST principles and regulations.
		CO2	Apply GST concepts to business transactions.
		CO3	Analyze GST implications on financial activities.
		CO4	Communicate effectively regarding GST compliance
		CO5	Navigate ethical challenges within GST frameworks.
BCGN 232	Business Statistics	CO1	Grasp fundamental statistical concepts.
		CO2	Apply statistical methods to business data.
		CO3	Interpret and analyze statistical results.
		CO4	Communicate findings effectively.
		CO5	Utilize statistical tools for decision-making.
BCGN 233	Management Accounting -1	CO1	Understand how to interpret and analyze financial information
		CO2	Learn various methods to control and reduce costs effectively
		CO3	Gain the ability to evaluate the performance of departments
		CO4	Develop skills in using accounting information
		CO5	Learn to effectively communicate financial information
BCGN 234	Communicative Skills	CO1	Mastery of professional writing styles for business communication.
		CO2	Proficiency in delivering articulate and persuasive verbal presentations.
		CO3	Enhanced interpersonal skills for effective collaboration and relationship building.
		CO4	Improved critical listening abilities for comprehension and response in various contexts.
		CO5	Development of multimedia presentation skills for impactful communication in modern business environments.

FOURTH SEMESTER

Course Code	Course	Course Outcomes	
BCGN 241	<i>Management Accounting - II</i>	CO1	Understand the objectives and functions of management accounting
		CO2	Evaluate the financial position by using ratios
		CO3	Gain knowledge about the preparation of fund flow statement
		CO4	Evaluate the financial position of a concern through cash flow statement
BCGN 242	Cost Accounting	CO1	Understand the importance of costing in companies
		CO2	Gain knowledge about losses in process costing
		CO3	Learn about the applications in Marginal Costing
		CO4	Understand the concepts of budgeting and budgetary control

BCGN 243	INCOME TAX	CO1	Understand the concept of income tax in detail
		CO2	Identify the residential status and incidence of tax and solve problems
		CO3	Compute taxable income from salary
		CO4	Compute taxable income from house property
		CO5	Understand the meaning of business and profession and compute taxable income
BCGN 244	ARITHMETIC SKILLS	CO1	Develop an idea about number systems and equations
		CO2	Familiarise with the laws of indices and logarithm and their application
		CO3	Know the various concepts like distance, slope, equation of straight line and
		CO4	Have a clear idea about matrices properties and solve problems

FIFTH SEMESTER

BCGN 354	PRINCIPLES OF MARKETING	CO1	Demonstrate an understanding of the overall role and importance of the finance function.
		CO2	Demonstrate basic finance management knowledge. Communicate effectively using standard business terminology.
		CO3	Understand the Modern marketing concepts
BCGN 355	CONSUMER BEHAVIOUR	CO1	Providing knowledge about marketing mix, segmentation, targeting and positioning.
		CO2	Get clear idea of product planning, Diversification, Elimination and pricing strategies.
		CO3	Gain knowledge about different types of consumers

BCGN 356	CORPORATE ACCOUNTING	CO1	Gain knowledge about different types of consumers
		CO2	Understand the procedure to file a complaint and the steps to handle complaints
		CO3	Understand the procedures for the issue of shares.
		CO4	Prepare Financial Statements of Companies
BCGN 357	ECONOMICS	CO1	Calculate purchase consideration in case of Amalgamation, Absorption and reconstruction.
		CO2	Ascertain profit or loss prior to incorporation by applying various methods
		CO3	Explain what economics is and explain why it is important
		CO4	Explain how economists use economic models
SIXTH SEMESTER			
BCGN 361	ENTREPRENEURIAL SKILLS	CO1	Use mathematics in common economic applications
		CO2	Use graphs in common economic applications
		CO3	Understand the functions of entrepreneur and its qualities
		CO4	Understand various dimensions of entrepreneurship
		CO5	Express the contemporary role models in Indian Business
BCGN 363	ESSENTIALS OF E-COMMERCE	CO1	Impart the students with higher level knowledge and understanding of contemporary
		CO2	To provide adequate knowledge and understanding about E-Com practices.
BCGN 364	AUDITING	CO1	students Gain knowledge about auditing, audit programmes, working papers and preliminaries
		CO2	Analyse about implementing internal check and internal control in concerns.
		CO3	Understand the various aspects of vouching.
		CO4	Learn how to verify and value various assets and liabilities
		CO5	Evaluate the traits of Company Auditor and how to draft Auditors Report.
BCGN 366	HUMAN RESOURCE MANAGEMENT	CO1	Understand the objectives, scope, functions and environment of Human Resource Management
		CO2	Understand manpower planning, components of a job study and selection process
		CO3	Evaluate the need as well as areas of training.
		CO4	Understand the significance of Industrial relations , disputes and settlement
BCGN 367	INDIAN ECONOMY	CO1	It helps in developing understanding of the students relate to different sectors of Indian Economy
		CO2	After studying the structural aspects of Indian economy students will be able to understand how planning and infrastructure support can develop an economy
		CO3	To give in depth knowledge of banking and finance to the students
		CO4	Student will be able to understand govt. policies and sectorial programmes

Department: COMPUTER SCIENCE

Course Name: B.Sc in Computer Science

Programme Outcomes (POs):

The objectives of the course B.Sc. Computer Science are as follows:

PO 1 : Gain Domain Expertise:

- Acquire comprehensive knowledge and skills.
- Make use of the knowledge in an innovative manner.
- Effectively apply the knowledge and skills to address various issues.

PO 2 : Gain Life-long Learning and Research:

- Learn “how to learn”- Self motivated and self directed learning.
- Adapt to the ever emerging demands of work place and life.
- Be inquisitive and establish cause and effect relationship.
- Investigate and report.

PO 3: Gain Modern equipment Usage

- Use ICT effectively.
- Access, retrieve and use authenticated information.
- Access, retrieve and use authenticated information. Have knowledge of software applications to analyze data.

PO 4: Gain Computing Skills and Ethics

- Develop rationale and scientific thinking process.
- Use technology intelligently for communication, entertainment and for the benefit of mankind.
- Ensure ethical practices throughout ones endeavors for the well being of human race.

PO 5: Complex problem Investigation & Solving

- Predict and analyze problems.
- Frame hypotheses.
- Investigate and interpret empirical data.
- Plan and execute action

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Programme Specific Outcomes (PSOs):

PSO-1: Ability to apply the theoretical knowledge of Mathematics, Computer software and hardware into practice.

PSO-2: To develop skillset in areas such as Digital logics and computer architecture, Algorithms, Programming, Networking, Software Engineering, Information Security, Web Designing, Micro-processors and micro-controllers.

PSO-3: To develop problem solving skills related to the computer programs.

PSO-4: To demonstrate the capabilities required to apply cross-functional business knowledge and technologies in solving real-world problems.

PSO-5: To build the necessary skill set and analytical abilities for developing computer- based solutions for real life problems.

PSO-6: It provides an opportunity to prepare for the competitive examination and also getting admission to Higher Education.

PSO-7: To train students in professional skills related to Software Industry like programmer, system engineer, software tester, junior programmer, web developer, system administrator, software developer etc.

