

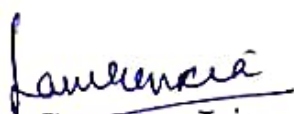
1.2.1 Number of Programmes in which Choice Based Credit System (CBCS)/ elective course system has been implemented

INDIX

Programme Code	Programme name	Year of Introduction	Status of implementation of CBCS / elective course system (Yes/No)	Year of implementation of CBCS / elective course system
BA	Political Science	2019-2020	Yes	CBCS Implemented 2019-20
BA	Geography	2019-2020	Yes	CBCS Implemented 2019-20
BA	English	2019-2020	Yes	CBCS Implemented 2019-20
BA	Marathi	2019-2020	Yes	CBCS Implemented 2019-20
BA	Economics	2019-2020	Yes	CBCS Implemented 2019-20
BA	Psychology	2019-2020	Yes	CBCS Implemented 2019-20
MA	Economics	2020-2021	Yes	NEP Implement 2023-2024
Bcom	Commerce	2019-2020	Yes	CBCS Implemented 2019-20
Mcom	Commerce	2020-2021	Yes	NEP Implement 2023-2024
BSc	Microbiology	2019-2020	Yes	CBCS Implemented 2019-20
BSc	Chemistry	2019-2020	Yes	CBCS Implemented 2019-20
BSc	Zoology	2019-2020	Yes	CBCS Implemented 2019-20
BSc	Botany	2019-2020	Yes	CBCS Implemented 2019-20
BSc	Mathematics	2019-2020	Yes	CBCS Implemented 2019-20
B.Sc. Computer Sci	Computer	2019-2020	Yes	CBCS Implemented 2019-20

List Of Document Sample

- 1 T.Y.B.A
- 2 T.Y.B.Com
- 3 T.Y.B. Sc.
- 4 F.Y.B. Sc. Computer Science
- 4 M.A. Economics
- 5 M.Com


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सावित्रीबाई फुले पुणे विद्यापीठ, पुणे

मराठी विषयाचा पुनर्रचित अभ्यासक्रम - जून २०२१ पासून

तृतीय वर्ष कला (T.Y.B.A.) मराठी

निवड आधारित श्रेयांक पद्धत

Choice Based Credit System [CBCS]

सत्र	विषयाचे नाव	संकेतांक	पूर्वीचे नाव
पहिले	भाषिक कौशल्यविकास आणि आधुनिक मराठी साहित्यप्रकार : प्रवासवर्णन	[CC - 1 E (3)]	नियमित अभ्यासक्रम G3
दुसरे	भाषिक कौशल्यविकास आणि आधुनिक मराठी साहित्यप्रकार : कविता	[CC - 1 F (3)]	
पहिले	व्यावहारिक व उपयोजित मराठी : भाग ५	[CC - 1 E (3)]	पर्यायी अभ्यासक्रम G3
दुसरे	व्यावहारिक व उपयोजित मराठी : भाग ६	[CC - 1 F (3)]	
पहिले	मध्ययुगीन मराठी वाङ्मयाचा स्थूल इतिहास : प्रारंभ ते इ.स. १६००	[DSE 1 C (3+1)]	S3
दुसरे	मध्ययुगीन मराठी वाङ्मयाचा स्थूल इतिहास : इ.स. १६०१ ते इ.स. १८१७	[DSE 1 D (3+1)]	
पहिले	वर्णनात्मक भाषाविज्ञान : भाग १	[DSE 2 C (3)+1]	S4
दुसरे	वर्णनात्मक भाषाविज्ञान : भाग २	[DSE 2 D (3)+1]	
पहिले	कार्यक्रम संयोजनातील भाषिक कौशल्ये : भाग १	[SEC 2 C (2)]	DSE विषयांशी निगडित अनिवार्य
दुसरे	कार्यक्रम संयोजनातील भाषिक कौशल्ये : भाग २	[SEC 2 D (2)]	

तृतीय वर्ष कला (T. Y. B. A.)

नियमित अभ्यासक्रम

पहिले सत्र

विषयाचे नाव



भाषिक कौशल्यविकास आणि आधुनिक मराठी साहित्यप्रकार : प्रवासवर्णन [CC - 1 E (3)]

अभ्यासक्रमाची उद्दिष्टे :

- १ मुद्रित माध्यमांसाठी लेखन कौशल्ये आत्मसात करणे.
- २ प्रवासवर्णन या साहित्यप्रकाराचे स्वरूप, प्रेरणा, प्रयोजने, वैशिष्ट्ये आणि वाटचाल समजून घेणे.
- ३ नेमलेल्या प्रवासवर्णनाचे आकलन, आस्वाद आणि विश्लेषण करणे.

घटक		तपशील	श्रेयांक	तासिका
१	अ	मुद्रित माध्यमांसाठी लेखन कौशल्ये : १ वृत्तलेख : स्वरूप व वैशिष्ट्ये २ अग्रलेख : स्वरूप व वैशिष्ट्ये ३ सदर लेखन : स्वरूप व वैशिष्ट्ये ४ परीक्षण : स्वरूप व वैशिष्ट्ये	१	१५
	ब	प्रवासवर्णन साहित्यप्रकार : स्वरूप, प्रेरणा, प्रयोजने, वाटचाल आणि वैशिष्ट्ये		
२		अभ्यासपुस्तक तीन मुलांचे चार दिवस आदर्श पाटील, विकास वालके, श्रीकृष्ण शेळके साधना प्रकाशन, पुणे	२	३०

संदर्भ ग्रंथ :

१. साहित्य अध्यापन आणि प्रकार, संपादक श्री. पु. भागवत आणि इतर
२. मराठी प्रवासवर्णनांची वाटचाल, डॉ. नीला पांडरे
३. मराठी वाङ्मय इतिहास, खंड ४, महाराष्ट्र साहित्य परिषद, पुणे
४. मराठी वाङ्मय इतिहास, खंड ७, भाग १, महाराष्ट्र साहित्य परिषद, पुणे
५. आधुनिक मराठी वाङ्मयाचा इतिहास, खंड १ आणि २, अ. ना. देशपांडे
६. प्रवासवर्णन एक वाङ्मयप्रकार, वसंत सावंत
७. प्रदक्षिणा खंड २, वि. ह. कुलकर्णी
८. अग्रलेख, गोविंद तळवलकर, प्रेस्टीज प्रकाशन, पुणे.
९. मुद्रित माध्यमांसाठी लेखन कौशल्ये : पुस्तक पहिले व दुसरे, य. च. म. गु. वि. नाशिक
१०. आधुनिक मराठी वाङ्मय : स्वरूप, आकलन आणि आस्वाद, सांगळे संदीप
११. <https://shabdakosh.marathi.gov.in/ananya-glossary>
१२. <https://shabdakosh.marathi.gov.in/>

दुसरे सत्र
विषयाचे नाव

Gen-3
Sem-6th

भाषिक कौशल्यविकास आणि आधुनिक मराठी साहित्यप्रकार : कविता [CC - I F (3)]



अभ्यासक्रमाची उद्दिष्टे :

१. मराठी साहित्य, भाषिक कौशल्यविकास आणि शासनव्यवहार यांची माहिती घेणे.
२. कविता या साहित्यप्रकाराचे स्वरूप, वाटचाल, प्रेरणा, प्रवृत्ती आणि वैशिष्ट्ये, समजून घेणे.
३. नेमलेल्या अभ्यासपुस्तकातील निवडक कवितांचे आकलन, आस्वाद आणि विश्लेषण करणे.
४. कविता या साहित्यप्रकारातील विविध आविष्कार व भाषा रूपांची अभ्यासपुस्तकातील कवितांच्या आधारे ओळख करून घेणे.

घटक		तपशील	श्रेयांक	तासिका
१	अ	मराठी साहित्य, भाषिक कौशल्यविकास आणि शासनव्यवहार १ राज्यघटनेतील भाषाविषयक तरतुदी २ मराठी राजभाषा अधिनियम ३ मराठीविषयक कार्य करणाऱ्या शासकीय संस्थांचा परिचय	१	१५
	ब	कविता : स्वरूप, वाटचाल, प्रेरणा आणि वैशिष्ट्ये		
२		संपादित अभ्यासपुस्तक रूप : कवितेचे संस्कृती प्रकाशन, पुणे	२	३०

संदर्भ ग्रंथ :

१. साहित्य अध्यापन आणि प्रकार, संपादक श्री. पु. भागवत आणि इतर
२. कवितेचा रूपशोध, म.सु. पाटील, शब्दालय प्रकाशन, पुणे.
३. कविता आणि प्रतिमा, सुधीर रसाळ, मौज प्रकाशन, मुंबई.
४. परंपरा आणि नवता, गो.वि.करंदीकर, पॉप्युलर प्रकाशन, मुंबई.
५. सुहृदगाथा, प्रस्तावना, गंगाधर पाटील
६. विद्रोही कविता, संपादक, केशव मेश्राम, कॉन्टिनेन्टल प्रकाशन, पुणे.
७. निळी पहाट, रा.ग.जाधव
८. साहित्य आणि अस्तित्वभान, दि.पु.चित्रे, शब्दालय प्रकाशन, श्रीरामपूर.
९. टीकास्वयंवर, भालचंद्र नेमाडे, साकेत प्रकाशन, औरंगाबाद.
१०. दलित कविता व दलित साहित्याचे सौंदर्यशास्त्र, म.सु.पाटील, पद्मगंधा प्रकाशन, पुणे
११. काव्यार्थ चिंतन, जी.एस.शिवरुद्रप्पा, साहित्य अकादमी
१२. कवितेचा शोध, वसंत पाटणकर, मौज प्रकाशन, मुंबई
१३. सौंदर्य आणि साहित्य, बा.सी.मर्ढेकर
१४. वाङ्मयप्रकार संकल्पना व स्वरूप, संपादक, आनंद वास्कर



१५. कविता संदर्भ आणि दृष्टिकोन, आशुतोष पाटील, अक्षर वाडमय प्रकाशन, पुणे
१६. कामगार कवितेतील सामाजिक जाणिवा, डॉ. दिलीप पवार, सुगावा प्रकाशन, पुणे
१७. मराठी वाङ्मयाची वाटचाल: स्वरूप व संकल्पना, शब्दालय प्रकाशन, श्रीरामपूर.
१८. कवितेचं अंतःस्वर, देवानंद सोनटक्के
१९. नव जग, नवी कविता, विश्राम गुप्ते, संस्कृती प्रकाशन, पुणे
२०. <https://shabdakosh.marathi.gov.in/ananya-glossary>
२१. <https://shabdakosh.marathi.gov.in/>
२२. <https://director.marathi.gov.in/>
२३. <https://sahitya.marathi.gov.in/>
२४. <https://rmvs.marathi.gov.in/>
२५. <https://vishwakosh.marathi.gov.in/>
२६. <http://sahitya-akademi.gov.in/>

प्रश्नपत्रिकेचे स्वरूप

- भाषिक कौशल्यविकास आणि आधुनिक मराठी साहित्यप्रकार : प्रवासवर्णन [CC – 1 E (3)] (सत्र १)
- भाषिक कौशल्यविकास आणि आधुनिक मराठी साहित्यप्रकार : कविता [CC – 1 F (3)] (सत्र २)

विद्यापीठ सत्र परीक्षा		
वेळ : ३ तास	घटकनिहाय प्रश्न तपशील	गुण : ७०
प्रश्न क्रमांक		गुण
प्रश्न १ ला	५ पैकी ३ प्रश्नांची उत्तरे प्रत्येकी ५० शब्दांपर्यंत लिहा. (घटक १ व २)	१५
प्रश्न २ रा	३ पैकी २ प्रश्नांची उत्तरे प्रत्येकी २०० शब्दांपर्यंत लिहा. (घटक १)	२०
प्रश्न ३ रा	३ पैकी २ प्रश्नांची उत्तरे प्रत्येकी २०० शब्दांपर्यंत लिहा. (घटक २)	२०
प्रश्न ४ था	२ पैकी १ प्रश्नाचे उत्तर ३०० शब्दांपर्यंत लिहा. (घटक २)	१५
सत्र परीक्षा एकूण गुण		७०
अंतर्गत मूल्यमापन		
(घटक १)		१०
अभ्यासेतर-अभ्यासपूरक उपक्रम : महाविद्यालयातील विविध उपक्रमातील सहभाग / साहित्यविषयक विशेष योगदान / अभ्याससहल / क्षेत्रभेट / अहवाल लेखन / प्रकल्प कार्य / सादरीकरण / स्वाध्याय / चर्चासत्र / गटचर्चा / अभिवाचन (यापैकी कोणतेही एक)		
चाचणी (घटक २)		२०
सत्र परीक्षा आणि अंतर्गत मूल्यमापन एकूण गुण		१००
विशेष सूचना :		
- अंतर्गत मूल्यमापनाचे नियोजन महाविद्यालयाने करावे. - विद्यार्थ्यांचे अंतर्गत मूल्यमापनविषयक लेखन / तपशील विद्यापीठाच्या निर्देशानुसार, विहित कालावधीपर्यंत महाविद्यालयाकडे जमा असणे आवश्यक आहे. - विद्यापीठाच्या निर्देशानुसार विहित मुदतीत गुण विद्यापीठाकडे पाठवावे.		

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तृतीय वर्ष कला (T. Y. B. A.)

नियमित अभ्यासक्रम

पहिले सत्र

विषयाचे नाव

मध्ययुगीन मराठी वाङ्मयाचा स्थूल इतिहास : प्रारंभ ते इ.स. १६०० [DSE 1 C (3+1)]



अभ्यासक्रमाची उद्दिष्टे :

- १ वाङ्मयेतिहास संकल्पना, स्वरूप, प्रेरणा, प्रवृत्ती समजून घेणे.
- २ मध्ययुगीन कालखंडाची सामाजिक, सांस्कृतिक पार्श्वभूमी समजून घेणे.
- ३ मराठी भाषा, साहित्याची कालखंडानुरूप इतिहास समजून घेणे.

घटक	तपशील	श्रेयांक	तासिका
१	वाङ्मयेतिहास संकल्पना आणि मराठी भाषा, वाङ्मयाचा उगम १. वाङ्मयेतिहास : संकल्पना आणि स्वरूप २. मराठी वाङ्मयेतिहासाचे कालखंड : स्वरूपचर्चा मराठी भाषा व वाङ्मयाचा उगम (कोरीव लेख आणि ग्रंथ या साधनांच्या आधारे) यादव काळ आणि बहामनी काळातील वाङ्मयनिर्मिती १ या कालखंडांची सामाजिक आणि सांस्कृतिक पार्श्वभूमी २ महानुभाव वाङ्मय : प्रेरणा, प्रवृत्ती व स्वरूप	१	१५
२	३ महानुभाव वाङ्मय : गद्य ग्रंथ - लीळाचरित्र, स्मृतिस्थळ, दृष्टान्तपाठ. पद्य ग्रंथ - महदंबेचे धवळे, साती ग्रंथ. १. वारकरी वाङ्मय : प्रेरणा, प्रवृत्ती व स्वरूप (संत ज्ञानेश्वर, संत नामदेव, संत मेळा, संत एकनाथ, शेख महंमद)	१	१५
३	१. मुकुंदराज, नृसिंहसरस्वती, दासोपंत, फादर स्टीफन्स, ब्रह्मगुणदास : वाङ्मयनिर्मितीचे स्वरूप	१	१५
४	संशोधनपर प्रकल्प / क्षेत्र कार्य (घटक १, २ आणि ३)	१	१५

5-3

दुसरे सत्र
विषयाचे नाव



मध्ययुगीन मराठी वाङ्मयाचा स्थूल इतिहास - इ.स. १६०० ते इ.स. १८१७ [DSE1 D (3+1)]

घटक	तपशील	श्रेयांक	तासिका
१	शिवकाल आणि पेशवेकाळातील वाङ्मयनिर्मिती १. या कालखंडांची सामाजिक आणि सांस्कृतिक पार्श्वभूमी २. संत तुकाराम : वाङ्मयनिर्मितीचे स्वरूप ३. संत रामदास : वाङ्मयनिर्मितीचे स्वरूप	१	१५
२	पंडित आणि शाहिरींची वाङ्मयनिर्मिती १. पंडिती वाङ्मय : स्वरूप, प्रेरणा, प्रवृत्ती, आणि वैशिष्ट्ये मुक्तेश्वर, वामनपंडित, रघुनाथपंडित, मोरोपंत २. शाहिरी वाङ्मय : स्वरूप, प्रेरणा, प्रवृत्ती आणि वैशिष्ट्ये अनंत फंदी, परशुराम, राम जोशी, प्रभाकर, होनाजी बाळा	१	१५
३	बखर आणि गद्य वाङ्मयनिर्मिती १. बखर वाङ्मय : स्वरूप, प्रेरणा, प्रवृत्ती आणि वैशिष्ट्ये सभासदाची बखर, शिवछत्रपतींचे सप्तप्रकरणात्मक चरित्र, शिवदिग्विजय, पानिपतची बखर, भाऊसाहेबांची बखर. २. आज्ञापत्र	१	१५
४	संशोधनपर प्रकल्प / क्षेत्र कार्य (घटक १, २ आणि ३)	१	१५

संदर्भ ग्रंथ :

१. महाराष्ट्र सारस्वत, वि. ल. भावे
२. मराठी भाषेचा व वाङ्मयाचा इतिहास, बा. अ. भिडे
३. मराठी वाङ्मयाचा इतिहास, खंड पहिला, ल. रा. पांगारकर
४. प्राचीन मराठी वाङ्मयाचा इतिहास, भाग १, पूर्वार्ध आणि उत्तरार्ध, अ. ना. देशपांडे
५. महाराष्ट्रीयनांचे काव्यपरीक्षण, श्री. व्यं. केतकर
६. मराठी वाङ्मयाभिरुचीचे विहंगमावलोकन, जोग रा. श्री.
७. पाच भक्तीसंप्रदाय, र. रा. गोसावी
८. महाराष्ट्रातील पाच संप्रदाय, पं. रा. मोकाशी
९. नाथ संप्रदाय : उदय व विकास, प्र. न. जोशी
१०. मराठी साहित्याचे आदिबंध, उषा मा. देशमुख
११. यादवकालीन महाराष्ट्र, मु. गो. पानसे
१२. यादवकालीन मराठी, शं. गो. तुळपुळे
१३. महानुभवीय मराठी वाङ्मय, य. खु. देशपांडे
१४. महानुभाव पंथ आणि त्यांचे वाङ्मय, शं. गो. तुळपुळे
१५. श्रीचक्रधर : चरित्र, वि. भि. कोलते

591-4

तृतीय वर्ष कला (T. Y. B. A.)

नियमित अभ्यासक्रम

पहिले सत्र

विषयाचे नाव

वर्णनात्मक भाषाविज्ञान : भाग १ [DSE 2 C (3)+1]

अभ्यासक्रमाची उद्दिष्टे :

- १ भाषा स्वरूप, वैशिष्ट्ये व कार्ये समजावून घेणे.
- २ भाषा अभ्यासाची आवश्यकता स्पष्ट करणे.
- ३ भाषा अभ्यासाच्या शाखा आणि विविध पद्धतींचा थोडक्यात परिचय करून घेणे.
- ४ वागिन्द्रियाची रचना, कार्य आणि स्वननिर्मितीची प्रक्रिया समजावून घेणे.
- ५ स्वनविज्ञान, स्वनिमविचार आणि मराठीची स्वनिमव्यवस्था समजावून घेणे.



घटक	तपशील	श्रेयांक	तासिका
१	भाषा : स्वरूप व संकल्पना १ भाषा : स्वरूप, वैशिष्ट्ये व कार्ये २ संदेशन : मानव व मानवेतर संदेशन ३ भाषाभ्यासाच्या शाखा (ध्वनिविचार - व्याकरणविचार - अर्थविचार - शब्दसंग्रह - स्थूल परिचय) ४ भाषेच्या अभ्यासाचे महत्त्व व भाषाभ्यासाच्या पद्धती (ऐतिहासिक, वर्णनात्मक, सामाजिक, तुलनात्मक - स्थूल परिचय)	१	१५
२	स्वनविचार १ स्वनविज्ञान : स्वरूप व संकल्पना (उच्चारणकेंद्री - संचारणकेंद्री - श्रवणकेंद्री) २ वागिन्द्रिय : रचना व कार्य स्वनांची निर्मितिप्रक्रिया ३ स्वनांचे वर्गीकरण व वर्गीकरणाची तत्वे (उच्चारण स्थान, उच्चारण अवयव, प्रयत्न)	१	१५
३	स्वनिमविचार १ स्वन -स्वनिम-स्वनांतर (परस्पर संबंध व प्रकार) २ स्वनिमनिश्चितीची तत्वे ३ विनियोग संकल्पना (व्यवच्छेदक विनियोग- पूरक विनियोग - मुक्त परिवर्तन) मराठीची स्वनिमव्यवस्था (स्वरस्वनिम - अर्धस्वरस्वनिम - व्यंजन स्वनिम - खंडित व खंडाधिष्ठीत स्वनिम -बलाघात, सुरावली - नासिक्यरंजन - सीमासंधी)	१	१५
४	संशोधनपर प्रकल्प / क्षेत्रकार्य (घटक १, २ आणि ३)	१	१५



दुसरे सत्र
विषयाचे नाव

वर्णनात्मक भाषाविज्ञान : भाग २ - ४ [DSE 2 D (3)+1]

अभ्यासक्रमाची उद्दिष्टे :

१. रूपविन्यास आणि मराठीची रूपव्यवस्था समजावून घेणे
२. वाक्यविन्यास आणि वाक्यव्यवस्थेचा मराठी भाषेच्यासंदर्भात परिचय करून देणे
३. अर्थविन्यास या संकल्पनेचा भाषावैज्ञानिक अंगाने परिचय करून देणे

घटक	तपशील	श्रेयांक	तासिका
१	रूपविचार १ रूपविन्यास (संकल्पना) २ रूपिका - रूपिम - रूपिकांतर : स्वरूप व प्रकार ३ रूपिम निश्चितीची तत्त्वे ४ विनियोग संकल्पना ५ प्रकृती आणि प्रत्यय यांचे वर्गीकरण	१	१५
२	वाक्यविचार १ वाक्यविन्यास (संकल्पना परिचय) २ घटक आणि रचना : परस्पर संबंध ३ वाक्याचे घटक (उद्देश्य, विधेय) ४ प्रथमोपस्थित संघटक संकल्पना व वाक्यविश्लेषण (शब्द - शब्दबंध - उपवाक्य - वाक्य) ५ वाक्यांचे प्रकार	१	१५
३	अर्थविचार १ अर्थ : स्वरूप व संकल्पना २ अर्थविन्यास (संकल्पना परिचय) ३ अर्थाचे वर्गीकरण (प्रकार: सांकेल्पनिक अर्थ - साहचर्यपर अर्थ- शैलीगत अर्थ- भावपर अर्थ- परावर्तीत अर्थ - विषय अर्थ) ४ अर्थविन्यासाची व्यापकता (समानार्थी शब्द, अनेकार्थी शब्द - सरूपता - अर्थसमावेश - अर्थविरोध)	१	१५
४	संशोधनपर प्रकल्प / क्षेत्रकार्य (घटक १, २ आणि ३)	१	१५

तृतीय वर्ष कला (T. Y. B. A.)

नियमित अभ्यासक्रम

पहिले सत्र

विषयाचे नाव

कार्यक्रम संयोजनातील भाषिक कौशल्ये : भाग -१ [SEC 2 C (2)]



अभ्यासक्रमाची उद्दिष्टे :

१. कार्यक्रमांचे स्वरूप आणि प्रकार समजून घेणे.
२. कार्यक्रम संयोजनातील भाषिक कौशल्ये प्राप्त करणे.

घटक	तपशील	श्रेयांक	तासिका
१	कार्यक्रमांचे स्वरूप आणि प्रकार १. कार्यक्रमांचे स्वरूप आणि प्रकार : भाषणे, चर्चासत्रे, परिषदा, गटचर्चा, बैठक, मेळावे, कला – सांस्कृतिक कार्यक्रम, जाहिरात, विपणनविषयक, आभासी २. कार्यक्रम संयोजनातील विविध घटक (आयोजक, प्रायोजक, जाहिरात, निवेदक) आणि त्यांचे कार्य	१	१५
२	कार्यक्रम संयोजनातील भाषिक कौशल्ये १. पूर्वतयारी २. कार्यक्रम संयोजनातील भाषेचे महत्त्व ३. कार्यक्रमाची योजना, आखणी आणि रूपरेषा १. कार्यक्रमपूर्व नियोजन २. कार्यक्रमातील विविध घटक ३. भाषेचा वापर : निवेदन, प्रास्ताविक, परिचय, स्वागत, मनोगत, आभार, सूत्रसंचालन. ४. कार्यक्रमपश्चात कामे	१	१५



दुसरे सत्र
विषयाचे नाव

कार्यक्रम संयोजनातील भाषिक कौशल्ये : भाग २ [SEC 2 D (2)]

अभ्यासक्रमाची उद्दिष्टे :

- १ कार्यक्रम संयोजनातील लेखन कौशल्ये संपादन करणे.
- २ कार्यक्रम संयोजनातील भाषिक कौशल्ये प्राप्त करणे.
- ३ आभासी कार्यक्रमांचे भाषिक कौशल्ये संयोजन करणे.

घटक	तपशील	श्रेयांक	तासिका
१	कार्यक्रम संयोजनातील लेखन कौशल्ये १ निमंत्रणपत्र व निमंत्रणपत्रिका लेखन २ कार्यक्रमपत्रिका लेखन ३ मानपत्र लेखन ४ बातमी लेखन ५ कार्यक्रम अहवाल लेखन	१	१५
२	कार्यक्रम संयोजन १ कविसंमेलन २ वाचन प्रेरणा दिन ३ मराठी भाषा पंधरवाडा ४ मराठी भाषा दिन ५ व्याख्यानमाला ६ पुस्तक प्रदर्शन आभासी कार्यक्रम संयोजन १ झूम / गुगल मिट वरील व्याख्यान २ फेसबुक व यूट्यूब वरील कार्यक्रम live करणे वा अपलोड करणे.	१	१५

संदर्भग्रंथ :

- १ व्यावहारिक मराठी, पुणे विद्यापीठ प्रकाशन.
- २ मराठी भाषेची संवाद कौशल्ये, य. च. म. मुक्त विद्यापीठ, नाशिक.
- ३ व्यक्तिमत्त्व विकासासाठी संभाषण व लेखन कौशल्ये, संपा. डॉ. पृथ्वीराज तौर, डॉ. शैलेन्द्र लेंडे, डॉ. वंदना महाजन.
- ४ व्यावहारिक व उपयोजित मराठी, संपादक संदीप सांगळे, डायमंड प्रकाशन.
- ५ कार्यक्रमाचे प्रभावी संयोजन आणि सूत्रसंचालन, जयप्रकाश बगदे, साकेत प्रकाशन
- ६ व्यावहारिक मराठी, ल रा. नासिराबादकर, फडके प्रकाशन

Savitribai Phule Pune University, Pune
Revised syllabi (2019 Pattern) for three years B. Com. Degree course
Credit Base Choice System (CBCS)

Syllabus for T.Y.B. Com.

Semester –VI

Subject Name: Business Regulatory Framework

Depth of the program – Fundamental Knowledge

Course code: - 361

Credit - 3



Preamble

This Course is designed to acquaint the commerce Students with the Legal frame work applicable to business enter prison in the Country. The understanding of legal system is a prerequisite for better decision making. The objective of this course is to acquaint the students with basics of intellectual property rights with special reference to Indian law and practice. The students will be able to understand the consumer Protection and Negotiable instruments and Arbitrates Law. This course focuses on orientation of students to legal studies from the point of view of basic concepts of business law and legal system in India. The course will be useful to the commerce students to understand and apply the business laws in commercial situations.

Objectives of the Program

1. To develop general awareness of Business Law among the students.
2. To understand the various statutes containing regulatory mechanism of business and its relevant provisions including different types of partnerships.
3. To have a understanding about the landmark cases/decisions having impact on business laws
4. To create awareness among the students about legal environment relating to the business activities and new ways dispute resolutions provided under Arbitration Act.
5. To acquaint the students on relevant developments in business laws to keep them updated.
6. To enhance capacity of learners to seek the career opportunity in corporate sector and as a business person.



Table of Contents

Unit No	Unit Title	Contents	Purpose Skills to be developed
1	Negotiable Instruments Act,1881 (14 Lectures)	Concept of Negotiable Instruments: Characteristics, Meaning Important relevant definitions under the Act • Definitions, Essentials of promissory note, bill of exchange and cheque. Distinction between these instruments. Crossing of cheques – It's meaning and types. • Holder and holder in due course, Privileges of holder in due course. • Negotiation, endorsement, kinds of endorsement. • Liabilities of parties to negotiable instruments. • Dishonor of N. I., kinds, law relating to notice of dishonor.	To Equip the students with procedure and practices about negotiable instruments and liabilities of parties in case of dishonor of negotiable instruments.
2	E-Contracts (E-Transactions/E-Commerce.): (06 Lectures)	• Significance of E-Transactions /E-Commerce. Nature, Formation, Legality. Recognition. (Chapter 4.Sec.11-13 of I T Act,2000 relating to attribution, acknowledgement, dispatch of E-Records) • Digital Signatures –Meaning & functions, Digital Signature, certificates [Sections 35-39] • Legal issues involved in E-Contracts and personal data protection (Sec.43 A)	Comprehensive understanding about the E-Contracts, E-Commerce and their legal aspects

3	The Consumer Protection Act, 2019 (14 Lectures)	The Consumer Protection Act, 2019 • Salient features of the C.P. Act, 2019 • Definitions-Consumer, Complainant, Services, Defect & Deficiency, Complainant, unfair trade practice, restrictive trade practice, unfair contract. • Consumer Protection Councils. • Procedure to file complaint & Procedure to deal with complaint in commissions & Reliefs available to consumer.(Sec.39) • Consumer Disputes Redressal Commissions. (Composition, Jurisdiction, Powers and Functions.)	To acquaint students about regulatory mechanism of Consumer Protection and Procedural aspect of Redressal of Consumers' grievances.
4.	Intellectual Property Rights (14 Lectures)	Intellectual Property Rights : (IPRs) • Meaning & importance of IPRs, International efforts in protection of IPR: WIPO (Objectives & activities) & TRIPS Agreement: Objectives • Definition and conceptual understanding of following IPRs under the relevant Indian current statutes. • Patent: Definition & concept, Rights & obligation of Patentee, its term. • Copyright: Characteristics & subject matter of copyright, Author & his Rights, term. • Trademark: Characteristics, functions, illustrations, various marks, term, internet domain name- Rights of trademark holder. • Design: Importance, characteristics, Rights of design holder.	To be able to appreciate the emerging developments in the area of intellectual property Laws and their impact on the Indian businesses.





		• Geographical Indications, Confidential Information & Trade Secrets, Traditional knowledge—Meaning & scope of these IPRs.	
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[Note: Recent amendments in the Acts and relevant Landmark cases decided by courts are expected to be studied]

Teaching Methodology

Topic No.	Total Lectures	Innovative methods to be used	Film shows and AV Applications	Project	Expected Outcome
1	14	Documentary making on Consumer Protection Act , Case Study, Narration, , Survey Analysis Article review.	You Tube about cases on negotiable instruments Act.	Report Review	To Equip the students with procedure and practices about negotiable instruments and liabilities of parties in case of dishonor of negotiable instruments.

Revised Syllabus (2019 Pattern) for three years B. Com. Degree Course (CBCS)

T. Y. B. Com. (Semester- VI)

Paper: ADVANCED ACCOUNTING – II



Code: 362

No. of lectures: 48

Preamble

In today's modern age, the Corporate as well as Co-operative sectors are the major contributors towards development of rural economy. In the last decade, these sectors have seen the largest and fastest growing sectors. Due to this growth various new trends are arisen. In this growth, accounting plays an energetic role and to ensure safeguard of the interest of the stakeholders and the society. It is, therefore, important to educate the students of commerce in the accounting practices adopted by different organizations. It helps stakeholders make better business decisions and deal with problems by providing them with accurate financial information. By studying the learning path in accounting – advance concepts will gain a deeper understanding of the accounting process.

Objectives of the course

1. To acquaint the student with knowledge about the legal provisions regarding preparation and presentation of final accounts of Co-operative Societies.
2. To empower to students about the branch accounting in simple.
3. To make aware the students about the conceptual aspects of various recent trends in the field of accounting especially forensic accounting, accounting of CSR activities, accounting of derivative contracts and Artificial Intelligence in Accounting.
4. To understand the procedure and methods of analysis of financial statements.

Objectives of the Program

1. To instill the knowledge about accounting procedures, methods and techniques.
2. To impart students' knowledge of various Advanced Accounting Concepts.