Course Outcomes

FIRST SEMESTER			
Sl.No.	Title		Course Outcomes
CSCS113	Introduction to Problem Solving using C	CO1	In-depth understanding of various concepts of C language.
		CO2	Skill to write program code in C to solve real world problems and to debug a program
		CO3	Develops programs Using C language, logical skills ap
		CO4	Understanding 'C' language constructs like Iterative statements, arrayprocessing pointers etc
		CO5	Apply 'C' language constructs and write a C language program

CSCS114	DIGITAL LOGIC & COMPUTER ORGANIZATION	C01	Skill to use the methods of systematic reduction of Boolean expression using K- Map. Ability to interpret logic gates and its operations.
		C02	Familiarization with combinational and sequential logic circuits in electronics.
		C03	Recognize the types of, counters, and memory mapping concepts.
		C04	Implement a hardware circuit to accomplish the encoder and decoder functionalit
		C05	Design complex circuits with boolean equations.
SECOND SEMESTER			
CSCS123	PYTHON PROGRAMMING	C01	Skill to write codes in Python to solve mathematical or real world problems.
		C02	Ability to isolate and fix common errors in Python programs.
		C03	Identify suitable programming constructs for problem solving.
		C04	Analyze various concepts of PYTHON language to solve the problem in an efficient way.
		C05	Develop a PYTHON program for a given problem and test for its correctness.
CSCS124	Data Structures and Algorithms	C01	Skill to analyze data and to determine appropriate data structure. Knowledge of various data structures and their implementations.
		C02	Ability to implement algorithms to perform various operations on data structures.
		C03	To understand the concepts of ADTs
		C04	To learn graph strutures and and application of graphs
		C05	To understand various sorting and searching

THIRD SEMESTER			
CSCS231	Object Oriented Programming using JAVA	C01	Skill to write Java application programs using OOP principles and proper program structuring.
		C02	Ability to create packages and interfaces. Ability to implement error handling techniques using exception handling.
		C03	Understand the principles of Structured programming.
		C04	Understand basic terminology and syntax of java.
		C05	Develop programming skills using Java and Object Oriented Programming.
CSCS232	Operating Systems	C01	Understand how memory is utilized. Understand CPU scheduling algorithms to manage tasks.
		C02	Knowledge of methods to prevention and recover from a system deadlock. Manages I/O devices.
		C03	Describe the functions of Contemporary Operating System.
		C04	Understand various process management concepts including scheduling,synchronization and deadlocks.
CSCS233	Computer Networks	C01	Knowledge of OSI Layers in Computer Network.
		C02	Ability to identify transmission media, types and topologies of network. Familiarization with the techniques of error detection and congestion control
		C03	Create routing techniques for IP network infrastructure.
		C04	Identify data transmission collisions and their resolution.
		C05	Describe the process for delivering internet packets.

CSCS234	SOFTWARE ENGINEERING	C01	Understanding of various methods or models for developing a software product.
		C02	Ability to analyze existing system to gather requirements for proposed system. Skill to design and code a software
		C03	Able to differentiate different testing methodologies
		C04	Able to understand and apply the basic project management practices in reallife projects.
FOURTH SEMESTER			
CSCS241	PROGRAMMING WITH VISUAL BASIC	C01	Understand Forms, module, components, menu editor and its concepts. Usage of controls such as text box, buttons, checkbox etc and control them through codes.
		C02	Ability to develop simple project with database using data source.
CSCS242	DATABASE MANAGEMENT SYSTEM	C05	Understand data modeling and database development process. Construct and normalize conceptual data models.
		C02	Implement a relational database into a database management system. Become proficient in using database query language.
		C03	Understanding normalization and apply such knowledge to the normalization of a database.
		C04	Database modelling using ER Diagrams and design database schemas based on the model.
		C05	Create a small database using ORACLE and SQ
CSCS245	Object Oriented Systems Design	C01	Ability to develop the design phase of software development using UML
		C02	Ability to develop simple project with object oriented .
CSCS247	Principles of Programming languages	C01	Get the clear idea about the construction of Programming language
		C02	Use different programming paradigms in and application
CSCS705	Introduction to E-Business	C01	Understand the various E-Business solutions available today such as E-Commerce and its mechanisms
		C02	Acquire knowledge from e-governance to e-learning

FIFTH SEMESTER			
CSCS351	WEB TECHNOLOGY	C01	Understand the various steps in designing Creative and dynamic website.
		C02	Ability to write HTML, JavaScript, CSS and ASP.
		C03	Designing interactive web pages using HTML and Style sheets.
		C04	Understand XML and its application in web based applications
		C05	Develop applications using latest web technologies.
CSCS353	Data Mining	C01	Acquire knowledge to compare and contrast OLAP and data mining as techniques for extracting knowledge from a data warehouse.
		C02	Implement data mining techniques like clustering, association rule and decision tree etc on the real data set.
CSCS356	Systems Software	C01	Understand the importance of assemblers, loaders, linkers, macro-processors and compilers
		C02	Know the working principles of assemblers, loaders, linkers, macro-processors and compilers
CSCS704	Artificial Intelligence	C01	Understand concepts of artificial intelligence and underlying characteristics
		C02	Learn various techniques of knowledge representation
		C03	Ability to express the ideas in AI research and programming language related to emerging technology.
		C04	Ability to represent solutions for various real-life problem domains using logicbased techniques
SIXTH SEMESTER			
CSCS361	MICROPROCESSORS AND MICROCONTROLLERS	C01	Get clear idea about the architectures and instruction set of microprocessor and microcontroller.

		CO2	Do the arithmetic operation, logical operations and code conversion
CSCS363	CLOUD COMPUTING	CO1	Understand the principles and paradigm of Cloud Computing
		CO2	Get an idea about the basics of middleware architecture
		CO3	Ability to design and deploy Cloud Infrastructure
		CO4	Ability to understand role of Virtualization Technologies
		CO5	Design & develop backup strategies for cloud data based on features
CSCS365	SOFTWARE QUALITY MANAGEMENT	CO1	Able to understand the importance of quality and standards
		CO2	Understand various models of dealing with software quality

Department: PHYSICS

Course Name: B.Sc in Physics

Programme Outcomes (POs):

After completing B.Sc. (Physics) Programme students will be able to:

PO1: Apply the basic principles of Physics to the events occurring around us and also in the world.

PO2: Try to find out or analyze scientific reasoning for various things.

PO3: Use of computers and various software and programming skills.

PO4: Apply the knowledge to develop the sustainable and eco - friendly technology for pollution free environment.

PO5: Collaborate effectively on team-oriented projects in the field of Physics.

PO6: Communicate scientific information in a clear and concise manner both orally and in writing or through audio video presentations.

PO7: Develop ability to work in group.

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PO8: Develop capacity of critical reasoning. Judgment and communication skills.

PO9: Develop abilities for logical thinking.

Programme Specific Outcomes (PSOs) :

PSO1: The course as a whole opens up several career doors for the students interested in various areas of science and technology in private, public and government sectors.

PSO2: Students may get job opportunities in higher education, research organizations, physics consultancy, radiology and many others.

PSO3: Some of the institutions where physics students can start their carrier are: BARC (Bhabha Atomic Research Centre), NPTC (National Thermal Power Corporation), IISc (Indian Institute of Science), ISRO (Indian Space Research Organization), ONGC (Oil and Natural Gas Corporation), BHEL (Bharath Heavy Electricals Limited), NITs (National Institute of Technology), etc.

Course Outcomes

B.Sc Physics

Semester-I			
Course Code	Course	Course Outcomes	
PHYS-111	Mechanics of particles, rigid bodies and continuous media	CO1	To understand the laws of motion and to understand the basics of vector calculus.
		CO2	Understandthe laws of gravitation, GPS.
		CO3	To understand the rigid body dynamics.
		CO4	To understand and determination elasticity, viscosity and surface tension properties and their applications.
PHYS-112	Kinetic theory and Thermo-dynamics	CO1	To understand the laws of thermo -dynamics and their applications.
		CO2	To understand the different thermo-dynamic potential and application of specific heat of gases.
		CO3	To understand the black body radiation and derivation of different laws of radiation
		CO4	Introduction to statistical mechanics

Semester-II			
PHYS–121	Oscillationswavesand acoustics	CO1	To understand the super position principle of harmonic oscillations analytically and graphically and under stand the beat phenomenon
		CO2	To Understand Wave Motion and Applications
		CO3	To Understand the Sound Phenomenon and dependence of its on Pressure and Temperature
		CO4	To Understand Acoustics and its applications
PHYS–122	Optics	CO1	To Understand Fermat’s Principals and Matrix Method of representation in Paraxial Optics
		CO2	To study Reflection and Refraction Phenomenon in Optics and different Aberrations presentin lenses
		CO3	To study Interference and Diffraction of Light and their Applications
		CO4	To Understand Polarization of Light, its production and applications
Semester-III			
PHYS–231	Electricityand Magnetism	CO1	To study vector analysis and introduction to Gauss-divergence and Stoke’s Theorem
		CO2	To understand electric force,electric field and electric potential in different media
		CO3	To understand the basics laws of magnetism and calculations of magnetic field.
		CO4	To study maxwell’s equation and electromagnetic wave propagation.
HYS–232	ModernPhysicsand Relativity	CO1	To understand the various problems where classical physics fails to explain which leads to modern physics
		CO2	To understand plank’s quantum principle,photon, photo electric effect and its applications
		CO3	To understand schrodinger equation and introduction to quantum mechanical operators, physics interpretation of wave equation, probabilities
		CO4	To understand special theory of relativity and its postulates.length contraction etc.