Depth of the program – Fundamental Knowledge

CONTENTS

Unit No.	Unit Name	Contents	Purpose skills to be developed
1	Final Accounts of Co-operative Societies	- Meaning and Introduction, - Allocation of Profit as per Maharashtra State Co-operative Societies Act. - Preparation of Final Accounts of Credit Co-op. Societies & Consumer Co-op. Societies	- To upgrade regarding legal provisions of co-operative accounting. - To develop the skill regarding preparation & presentation of final accounts of Credit Co-op. Societies & Consumer Co-op. Societies.
2	Branch Accounting	- Concept of Branches & their Classification from accounting point of view. - Accounting treatment of dependent branches & independent branches. - Methods of charging goods to branches.	- To develop conceptual understanding about accounting for different branches. - To ascertain whether the branch should be expanded or closed. to ascertain the requirement of cash and stock for each branch. - To develop the skill & upgrade the knowledge regarding methods of charging goods to branches.
3	Recent Trends in Accounting	- Forensic Accounting - Accounting for Corporate Social Responsibility - Accounting for Derivative Contracts - Artificial Intelligence in Accounting	- To develop conceptual understanding about forensic accounting, corporate social responsibility, derivative contracts and artificial intelligence in accounting.
4	Analysis of Financial Statements	- Ratio Analysis: Meaning - Objectives - Nature of Ratio analysis, Types of Ratios – Profitability, Liquidity, Leverage etc. - Simple Problems on following Ratios: - Gross Profit, - Net Profit, - Operating, - Stock Turnover, - Debtors Turnover, - Creditors Turnover, - Current Ratio, Liquid Ratio, - Debt-Equity Ratio, - Working Capital to Net worth. Assets Turnover Ratio.	- To understand the conceptual knowledge, objectives, methods & tools of analysis of financial statements. - To develop the analytical skill and decision-making skill of the students. - To diagnose the information contained in financial statements so as to judge the profitability, liquidity & solvency position of business organizations.



Teaching Methodology

Unit No.	Total Lectures	Innovative methods to be used	Film shows and AV Applications	Project	Expected Outcome
1	14	Use of e- contents, online lectures, MCQ based Quiz and Presentations	Study of the Final Accounts of Co-operative Societies from its Annual Report	Individual assignment of solving practical problems	Practical understanding of preparation of final accounts of Co-operative Societies.
2	10	Use of e- contents, online lectures and PowerPoint Presentations	Lectures of experts available on YouTube and other digital platforms	Individual assignment of solving practical problems	Knowledge about of the Accounting for Branches
3	12	Use of e- contents, online lectures, and PowerPoint Presentations	Lectures of experts available on YouTube and other digital platforms	Individual assignment report	Conceptual Clarity about new trends like forensic accounting, accounting for CSR activities, derivative contracts and artificial intelligence
4	12	Use of e- contents, online lectures, MCQ based Quiz and PowerPoint Presentations	Study of the Financial Statement Analysis from different Annual Reports	Individual assignment of solving practical problems	Analytical skills enhancement and Decision making skills of students will developed.

Method of Evaluation

Unit	Internal Evaluation	External Evaluation	Suggested Add on Course
1	MCQ / Practical Problem	As per University norms	--
2	Practical Problem	As per University norms	--
3	MCQ / Assignments/ Presentation	As per University norms	--
4	MCQ / Small Practical Problems	As per University norms	Certificate Course on Financial Statement Analysis





References:

❖ List of Books Recommended:

1. Advanced Accounts: By M.C. Shukla & S.P. Grewal (S.Chand & Co. Ltd.)
2. Advanced Accountancy: By S. P. Jain & K.N. Narang (Kalyani Publishers)
3. Advanced Accountancy: By R. L. Gupta & M. Radhaswamy (Sultan Chand & Sons)
4. Advanced Accounts: By Paul Sr.
5. Notes Issued by ICAI
6. Management Accounting: By I. M. Pandey
7. Principles of Management Accounting: By I. M. Pandey

❖ List of Videos Recommended:

Unit	Topic Name	Links
1	Final Accounts of Co-operative Societies	- https://youtu.be/Bt0sv9lZwIs - https://youtu.be/CCgR_pJg49c
2	Branch Accounting	- https://youtu.be/QnrqPiAEzac - https://youtu.be/aia6lxASh24
3	Recent Trends in Accounting	- https://youtu.be/L_Q9rXAFZeg
4	Analysis of Financial Statements	- https://youtu.be/76gMXQBnbps - https://youtu.be/liYK6s5_Db0

Savitribai Phule Pune University, Pune
Third Year, B.Com. (Core Course)
Revised Syllabi for Three Years B. Com. Degree Course
(CBCS-2019 Pattern) (w.e.f. 2021-22)



Semester - VI

Subject: Indian & Global Economic Development

Course Code: 363

Total Credits: 3

Preamble:

An approach to Indian and Global Economic Development is to examine the Indian economic development policies in context with global economies. This paper aims to provide knowledge about economic development of India, economic development policies that are applied for development of economy in general and development of various sectors in particular. It also aims to develop ability of the students to analyze the development of Indian economy as compared to global economies through the comparison of different sectors like agriculture, Industry, service and availability of resources and its quality.

Scope of the Programme –

Knowledge related to development policies of Indian Economy as compared to World Economies.

Objectives:

1. To develop ability of students to analyze economic development process of India.
2. To acquaint the students with the knowledge of recent trends in Human Development Index.
3. To acquaint students with the emerging issues in policies of India's foreign trade.
4. To update the students about International institutions and organizations.

Course Outcomes:-

1. Students will be able to understand the concept of Human Resource Development.
2. Students will be able to understand the role of foreign capital in Economic Development.
3. Students will be able to critically evaluate the Indian Foreign Trade Policy.
4. Students will be able to analyze the role of International Financial Institutions.
5. Students will be able to evaluate the success of Regional Economic Cooperation's.





Unit No.	Topic	Purpose & Skills to be Developed
Unit 1	Human Resources and Economic Development	Purpose: To make the students aware of concepts related to Human Development and HDI Skills: Analyze & think critically, develop writing skills.
	1.1 Role of Human Resources in Economic Development	
	1.2 Human Development Index and India	
	1.3 Concepts of Different Indexes in Quality of Life and Status of India	
	1.3.1 Gender Development Index	
	1.3.2 Gender Inequality Index	
	1.3.3 Human Poverty Index	
Unit 2	Foreign Capital and Economic Development	Purpose: To give the knowledge to students about Foreign Capital and issues related to Foreign capital in India. Skills: Analyze & think critically, develop writing skills.
	2.1 Role of Foreign Capital in Economic Development	
	2.2 Types of Foreign Capital	
	2.3 Foreign Investment in India Since 2001	
	2.4 Limitations of Foreign Capital	
Unit 3	India's Foreign Trade and Balance of Payment	Purpose: To make aware to students about the situation of Foreign Trade and Balance of Payments. Skills: Analyze & think critically, develop writing skills.
	3.1 Role of Foreign Trade in Indian Economic Development	
	3.2 India's Foreign Trade Since 2001	
	3.3 India's Recent Foreign Trade Policy (EXIM Policy)	
	3.4 Meaning and Components of Balance of Payment	
	3.5 India's Balance of Payment Since 2001	
	3.6 Causes of Unfavorable Balance of Payment	
	3.7 Convertibility of Indian Rupee – Current and Capital Account	

Unit 4	International Financial Institutions & Regional Economic Cooperation	Purpose: To give the knowledge to students about International Financial Institutions and Regional Economic Cooperation Skills: Analyze & think critically, develop writing skills
	4.1 International Bank for Reconstruction and Development (World Bank) - Objectives and Functions	
	4.2 International Monetary Fund (IMF) - Organization and Functions	
	4.3 World Trade Organization (WTO) - Introduction and Functions	
	4.4 South Asian Association for Regional Co-operation (SAARC) – Introduction and Functions	
	4.5 BRICS: Introduction and Functions	

Teaching methodology:

Unit No.	Total Lectures	Innovative methods to be used	Film shows and AV Applications	Project	Expected Outcome
1	10	- Open Book discussion - Case studies - Problem solving based learning	- You tube lectures - Films	- Implication of HDI - Policies of Indian Government for improving Human Quality	- Students will understand concepts of Development - Will be able to critically evaluate status of India as compared to world
2	10	- Digital lectures - Project based learning	- You tube lectures - Online PPTs	- Role of Foreign Capital in Developing Countries - Concepts of Foreign Capital	Will understand the concepts of Foreign Capital



3	14	• Pair learning • Group discussion	• Films • You tube lectures • PPTs made by Teachers	• Role of Foreign Trade in Development of Developing Countries • Trends of Trade in developed and developing countries • Concepts of Balance of Trade and Balance of Payments	• Will understand the concepts of Balance of Trade and Balance of Payment • Will able to make comparison of Indian trade with other countries
4	14	• Group discussion • Teacher driven power point presentation	• You tube lectures • Online PPTs	• Role of International Financial Institutions In Development of Developing Countries • Importance of Economic Cooperation in Development	• Will understand the importance of International Financial Institutions. • Will be able the Organization and Functions of International Cooperation Organizations

Recommended Books:

1. Misra S.K. and Puri V.K. Indian Economy, Himalaya Publishing House, Delhi.
 2. Black and Sundaram, International Business Environment, Prentice Hall India.
 3. TayebmonisH., The Global Business Environment, Sage Publication, New Delhi.
 4. Charles Hill, International Business, Competing in the Global Market place, Arunkumar Jain, Tata McGraw Hill.
 5. Jhingan M.L., International Economics, Vrinda Publications, Delhi.
 6. RuddarDatta and K.P.M. Sundaram, Indian Economy, S. Chand and Co., New Delhi.
 7. Agarwal A.N., Indian Economy, Problems of Development and Planning, New Age International Publishers.
 8. Bhole, L.M., impacts of Monetary Policy, Himalaya Publishing House, New Delhi.
 9. JaywantR.Bhadane, (2018) Foreign Policy of NarendraModi, International Publi.
 10. Brics development bank launched, first president to be from India, Times of India July 16,2014
 11. Ministry of Finance, Government of India (Oxford Press), Economic Survey 2020.
 12. Arun Kumar, International Business- competing in the Global Marketplace- Charles Hill.
 13. UNDP, Human Development Report.
 14. World Bank, World Development Report
 15. Magazines / Journals Reports,
 16. Web sites:
- www.mospi.gov.in/national-sample-survey-office-nssso- (Ministry of Statistics and Programme Implementation. GoI)

Savitribai Phule Pune University
Faculty of Commerce & Management
T Y B Com (Semester VI)
(Choice Based Credit System)
Revised Syllabus (2021-22)



CORE COURSE – I

Subject: Auditing & Taxation - II

Total Credits: 04 (Theory 03 + Practical 01=04)

Course Code: 364

1. To understand the basic concepts of Income Tax Act, 1961 and create awareness of direct taxation among the students.
2. To understand the income tax rules and regulations and its provisions.
3. To have a comprehensive knowledge of calculation various types of income.
4. To know the recent changes made by the finance bill (Act) every year and its impact on taxation of person.
5. To acquaint the students on Income tax department portal (ITD), e-filing and e-services mechanism relating to Assessee.

Unit No	Unit Title	Contents	Skills to be developed
1.	Income Tax Act-1961- Important Definitions and Concepts.	Introduction- Features of Income Tax, Scope of Income Tax Act, and Importance of Income Tax payment for development of country. Definitions- Income, Person, Assessee, Deemed Assessee, Assessment year, Previous year, Agricultural Income, Exempted Income, Gross Total Income (GTI) , Total Taxable Income (TTI), Residential Status of an Assessee, PAN, TAN Concept of Capital receipts, revenue receipts and capital expenditure, revenue expenditure.	Understanding the concept of Income and tax on Income. Acquaint the students of income tax provision and tax payable for the development of the country
2.	Sources and Computation of	1. Income from Salary – Meaning of salary, Salient features of salary Allowances and tax Liability-	Know the procedure of computation of income under





	Taxable Income under the various Heads of Income	Perquisites and their Valuation, Treatment of provident fund, Deductions from salary. (Theory and Problems) 2. Income from House Property -Basis of Chargeability, Types of property, Annual Value Self occupied and let out property, Deductions allowed (Theory and Problems) 3. Income from Profits and Gains of Business and Professions –Definition of Business , profession, vocation, speculative business, Methods of accounting, Deductions expressly allowed and disallowed (Theory And Problems) 4. Income from Capital Gains – Meaning, Chargeability-definitions- Capital assets, transfer, cost of acquisition, Cost of Improvement, Short term and long term capital assets and Capital gains, cost inflation Index, Deductions allowed. (Theory only) 5. Income from other sources- Chargeability Method of accounting, deductions, Amounts not deductible. (Theory And Problems)	different heads of income and tax payable on the income.
3.	Computation of Total Taxable Income (TTI) and tax liability	Gross total Income -Deductions u/s-80C, 80CCC to 80 U – Total Taxable Income, Income Tax calculation of Individual - (Rates applicable for respective Assessment year), Education cess and higher education cess, surcharge, etc.(calculation of tax payable as per old regime and new regime)	Understanding the calculation of total income and tax payable by individual person.
4.	E-Filing and E-provisions	Due dates of filing return, E-filing of income tax return and forms used, advance tax , TDS(Tax deducted at source), Assessment, AIR (Annual information return), SFT(Specified financial transactions).	Know the e-filing due dates, recent changes in income tax provisions.

(Note- Recent amendments made by finance bill every previous year and changes made before six months of examination will also be applicable.)

Teaching Methodology:

Unit No	Total Lectures	Innovative Methods to be used	Film Shows and A.V. Applications	Projects / Practical's	Expected Outcome
1	08	The Income Tax Act, 1961 Documents, PPT, Article review, research paper	You Tube clips about The Income Tax Act, 1961	Report Review	Acquaint with knowledge and maturity to understand The Income Tax Act, 1961.
2	24	Use of e- contents, online lectures and quiz, PowerPoint Presentations, Article review, research paper	Lectures of experts available on YouTube and other digital platforms.	Individual assignment of solving practical problems, report review	Conceptual Clarity and Practical understanding of sources of income
3	08	Use of e- contents, online lectures and quiz, PowerPoint Presentations, Article review, research paper	Lectures of experts available on YouTube and other digital platforms.	Individual assignment of solving practical problems, report review	To understand the calculation of total income and tax payable for individual assessee
4	08	Use of e- contents, online lectures and quiz, PowerPoint Presentations, Article review, research paper, online income tax website view	Lectures of experts available on YouTube and other digital platforms.web site review	Individual assignment of solving practical problems, report review	Understanding latest amendment of the act and impact on the person

Teaching Methodology:

Unit No	Total Lectures	Innovative Methods to be used	Film Shows and A.V. Applications	Projects / Practical's	Expected Outcome
1	08	The Income Tax Act, 1961 Documents, PPT, Article review, research paper	You Tube clips about The Income Tax Act, 1961	Report Review	Acquaint with knowledge and maturity to understand The Income Tax Act, 1961.
2	24	Use of e- contents, online lectures and quiz, PowerPoint Presentations, Article review, research paper	Lectures of experts available on YouTube and other digital platforms.	Individual assignment of solving practical problems, report review	Conceptual Clarity and Practical understanding of sources of income
3	08	Use of e- contents, online lectures and quiz, PowerPoint Presentations, Article review, research paper	Lectures of experts available on YouTube and other digital platforms.	Individual assignment of solving practical problems, report review	To understand the calculation of total income and tax payable for individual assessee
4	08	Use of e- contents, online lectures and quiz, PowerPoint Presentations, Article review, research paper, online income tax website view	Lectures of experts available on YouTube and other digital platforms.web site review	Individual assignment of solving practical problems, report review	Understanding latest amendment of the act and impact on the person

Revised syllabi (2019 Pattern) for three years B.Com. Degree course (CBCS)

Semester : - VI (T.Y.B.Com)

Subject Code :- PR-365(a)

Subject : - Business Administration – II (Marketing)



Preamble

Business Administration describes a set of activities necessary to maintain the level of operations within business organizations and is a key element associated with a high level of productivity and efficiency. Business administration is a field of study that focuses on the planning, analyzing, management, and organizing of various business activities and financial needs of an organization. The knowledge of which opens the path to a high possibility of advancing to management or leadership positions in reputed organisations and contributing to the growth of the organisation, industry and the Nation at large.

Marketing is one of the most essential factors/areas to achieve the business objectives and also provides a wide range of career opportunities to the aspiring students. Marketing Knowledge prepares students for more than just a career in business. Marketing is a thorough exploration of customer perceptions, buyer personas, messaging, communication, data, and much more. Marketing Knowledge, equips students to act as well-rounded, critical thinkers. Not only do marketers present impeccable skills in data interpretation, but they also offer the higher-level thinking that turns analytics into strategy. Foundational knowledge in Marketing makes savvy professionals — no matter what the industry.