Semester-IV			
PHYS– 241	QuantumMechanics	CO1	Understand the time dependent schrodinger equation and its applications and evaluation of quantummechanical operators.
		CO2	To study the general form of uncertainty principle and its applications.
		CO3	Discussion of bound states in an arbitrary potentials.
		CO4	Understand the quantumtheory of hydrogen and like atoms.
PHYS– 242	Electronics	CO1	Understanding of network theorems, lr, cr, lcr circuits.
		CO2	Study of different diodes, biasing of diodes and applications and to study different transistor,biasing and applications.
		CO3	Study of different fet, jfet, mosfet and applications.
		CO4	Study of different operational amplifiers, its properties and its applications.
Semester-V			
PHYS– 352	SolidStatesPhysics	CO1	Understanding of crystallography, lattice parameters,x-ray diffraction of crystals.
		CO2	Study of types of bondingin solids, lattice vibrations-optic and acoustic mode and study of different conduction mechanism in solids.
		CO3	Study of different magnetic properties and applications in solid state physics.
		CO4	Study of super conductors, meisesner effect and type-iand type-iisuper conductors.
PHYS– 353	Atomic and Molecular Spectroscopy	CO1	Understanding of atomicspectra, coupling of orbitals, x-ray spectra, moseley’slaw
		CO2	Study of the effect of magnetic field on energy levels:zeeman effect
		CO3	Understanding of rotational and vibrationall evels and their applications and study of raman effect and its applications
		CO4	Understanding of laser systems and their applications
PHYS– 354	DigitalElectronics	CO1	Understanding of binary numbers system and different logicgates,karnaughmap, combinational logic gates
		CO2	Understanding working principle of flipflops –rs filpflop, jkfilpflop, jk-master slave filpflop,

		CO3	Understanding working principle of multiplexers, counters, a/d and d/a converters
		CO4	Study of pin configuration, addressing modes, instruction set of microprocessors, study of components of microprocessors, programming of microprocessors.
PHYS–355	Astrophysics	CO1	Understanding radio –interferometry – characteristics and properties.working of hubble spacetelescope.
		CO2	Study of astronomical objects, chandrasekharlimit, schwarzschild radius, tidal and planetesimal theories.
		CO3	Study of solar system,big bang theory.
		CO4	Application of astrophysics, rocket equations and theory of geosynchronous satellite.
Semester-VI			
PHYS–362	NumericalMethodsand ComputationalPhysics	CO1	Understanding of numerical methods as successive approximation method, regula-falsi method, newton-rapson method and gauss-jordan method
		CO2	Study of numerical differentiation and forward & backward integration
		CO3	Study of computer languages, fortran, operators etc
		CO4	Study of programming, algorithm, flow charts, simple programmes using fortran
PHYS–363	NuclearPhysics	CO1	Understanding the properties of nuclear–size,mass,charge density, binding energy curve
		CO2	Understanding different nuclear model, magic numbers and concept of nuclear force.
		CO3	Understanding radioactivity decay, nuclear reactions, conservation laws
		CO4	Understanding the basics of particle physics and different quantum numbers and conservation rules
PHYS–364	RenewableEnergy and Energyharvesting	CO1	Understanding the importance of alternative sources of energy– fossil fuels and nuclear energy etc
		CO2	Study of solar energyandits importance
		CO3	Importance of geothermalenergyan hydropower recourses

		CO4	Importance of electromagnetic harvesting and recent applications
PHYS –365	Electronics and Communication	CO1	Understanding amplitude and frequency modulation
		CO2	Study of image transmission principle, working of tv
		CO3	Study of wave propagation in space
		CO4	Application of communication electronics

Department: Mathematics

Programme: B.Sc. Mathematics

Programme Outcomes (POs):

- PO1:** Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study
- PO2:** A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved in mathematical reasoning.
- PO3:** Ability to analyse a problem, identify and define the computing requirements, which may be appropriate to its solution
- PO4:** Introduction to various courses like Real Analysis, Group Theory, Ring Theory, Field Theory, Metric Spaces, Statistics
- PO5:** Enhancing students' overall development and to equip them with mathematical modelling abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment.
- PO6:** Ability to pursue advanced studies and research in pure and applied mathematical science
- PO7:** To develop in students approach towards logical thinking
- PO8:** To go for higher studies and seek employment opportunities.

Programme Specific Outcomes (PSOs):

PSO1: Students will be able to apply critical thinking skills to solve problems that can be modeled mathematically

PSO2: To critically interpret numerical and graphical data, to read and construct mathematical arguments and proofs

PSO3: Know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand

PSO4: Formulate and develop mathematical arguments in a logical manner

PSO5: Acquire good knowledge and understanding in advanced areas of mathematics and statistics, chosen by the student from the given courses

PSO6: Understand, formulate and use quantitative models arising in social science, Business and other contexts.

B.Sc. Mathematics

Course Outcomes

FIRST SEMESTER			
Course Code	Course	Course Outcomes	
MATH 111	Theory of Equations and Trigonometry	CO1	To enable Student to understand the relations between the roots and the coefficients of a general polynomial equations in one variable
		CO2	To enable student for solving the Cubic and Biquadratic equations
		CO3	To enable Student to understand the concept of DeMoivre's Theorem and its applications
		CO4	To enable Student to understand the concept of Logarithm of a complex quantity- Expansion of Trigonometrical functions.
		CO5	To enable Student to understand Gregory's series and Summation of series
MATH 112	DIFFERENTIAL CALCULUS	CO1	To enable Student to understand the concept of nth derivative and Trigonometrical transformation
		CO2	To enable Student to understand the concept of Total differential coefficients
		CO3	To enable Student to understand the concept of Maxima and Minima of two variables and Lagrange's method of undetermined multipliers.
		CO4	To enable Student to understand Angle between the radius vector and tangent and Angle between the intersection of two curves
		CO5	To enable Student to understand Circle, radius and centre of curvature.

SECOND SEMESTER

Course Code	Course	Course Outcomes	
MATH 121	ANALYTICAL GEOMETRY - 3D	CO1	To enable Student to understand the concepts of direction cosines
		CO2	To enable Student to understand the concepts of Equation of Planes
		CO3	To enable Student to understand the concepts of Equation of Lines
		CO4	To enable Student to understand the concepts of Equation of Sphere
		CO5	To enable Student to understand the concepts of Equation of Cones
MATH 122	INTEGRAL CALCULUS	CO1	To enable Student to find the Integration of rational and irrational algebraic functions
		CO2	To enable Student to solve the Bernoulli's formula and Reduction formulae
		CO3	To enable Student to solve the double integral and Triple integral
		CO4	To enable Student to Transform the given equations from Cartesian to polar coordinate and Cartesian to spherical coordinates
		CO5	To enable Student to understand Beta and Gamma functions

THIRD SEMESTER

CourseCode	Course	Course Outcomes	
MATH 231	ABSTRACT ALGEBRA	CO1	To enable Student to understand the concepts of Group and Subgroups
		CO2	To enable Student to understand the concepts of Normal subgroups and Quotient Groups and Homomorphisms
		CO3	To enable Student to understand the concepts of Automorphisms and Cayley's theorem and Permutation groups
		CO4	To enable Student to understand the concepts of Rings Ideals and quotients rings
		CO5	To enable Student to understand the concepts of The field of quotients of an integral domain.
MATH 232	REAL ANALYSIS - I	CO1	The students will gradually develop Analysis skills in sets, functions and infinite series of Real Numbers
		CO2	The students will gradually develop Analysis skills in sequence and subsequence.
		CO3	The students will gradually develop Analysis skills in Convergence and divergence
		CO4	The students will be able to think about the basic proof techniques and

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			fundamental definitions related to Metric spaces
		CO5	The students will gradually develop Analysis skills in Functions continuous at a point on the real line Reformulation
MATH 233	LOGIC AND LATTICES	CO1	To enable Student to understand the concepts of Connectives
		CO2	To enable Student to understand the concepts of Normal forms
		CO3	To enable Student to understand the concepts of Partially ordered set and Hasse diagram
		CO4	To enable Student to understand the concepts of Lattices and sublattices.
		CO5	To enable Student to understand the concepts of Boolean algebra and Boolean Functions.
FOURTH SEMESTER			
Course Code	Course	Course Outcomes	
MATH 241	LINEAR ALGEBRA	CO1	The students will gradually develop Analysis skills in Vector spaces and subspaces
		CO2	The students will gradually develop Analysis skills in Linear independence and Dual spaces
		CO3	The students will gradually develop Analysis skills in Inner product spaces
		CO4	The students will gradually develop Analysis skills in Algebra of Linear transformations and Characteristic roots
		CO5	To enable Student to understand the concepts in Matrices.
MATH 242	REAL ANALYSIS II	CO1	The students will gradually develop Analysis skills in open sets and Complete metric spaces.
		CO2	The students will gradually develop Analysis skills in Compact metric spaces
		CO3	The students will gradually develop Analysis skills in Riemann integral
		CO4	The students will gradually develop Analysis skills in Rolle's theorem and Fundamental theorem of Calculus
		CO5	The students will gradually develop Analysis skills in Hyperbolic function, exponential function and logarithmic function

MATH 243	VECTOR CALCULUS	CO1	To enable Students to understand the concepts of Gradient, Divergence and Curl of a vector function
		CO2	To enable Students to solve the problems in Line integrals
		CO3	To enable Students to solve the problems in Surface and volume integrals
		CO4	To enable Students to solve the problems using Green's theorem and Stokes's theorem
		CO5	To enable Students to solve the problems using Gauss divergence theorem

FIFTH SEMESTER

Course Code	Course	Course Outcomes	
MATH - 351	Programming Using SCILAB - Practicals	CO1	To enable Student to write a program using all basic operations and commands in scilab
		CO2	To enable Student to write a program using. For loop, while loop, If-then-else.
		CO3	To enable Student to write a program using File Functions
		CO4	To enable Student to plot 2D and 3D graphs helps in visualizing the data.
		CO5	To enable Student to write a program for Solving ODEs using Scilab
MATH 352	COMPLEX ANALYSIS – I	CO1	The students will gradually develop Analysis skills in Complex numbers and its Algebraic properties
		CO2	The students will gradually develop Analysis skills in Analytic functions
		CO3	The students will gradually develop Analysis skills in Cauchy Riemann equations in polar form and Harmonic Functions
		CO4	The students will gradually develop Analysis skills in Elementary functions like Exponential function, Trigonometric functions, Hyperbolic functions and Logarithmic function
		CO5	The students will gradually develop Analysis skills in Mapping by elementary functions.
MATH 354	ORDINARY DIFFERENTIAL EQUATIONS	CO1	To enable Student to solve the Exact differential equations and Equations of the First, but of higher degree.
		CO2	To enable Student to solve the Linear Differential equations with

			constant and variable co-efficients
		CO3	To enable Student to solve the Simultaneous Linear differential equations with constant coefficients
		CO4	To enable Student to understand the concepts of Laplace transform
		CO5	To enable Student to understand the concepts of Inverse Laplace transforms
MATH 356	MATHEMATICAL STATISTICS - I	CO1	To enable Student to understand the concepts of Discrete and Continuous random variable.
		CO2	To enable Student to understand the concepts of Moment generating function and Cumulants.
		CO3	To enable Student to understand the concepts of Binomial distribution
		CO4	To enable Student to understand the concepts of Poisson distribution
		CO5	To enable Student to understand the concepts of Normal distribution
MATH 357	Programming Using SCILAB - Theory	CO1	To enable Student to write a program using all basic operations and commands in scilab
		CO2	To enable students to understand all basic operations on matrices through built-in functions so that the trouble of developing and testing code for basic operations are completely avoided.
		CO3	To enable Students to understand the concepts and write a program using For loop, while loop, If-then-else
		CO4	To enable Students to plot 2D and 3D graphs helps in visualizing the data.
		CO5	To enable Students to write a program for Solving ODEs using Scilab.

SIXTH SEMESTER

Course Code	Course	Course Outcomes	
MATH 361	PROGRAMMING LAB IN NUMERICAL METHODS - PRACTICALS	CO1	To enable Students to write a program to solving algebraic and transcendental equations by Bisection method and Newton-Raphson method
		CO2	To enable Students to write a program to solving simultaneous linear algebraic equations by Gauss jordan method
		CO3	To enable Students to write a program to find the inverse and determinant of a matrix of order n
		CO4	To enable Students to write a program to evaluate definite integral by Trapezoidal rule and Simpson's 1/3 rule

		CO5	To enable Students to write a program to solve first order ODE by Euler's method and Runge Kutta method
MATH 362	COMPLEX ANALYSIS – II	CO1	To enable Student to understand the concepts of Contour integrals and to solve problems using The Cauchy Goursat's theorem
		CO2	To enable Student to understand the concepts of The Cauchy integral formula and various theorems related to Analytic function.
		CO3	To enable Student to understand the concepts of Convergence of sequences and series and problems related to Taylor series and Laurent Series
		CO4	To enable Student to understand the concepts of Singularities and Residues.
		CO5	To enable Student to solve the various types of integrals using contour Integrals.
MATH 364	PARTIAL DIFFERENTIAL EQUATIONS	CO1	To enable Student to understand the procedure of Formation of Partial differential equations
		CO2	To enable Student to solve Standard types of first order differential equations
		CO3	To enable Student to solve Lagrange's equations and to solve differential equations using Charpit's Method
		CO4	To enable Student to solve Linear Partial Differential equation of Second and higher order with constant coefficients.
		CO5	To enable Student to solve problems related to One dimensional wave equations, heat equation, Laplace equation
MATH 366	MATHEMATICAL STATISTICS - II	CO1	To enable Student to solve problems related to Correlation and Rank Correlation
		CO2	To enable Student to solve problems related to Regression
		CO3	To enable Student to understand the concepts of Sampling and Procedures in testing of hypothesis
		CO4	To enable Student to solve problems related to Test of significance of single mean, difference of mean ,single proportion and difference of proportion.
		CO5	To enable Student to solve problems related to chi square test for test of goodness of fit and student's t test.

MATH 367	NUMERICAL METHODS	CO1	To enable Student to solve problems related to Numerical solution of algebraic and transcendental equations using various methods
		CO2	To enable Student to solve problems related to Numerical solution of simultaneous linear algebraic equations using various methods
		CO3	To enable Student to solve problems related to Interpolation and Numerical differentiation and Numerical Integration
		CO4	To enable Student to solve problems related to Numerical solutions of Ordinary differential equations of first and second order using various methods like Taylor series method and Picard's method.
		CO5	To enable Student to solve problems related to Numerical solutions of Ordinary differential equations of first and second order using various methods Euler's method – Improved Euler's Method - Modified Euler's Method – Runge-Kutta method of second and fourth order.

DEPARTMENT : ZOOLOGY

Programme: B.Sc. Zoology

PROGRAMME OUTCOME

PO1: The students find their footings in life through wholesome and integral education.

PO2: The students are encouraged to climb the academic ladder by pursuing post graduate Education in different domain.

PO3: The students are academically and technically equipped to steer the nation along the path of progress and peace.

PO4: The students are trained to be employable and entrepreneurial citizen of the nation.

PO5: The students are fortified intellectually, ethically and socially to face the challenges in life.

PROGRAMME SPECIFIC OUTCOME

PSO1: Disciplinary knowledge

The students will develop their ability to understand the basic concepts of zoology viz., animal kingdom, systematic classification, anatomy, morphology, physiology, embryology, evolution, ecology etc.

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PSO2:Critical thinking

The students will obtain knowledge to express their concepts effectively by understanding their subject with various disciplines.

PSO3: Scientific reasoning

The students will have ability to identify, classify and describe various organisms from different phylum by understanding their structure and function of various organ system and relationship with their environment

PSO4: Research-related skills

The students will develop ability to explain structure and functions of a cell and organ (from molecular level to the organ system level) as well as the process of development of an embryo

PSO5: Problem solving

The students will acquire knowledge in cell biology, molecular biology, genetics, biotechnology, microbiology, biochemistry, biostatistics, developmental biology, Immunology, animal physiology, environmental biology, evolution etc., which helps to Develop their ability to analyse and solve various biological problems.