Objectives of the course

1. To acquaint the student with knowledge about Marketing, Marketing Concepts identification on various types of markets.
2. To develop understanding among the students on the various elements of Marketing Mix and Market Segmentation

3. To update the students with knowledge on varied dimensions of Product Management , Branding and Pricing Management
4. To update the students with the knowledge on various aspects of Promotion and Distribution and to update them on the recent trends in the field of Marketing.

Depth of the program – Fundamental Knowledge

Unit No.	Unit Title	Contents	Skills to be developed
1	Introduction to Marketing	1.1 Marketing – Introduction, Meaning , Scope , Objectives , Features, Functions and Importance 1.2 Types of Markets – Regulated Market , Organised Market & Unorganised Market ,Virtual/ Internet Market, Industrial Market , Consumer Market, Financial Market , Auction Market and Black Market 1.3 Difference between Selling & Marketing 1.4 Evolution of Marketing Concepts – Exchange Concept, Production Concept , Product Concept, Selling Concept Marketing Concept, Societal Concept, Relationship Marketing Concept, Holistic Concept and Pace Concept	Conceptual Understanding Critical thinking skills Accessing and analyzing information skills Imaginative thinking

2	Marketing Mix & Market Segmentation	1.1 Marketing Mix – Meaning , Features , 7 P's of Marketing (Product , Price , Place, People, Promotion , Processes and Physical Evidence) , Environmental Factors affecting Marketing Mix – Consumers, Competitors , Trade Factors, Political & Legal , Economic , Social , Technological , Global. 1.2 Market Segmentation – Meaning , Advantages and Limitations , Essentials of Effective Market Segmentation, Methods /Basis of Market Segmentation : Geographic, Demographic , Sociographic, Psychographic and Behavioural . , Steps in Market Segmentation 1.3 Mass Marketing, Multi Segment Marketing and Niche Marketing – Meaning, Advantages and Limitations	Conceptual Understanding Analytical skills Accessing and analyzing information Imaginative thinking
3	Product Management, Pricing Management,	1.1 Product Levels – Core Product, Basic Product, Expected, Augmented Product and Potential Product 1.2 Product Life Cycle 1.3 Branding - Meaning , Types of Brands, Brand Equity & Brand Loyalty and Brand Extension – Meaning Advantages and Limitations 1.4 Pricing – Meaning, Objectives 1.5 Factors affecting Pricing – Internal Factors – Cost, Objectives of Firm, Product, Image of Firm, Product Life Cycle Product Line and Credit Policy External Factors – Competition, Demand, Consumers, Channel intermediaries, Economic Conditions,	Conceptual Understanding Analytical Skills Technical skills Critical thinking



		Government Control. 1.6 Pricing Methods – Cost Plus Pricing, Mark up Pricing, Brake Even Pricing, Target Return Pricing , Marginal Cost Pricing , Early Cash Recovery Pricing , Perceived Value Pricing , Going Rate Pricing , Sealed Bid Pricing , Differentiated Pricing , 2 Part Pricing and Demand Backward Pricing	
4	Promotion and Distribution and Recent Trends in Marketing	1.1 Promotion Mix – Meaning , Objectives , Elements of Promotion Mix – Advertising , Publicity , Sales Promotion, Personal Selling , Public Relations, Packaging , Direct Marketing , Trade Fairs and Exhibitions 1.2 Advertising – Meaning, Importance , Scope , Advantages of Advertising 1.3 Types of Advertising Media – Radio , News Paper , Print Media , Social Media Advertising , Online Advertising 1.4 Difference between Advertising , Publicity and Sales Promotion 1.5 Recent Trends in Marketing - Visualization , Voice Search ,Live Video and Video marketing, Integrated Online-Offline Customer Experience , The Internet of Everything ,Content marketing ,Search Engine Optimization /Semantic keyword research , Browser push notifications ,Social Media Marketing ,Virtual / Internet Marketing , Green Marketing , Social Marketing	Conceptual Understanding Analytical skills Accessing and analyzing information Imaginative thinking Awareness on the latest in the trends

SPPU, Pune
Revised Syllabi (2019 pattern) for three years B.Com. T.Y. B.Com.

Degree Course CBCS

Semester VI



Subject Name -: Cost and Works Accounting. Special Paper II

Course Code -: 365 – E

Subject Title -: Methods of Costing

Objectives:

1. To provide knowledge about the various methods of costing.
2. To understand the applications of different methods of costing in manufacturing and service industries.
3. To enable students to prepare cost statements under different types of manufacturing industries and Service Industries
4. To build the applicability of cost accounting standards in the method of costing.

Unit No.	Unit Title	Contents	Skills to be developed
1	Methods of Costing	1.1. Introduction to Methods of Costing. 1.2 Job Costing Meaning, Features, Advantages and Limitations (Simple problems Only) 1.3 Introduction of Batch costing- (theory Only)	a. Lerner will understand the various methods of costing b. Develop the ability to prepare a job cost sheet



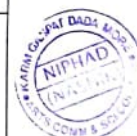


2	Contract Costing	2.1 Meaning and Features of Contract Costing 2.2 Work-Certified and Uncertified, Escalation clause, Retention Money, Cost Plus contract, work-in-progress 2.3 Profit on incomplete contract	a. It will help the learner to understand the concept of contract costing b. learners will understand the process of calculation of profit on incomplete contracts
3	Process Costing	3.1 Meaning and features of process costing 3.2 Preparation of process accounts including normal and abnormal loss/gain 3.3 Joint Products and By Products [Theory and Simple problems] 3.4 Cost Accounting Standard 19: Joint Cost	a. Students will get an idea of how to prepare process accounts. b. Understand the basic concept of CAS 19: Joint cost
4	Service Costing	4.1 Meaning, Features and Applications of service costing 4.2 Cost Unit-Simple and Composite 4.3 Cost Sheet for Transportation Service 4.4 Cost Statement for Hospital and Hotel Organization 4.5 Cost Accounting Standard 13: Cost of service cost center	a. The student will be enabled to understand the concept of service costing b. Learners will be able to prepare a cost sheet for transportation services, hospital and hotel organisation. c. Understand the basic concept of CAS13: service cost center

Teaching Methodology



Unit No.	Total Lectures	Innovative Methods to be used	Films Shows and AV Applications	Practical	Expected Outcome
1	10	Powerpoint Presentations,	Relevant Youtube Links	Group Discussion	Understand the basic methods of costing.
2.	14	Quiz		PPT	Develop the ability to calculate the profit of an incomplete contract.
3	12	Group Discussion		Study of process costing by visiting various process industries	The student will be able to prepare Process Account
4	12	Invite the tour operators, accountants of hotels & hospitals to provide practical exposure for ascertaining the cost thereof.		Visit transportation, hospital & hotel undertakings to find out the methodology applied in cost ascertainment.	Development of knowledge about cost sheets in service Industries.





Method of Evaluation

Subject	Internal Evaluation	External Evaluation	Suggested Add-On Course
Unit I	Multiple Choice Questions, Written Test, Internal Examination, Powerpoint Presentations, Orals, Assignments, Tutorials etc.	SPPU	Two industrial visits and subsequent reports on the visits.
Unit II			
Unit III			
Unit IV			

References

Sr. No	Title of the Book	Author	Publisher	Place
01	Practice in Advanced costing and Management Accounting.	Prof. Subhash Jagtap	Nirali Prakashan	Pune
02	Advanced Cost Accounting and Cost Systems	Ravi Kishor	Taxman's Allied Service Pvt. Ltd.	New Delhi
03	Cost Accounting Principles and Practice.	S.P. Iyengar	Sultan Chand & Sons Accounting, Taxman's	New Delhi
04	Students Guide to Cost	Ravi Kishor	Taxman's, New Delhi.	New Delhi

Revised syllabi (2019 Pattern) for three years B.Com. Degree course (CBCS)

Semester : - VI (T.Y.B.Com)

Subject Code :- PR- 366 (a)

Subject : - Business Administration – III (Production and Operations Management)

Preamble

The very essence of any business is to cater needs of customer by providing services and goods, and in process create value for customers and solve their problems. Production and operations management talks about applying business organization and management concepts in creation of goods and services. Production is a scientific process which involves transformation of raw material (input) into desired product or service (output) by adding economic value. Production can broadly categorize into following based on technique: Operations management is the process that generally plans, controls and supervises manufacturing and production processes and service delivery. Operations management is important in a business organization because it helps effectively manage, control and supervise goods, services and

people. Production and Operations Management have a great utility in diverse fields. Businesses Houses seek executives that have a holistic understanding of the business, which includes Production and Operations Management.

Objectives of the course

5. To acquaint the student with knowledge of Production Management and Production Functions
6. To equip the students with knowledge for efficient Inventory Management and the recent development in the area Inventory Management



7. To introduce the students to the concept of Quality Management and to motivate to adopt quality management even in the regular lifestyle

8. To update the students with the knowledge of Logistics Management

Depth of the program – Fundamental Knowledge

Unit No.	Unit Title	Contents	Skills to be developed
1	Production Management Functions	1.5 1.1 Meaning, Definition, Functions of Production Management, Responsibilities of Production Manager. 1.6 Production Planning - Objectives, Importance, levels of planning. 1.7 Routing & Scheduling - Meaning, Route Sheets, Scheduling, Master and sequential scheduling, scheduling devices. 1.8 Production control- Definition and meaning, Necessity, objectives, factors and techniques of production control	Conceptual Understanding Accessing and analysing information skills Technical Knowledge Analytical Skills

2	Plant Location and Plant Layout	1.4 Introduction, importance, factors responsible for plant location.	Conceptual Understanding
		1.5 Plant Layout- Meaning, Definition, Importance of good layout, factors relevant for choice of layout, Line, Process and Product layout.	Technical Knowledge
		1.6 Plant Layout - Advantages, disadvantages and techniques.	Analytical Skills
3	Inventory management & Quality Management	1.7 Inventory management -Introduction, methods, Economic Order Quantity , Use of Computers in Inventory Management, Material Requisition Planning (MRP) , Just In Time (JIT),ABC Analysis	Conceptual Understanding
		1.8 Recent trends in Inventory Management - Radio Frequency Identification (RFID), Automated guided vehicles (AGVs) and automated mobile robots (AMRs), Artificial intelligence (AI) and Machine learning (ML), Distributed inventory management, Cloud-based solutions Predictive picking	Analytical Skills
		1.9 Quality Management – Features, Techniques of Quality Control	Technical skills
		1.10 Total Quality Management, Six Sigma, International Organisation for Standardisation (ISO)	Awareness on the latest in the trends



4	Supply Chain Management and Logistics management	1.6 Supply Chain Concepts: Objectives of a Supply Chain, Stages of Supply chain, Value Chain Process, Cycle view of Supply Chain Process, Key issues in Supply Chain Management, Difference between Supply Chain Management and Logistics. 1.7 Logistics: Evolution, Objectives, Components and Functions of Logistics Management, Distribution related Issues and Challenges, Transportation- Functions, Costs, and Mode; Network and Decision, Containerization, Cross docking.	Conceptual Understanding Analytical skills Accessing and analysing information Imaginative thinking Awareness on the latest in the trends
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Teaching Methodology

Topic No.	Total Lectures	Innovative methods to be used	Film shows and AV Applications	Project	Expected Outcome
1	10	PPT , Lectures by Industry Exerts	Online Videos	----	Conceptual Understanding
2	12	PPT , Visit to Factories to understand Plant Layout	Online Videos on functioning of Factories of reputed organisations	-----	Conceptual Clarity and Practical understanding

Syllabus for T.Y.B. Com
Semester- VI, Paper-III
Subject Name: - Business Laws and Practice Paper III
Course Code – 366 (c)



Objectives of the Course :

To impart Basic and Advanced knowledge of the various provisions of the Companies Act, its schedules, rules, notifications, circulars, guidance note including case laws.

Depth of the program:

Fundamental and Advanced Knowledge

Objective of the Program:

- To understand the Companies Act, 2013 and its provisions.
- To develop general awareness among the students about the Company Law.
- To create awareness among the students about the legal environment relating to the Company Law.
- To enhance the capacity of learners to seek career opportunities in the Corporate Sector.

Unit. No.	Unit Title	Contents	Purpose skills to be developments
1	Declaration and Payment of Dividend [Sections 123-127]	1. Meaning of Dividend [Sec. 2(35)] 2. Types of Dividend (Interim Dividend & Final Dividend) 3. Declaration of Dividend [Sec. 123 & Companies (Declaration and Payment of Dividend) Rules, 2014] 4. Unpaid/ Unclaimed Dividend	• Understand the legal provisions relating to declaration and payment of dividend • Learn about the conditions which need to be fulfilled before declaring dividend out of accumulated





		[Sec. 124] 5. Investor Education and Protection Fund[Sec. 125] 6. Punishment for failure to distribute dividend within 30 days [Sec.127]	reserves.
2	Accounts of Companies[Sections 128-134, 136-138]	1. Types of accounts to be maintained (section 128 and 129) 2. Reopening and recasting of accounts on Court's or Tribunal's Orders (Section 130) 3. Voluntary revision of accounts (section 131) 4. Constitution of NFRA & power of CG to prescribe accounting standards(Section 132- 133) 5. Financial Statements, Board reports, etc (Section 134) 6. Right of members & Filing of Financial statement with Registrar (Section 136- 137) 7. Internal Audit (Section 138)	- To acquaint with preparation and maintenance of books of account etc. to be kept by company. - Understand the various concepts related to National Financial Reporting Authority (NFRA). - Learn procedure related to internal audit of companies
3	Audit and Auditors[Sections 139-148]	1. Appointment of Auditors, Removal, resignation of auditor and giving of special notice 2. Eligibility, Qualification & Disqualification, Remuneration of Auditor 3. Powers & Duties of auditors and auditing standards 4. Segment of Audit Reports,	- Understand the procedure for appointment of auditors, their removal, resignation, eligibility, qualifications, disqualifications and remuneration. - Know the powers and duties of auditors.

		Prohibited Services, Signing of Audit Reports 5. Auditor to attend AGM, Punishment Provisions, Cost Auditor	Know about auditing services and certain services which an auditor cannot render
4	Appointment and Qualifications of Directors [Sections 149-172]	1. Company to have Board of Directors, Manner of selection of independent directors, Appointment of directors. 2. Application, Allotment, Prohibition of Director Identification Number, Punishment for contravention. 3. Right of persons other than retiring directors to stand for directorship, additional director, alternate director and nominee director., Appointment of directors to be voted individually. Number of directorships. 4. Disqualifications, Duties, Vacation of office, Resignation, Removal, Register of directors and key managerial personnel and their shareholding. Members right to inspect. Punishment.	- To Know the provisions relating to the appointment of directors, number of directors, resident director, appointment of woman director and others. - Understand about the Director Identification Number (DIN), its allotment and other matters relating to DIN. - Understand the concept of disqualifications, duties, vacation of office, resignation, removal of director, etc.





Teaching methodology

Topic No.	Total Lectures	Innovative methods to be used	Film shows and AV Applications	Project	Expected Outcome
1	12	Pre Literature, case studies, Group Discussion, Expert Lecture, Team exercise,	- You tube E-Content Sources. - E-Content on the Declaration and Payment of Dividend provided by UGC/University/MOOC etc. to be analyzed.	Project report can be prepared on Declaration of Dividend	To understand the concept of Declaration of Dividend
2	12	Case studies, Moot court Lecture, Group Discussion, Article Reviews	- You tube E-Content Sources. - E-Content on the Accounts of Companies provided by UGC/University/MOOC etc. to be analyzed.	Project report can be prepared on Types of accounts to be maintained	To gain the knowledge about the different kinds of account to be maintained by company
3	12	Expert Lecture, Team exercise, Field visit, PPT Presentation, Interaction with the industry expert, Article Reviews	- You tube E-Content Sources. - E-Content on the Audit and Auditors provided by UGC/University/MOOC etc. to be analyzed.	Project report can be prepared on Eligibility, Qualification & Disqualification, Remuneration of Auditor	To be able to discuss the various provisions relating to the Auditors of a company
4	12	Case studies, Moot court Lecture, Group	- You tube E-Content Sources. - E-Content on the Appointment and	Project report can be prepared on Director Identification	To be able to discuss the various provisions relating to the Directors of

	Discussion, , Quiz Competition, Team exercise, Field visit, PPT Presentation	Qualifications of Directors by UGC/University/MOOC etc. to be analyzed.	Number	a company
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References

Sr. No.	Title of the Book	Author/s	Publication
1	Company Law	Dr. Avtar Singh	Eastern Book Co. (EBC)
2	Lexis Nexis's Guide to the Companies Act	RAMAIYA	Generic book
3	Taxmann's Companies Act with Rules	Taxmann	Taxmann
4	The Companies Act 2013 Bare Act	Government of India	Educreation Publishing
5	Adjudication of Companies Act matters under NCLT	Rajender Kumar	Urmila Publication House
6	Taxmann's Company Law Ready Reckoner	Taxmann	Taxmann

Practical for Semester - VI

Topic	Mode of Practical
Types of Dividend	Library Assignment.
Constitution of NFRA	Overview & Presentation can be taken.
Eligibility, Qualification & Disqualification, Remuneration of Auditor	Problem or case-based Assignment
Manner of selection of independent directors	Group Discussions





Revised Syllabi (2019 Pattern) for Three years B.Com Degree Course (CBCS)

Semester -VI

Course Code- 366 (d)

Subject: --: Co-operation & Rural Development (Special Paper-III)

Total Credits: - 04 (Theory 03 Internship 01=04)

Preamble:

Cooperative learning requires students to engage in group activities that increase learning and adds other important dimensions. The positive outcomes include academic gains, improved race relations and increased personal and social development. The purpose of this course is to impart knowledge of financial management of Co-operatives.