PSO6: Cooperation/Team work

The students will able to work effectively and respectfully with diverse team during vermin-culture and mushroom culture practices

PSO7: Information/digital literacy

The students will able to use various biological software to analyze the data by obtaining knowledge in biostatistics, computational biology and biotechnology.

PSO8: Self-directed learning

The students will able to work independently to enhance their expertise through various activities like seminars, assignments, etc., and they can manage a project like vermin-culture, mushroom culture, aquaculture etc., on completion of the course.

PSO9: Moral and ethical awareness/reasoning

The students will have the knowledge to minimize the environmental issues like global warming, pollution, degradation of natural resources, and helps in conservation endangered species, afforestation etc.

PSO10: Lifelong learning

The students will able to apply their knowledge of biological sciences in various disciplines like vermin-culture, mushroom culture, aquaculture, apiculture, agriculture and medicine. Contribute the knowledge for nation's development.

COURSE OUTCOME

COURSE	CODE	COURSE NAME	COURSE OUTCOME
DSC-1A	UZOC 111	Biodiversity of Invertebrates	1. To understand Biodiversity, Habitat, Adaptation organization and taxonomic status of invertebrates. 2. Explaining the basic aspects of classification, structural and functional details of Invertebrates.
	UZOP 114	Biodiversity of Invertebrates Practical	To understand biodiversity, habit at and adaptations through practical.
DSC-2A	UZOC 112	Basic Zoology	To understand the diversity of animals and its general characters
	UZOP 115	Basic Zoology Practical	To understand the general characters of animals through some specimens available in the laboratory.
DSC-1B	UZOC 121	Biodiversity of Chordates and Vertebrates	To discuss habitat, adaptations and organization of chordates.
	UZOP 124	Biodiversity of Chordates and Vertebrates	To understand biodiversity, habitat and adaptations through practical.
DSC-2B	UZOC122	Animals and Human Welfare	To understand various breeds of cattles, products from animals, communicable and non-communicable diseases
	UZOP 125	Animals and Human Welfare Practical	To understand the prophylactics, treatment for various diseases spread among the population. To know the value of products from animals.
AECC - 2	ENVS 123	Environment studies	To understand the ecosystems, diversities across the world, the value of wild life and protection act, pollution and measures to be taken for reducing it.
DSC-1C	UZOC 231	Animal Physiology	Explaining various aspects of physiological activities of animals with special reference to mammals
	UZOP 234	Animal Physiology	To familiarize with ECG and blood parameters. Assess biochemical parameters that regulate metabolism.
SEC - 1	UZOS 233	Vermi-technology	To impart training on Earthworm culture technology To create knowledge on Self - Employment opportunity

DSC-1D	UZOC 241	Developmental Biology	To understand ontogenesis, the development of animals including parthenogenesis and to study embryonic adaptations, human reproduction and reproductive technology in man.
	UZOP 244	Developmental Biology practical	To understand the development of animals.
SEC - 2	UZOS 243	Clinical Laboratory Technology	To impart awareness on Clinical Lab Technology. To create knowledge on Self-Employment Opportunity.
SEC-3	UZOS 351	Apiculture	To understand various species of bees, products from honeybees and its use. Entrepreneur motivation for practicing apiculture as cottage industry.
DSE – 1A	UZOE 352	Immunology	To study the process which help to maintain the organisms internal environment, when challenged with foreign substances. To understand the advances in Immunology
	UZOP 358	Immunology Practical	To study the process which help to maintain the organisms internal environment, when challenged with foreign substances. To understand the advances in Immunology.
DSE –2A	UZOE 354	Cell and Molecular Biology	To learn the structure and functions of various cellular components. To understand the molecular basis of cell structure DNA structure and functions
	UZOP 358	Practical	To understand chromosomes and its structure, division of cells through practical.
DSE – 3A	UZOE 355	Biochemistry and Intermediary Metabolism	To define and explain the basic principles of biochemistry and metabolic pathway
	UZOP 358	Practical	To familiarize with the various chemical reactions to detect glucose, proteins and lipids present in our body.
GE - 1	UZOG 357	Public Health and Hygiene	To impart awareness on public health and Hygiene To create knowledge on Health Education.
SEC-4	UZOS 361	Aquatic biology and Culture Techniques	To study and understand the biology of fishes and make the students to know about the culture techniques of fish.

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DSE – 1A	UZOE 362	Endocrinology and Reproductive Biology	Explaining the role of hormones on physiological activities of animals with special reference to humans.
	UZOP 368	Practical	To study the architecture of endocrine glands. Acquire knowledge on endocrine functions.
DSE – 2A	UZOE 364	Evolution and Conservation Biology	To explain the scientific concepts of animal evolution through theories and evidences.
	UZOP 368	Practical	To understand the concepts of animal evolution through models
DSE – 3A	UZOE 365	Genetics and Biotechnology	To know the principles of genetics and to integrate biology with technology
	UZOP 368	Practical	To familiarize with karyotype and mutant forms. To understand the chromosomal abnormalities.
GE - 2	UZOG 367	Value Added Products of Animals	To get knowledge about the products from different groups of animal and its products. Entrepreneurship for establishing processing units for these products.

Department: UG Chemistry

Program Name: B.Sc Chemistry

Programme Outcomes (POs)

- PO1:** In the scope of its subject, Chemistry lies somewhere at the intermediate position among various other branches of science.
- PO2:** Chemistry course provides a foundation for understanding both the basis and applied scientific disciplines at a fundamental and Entrepreneur level. Scope of Chemistry as a Career Option is immense in India.
- PO3:** Candidates can pursue Degree, Diploma and Certificate courses in Chemistry at Post Graduate (PG) and Doctoral Levels.
- PO4:** The Bachelor of Science Degree in Chemistry prepares students for careers as professional chemists and serves as a foundation for careers in other fields such as Medicine, Engineering and Geosciences. Analytical chemist, Biotechnologist, Chemical engineer, Healthcare scientist, Forensic scientist, Nanotechnologist, etc. used as evidences of the some job profiles suitable for degree holders in chemistry.

Programme Specific Outcomes (PSOs)

- PSO1:** B.Sc. Chemistry course lays the foundation for a student to pursue M.Sc. Chemistry under Specialized course like Pharmaceutical Chemistry, Industrial Chemistry, Petrochemical chemistry, Applied Chemistry, Bio- chemistry, Polymer Chemistry, Nano Technology and Green Chemistry.
- PSO2:** The curriculum offers a thorough fundamental knowledge of the major fields of chemistry, covering the general areas of inorganic, organic, and physical chemistry.
- PSO3:** Students gain laboratory experience in inorganic and organic synthesis, analytical methods, physical chemical measurements, spectroscopy, bio-chemical engineering and chemical methods in nuclear technology.

Course Outcomes

FIRST SEMESTER			
Course Code	Course	Course Outcome	
UCHM 111	General Chemistry - I	CO1	Understanding the basics of Atomic Structure, Schrodinger wave equation, Trends in the periodic table.
		CO2	Chemical bonding, Molecular Orbital Theory, Valence Bond Theory, Hybridization and discussion of structure of molecules.
		CO3	Study about the basis of nomenclature, Electron displacement effect, Aromaticity and Hybridization. Organic Reactive Intermediate and type of Organic Reaction.
		CO4	Basis of Stereochemistry, R and S configuration, E and Z configuration, isomerisation, conformation analysis of Ethane, Butane and cyclohexane.
		CO5	Detailed study about the Kinetics Theory of Gases, Derivation of Ideal gas Equations – van der Waals Equation, critical constants. Basis of Maxwells Distribution of molecular velocities – RMSV, AV and MPV, collisiton diameter, Collision Frequency,Mean Free Path.
UCHM 116	General Chemistry Practical – I (Volumetric Analysis & Chromatography)	CO1	Practical Training in doing Volumetric Analysis– Acidimetry, Alkalimetry, Permanganometry, Dichrometry, Iodometry and Complexometric Titrations involving EDTA titration.
		CO2	Paper Chromatographic Separation and finding of R _f values of Amino acids.
		CO3	Identification and Separation of Sugars by Paper Chromatography.
SECOND SEMESTER			
UCHM 121	General Chemistry - II	CO1	Study of Laws of Thermodynamics, Chemical Energetic, Thermochemistry, Kirchhoff's Equation, Residual Entropy.
		CO2	Concept of Chemical Equilibrium, Le Chatli Principle, Strong and Weak Electrolytes, Salt Hydrolysis, pH scale, Ionization of weak acids and bases, Common Ion effect, Buffer solutions, Solubility Products and it's applications.