Objectives of the Course:

- 1) To acquaint students with the financial management of Co-operatives
- 2) To study the Co-operative Organization and Management

Unit No.	Unit Title	Contents	Skills to be developed
1	Financial Management of Co-operatives	1.1 Meaning, Nature and Importance of Financial Management 1.2 Sources of Finance to Co-operative 1.3 Distinction between Corporate Finance and Co-operative Finance 1.4 Significance of financial Management in Co-operatives	1) To understand the meaning, nature and significance of financial management of co-operatives 2) To understand distinction between corporate finance and co-operative financial management;
2	Financial Planning	2.1 Meaning and Characteristics 2.2 Estimation of Financial Requirement 2.3 Capital and Funds of Co-operatives and their raising	To understand the Recent Trends and financial requirement of cooperatives.



		2.4 Budget and Accounting of Co-operatives	
3	Financial Control	3.1 Meaning and Need 3.2 Proper utilization of Funds and Capital. 3.3 Investment Policy- Profitability and Security 3.4 Operating Expenditure and Cost Control	To acquire the fundamental knowledge financial controls for co-operatives
4	Co-operative Audit	4.1 Meaning, Definition and Nature of Co-operative Audit 4.2 Objectives and Significance of Co-operative Audit 4.3 Provisions of co-operative law related to Audit. 4.4 Types of Audit – Statutory Audit, Re-Audit, Test Audit and Internal Audit 4.5 Co-operative Auditor 4.6 Powers and Duties of Auditor 4.7 Audit Report and Rectification 4.8 Importance of Audit Report	1) To understand the co-operative audits, its process, powers rights of co-operative auditor. 2) To understand Audit reports and its importance

Teaching Methodology:

Topic No.	Total Lectures	Innovative Methods to be used	Film Shows and A.V. Application	Project	Expected Outcome
1	12	Lecture, PPT Presentation Poster Presentation, Group Discussion, Library visit ,Home Assignment ,Pre reading, Class discussion , library visit , internet resources, case study	Relevant You Tub Videos ,Relevant slide show, online Video Short Film Show	Report writing of students meeting	Understanding of basic knowledge financial management of co-operatives.
2	12	Pre reading, Class discussion, internet resources, Lecture, Expert Lecture, PPT / Poster Presentation, Group Discussion, Library /Home Assignment ,Internal Assignment, students Seminar/Workshop	Relevant You Tub Videos , Short Film Show, A.V Application , online Video	Project Report on types of Social Media	Learning the Recent Trends in co-operative financial planning and its need in present competitive markets.





3	12	Lecture, PPT Presentation Poster Presentation, Group Discussion, Library visit ,Home Assignment ,Pre reading, Class discussion , library visit , internet resources ,case study	Relevant You Tub Videos, PPT ,AV Application , Short Film Show , Online Videos	Writing of any one Business letter	To acquire the fundamental knowledge financial controls for co-operatives
4	12	Guest Lectures of eminent Personalities , Group Discussion, Library visit ,Home Assignment, case study	Online Videos, Relevant slide show	Blog writing	1) To understand the co- operative audits. its process. powers rights of co- operative auditor. 2) To understand Audit reports and its importance

Method of Evaluation:

Subject	Internal Evaluation	External Evaluation	Suggested Add-on Course
Unit- I	Attendance, Continuous Assessment Test, Assignment /Quiz/Course project, Seminar and Discussion	As per University norms.	Certificate Course on Financial Planning and Management of Cooperatives
Unit-II	Attendance, Continuous Assessment Test, Assignment /Quiz/Course project, Seminar and Discussion	As per University norms.	
Unit-III	Attendance, Continuous Assessment Test, Assignment /Quiz/Course project, Seminar and Discussion	As per University norms.	
Unit-IV	Attendance, Continuous Assessment Test, Assignment /Quiz/Course project, Seminar and Discussion	As per University norms.	

References:

Sr. No	Title of Book	Author/s	Publication	Place
1	New Dimensions of Co-operative management	G.S.Kamat	Himalaya Publication House,	Mumbai
2	Co-operative Management principals and techniques	Dr.Nakkiran S.A.-	Himalaya Publication House,	Mumbai
3	Co-operative Management and Administration	Goel B.B	Deep and Deep Publication	New Delhi.
4	Co-operation and Rural Development	Principal Dr.Nitin Ghorpade	Success	Pune
5	Human Resource Management Practices in Co-operative sector	Principal Dr.Shaikh Aftab Anwar	Idea Publication	New Delhi
6	Theory & Practice of Co-operation,	Dr. Dhiraj Zalte &Others –	Prashant Publication	Jalgaon
7	C.A State and C-operative Movement			
8	https://www.bhagirathgram.org/			
	Journal of Commerce and Management Thought(JCMT)			

List of Industries/Institutions for Internship Programme:**Co-operation & Rural Development (Special Paper-II and Special Paper III)**

- 1) Any Co-operative stores, student's Co-operative stores etc.
- 2) Any Co-operative credit society
- 3) Co-operative bank
- 4) Employee's Co-operative credit society
- 5) Co-operative auditor's offices, CA establishments auditing Co-operative.
- 6) Entities like Amul, or Milk producer's Co-operatives etc.
- 7) Any other industry in consultation with subject teacher

For more details of Internship please refer Internship Programme Manual

T.Y. B.Com.
B.Com Degree Course Revised 2019 Pattern (CBCS)
Cost and Works Accounting Special Paper III
Name -: Techniques of Cost Accounting and Cost Audit
Course Code -: 366 – E (SEM-VI)

Objectives:

1. To impart knowledge about Standard Costing and Variance Analysis
2. To learn about pricing policy and its implementation.
3. To know the related Cost Accounting Standards and Cost Management practices in specific sectors
4. To provide a conceptual understanding of procedures and Provisions of Cost Audit.

Unit No.	Unit Title	Contents	Skills to be developed
1	Standard Costing	1.1 Definition and meaning of standard cost and Standard Costing. 1.2 Types of standards, setting up of Material, Labour Standards 1.3 Difference between Standard Costing & Budgetary Control. 1.4 Advantages and Limitations of standard costing	1.The student will develop the ability to understand the basic concepts of Standard Costing 2.The learner will be able to calculate variances (Material and Labour)



CBCS: 2020-2021 T. Y. B. Sc. Mathematics



SavitribaiPhule Pune University

(Formerly University of Pune)

Three Year B.Sc. Degree Program in Mathematics
(Faculty of Science and Technology)

T.Y.B.Sc. (Mathematics)

Choice Based Credit System Syllabus
(With effect from June 2021)

To be implemented from Academic Year 2021-2022



CBCS: 2020-2021

T. Y. B. Sc.

Mathematics

Title of the Course: B. Sc. (Mathematics)

Preamble:

University of Pune has decided to change the syllabi of various faculties from June, 2019. Taking into consideration the rapid changes in science and technology and new approaches in different areas of mathematics and related subjects, Board of Studies in Mathematics with concern of the teachers of Mathematics from different colleges affiliated to University of Pune has prepared the syllabus of T.Y.B.Sc. Mathematics. To develop the syllabus the U.G.C. Model curriculum is followed.

Programme Specific Outcome (PSO)

- i) Give the students a sufficient knowledge of fundamental principles, methods and a clear perception of innumerable power of mathematical ideas and tools and know how to use them by modeling, solving and interpreting.
- ii) To equip the students sufficiently in both analytical and computational skills in Mathematical Sciences.
- iii) To develop a competitive attitude for building a strong academic - industrial collaboration, with focus on continuous learning skills.
- iv) Enhancing students overall development and to equip them with mathematical modeling abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment.
- v) Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.
- vi) Enabling students to Gauge the hypothesis, theories, techniques and proofs provisionally.

Programme Outcome:(PO)

A graduate of this program are expected to:

- i) Gain sound knowledge on fundamental principles and concepts of Mathematics and computing with their applications related to Industrial, Engineering, Biological and Ecological problems.
- ii) Exhibit in depth the analytical and critical thinking to identify, formulate and solve real world problems of science and engineering.
- iii) Get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning.
- iv) A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.
- v) Apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion.
- vi) Be capable of undertaking suitable experiments/research methods while solving the real-life problem and would arrive at valid conclusions based on appropriate interpretations of data and experimental results.



- vii) Develop written and oral communications skills in order to effectively communicate design, analysis and research results.
- viii) Demonstrate appropriate inter-personal skills to function effectively as an individual, as a member or as a leader of a team and in a multi-disciplinary setting.
- ix) Acquire competent positions in industry and academia as well.

Eligibility:

S.Y.B.Sc. (with Mathematics) or T.Y.B.Sc. Computer Science as per University rules.

Medium of Instruction: English

Structure of the Course:

Semester –V		Semester-VI	
DSE-1A	MT 351: Metric Spaces	DSE-4A	MT 361: Complex Analysis
DSE-1 B	MT 352: Real Analysis-I	DSE-4 B	MT 362: Real Analysis-II
DSE-2 A	MT 353: Group Theory	DSE-5 A	MT 363: Ring Theory
DSE-2 B	MT 354: Ordinary Differential Equations	DSE-5 B	MT 364: Partial Differential Equations
Select any one out of three		Select any one out of three	
DSE-3A	MT 355(A): Operations Research MT 355(B): Differential Geometry MT 355(C): C- Programming	DSE-6A	MT 365(A): Optimization Techniques MT 365(B): Calculus of Variation and Classical Mechanics MT 365(C): Financial Mathematics
Select any one out of three		Select any one out of three	
DSE-3B	MT 356(A): Machine Learning-I MT 356(B): Number Theory MT 356(C): Laplace Transform and Fourier Series	DSE-6B	MT 366(A): Machine Learning-II MT 36 (B): Computational Geometry MT 366(C): Lebesgue Integration
Practical Lab		Practical Lab	
DSE-1	MT 357: Practical Course Lab-I (on Metric Space and Real Analysis-I)	DSE-4	MT 367: Practical Course Lab-I (on Complex Analysis and Real Analysis-II)
DSE-2	MT 358: Practical Course Lab-II (on Group Theory and Ordinary Differential equations)	DSE-5	MT 368: Practical Course Lab-II (on Ring Theory and Partial Differential Equations)
DSE-3	MT 359: Practical Course Lab-III (on DSE-3A and DSE-3B)	DSE-6	MT 369: Practical Course Lab-III (on DSE-6A and DSE-6B)
SEC-I	MT -3510: Programming in Python-I	SEC-III	MT 3610: Programming in Python-II
SEC-II	MT-3511: LaTeX for Scientific Writing	SEC-IV	MT 3611: Mathematics into LaTeX



Note.

- i) Papers MT-351 to MT-354 are compulsory, a student can opt one paper from MT-355(A) to MT-355 (C) and opt one paper from MT-356(A) to MT-356 (C) in fifth semester.
- ii) Papers MT-361 to MT-364 are compulsory, a student can opt one paper from MT-365(A) to MT-365 (C) and opt one paper from MT-366(A) to MT-366 (C) in sixth semester.
- iii) For MT-351 to MT-359 and MT-361 to MT-369 each course is of 50 marks (35 marks external examination and 15 marks internal examination).
- iv) For SEC: MT-3510, MT-3511, MT-3610 and MT-3611 each course is of 50 marks (15 marks internal evaluation: assignments/ tutorial/seminar/test and 35 marks external theory and practical examination).

Examination:

A) Pattern of examination: **Semester wise.**

B) Standard of passing: 20 Marks out of 50 marks for each paper. (But for passing a student should obtain minimum 14 marks out of 35 in the external University examination and should obtain minimum 06 marks out of 15 in the internal examination). For Skill enhancement courses a student should obtain minimum 06 marks out of 15 in internal examination and theory/practical external examination 14 marks out of 35 in the external University examination.

C) Pattern of question papers: For MT-351 to MT-354 and MT-361 to MT-364.

Q.1. Attempt any 05 out of 07 questions each of 01 marks. [05 Marks]

Q.2. Attempt any 02 out of 04 questions each of 05 marks. [10 Marks].

Q.3. Attempt any 02 out of 04 questions each of 05 marks. [10 Marks].

Q.4. Attempt any 02 out of 04 questions each of 10 marks. [10 Marks].

D) External Students: Not allowed.

E) Verification / Revaluation: Allowed for Theory papers only.

F) Qualifications for Teacher: M.Sc. Mathematics (with NET /SET as per UGC existing rules).

Equivalence of Previous syllabus along with new syllabus:

New Course	Old Course	New Course	Old Course
Semester-V	Semester-III	Semester-VI	Semester-IV
MT-351: Metric Spaces	MT 331 : Metric Spaces	MT 361: Complex Analysis	MT 341: Complex Analysis
MT-352: Real Analysis-I	MT 332: Real Analysis-I	MT 362 : Real Analysis-II	MT 342: Real Analysis-II



MT 353: Group Theory	MT 334 : Group Theory	MT 363 : Ring Theory	MT 344: Ring Theory
MT 354 : Ordinary Differential Equations	MT 335 : Ordinary Differential Equations	MT 364 : Partial Differential Equations	MT 345: Partial Differential Equations
MT 355 (A): Operations Research	MT 337 A. Operations Research	MT 365 (A): Optimization Techniques	MT 347 A : Optimization Techniques
MT 355 (B): Differential Geometry	MT 337 D: Lattice Theory	MT 365 (B): Calculus of Variation and Classical Mechanics	MT 347 B : Differential Geometry
MT 355 (C): C-Programming	MT 337 B. Dynamical System	MT 365(C): Financial Mathematics	MT 347 E: Lebesgue Integration
MT 356 (A): Machine Learning-I	MT 347D. Graph theory	MT 366 (A): Machine Learning-II	MT 347 C: C-Programming-II
MT 356 (B): Number Theory	MT 337 F. Number Theory	MT 366 (B): Computational Geometry	MT 347F : Computational Geometry
MT 356 (C): Laplace Transform and Fourier Series	MT 337 C. C- Programming I	MT 366(C): Lebesgue Integration	MT 337 E. Financial Mathematics
MT 357: Practical CourseLab-I: Metric Spaces and Real Analysis-I	MT 333 : Problem Course on MT 331 and MT 332	MT 367: Practical CourseLab-I: Complex Analysis and Real Analysis-II	MT 343 : Problem Course on MT 341 and MT 342
MT 358: Practical CourseLab-II: Group Theory and Ordinary Differential Equations	MT 336 : Problem Course on MT 334 and MT 334	MT 368: Practical CourseLab-II: Ring Theory and Partial Differential Equations	MT 346 : Problem Course on MT 344 and MT 345
MT 359: Practical Course Lab-III: DSE-3A and DSE-3B	MT 338: Practical based on papers selected from 337 A to 337 F	MT 369: Practical CourseLab-III: DSE-6A and DSE-6B	MT 348: Practical based on papers selected from 347 A to 347 F
MT 3510: Programming in Python-I		MT 3610: Programming in Python -II	
MT 3511: LaTeX for Scientific Writing		MT 3611: Mathematics IntoLatex	

Details of Syllabus:



Semester-V

DSE-1A: MT 351: Metric Spaces (2 credits)

Course Objectives: The course aims at providing the basic knowledge pertaining to metric spaces such as neighborhood, interior, closure, open and closed balls, continuity, completeness, compactness and connectedness etc.

Course Learning Outcomes: The course will enable the students to:

- i) understand the introductory concepts of metric spaces;
- ii) correlate these concepts to their counter parts in modern analysis by studying examples;
- iii) learn to analyze mappings between spaces.
- iv) attain background for advanced courses in real analysis, functional analysis, and topology.
- v) appreciate the abstractness of the concepts such as open balls, closed balls, compactness, connectedness etc. beyond their geometrical imaginations.

Course Contents:

Unit 1: Basic Notions

- 1.1 Definition and examples [09 Lectures]
- 1.2 Open Balls and Open Sets

Unit 2: Convergence

- 2.1 Convergent Sequences [09 Lectures]
- 2.2 Limit and Cluster points
- 2.3 Cauchy Sequences and Completeness
- 2.4 Bounded Sets
- 2.5 Dense Sets
- 2.6 Boundary of a set

Unit 3: Continuity

- 3.1 Continuous Functions [08 Lectures]
- 3.2 Equivalent Definitions of Continuity
- 3.3 Topological Property
- 3.4 Uniform Continuity
- 3.5 Limit of a Function
- 3.6 Open and closed maps

Unit 4: Compactness and Connectedness

- 4.1 Compact Spaces and their Properties [10 Lectures]
- 4.2 Connected Spaces

Text Book:

1. Topology of Metric Spaces, S. Kumaresan, Narosa Publishing House (2nd edition), 2011.

Unit 1: Chapter-1: Sec. 1.1; 1.1.14(only Statement) (Except- 1.1.9 to 1.1.12, 1.1.15 to 1.1.27, 1.1.33 to 1.1.37), Sec. 1.2; 1.2.40(only Statement), 1.2.42 (only Statement) (Except - 1.2.9 to 1.2.17, 1.2.41, 1.2.49 to 1.2.55, 1.2.57 to 1.2.60, 1.2.65, 1.2.66, 1.2.70 to 1.2.73, 1.2.76, 1.2.77, 1.2.87, 1.2.88, 1.2.107).



- Unit 2:** Chapter -2: Sec. 2.1 (Except 2.1.7, 2.1.8, 2.1.11 to 2.1.13, 2.1.15 to 2.1.19), Sec. 2.2; 2.2.7 (on metric space), 2.2.19(on metric space) (Except- 2.2.11, 2.2.21, 2.2.31), Sec. 2.3; 2.3.12(only statement) (Except - 2.3.4, 2.3.19, 2.3.20), Sec. 2.4 (Except 2.4.8 to 2.4.13, 2.4.16), Sec. 2.5 (Except 2.5.3, 2.5.4, 2.5.15), Sec. 2.7.
- Unit 3:** Chapter – 3: Sec. 3.1 (Except 3.1.9, 3.1.10, 3.1.12, 3.1.14, 3.1.21 to 3.1.24), Sec. 3.2; 3.2.35 (only statement), 3.2.53 (only statement), (Except- 3.2.3, 3.2.4, 3.2.6, 3.2.8, 3.2.12 to 3.2.15, 3.2.19, 3.2.29, 3.2.37 to 3.2.43, 3.2.51, 3.2.52), Sec. 3.3 (Except 3.3.5, 3.3.6, 3.3.10), Sec. 3.4 (Except 3.4.4, 3.4.5, 3.4.12 to 3.4.14, 3.4.16), Sec. 3.5, Sec. 3.6.
- Unit 4:** Chapter -4: Sec. 4.1; 4.1.15(only statement) (Except - 4.1.27 to 4.1.31, 4.1.35, 4.1.36), Sec. 4.2 (Except- 4.2.2, 4.2.6, 4.2.9, 4.2.12 to 4.2.14), Sec. 4.3; 4.3.1(only statement) (Except 4.3.16, 4.3.25, 4.3.26, 4.3.27).
- Chapter -5: Sec. 5.1; 5.1.6(on metric space), 5.1.7(only statement) (Except - 5.1.12, 5.1.15 to 5.1.17, 5.1.23, 5.1.24, 5.1.27, 5.1.33, 5.1.34, 5.1.36, 5.1.48).

Reference Books:

1. Metric Spaces, Q.H. Ansari: Narosa Publishing House, New Delhi, Chapters 1 – 5.
2. Metric Spaces, SatishShirali, H. Vasudeva, Springer.
3. First Course in Metric Spaces, B. K. Tyagi, Cambridge University Press
4. M. O. Searcoid: Metric spaces, Springer, 2007.
5. Metric Spaces, E.T.Copson, University Press, Cambridge, 2nd edition, Mumbai, 1978.

DSE-1B: MT: 352 Real Analysis-I (2 credits)

Course Objectives: The course will provide students with a thorough understanding of real lines and distinguishing concepts in order to prove convergence and divergence of real number sequences and series. These principles have a wide variety of real-world applications.

Course Learning Outcomes: This course will enable the students to:

- i) learn the basic facts in logic and set theory
- ii) learn to define sequence in terms of functions from $\mathbb{N}$ to a subset of $\mathbb{R}$ and to understand several properties of the real line.
- iii) recognize bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate their limit superior, limit inferior, and the limit of a bounded sequence.
- iv) use the ratio, root, alternating series and limit comparison tests for convergence and absolute convergence of an infinite series of real numbers.

Course Contents:

Unit 1: Logic and Set Theory

[10 Lectures]

1.1 Introduction

1.2 "And" and "Or"

1.3 "Not" and "If-Then"



- 1.4 Contrapositive, Converse, and Iff
- 1.5 Quantifiers
- 1.6 Set Theory and Venn Diagrams
- 1.7 Relations and Functions
- 1.8 Countable and Uncountable Sets

Unit 2: Sequences of Real Numbers

[07 Lectures]

- 2.1 Definition of sequence and subsequence
- 2.2. Limit of a sequence
- 2.3 Convergent sequences
- 2.4 Divergent sequences
- 2.5 Bounded sequences
- 2.6 Monotone sequences

Unit 3: Operations on convergent sequences and Limit Superior, Limit Inferior

[07 Lectures]

- 3.1 Operations on convergent sequences
- 3.2 Operations on divergent sequences
- 3.3 Limit superior and limit inferior
- 3.4 Cauchy sequences

Unit 4: Series of Real Numbers

[12 Lectures]

- 4.1 Convergence and divergence
- 4.2 Series with nonnegative terms
- 4.3 Alternating series
- 4.4 Conditional convergence and absolute convergence
- 4.5 Rearrangements of series
- 4.6 Tests for absolute convergence
- 4.7 Series whose terms form a non-increasing sequence
- 4.8 The class l^2 .

Text Books: -

1. Real Analysis and Foundations, Second Edition, Steven G. Krantz, Chapman and Hall/CRC.
Unit 1: Chapt. 1- Sec.: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8
2. Methods of Real Analysis, Second Edition, Richard R. Goldberg, John Wiley & Sons, Inc.
Unit 2: Chapt.-2: Sec.: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6,
Unit 3: Chapt.-2 Sec.: 2.7, 2.8, 2.9, 2.10,
Unit 4: Capt.- 3: Sec.: 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.10

Reference Books: -

1. Real Analysis, N.L. Carothers, Cambridge University Press
2. Introduction to Real Analysis, Third edition, Robert, G. Bartle, Donald Sherbert, John Wiley and Sons.



3. A Basic Course in Real Analysis, Ajit Kumar and S.Kumaresan ,CRC Press, Second Indian, , CRC Press (Chapman and Hall)
4. A course of Mathematical Analysis, Revised edition, Shantinayakan and Mittal - S. Chand and Co. (2002).
5. Mathematical Analysis, third Edition, S.C. Malik and Savita Arora - New Age International Publications.

DSE-2A: MT-353: Group Theory(2 credits)

Course Objectives: The course objective is to introduce students to the fundamental theory of groups and their homomorphisms. Symmetric groups and symmetries in groups, Lagrange's theorem are also studied in depth.

Course Learning Outcomes: The course will enable the students to:

- i) recognize the mathematical objects that are groups, and classify them as abelian, cyclic and permutation groups, etc;
- ii) analyze consequences of Lagrange's theorem
- iii) learn about structure preserving maps between groups and their consequences.
- iv) explain the significance of the notion of cosets, normal subgroups, and factor groups.

Course Contents:

Unit 1. Groups

1.1 Binary Operation

1.2 Isomorphic Binary Structures

1.3 Groups

[06 lectures]

Unit 2. Subgroups

2.1 Subgroups

2.2 Cyclic Groups

[06 lectures]

Unit 3. Permutations[12 lectures]

3.1 Groups of Permutations

3.2 Orbits

3.3 Cycles

3.4 Alternating Groups

3.5 Cosets and the Theorem of Lagrange

3.6 Direct Products

Unit 4. Homomorphisms and Factor Group

4.1 Homomorphisms

4.2 Factor Groups

4.3 Factor Group Computations and Simple Groups

[12 lectures]

Text book:

1. John B. Fraleigh, A First Course in Abstract Algebra, Seventh Edition, Pearson. Sections: 2,3,4,5,6,8,9,10, 11(only Direct Product), 13,14,15.

Reference Books:

1. P.B. Bhattacharya, S.K. Jain and S.R. Nagpal, Basic Abstract Algebra, Second Ed., Foundation Books, New Delhi, 1995.



2. I. N. Herstein, Topics in Algebra, John Wiley and Sons.
3. N.S. Gopalakrishnan, University Algebra, Second Edition, New Age International, New Delhi, 1986.
4. Joseph. A. Gallian, Contemporary Abstract Algebra, (4th Edition), Narosa Publishing House.

DSE-2B: MT-354- Ordinary Differential Equations (2 credits)

Course Objectives: The main objectives of this course are to introduce the students to the exciting world of differential equations, system of differential equations and their applications.

Course Learning Outcomes: The course will enable the students to:

- i) understand the genesis of ordinary differential equations.
- ii) learn various techniques of getting exact solutions of solvable first order differential equations and linear differential equations of higher order.
- iii) grasp the concept of a general solution of a linear differential equation of an arbitrary order and also learn a few methods to obtain the general solution of such equations.

Course Contents:

Unit 1. Linear Differential Equations with constant coefficients

[12 lectures]

- 1.1 Constant coefficient homogeneous equations
- 1.2 Characteristic equations
 - 1.2.1 distinct real roots
 - 1.2.2 repeated roots.
 - 1.2.3 complex roots
- 1.3 Particular solution
- 1.4 Initial value problem
- 1.5 The operator $\frac{1}{f(D)}$ and its evaluation for the functions $x^m, e^{ax}, e^{ax}v, xv$ and the operator $\frac{1}{D^2+a^2}$ acting on $\sin ax$ and $\cos ax$ with proofs.

Unit 2. Non -Homogeneous Linear Equations

[08 lectures]

- 2.1 Principle of superposition
- 2.2 Method of undetermined coefficients
- 2.3 Method of reduction of order
- 2.4 Method of variation of parameters.

Unit 3. Series Solutions of Linear Second Order Equations

[06 lectures]

- 3.1 Review the properties of power series
- 3.2 Series solution near an ordinary point
- 3.3 Regular singular points
- 3.4 Euler equations

Unit 4. System of Equations

[10 lectures]

- 4.1 Introduction to system of differential equations
- 4.2 Linear systems: basic theory of homogeneous linear systems, constant coefficient
- 4.3 Homogeneous systems.

Text Books:

1. William F Trench , Elementary Differential Equations with Boundary Value Problems , E book (Free download)



- Unit 1 : Chapter 5: Sections 2 to 3 . Unit 2 : Chapter 5: Sections 4 to 6.
Unit 3: Chapter 7: sections 1 to 4. Unit 4 : Chapter 10 : sections 1 to 6.
2. **Frank Ayres JR, Theory and Problems on Differential Equations**, Schaum's outline Series, SI (metric) edition. Unit 1 Chapter 16 Short methods

Reference Books:

1. M. D. Raisinghania , Ordinary and Partial Differential Equations , S. Chand and Company LTD 2009.
2. Elementary Differential Equations seventh edition by Earl D. Rainville and Philip E. Bedient.
3. George F. Simmons and Stevan G. Krantz , Differential Equations, Tata McGraw-Hill.
4. W. R. Derrick and S. I. Grossman, A First Course in Differential Equations with Applications . CBS Publishers and Distributors , Delhi 110032, Third Edition.
5. Daniel Murray, Introductory Course in Differential Equations, Orient Longman.

DSE-3A: MT 355(A): Operations Research (2 credits)

Course Objectives: This course develops the ideas underlying the Simplex method for Linear programming problem, as an important branch of operations research. The course covers Linear programming with applications to Transportation and Assignment problem. Such problems arise in manufacturing resource planning and financial sectors.

Course Learning Outcomes: This course will enable the students to learn:

- i) Analyze and solve linear programming models of real-life situations.
- ii) The graphical solution of LPP with only two variables, and illustrate the concept of convex set and extreme points. The theory of the simplex method is developed.
- iii) The relationships between the primal and dual problems and their solutions with applications to transportation, assignment and two-person zero-sum game problem.

Course Contents:

Unit 1. Modeling with Linear Programming

[08 Lectures]

- 1.1 Two variable LP Model
- 1.2 Solution of LP Model by Graphical Method
- 1.3 Selected LP Model Applications
- 1.4 Graphical Sensitivity analysis.

Unit 2. The Simplex Method and Duality

[12 Lectures]

- 2.1 LP Model in equation form
- 2.2 Transition from graphical to algebraic solutions
- 2.3 The Simplex method.
- 2.4 Definition of the dual problem
- 2.5 Primal dual relationship
- 2.6 Economic interpretation of Duality.

Unit 3. Transportation Model

[10 Lectures]

- 3.1 Definition of the Transportation model
- 3.2 The Transportation algorithm.

Unit 4. The Assignment Model

[06 Lectures]

- 4.1 The Hungarian method
- 4.2 Simplex explanation of the Hungarian method.



Text Book:

1. Hamdy A. Taha, Operation Research (Eighth Edition, 2009), Prentice Hall of India Pvt. Ltd, New Delhi.

Unit 1: Chapter-2: 2.1, 2.2, 2.3 (2.3.4, 2.3.5, 2.3.6).

Unit 2: Chapter-3: 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 (3.6.1), Chapter-4: 4.2, 4.3

Unit 3: Chapter -5: 5.1, 5.3 (5.3.1, 5.3.2, 5.3.3), Unit 4: Chapter-5: 5.4 (5.4.1, 5.4.2).

Reference Books:

1. Frederick S. Hillier, Gerald J. Lieberman, Introduction to Operation Research (Eighth Edition) Tata McGrawHill.
2. J K Sharma, Operations Research (Theory and Applications, second edition, 2006), Macmillan India Ltd.
3. Hira and Gupta, Operation Research.

DSE-3A: MT-355(B): Differential Geometry (2 credits)

Course Objectives: This course enables the students to understand differential geometry of curves, their fundamental properties like torsion, curvature etc. along with their different forms. Also, to make understand different forms of curves and surfaces, along with their diverse properties through the use of differential calculus.

Course Learning Outcomes: The course will enable the students to:

- i) Gain an understanding to solve problems with the use of differential geometry to diverse situations in mathematical contexts.
- ii) Develop different properties associated with curves and surfaces.
- iii) Demonstrate a depth of understanding in advanced mathematical topics in relation to geometry of curves and surfaces. Learn to analyze mappings between spaces.
- iv) Apply the theory of differential geometry to specific research problems in mathematics or other fields.

Course Contents:

Unit 1: Curves in the plane and in space

[04 Lecture]

- 1.1 What is a curve?
- 1.2 Arc-length
- 1.3 Reparameterization
- 1.4 Level Curves vs. Parameterized Curves

Unit 2 : How much does a curve?

[06 Lecture]

- 2.1 Curvature
- 2.2 Plane Curves
- 2.3 Space Curves

Unit 3 : Global Properties of curves

[06 Lecture]

- 3.1 Simple Closed Curves
- 3.2 The Isoperimetric Inequality
- 3.3 The Four Vertex Theorem

Unit 4 : Surfaces in three dimensions

[06 Lecture]

- 4.1 What is a Surface?
- 4.2 Smooth Surfaces
- 4.3 Tangents, Normal and Orientability



- 4.4 Examples of surfaces
- 4.5 Quadratic Surfaces
- 4.6 Triply orthogonal Systems
- 4.7 Applications of the Inverse Function Theorem

Unit 5 : The first fundamental form

[07 Lecture]

- 5.1 Lengths of Curves on Surfaces
- 5.2 Isometries of Surfaces
- 5.3 Conformal Mappings of Surfaces
- 5.4 Surface Area
- 5.5 Equiareal Maps and Theorem of Archimedes

Unit 6 : Curvature of surfaces

[07 Lecture]

- 6.1 The Second Fundamental Theorem
- 6.2 The Curvature of Curves on a Surface
- 6.3 The Normal and Principal Curvatures
- 6.4 Geometric Interpretation of Principal Curvatures.