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		CO3	Study of hydrogen, hydrides and s block elements – halides, Oxides, Hydroxides and Organometallic Compounds.
		CO4	Study the preparation, properties of Alkanes and Cyclo alkanes, Alkyenes and Alkynes.
		CO5	To study the Benzene Chemistry, Preparation, Properties, Mechanism of Electrophilic Substitution Reactions, Orientation in Electrophilic Substitution.
UCHM 126	General Chemistry Practical – II	CO1	Practical Training in determination of CST in phenol-water system, Effect of Impurity in CST, Transition Temperature of Salt Hydrate, Construction of Phase Diagram (simple eutectic), Distribution coefficient of Iodine in Carbon tetrachloride.
THIRD SEMESTER			
UCHM 231	Physical Chemistry - I	CO1	Study the solid state – Derivation of Bragg's Equation. X-ray Diffraction studies, Determination of structure of NaCl, CsCl and KCl, CO ₂ .
		CO2	Study chemical Kinetics, Derivation of Rate Constant, Half-Life period, Determination of order of reaction, Effect of temperature.
		CO3	To study catalysis, Derivation of MM constant, Theories of Catalysis, Theories and Laws of Adsorption and Photochemistry, Fluorescence, Phosphorescence, Quantum Yield.
		CO4	Study of Dilute solutions and Colligative properties, Rault's law, MW determination, Osmotic pressure, Elevation of boiling Point, Depression of Freezing point and Thermodynamic derivations.
		CO5	Study of Phase equilibrium, Derivation of Gibb's Phase rule, Phase diagram for one component and two component system, Rault's and Hendry's Law, Azeotropes and Nernst Distribution law.
UCHM 232	Inorganic Chemistry - I	CO1	Study of Nuclear Chemistry, Mass Defect and Binding Energy, Nuclear fission and Fusion reactions, Group displacement law, Isotopes, Applications of isotopes.
		CO2	Principles of Quantitative Analysis, Solubility and Solubility Product, Separation of metal ions, Applications of Solubility product, Principles of

			Quantitative and Qualitative analysis, Spot tests, Separation and purification of mixtures.
		CO3	To study of Acids and Bases and Non-aqueous Solvents – Acid Base Theories, Hard & Soft Acids and Bases (HSAB), Acid Base Strength & Hardness and Softness.
		CO4	To study the P-Block Elements – Boron, Carbon and Nitrogen Groups.
		CO5	To study the oxygen – Sulphur family, Halogens and Noble gases.
UCHM 235	Basic Analytical Chemistry	CO1	Laboratory glass wares, Calibration of apparatus, Principles of Stoichiometry, Calculations involving various types of concentration systems.
		CO2	Principles of titrimetric analysis, acid base, redox, complex formation and precipitation titrations.
		CO3	Statistical evaluation of analytical data, types of errors, confidence limit, q test and linear regression of data.
UCHM 236	Physical and Inorganic Practical	CO1	Inorganic Chemistry Practical – Qualitative Semi-micro inorganic mixture analysis containing two cations and anions
		CO2	Determination of surface tension, viscosity and melting point.
UCHEM AO1	Chemistry-I for II Zoo/Phys	CO1 to 5	To study classification and IUPAC nomenclature of organic compounds, Hybridization, concept of resonance, Cleavage of Bonding, to study the isomerism in organic compounds, Configuration and Conformation, Understanding basic concept of Chemical Equilibrium constants, Concepts of Acids and Bases, pH, pH of Acids and Bases, Buffer Solution, Henderson's Equation of Buffer, Stoichiometry and its calculations, Understanding the basic concepts of nuclear chemistry and carbohydrates.
UCHEM AO2	Chemistry Practical-I for Zoo/Phys	CO1 and 2	Practical training in doing Volumetric Analysis and Determination of melting point and Enthalpy of given Organic Compound.
FOURTH SEMESTER			
UCHM 241	Physical Chemistry - II	CO1	To study electro chemistry, specific and equivalent conductance, Derivation of Kohlrausch, Debye-Huckel-Onsanger equation, transport number, Determination of K_a and K_{sp} .

		CO2	To study types of reversible electrodes, Nernst Equation, Derivation of cell EMF, Single electrode potential, electro chemical cell, Determination of pH, Potentiometric titrations, Buffers, Handersen-Hazal Equation, Hydrolysis of salts.
		CO3	To study the principles of elementary quantum mechanics, Black body radiation, photo electric effect, Compton Effect, Heisenberg's uncertainty Principle, Schrödinger wave equation, postulates of quantum mechanics, particle in one dimensional box.
		CO4	To study the basic principles of molecular spectroscopy – microwave and IR spectroscopy.
		CO5	To study Raman and Electronic spectroscopy, optical activity and polarization, dipole moment studies, refractivity methods and magnetic properties.
UCHM 242	Organic Chemistry– I	CO1	To study alkyl and aryl halides – preparations and properties.
		CO2	To alcohols and Phenols - preparation and properties, some important naming reactions
		CO3	To study carbonyl compounds – Aldehydes, Ketones, Carboxylic acids and their derivatives.
		CO4	To study organic compounds of Nitrogen, Aliphatic and Aromatic Amines and Diazonium salts.
		CO5	To study Heterocyclic compounds – Five and Six member hetero cyclic compounds.
UCHM 247	Business Skills for Chemist	CO1	Safe handling of Chemicals, Chemical materials, skills with chemical instruments.
		CO2	Planning and designing of experiments, oral, information retrieval skills, report writing skills.
		CO3	Problem solving skills, key for business concepts, making moneys, financial aspects of Business with case studies, concept of Intellectual properties and Patents.
UCHM 246	Physical and Organic Chemistry Practical	CO1	Electrical and Non-electrical Physical Chemistry Practical, Determination of Pseudo first order and Second order kinetics, Determination of Standard Electrode Potential of Silver, Copper and Zinc, Determination of Solubility Product and pH using EMF experiment, Estimation of Chromate by spectrophotometry, Verification of Beer –

			Lambert's Law.
		CO2	Separation and Purification of Organic Mixture.
UCHEM AO3	Chemistry-II for Zoo/Phys	CO1 to 5	To understand the concepts of Thermodynamics and chemical kinetics, To study Chromatography and Solid State, To study Classifications, properties and stereochemistry of amino acids, to understand the structure of proteins, mechanism of enzyme action, To study Polymers, Dyes, Nucleic acids and Drugs.
UCHEM AO4	Chemistry Practical-II for Zoo/Phys	CO1 and 2	Practical training in Organic Qualitative Analysis and Determination of viscosity and transition temperature of given substance.
FIFTH SEMESTER			
UCHM 351	Inorganic Chemistry-II	CO1	To study the general characteristics of d-block elements. Properties of the elements of the first transition series. Relative stabilities of their oxidation states. Extraction from ores and refining of Ti, Mn, Cr, Fe, Co, Ni, Cu and Zn and their uses.
		CO2	To gain knowledge about the General characteristics, Comparative treatment with their 3d analogues in respect of ionic radii, oxidation states, magnetic behavior. Metallurgy of silver, gold, platinum and palladium.
		CO3	To Understand the chemistry behind Lanthanides and Actinides: (a) Lanthanides: Position of lanthanides in the periodic table. General characteristics of lanthanides. Extraction of lanthanides from monazite sand & separation of lanthanide elements by ion exchange method. Uses of lanthanides and their compounds. (b) Actinides: Position of actinides in the periodic table. General characteristics of actinides. Comparison between lanthanides and actinides. Th and U (extraction only). Separation of Np, Pu and Am from U.
		CO4	To study the classification of ligands - chelation and effect of chelation, Co-ordination number and stereo chemistry of complexes, Werner's theory, EAN rule, Nomenclature of mono nuclear and binuclear (bridged) complexes. Isomerism in complexes, Applications of Co-ordination

			compounds in qualitative and quantitative analysis, Applications in industry and medicine.
		CO5	To understand the valence bond theory, hybridisation, geometry and magnetic properties, limitations of VBT, Crystal field theory, splitting of <i>d</i> -orbitals in octahedral, tetrahedral and square planar complexes, Comparison of VBT and CFT. To understand the basic principles of molecular orbital theory (MOT) of co-ordination compounds as applied to octahedral complexes without π -bonding and its MO correlation diagram of $[\text{Co}(\text{NH}_3)_6]^{3+}$. The adjusted crystal field theory (ACFT) or the ligand field theory (LFT) and Spectrochemical series.
UCHM 353	Analytical Methods in Chemistry	CO1	To understand principles of gravimetric analysis, Gravimetric factor, calculations involved, Theory of precipitation, Types of precipitants, organic precipitants & advantages, purity of precipitates, Co-precipitation and post-precipitation, Precipitation from homogeneous solution, Drying and ignition of precipitates.
		CO2	To study the Quantitative aspects of absorption of radiation, Beer-Lambert's Law, derivation of equation, deviation from Beer-Lambert's Law, Methods of doing Colorimetric Analysis, to study the applications of colorimetry, Molar composition of complexes by Job's method and mole ratio method, Determination of Iron and Manganese compounds, Simultaneous determination of metal ions (Cr and Mn).
		CO3	To study the Radiochemical Methods, the properties of radioisotopes, Isotopic tracing, Isotopic dilution analysis – Neutron activation analysis, Limitations of radioanalytical methods, Thermo analytical methods, Principles of TGA and DTA, Honda's Balance, Thermometric titration, Principle and instrumentation of thermometric titration and its application using HCl (vs) NaOH.
		CO4	To study the Polarography Basic principles, DME, The Ilkovic equation (derivation not required) and significance, experimental assembly, current voltage curve- oxygen wave-influence of temperature and agitation on diffusion layer. Half wave potential ($E_{1/2}$)– Experimental set up, Applications, Polarography as an analytical tool in quantitative and qualitative analysis, Determination of copper and zinc in brass. To gain knowledge

			about the Solvent Extraction, Principles-techniques of solvent extraction, Factors favouring solvent extraction of inorganic species, Application of Solvent extraction.
		CO5	To study the Theory and principles of chromatographic methods, Column Chromatography, principles and experimental procedures, Adsorbents and Solvent systems, Applications, Thin layer chromatography, Principles and experimental procedures, Paper Chromatography, Gas liquid chromatography, Principles, Instrumentation, Types of Columns, Types of Detectors and Applications.
UCHM 354	Nano Chemistry	CO1	To study the length scales and importance of nanoscale and its technology, Classification of nanomaterials (0D, 1D and 2D), self assembly of materials, self-assembled nanostructures, porous solids, nanowires, nanomachines and quantum dots.
		CO2	To study the types of nanoparticles, preparation, properties and uses of gold, silicon, silver, zinc oxide, iron oxide, alumina and titania nanoparticles. Techniques to synthesize nanoparticles, top down and bottom up approaches, common growth methods.
		CO3	To study the overview of nanostructures and nanomaterials, classification, Preparation, properties and applications of carbon nanotubes, nanorods, nano fibre and nanoclay, toxic effects of nanomaterials, Nanoarchitecture, control of nanoarchitecture, one dimensional control.
		CO4	To understand the principles of Electron microscopes, scanning electron microscopes (SEM), transmission electron microscopes (TEM), scanning probe microscopy, atomic force microscopy (AFM), scanning tunneling electron microscope (STEM), basic principles only.
		CO5	To study the synthesis and purification of carbon nanotubes, Single walled carbon nanotubes and multi-walled carbon nanotubes, Structure-property relationships, Fullerenes, carbon nanotubes and grapheme, Applications of nanomaterials in electronics, optics, catalysis, computers, sensors, transportation, medicine and in environment related issues.

UCHM 358	Green Methods in Chemistry	CO1	To study the definitions of Green Chemistry, Brief introduction of twelve principles of Green Chemistry with examples, special emphasis on atom economy, reducing toxicity.
		CO2	To gain the knowledge of sources of waste, some problems caused by waste, Cost of waste, Waste minimization techniques, On-site waste treatment, Design for degradation and polymer recycling.
		CO3	To study the conventional reactors, Inherently safer design, Process intensification, In-Process monitoring.
		CO4	To study the processes of a brighter shade of green, Greening of Acetic acid manufacture, Vitamin C, Leather manufacture- tanning and fat liquoring. Dyeing to be green, Polythene-radical process and Ziegler-Natta catalysis, Eco-friendly Pesticides-Insecticides.
		CO5	To study the green synthesis of poly lactic acid from Corn and Surfactants for carbon dioxide, Replacing smog producing and ozone depleting solvents with CO ₂ for precision cleaning and dry cleaning of garments.
UCHM 350	Inorganic Chemistry– Practical - II	CO1	Practical Training in Gravimetric Analysis, Determination of water of hydration, Determination of Lead as Lead chromate (sintered glass crucible), Determination of Copper as cuprous thiocyanate (sintered glass crucible), Determination of Zinc (or Magnesium) as oxinate (sintered glass crucible), Determination of Nickel as Ni-DMG complex (sintered glass crucible), Determination of Calcium as oxalate (sintered glass crucible), Determination of Iron as ferric oxide, Determination of Barium as Barium sulphate (silica crucible), Determination of Barium as Barium chromate (sintered glass crucible), Determination of Fluoride as PbClF.
		CO2	Practical Training in Preparation Of Inorganic Complexes, Preparation of Ni-DMG complex, Preparation of Copper tetrammine complex, Preparation of Lead-thiourea complex, Preparation of Potassium trioxalato chromate complex, Preparation of Sodium trioxalato ferrate (III).

UCHM 353	Analytical Methods In Chemistry- Practical		Practical Training in Paper chromatographic separation of Fe^{3+} , Al^{3+} , and Cr^{3+} , Paper chromatographic separation of Ni^{2+} , Co^{2+} , Mn^{2+} and Zn^{2+} , Separation and identification of the monosaccharides present in the given mixture (glucose & fructose) by paper chromatography, Separate a mixture of Sudan yellow and Sudan Red by TLC, Chromatographic separation of the active ingredients of plants, flowers and juices by TLC, To separate a mixture of Ni^{2+} & Fe^{2+} by complexation with DMG and extracting the Ni^{2+} -DMG complex in chloroform, Colorimetric determination of Manganese, Determine the composition of the ferric-salicylate/ ferric-thiocyanate complex by Job's method.
UCHM 354	Nano Chemistry - Practical		Practical Training in Synthesis of hydrogel by co-precipitation method, Synthesis of silver and gold metal nanoparticles, Synthesis of Aqueous Ferrofluid Nanoparticles, Synthesis of Ruby Red Colloidal Gold Nanoparticles, Synthesis of Cholesteryl Ester Liquid Crystals, Investigation of a Liquid Crystal Watch, Calibration of a Liquid Crystal Mood Ring, Make a Liquid Crystal Pixel, Graphene preparation from graphite with sticky tape, Nitinol wire Train Nitinol to a desired shape, Preparation of Surface Conductive Glass, Titanium Dioxide Raspberry Solar Cell.
SIXTH SEMESTER			
UCHM 361	Organic Chemistry-II	CO1	To study the classification, inter molecular and intra molecular rearrangements - mechanisms, evidences, migratory aptitude, inter or intra molecular of the following rearrangements: Pinacol-Pinacolone rearrangement, Hofmann rearrangement, Beckmann rearrangement, Benzil-Benzilic acid rearrangement, Baeyer-Villiger, Fries rearrangement, Claisen rearrangement, Benzidine rearrangement, Curtius rearrangement, Wagner-Meerwein rearrangement and Wolff rearrangement.
		CO2	To study the classification, nomenclature, occurrence, isolation and preparation of Terpenoids and Isoprene rule, To study the classification, occurrence, isolation and synthesis of alkaloids, introduction to steroids, poly-phenolics, marine natural products and their biological significance.