Text book:

1. **Andrew Pressley: Elementary Differential Geometry, Springer International Edition, Indian Reprint 2004.**

Unit 1: Chapter 1: Section 1.1 to 1.4, Unit 2: Chapter 2: Section 2.1 to 2.3,

Unit 3: Chapter 3: Section 3.1 to 3.3, Unit 4: Chapter 4: Section 4.1 to 4.7,

Unit 5: Chapter 5: Section 5.1 to 5.5, Unit 6: Chapter 6: Section 6.1 to 4.4.

Reference Books:

1. John A. Thorpe, Differential Geometry, Springer International Edition, Indian Reprint 2004.
2. M. DoCarmo, Differential geometry of Curves and surfaces, Prentice Hall, 1976.

DSE-3A: MT 355(C): C-Programming (2 credits)

Course Objectives: The course is designed to provide complete knowledge of C-language. Students will be able to develop logics which will help them to create programs, applications in C. Also, by learning the basic programming constructs they can easily switch over to any other language in future.

Course Learning Outcomes: After the completion of this course, the students will be able to develop applications.

Course Contents:

Unit 1. Fundamentals of C – programming:

[06 Lectures]

- 1.1 Introduction to C, The character set. Identifier and keywords. Data types, Constants.
- 1.2 Variables and arrays.
- 1.3 Declarations. Expressions., Statements, Symbolic constants, Operators and Expressions.

Unit 2. Data Input and Output:

[06 Lectures]

- 2.1 Preliminaries. Single character input- the getchar() function.
- 2.2 Single character output-the putchar() function.
- 2.3 Entering input data- the scanf() function.
- 2.4 Writing output data- the printf function.
- 2.5 The gets and puts functions.



Unit 3. Preparing, running a complete C Program and Control Statements: [10 Lectures]

- 3.1 Preliminaries. The while statement. The do-while statement.
- 3.2 The for statement, Nested loops. The if-else statement. The switch statement.
- 3.3. The break statement. The continue statement. The comma operator. The goto statement.

[14 Lectures]

Unit 4. Functions and Arrays:

- 4.1 Introduction to a function. Defining a function. Accessing a function.
- 4.2 Passing arguments to a function. Function prototypes, Recursion, Defining an array.
- 4.3 Processing an array. Passing arrays to functions. Multidimensional arrays. Arrays and strings.

Text Book:

1. **Programming with C.** By Byron S. Gottfried. Schaum's Outline series.
Unit-1: Chapters: 1, 2, 3, Unit-2: Chapter: 4, Unit-3: Chapters: 5, 6.
Unit-4: Chapters: 7, 9.

Reference Books:

1. The C Programming Language. By Brian W. Kernighan, Dennis M. Ritchie, 2nd Edition.
2. Spirit of C: An Introduction to Modern Programming. By Henry Mullish and Herbert L. Cooper, Jaico Publishers.

DSE-3B: MT-356(A): Machine Learning-I (2 credits)

Course Objectives:

Students will try to learn:

1. To introduce students to the basic concepts and techniques of Machine Learning.
2. To become familiar with **introduction to NumPy Array and Matrices**.
3. To become familiar with discover and visualize data to gain insights.
4. To become familiar with Fine-tuning the model - Grid Search, Randomized Search.
5. To develop the ability to write database applications in Python.

Course Learning Outcomes:

Upon successful completion of this course the student will be able to:

1. Gain knowledge about basic concepts of Machine Learning.
2. Identify machine learning techniques suitable for a given problem.
3. Solve the problems using various machine learning techniques.

Course Contents:

Unit 1: Introduction to Machine Learning

[08 Lectures]

- 1.1 What & why behind machine learning
- 1.2 Types of Machine Learning - Supervised vs Unsupervised
- 1.3 Model Based Training
- 1.4 Main challenges of Machine Learning
- 1.5. Testing and Validating

Unit 2: Introduction to Python

[08 Lectures]

- 2.1 The Way Of The Program
- 2.2 Variables, Expressions and Statements



- 2.3 Functions
- 2.4 Conditionals and Recursion
- 2.5 Strings
- 2.6 Lists

Unit 3: Understanding ML related Python Packages

[10 Lectures]

- 3.1 Numpy Basics: Arrays and Vectorized Computation
 - 1. The NumPyndarray: A Multidimensional Array Object
 - 2. Universal Functions: Fast Element-wise Array Functions
 - 3. Data Processing Using Arrays
 - 4. Linear Algebra
- 3.2 Getting Started with Pandas
 - 1. Introduction to pandas Data Structures
 - 2. Essential Functionality
 - 3. Summarizing and Computing Descriptive Statistics
 - 4. Handling Missing Data
 - 5. Hierarchical Indexing
- 3.3 Plotting and Visualization
 - 1. A Brief matplotlib API Primer
 - 2. Plotting Functions in Pandas
 - 3. Plotting Maps: Visualizing Haiti Earthquake Crisis Data

Unit 4: End to End Machine Learning Project

[10 Lectures]

- 4.1 Get the data
- 4.2 Discover & Visualize the data to gain insights
- 4.3 Preparing the data for machine learning - Cleaning, Handling categorical values, Feature scaling
- 4.5 Select and Train a model - Training and Evaluating on the Training Set
- 4.4 Fine-tuning the model - Grid Search, Randomized Search

Text Books:-

1. **Hands-on Machine Learning with Scikit-Learn, Keras and Tensorflow**—AurelienHeron, Sections: 1, 2
2. **Python for Data Analysis** by Wes McKinney (O' Reilly publication) Chapter -4:4.1, 4.2, 4.3, 4.5, Chapter -5: 5.1, 5.2, 5.3, 5.4, 5.5, Chapter-8:8.1, 8.2, 8.3
3. **Allen Downey, Think Python, How to Think Like a Computer Scientist**, Green Tea Press Needham, Massachusetts, 2015, Sections - 1, 2, 3, 5, 8, 10

Reference Book:-

1. **Introduction to Machine Learning With Python** - Andreas C. Muller & Sarah Guide
2. **Head first Python** by Paul Barry (O Reilly publication)
3. **Jason Brownlee - Basics of Linear Algebra for Machine Learning**, 2018
4. **M. P. Deisenroth, A. A. Faisal, C. S. Ong - Mathematics for Machine Learning**, Cambridge University Press, 2019
5. **DipanjanSarkar, Raghav Bali, Tushar Sharma - Practical Machine Learning with Python**, 2018.
6. **Extra Reference Resources -**
[geeksforgeeks.org/machine-learning](https://www.geeksforgeeks.org/machine-learning)
<https://towardsdatascience.com/search?q=machine%20learningwww.kaggle.com>



DSE-3B: MT-356(B): Number Theory (2 credits)

Course Objectives: There are difficult open problems in number theory that are understandable at the undergraduate level; this course is designed to develop a micro aptitude for understanding the aesthetic aspect of mathematical instructions and to prepare young minds to ponder such problems. Another goal is to familiarise students with basic number theoretic techniques that can be used in data protection.

Course Learning Outcomes: This course will enable the students to learn:

- i) some of the open problems related to prime numbers.
- ii) about number theoretic functions and modular arithmetic.
- iii) the Law of Quadratic Reciprocity and other methods to classify numbers as primitive roots, quadratic residues, and quadratic non-residues.

Course Contents:

Unit 1. Divisibility

[06 Lectures]

- 1.1 Introduction
- 1.2 Divisibility
- 1.3 Prime

Unit 2. Congruences

[08 Lectures]

- 2.1 Congruences
- 2.2 Solution of Congruences
- 2.3 The Chinese Remainder Theorem

Unit 3. Greatest integer function

[08 Lectures]

- 3.1 Greatest integer function
- 3.2 Arithmetic functions
- 3.3 The Mobius Inversion formula

Unit 4. Quadratic Reciprocity

[08 Lectures]

- 4.1 Quadratic residues
- 4.2 Quadratic reciprocity
- 4.3 The Jacobi Symbol

Unit 5. Diophantine Equations

[06 Lectures]

- 5.1 Diophantine equations $ax + by = c$
- 5.2 Pythagorean triplets.

Text Book:

1. I. Niven, H. Zuckerman and H.L. Montgomery, An Introduction to Theory of Numbers, 5th Edition, John Wiley and Sons.

Unit 1 : Chapter 1 Section 1.1- 1.3, Unit 2 : Chapter 2 Section 2.1- 2.3,

Unit 3 : Chapter 3 Section 3.1- 3.3, Unit 4 : Chapter 4 Section 4.1 -4.3,

Unit 5 : Chapter 5 Section 5.1 and 5.3

Reference Book:

1. David M. Burton, Elementary Number Theory (Second Ed.), Universal Book Stall, New Delhi, 1991.

DSE-3B: MT-356 (C): Laplace Transform and Fourier Series (2 credits)

Course Objectives: The main objective of this course is to determine properties of Laplace Transform and Fourier series which may be solved by application of special functions.



Practical 4: Non homogeneous linear equations Part II (Unit 2.3 to 2.4)

Practical 5: Series solution of linear second order equations (Unit 3)

Practical 6: System of equations (Unit 4).

DSE-3: MT 359: Practical Course Lab-III (Based on DSE-3A and DSE-3B)(2 credits)

Section-I: Operations Research/ Differential Geometry/C-Programming

Section-I (A): Operations Research Practical

Practical 1: Modeling with Linear Programming (Unit-1)

Practical 2: The Simplex Method-I (Unit-2)

Practical 3: The Simplex Method-II (Unit-2)

Practical 4: Duality (Unit-2)

Practical 5: Transportation Model (Unit-3)

Practical 6: The Assignment Model (Unit-4)

OR

Section-I (B): Differential Geometry Practical

Practical 1: Curves in the plane and in space (Unit 1)

Practical 2: How much does a curve? (Unit 2)

Practical 3: Global Properties of curves (Unit 3)

Practical 4: Surfaces in three dimensions (Unit 4)

Practical 5: The first fundamental form (Unit 5)

Practical 6: Curvature of surfaces (Unit 6)

OR

Section-I(C): C- Programming Practical

Practical-1: Operators and expressions-I (Unit 1)

Practical-2: Operators and expressions-II (Unit 2)

Practical-3: Control statements-I (Unit 3)

Practical-4: Control statements-II (Unit 3)

Practical-5: Arrays (Unit 4)

Practical-6: Functions (Unit 4)

Section-II: Machine Learning-I/ Number Theory/Laplace Transform and Fourier Series

Section-II(A): Machine Learning-I Practical

Practical 1: Introduction to Python, Python Data Types-I (Unit 2)



DSE-1: MT 357: Practical Course Lab-I (Metric Spaces and Real Analysis-I)(2 credits)

Section-I: Metric Spaces Practical

Practical 1: Definition and examples of Metric Spaces (Unit-1; 1.1)

Practical 2: Open and Closed sets in metric spaces (Unit-1; 1.2)

Practical 3: Convergences (Unit 2)

Practical 4: Continuity (Unit 3)

Practical 5: Compactness (Unit 4)

Practical 6: Connectedness (Unit 4)

Section-II: Real Analysis-I Practical

Practical 1: Logic, Set Theory, Functions and Cardinality (Unit-1)

Practical 2: Convergent and Divergent Sequences of Real Numbers (Unit-2)

Practical 3: Monotone Sequences and Algebra of Convergent Sequences (Unit-2)

Practical 4: Limit Superior, Inferior and Cauchy Sequences (Unit-3)

Practical 5: Series of Real Numbers, Alternating Series and Conditional/Absolute Convergence (Unit-4)

Practical 6: Convergent and Divergent Series of Real Numbers (Unit-4)

DSE-2: MT 358: Practical Course Lab-II (Group Theory and Ordinary Differential Equations)(2 credits)

Section-I: Group Theory Practical

Practical 1: Isomorphic Binary Structures and Groups (Unit-1)

Practical 2: Subgroups and Cyclic Groups (Unit-2)

Practical 3: Groups of Permutations, Orbits and Cycles (Unit-3)

Practical 4: Alternating Groups, Cosets and the Theorem of Lagrange (Unit-3)

Practical 5: Direct Products and Homomorphisms (Unit-4)

Practical 6: Factor Groups, Factor Group Computations and Simple Groups (Unit-4)

Section-II: Ordinary Differential Equations Practical

Practical 1: Linear differential equations with constant coefficients (Unit 1.1 to 1.4)

Practical 2: Inverse differential operators (Short methods) (Unit 1.5)

Practical 3: Non homogeneous linear equations Part I (Unit 2.1 to 2.2)



3. To learn and understand python looping, control statements and string manipulations.
4. To acquire programming skills in core Python.

Course Learning Outcomes: At the end of the course:

1. The student will be able to explain basic principles of Python programming language.
2. The student will implement object oriented concepts.

Course Contents:

Unit 1: Introduction to Python

[06 Lectures]

- 1.1 Installation of Python
- 1.2 Values and types: int, float and str,
- 1.3 The Print Function: Print basics
- 1.4 Variables: assignment statements, printing variable values, types of variables.
- 1.5 Mathematical Operators, operands and precedence: +, -, /, *, **, % PEMDAS (Rules of precedence)
- 1.6 String operations: + : Concatenation, * : Repetition
- 1.7 Boolean operator:
 - 1.7.1 Comparison operators: ==, !=, >, =, <=
 - 1.7.2 Logical operators: and, or, not
- 1.8 Mathematical functions from math, cmath modules, random module
- 1.9 Keyboard input: input() statement
- 1.10 Calculus: Differentiation, Integration, Limit and Series

Unit 2: String, list, tuple

[06 Lectures]

- 2.1 Strings:
 - 2.1.1 Length (Len function)
 - 2.1.2 String traversal: Using while statement, Using for statement
 - 2.1.3 String slice
 - 2.1.4 Comparison operators (>, <, ==)
- 2.2 Lists:
 - 2.2.1 List operations
 - 2.2.2 Use of range function
 - 2.2.3 Accessing list elements
 - 2.2.4 List membership and for loop
 - 2.2.5 List operations
 - 2.2.6 Updating list: addition, removal or updating of elements of a list
- 2.3 Tuples:
 - 2.3.1 Defining a tuple,
 - 2.3.2 Index operator,
 - 2.3.3 Slice operator,
 - 2.3.4 Tuple assignment,
 - 2.3.5 Tuple as a return value

Unit 3: Iterations and Conditional statements

[10 Lectures]

- 3.1 Conditional and alternative statements, Chained and Nested Conditionals:
if, if-else, if-elif-else, nested if, nested if-else
- 3.2 Looping statements such as while, for etc, Tables using while.
- 3.3 Functions:



Course Learning Outcomes: This course will enable the students to learn:

- i) Students will be able to know the use of Laplace transform in system modeling, digital signal processing, process control.
- ii) Solve an initial value problem for an nth order ordinary differential equation using the Laplace transform.
- iii) Find the Fourier series representation of a function of one variable

Course Contents:

Unit 1: The Laplace Transform

[10Lectures]

- 1.1 Definition, Laplace Transform of some elementary functions.
- 1.2 Sufficient condition for existence of Laplace Transform
- 1.3 Some important properties of Laplace Transform.
- 1.4 Methods of finding Laplace Transform: Direct Method, Series Method
- 1.5 Evaluation of Integration
- 1.6 Some Special Functions

Unit2: The Inverse Laplace Transform

[10Lectures]

- 2.1 Definition, Some inverse Laplace Transform.
- 2.2 Some important properties of Inverse Laplace Transform.
- 2.3 Methods of finding inverse Laplace Transforms: Partial Fraction Method and Series Method.
- 2.4 The Heaviside's Expansion formula.
- 2.5 Beta function, Evaluation of Integration.

Unit3: Applications to Differential Equations

[10Lectures]

- 3.1 Ordinary Differential Equations with constant coefficients.
- 3.2 Ordinary Differential Equations with variable coefficients.
- 3.3 Simultaneous Ordinary Differential Equations.

Unit 4: Fourier series

[06Lectures]

- 4.1 Even and Odd functions, Its properties.
- 4.2 Fourier series and its Examples.

Text Book:

1. Schaum's Outline Series-Theory and Problems of Laplace Transform by Murray R. Spiegel.
Unit1:Chapter-1, Unit2:Chapter-2, Unit3:Chapter-3 (Excluding Applications to Mechanics, Electrical circuits, Beam and PDE).
2. Richard R. Goldberg, Methods of Real Analysis, Oxford and IBH Publishing Co.Pvt.Ltd.(1970).
Unit4: Chapter-12(only12.1)

ReferenceBooks:

1. Phil Dyke, An Introduction to Laplace Transforms and Fourier Series, Second Edition, Indian Reprint 2014.
2. Joel L. Schiff, The Laplace Transforms- Theory and Applications, Springer Verlag New York 1999.
3. Lokenath Debnath and Dambaru Bhatta, Integral Transforms and Their Applications, Third Edition, CRC Press.