		CO3	To study the classification of Carbohydrates, configuration of aldoses & ketoses, reactions of monosaccharides (glucose, fructose), Determination of ring size in glucose and fructose, disaccharide (sucrose and maltose with structure determination) and polysaccharides (starch and cellulose without involving structure determination).
		CO4	To study the classification, structure and stereochemistry of amino acids, isoelectric point of amino acids. Preparation and properties of alpha-amino acids, tests for amino acids, Solid-phase peptide synthesis. Structure determination of polypeptides - end group analysis, Classification of protein, structure of protein, constituents of nucleic acid, RNA and DNA, types of RNA, structure of DNA.
		CO5	To study the principles Spectroscopy, application of UV-Visible Woodward-Fieser rules, presentation and analysis of UV spectra, types of electronic transitions, effect of conjugation, concept of chromophore and auxochrome, bathochromic, hypsochromic, hyper chromic and hypochromic shifts. Infra Red Spectroscopy, Molecular vibrations, Hook's law, finger print region, characteristic absorptions of various functional groups and interpretation of IR spectra of simple organic molecules, Proton Magnetic Resonance (^1H NMR) Spectroscopy.
UCHM - 363	Polymer Chemistry	CO1	To study the classification of polymers, Natural, synthetic, linear, cross linked and network, distinction between plastics, elastomers and fibres, Rate of polymerization, degree of polymerization, functionality of cross linked polymers.
		CO2	To study the types of polymerization reactions - addition, condensation, ionic, co-ordination. Addition polymerisation, mechanism, initiation, propagation and termination processes, initiators, condensation polymerizations, Mechanism and kinetics of copolymerization and emulsion polymerization techniques.
		CO3	To study the physical, thermal, flow & mechanical properties of polymers, glass transition temp, Structure-Property relationships, Concept of average molecular weight of polymers.

		CO4	To study the Polymerization techniques, Bulk, solution, suspension & emulsion polymerization, compression moulding, casting, extrusion, fibre spinning, injection moulding, thermoforming, vulcanization of elastomers, Polymer processing, Polymer degradation, thermal, mechanical, oxidative and chemical methods and biodegradation.
		CO5	To study the general methods of preparation, properties and uses of the following: polyethylene, polystyrene, polyesters, polyamides, polycarbonates, PVC, Teflon, acrylic polymers – Phenol formaldehyde resins (Bakelite and Novolac), polyurethanes and silicone polymers, Bio-Polymers, biomaterials, polymers in medical field, High temperature and fire resistant polymers, Conducting and semiconducting polymers [polyacetylene, polyaniline, poly(p-phenylenesulphide), polypyrrole, polythiophene)].
UCHM - 365	Industrial Chemicals And Environment	CO1	To gain knowledge about Industrial Gases, Large scale production, hazards in storage and handling of the following gases, Hazards in handling the following chemicals, hydrochloric acid, nitric acid, sulphuric acid, caustic soda, bleaching powder, sodium thiosulphate, hydrogen peroxide, potash alum, chrome alum and potassium dichromate.
		CO2	To understand the Air pollutants: types, sources, particle size and chemical nature; Photochemical smog: its constituents and photochemistry, Effects of air pollution on living organisms and vegetation. Greenhouse effect and Global warming, Ozone depletion by oxides of nitrogen, chlorofluorocarbons and Halogens, removal of sulphur from coal. Control of particulates.
		CO3	To study the Hydrological cycle, water resources, aquatic ecosystems, Sources and nature of water pollutants, Impacts of water pollution on hydrological and ecosystems, Thermal pollution, causes, effects and control, Industrial waste management, incineration of waste, Effluent treatment plants (primary, secondary and tertiary treatment).
		CO4	To understand the noise pollution, brief discussion on control of industrial noise pollution, radioactive pollution, Sources of radiations, effects of radiations, Somatic effects,– Genetic effects.

		CO5	To understand the Ecosystems, Biogeochemical cycles of carbon, nitrogen and sulphur, Coal, petrol and natural gas. Nuclear Fusion/Fission, Solar energy, Hydrogen, geothermal, Tidal and Hydel, etc, Nuclear Pollution: Disposal of nuclear waste, nuclear disaster and its management, biocatalysis: Importance in “Green Chemistry” and in Chemical Industries with examples.
UCHM 368	Fuel Chemistry	CO1	To study the renewable and non-renewable energy sources, Classification of fuels and their calorific value, coal, requisites of a good metallurgical coke, Coal gasification (Hydro gasification and Catalytic gasification), Coal liquefaction and Solvent Refining.
		CO2	To study about the Petroleum and Petrochemical Industry, Composition of crude petroleum, Refining and different types of petroleum products and their applications, Fractional Distillation (Principle and process), Cracking (Thermal and catalytic cracking), Reforming Petroleum and non-petroleum, fuel from waste, synthetic fuels (gaseous and liquids), clean fuels and Petrochemicals.
		CO3	To study the classification of lubricants, lubricating oils (conducting and non- conducting) Solid and semisolid lubricants, synthetic lubricants, Properties of lubricants and their determination.
UCHM - 360	Organic Chemistry Practical-II	CO1	Practical Training in Organic Qualitative Analysis, Systematic Qualitative Analysis of organic compounds containing the following mono functional groups, Carbohydrate, carboxylic acid, dicarboxylic acid, phenol, aldehyde, ketone, aromatic primary amine, aromatic amide, aliphatic diamide, and nitro compound, Detection of nitrogen, sulphur and halogens, Tests to find whether saturated or unsaturated, Tests to find whether aromatic or aliphatic, Tests to find the functional group, Confirmation of functional group by preparation of derivatives.
		CO2	Practical Training in Organic Preparations, Acetylation of salicylic acid, Acetylation of aniline, Benzoylation of aniline/phenol, Preparation of Iodoform from ethanol/ acetone, Preparation of S-benzyl isothiuronium chloride, Preparation of m-dinitrobenzene, Preparation of benzoic acid from benzaldehyde.

UCHM - 363	Polymer Chemistry - Practical	CO1	Practical Training in Polymer synthesis, Free radical solution polymerization of styrene (St) / Methyl Methacrylate (MMA) / Methyl Acrylate (MA) / Acrylic acid (AA) involving, Purification of monomer, Polymerization using benzoyl peroxide (BPO)/ 2,2'-azo-bis- isobutyronitrile (AIBN), Preparation of nylon 66/6, Interfacial polymerization, preparation of polyester from isophthaloyl chloride (IPC) and phenolphthalein consisting of the following steps, Preparation and Purification of IPC, Interfacial polymerization, Redox polymerization of acrylamide, Precipitation polymerization of acrylonitrile, Preparation of urea-formaldehyde resin, Preparation of novalac resin.
		CO2	Practical Training in Polymer characterization, Determination of molecular weight by viscometry, Polyacrylamide-aq. NaNO ₂ solution, Poly vinyl propylidene (PVP) in water, Determination of the viscosity-average molecular weight of poly(vinyl alcohol) (PVOH), Determination of molecular weight by end group analysis: Polyethylene glycol (PEG) (OH group), Testing of mechanical properties of polymers, Determination of hydroxyl number of a polymer using colorimetric method.
UCHM – 365	Industrial Chemicals & Environment - Practical	CO1	Study of some of the common bio-indicators of pollution, Measurement of dissolved CO ₂ Estimation of SPM in air samples, Determination of acetic acid content in Vinegar by titration with NaOH, Determination of alkali content in antacid tablets by titration with HCl, Determination of copper content in brass by Iodoametric titration, Determination of available chlorine in bleaching powder, Determination of dissolved oxygen in water, Determination of Chemical Oxygen Demand (COD), Determination of Biological Oxygen Demand (BOD), Determination of hardness of water, Percentage of available chlorine in bleaching powder, Determination of Mn content in Pyrolusite, Measurement of chloride, sulphate and salinity of water samples by simple titration method (AgNO ₃ and potassium chromate), Estimation of total alkalinity of water samples (CO ₃ ²⁻ , HCO ₃ ³⁻) using double titration method, Synthesis of Chalcone by green chemical method (condensation of benzaldehyde and acetophenone).