Practical 12: Graph Plotting (Unit 6)

Text Books:-

1. Allen Downey, Think Python, How to Think Like a Computer Scientist, Green Tea Press Needham, Massachusetts, 2015,
Unit1-1: Chapter-1:1.1-1.5, Chapter-2: 2.1-2.6, Chapter-3: 3.1-3.6, Chapter-5: 5.1-5.3
Unit1-2: Chapter-8: 8.1-1.5, Chapter-10: 10.12, Chapter-12: 12.1- 12.6
Unit-3: Chapter 5:5.4 -5.7, Chapter 7: 7.1-7-7.5
2. Robert Johansson, Introduction to Scientific Computing in Python, 2016
Unit-1: 6.5-6.8
Unit- 4: Chapter-4: 4.6 (4.6.1 - 4.6.6), Chapter-6: 6.9-6.10, Unit-5: Chapter-4: 4.8,
Unit-6: Chapter-5
3. Hans-Petter Halvorsen, Python for Scientific engineering, 2020 Unit-5: Chapter-31

Reference Books:-

1. Lambert K. A., Fundamentals of Python - First Programs, Cengage Learning India, 2015.
2. Guzdial, M. J., Introduction to Computing and Programming in Python, Pearson India.
3. Perkovic, L., Introduction to Computing Using Python, 2/e, John Wiley, 2015. Zelle, J., Python Programming: An Introduction to Computer Science, Franklin, Beedle and Associates Inc.
4. Sandro Tosi, Matplotlib for Python Developers, Packt Publishing Ltd. (2009) BIRMINGHAM – MUMBAI. (Use for 2D and 3D plots and also use Lambert K. A book).
5. Python: Notes for Professionals, Goalkicker.com, Free Programming books.

SEC-II: MT-3511: LaTeX for Scientific Writing (2 credits)

Course Objectives: The purpose of this course is

- i) To provide an understanding of the basic mechanisms of LaTeX, using plain text as a vehicle
- ii) To acquaint students with the latest typesetting skills, which shall enable them to prepare high quality typesetting.

Course Learning Outcomes: After studying this course the student will be able to:

- i) Write a simple LaTeX input document based on the article class.
- ii) Turn the input document into pdf with the pdflatex program.
- iii) Format Words, Lines, and Paragraphs.
- iv) Understand how to present data using tables.

Course Contents:

Unit 1. Introduction to LaTeX

[06 Lectures]

- 1.1 Definition and application of LaTeX
- 1.2 Preparation and Compilation of LaTeX input file
- 1.3 LaTeX Syntax
- 1.4 Keyboard Characters in LaTeX

Unit 2. Formatting Words, Lines, and Paragraphs

[09 Lectures]

- 2.1 Text and Math Mode Fonts.
- 2.2 Emphasized and Colored Fonts



- Practical 2: Python Data Types- II (Unit 2)
Practical 3: Control statements in Python-I (Unit 2)
Practical 4: Control statements in Python-II (Unit 2)
Practical 5: Python collection type - List (Unit 2)
Practical 6: Data handling with Panda - 1 (Unit 3)
Practical 7: Data handling with Panda - 2 (Unit 3)
Practical 8: Data visualization with Matplotlib (Unit 3)
Practical 9: Introduction to scikit-learn (Unit 3)
Practical 10: End to end model implementation - 1 (Unit 4)
Practical 11: End to end model implementation - 2 (Unit 4)
Practical 12: End to end model implementation - 3 (Unit 4)

OR

Section-II(B): Number Theory Practical

- Practical 1: Divisibility and GCD – I (Unit 1)
Practical 2: Divisibility and GCD – II (Unit 1)
Practical 3: Congruences (Unit 2)
Practical 4: Quadratic Reciprocity (Unit 3)
Practical 5: Number Theoretic Functions (Unit 4)
Practical 6: Linear Diophantine Equations, Pythagorean Triplets (Unit 5)

OR

Section-II(C): Laplace Transforms and Fourier Series Practical

- Practical 1: The Laplace Transform (Unit 1: 1.1, 1.2, 1.3, 1.4)
Practical 2: Special Functions (Unit 1: 1.5, 1.6)
Practical 3: The Inverse Laplace Transform-I (Unit 2: 2.1, 2.2, 2.3, 2.4)
Practical 4: The Inverse Laplace Transform-II (Unit 2: 2.4, 2.5)
Practical 5: Applications to Differential Equations (Unit 3)
Practical 6: Fourier Series (Unit 4)

SEC-I: MT -3510: Programming in Python-I (2 credits)

Course Objectives:

1. To understand why Python is a useful scripting language for developers.
2. To learn how to use lists, tuples, and dictionaries in Python programs.

3. LaTeX and Friends, M.R.C. van Dongen, Springer-Verlag Berlin Heidelberg ,2012.

Semester-VI

DSE-4A: MT - 361: Complex Analysis (2 Credits)

Course Objectives: This course aims to introduce the basic ideas of analysis for complex functions in complex variables with visualization through relevant Practicals. Particular emphasis has been laid on Cauchy's theorems, series expansions and calculation of residues.

Course Learning Outcomes: The completion of the course will enable the students to:

- i) Understand the significance of differentiability of complex functions leading to the understanding of Cauchy-Riemann equations.
- ii) Evaluate the contour integrals and understand the role of Cauchy-Goursat theorem and the Cauchy integral formula.
- iii) Expand some simple functions as their Taylor and Laurent series, classify the nature of singularities, find residues and apply Cauchy Residue theorem to evaluate integrals.
- iv) Represent functions as Taylor, power and Laurent series, classify singularities and poles, find residues and evaluate complex integrals using the residue theorem.

Course Contents:

Unit 1: Analytic functions

[09 Lectures]

- 1.1 Functions of a Complex Variables
- 1.2 Limits, Theorems on limits (Without Proof), Limits involving the point at infinity, Continuity, Derivatives, Differentiation formulas (Without Proof)
- 1.3 Cauchy- Riemann Equations, Sufficient Conditions for differentiability (Only Statement and Examples)
- 1.4 Polar coordinates, Analytic functions, Harmonic functions.

Unit 2: Elementary Functions

[07 Lectures]

- 2.1 The Exponential functions
- 2.2 The Logarithmic function, Branches and derivatives of logarithms, Some identities involving logarithms
- 2.3 Complex exponents, Trigonometric functions.

Unit 3. Integrals

[11 Lectures]

- 3.1 Derivatives of functions, Definite integrals of functions
- 3.2 Contours, Contour integral, Examples
- 3.3 Upper bounds for Moduli of contour integrals, Anti-derivatives (Only Examples)
- 3.4 Cauchy-Goursat Theorem (without proof), Simply and multiply Connected domains. Cauchy integral formula, Derivatives of analytic functions. Liouville's Theorem and Fundamental Theorem of Algebra (Without Proof).

Unit 4. Series

[04 Lectures]

- 4.1 Convergence of sequences and series (Theorems without proof)
- 4.2 Taylor's series (without proof), Laurent series (without proof), examples only.

Unit 5. Residues and Poles

[05 Lectures]

- 5.1 Isolated singular points, Residues
- 5.2 Cauchy residue theorem (Without Proof), residue at infinity, types of isolated singular points, residues at poles
- 5.3 Zeros of analytic functions, zeros and poles.



- 3.3.1 Calling functions: type, id
- 3.3.2 Type conversion: int, float, str
- 3.3.3 Composition of functions, Returning values from functions
- 3.3.4 User defined functions, Parameters and arguments

[04 Lectures]

Unit 4: Linear Algebra

- 4.1 Matrix construct, eye(n), zeros(n,m) matrices
- 4.2 Addition, Subtraction, Multiplication of matrices, powers and invers of a matrix.
- 4.3 Accessing Rows and Columns, Deleting and Inserting Rows and Columns
- 4.4 Determinant, reduced row echelon form, nullspace, column space, Rank
- 4.5 Solving systems of linear equations (Gauss Elimination Method, Gauss Jordan Method, LU- decomposition Method)
- 4.6 Eigenvalues, Eigenvectors, and Diagonalization

[06 Lectures]

Unit 5: Numerical methods in Python

- 5.1 Roots of Equations
- 5.2 Newton-Raphson Method
- 5.3 False Position (Regula Falsi) Method
- 5.4 Numerical Integration:
 - 5.4.1 Trapezoidal Rule,
 - 5.4.2 Simpson's 1/3rd Rule,
 - 5.4.3 Simpson's 3/8th Rule

[04 Lectures]

Unit 6: 2D and 3D Graphs

- 6.1 Installation of numpy, matplotlib packages
- 6.2 Graphs plotting of functions
- 6.3 Different formats of graphs, PyDotPlus (Scalable Vector Graphics), PyGraphviz.
 - Decorate Graphs with Plot Styles and Types:** Markers and line styles, Control colors, Specifying styles in multiline plots, Control linestyle, Control marker styles.
 - Polar charts:** Navigation Toolbar with polar plots, Control radial and angular grids.
- 6.4 Three-dimensional Points and Lines
- 6.5 Three-dimensional Contour Plots, Wireframes and Surface Plots.

Practicals:

Practical 1: Introduction to Python, Python Data Types-I (Unit 1)

Practical 2: Python Data Types- II (Unit 2)

Practical 3: Control statements in Python-I (Unit 3- 3.1, 3.2)

Practical 4: Control statements in Python-II (Unit 3- 3.3)

Practical 5: Application: Matrices (Unit 4 – 4.1-4.3)

Practical 6: Application: Determinants, system of Linear Equations (Unit 4- 4.4, 4.5)

Practical 7: Application: System of equations (Unit 4- 4.5)

Practical 8: Application: Eigenvalues, Eigenvectors (Unit 4 – 4.6)

Practical 9: Application: Eigenvalues, Eigenvectors (Unit 4 – 4.6)

Practical 10: Application: Roots of equations (Unit 5 – 5.1)

Practical 11: Application: Numerical integration (Unit 5 – 5.2, 5.3, 5.4)



Text Book:

1. J.W. Brown and R.V. Churchill, Complex Variables and Applications, International Student Edition, 2009. (Eighth Edition).

Unit -1: Chapter 1: Sec.11, 12, 15 to 26. Unit-2: Chapter 3: Sec.29 to 34.

Unit -3: Chapter 4: Sec. 37 to 44, 46 and 48 to 53.

Unit -4: Chapter 5: Sec. 55 to 60 and 62. Unit - 5: Chapter 6: Sec.68 to 76.

Reference Books:

1. S. Ponnusamy, Complex Analysis, Second Edition (Narosa).
2. S. Lang, Complex Analysis, (Springer Verlag).
3. A.R. Shastri, An Introduction to Complex Analysis, (MacMillan).
4. L.V. Ahlfors, Complex Analysis, 3rd edition, McGraw Hill, 2000.
5. H.A. Priestley, Introduction to Complex Analysis, 2nd edition (Indian), Oxford, 2006.

DSE-4B: MT: 362 Real Analysis-II(2 Credits)

Course Objectives: To comprehend bounded function integration on a closed and bounded interval, as well as its extension to situations where either the integration interval is infinite or the integrand has infinite limits at a finite number of points on the integration interval. The sequence and series of real-valued functions.

Course Learning Outcomes: The course will enable the students to learn about:

- i) some of the families and properties of Riemann integrable functions, and the applications of the fundamental theorems of integration.
- ii) beta and gamma functions and their properties.
- iii) recognize the difference between pointwise and uniform convergence of a sequence of functions.
- iv) illustrate the effect of uniform convergence on the limit function with respect to continuity, differentiability, and integrability.

Course Contents:

Unit 1: Riemann Integration

[12 Lectures]

- 1.1 Sets of Measure zero
- 1.2 Definition of the Riemann Integral
- 1.3 Existence of the Riemann Integral
- 1.4 Properties of the Riemann Integral
- 1.5 Fundamental Theorems of Calculus

Unit 2: Improper Integrals

[10 Lectures]

- 2.1 Improper Integrals on Closed and Bounded Intervals
- 2.2 Tests for Convergence of Positive Integrands
- 2.3 Improper Integrals on Unbounded Intervals and Tests for their Convergence
- 2.4 Tests for Convergence of the Integral of Product

Unit 3: Sequences of Functions

[07 Lectures]

- 3.1 Pointwise convergence of sequences of functions
- 3.2 Uniform convergence of sequences of functions
- 3.3 Consequences of uniform convergence

Unit 4: Series of Functions

[07 Lectures]

- 4.1 Convergence and uniform convergence of series of functions
- 4.2 Integration and differentiation of series of functions



3.3.3. Rules of finding complementary functions

3.3.4. Rule of finding particular integrals

[08 lectures]

Unit 4 :Classification of Partial Differential Equations

- 4.1 Classification of second order partial differential equations, canonical forms
- 4.2 Solution of Laplace equations by separation variables methods
- 4.3 Solution of periodic differential equations by separation variables method
- 4.4 Solution of wave equation by separation variables method.

Text Books:

1. Ian Sneddon, Element of Partial Differential Equations, McGraw-Hill Book Company, McGraw-Hill Book Company.

Unit-1: Chapter-1 : 1,2,3,5 , Unit-2: Chapter-2 :1,2,4,5, Unit-3:Chapter-3: 1,4,5

2. J.N. Sharma, Kehar Singh, Partial Differential equations for Engineers and Scientists, second Edition, Narasa Publications.

Unit-4: Chapter No.3: 3.3, Chapter No.4: 4.3 ,Chapter No.5: 5.5

Reference Books:

1. T. Amaranath, An Elementary Course in Partial Differential Equations, Narosa Publishing, House 2nd Edition, 2003 (Reprint, 2006).
2. K. Sankara Rao, Introduction to Partial Differential Equations, Third Edition, PHI.

DSE-6A: MT365 (A): Optimization Techniques(2 Credits)

Course Objectives: This course enables the students to get an idea about the

- i) Network and basic components, Determination of critical path: Critical Path Method (CPM), Project Evaluation and Review Techniques (PERT). Time-cost optimization Algorithm.
- ii) Problem of Sequencing, Processing n Jobs through Two Machines, Processing n Jobs through 3 Machines and Processing n Jobs through k Machines.

Course Learning Outcomes: The course will enable the students to:

- i) understand fundamentals of Network Analysis using CPM and PERT.
- ii) solve a sequencing Problem for various jobs and machines.

Course Contents:

Unit 1: Network Models

[10 Lectures]

- 1.1 CPM and PERT, Network representation, Critical Path Computations
- 1.2 Construction of the time schedule, PERT networks.

Unit 2: Game Theory

[08 Lectures]

- 2.1 Game theory, Some basic terminologies
- 2.2 Optimal solution of two person zero sum game
- 2.3 Solution of mixed strategy games (Graphical solution of games only).

Unit 3: Replacement and Maintenance Models

[08 Lectures]

- 3.1 Introduction, Types of failure
- 3.2 Replacement of items whose efficiency deteriorates with time.

Unit 4: Sequencing Problems

[05 Lectures]

- 4.1 Introduction, Notation, terminology and assumptions
- 4.2 processing n jobs through two machines, processing n jobs through three machines.



Text Books:

1. **Methods of Real Analysis, Second Edition, Richard R. Goldberg, John Wiley and Sons, Inc.**

Unit -1: Sec.: 7.1, 7.2, 7.3, 7.4, 7.8, Unit -3: Sec.: 9.1, 9.2, 9.3, Unit-4: Sec. 9.4, 9.5

2. **Introduction to Real Analysis, Eighth Edition, S.K. Mapa, Sarat Book House**

Unit-2: Sections: 12.1, 12.2, 12.3, 12.4, 12.5, 12.6, 12.7, 12.8, 12.9, 12.10

Reference Books:

1. Real Analysis, N.L. Carothers, Cambridge University Press
2. Introduction to Real Analysis, Third edition, Robert, G. Bartle, Donald Sherbert, John Wiley and Sons.
3. A Basic Course in Real Analysis, Ajit Kumar and S.Kumaresan, CRC Press, Second Indian, CRC Press (Chapman and Hall)
4. A course of Mathematical Analysis, Revised edition, Shanti Narayan and Mittal - S.Chand and Co.(2002).
5. Mathematical Analysis, third Editions'. Malik and Savita Arora - New Age International Publications

DSE-5A: MT: 363 Ring Theory (2 Credits)

Course Objectives: The objective of this course is to introduce the fundamental theory of rings and their corresponding homomorphisms. The basic concepts of ring of polynomials and irreducibility tests for polynomials over ring of integers.

Course Learning Outcomes: The course will enable the students to learn about:

- i) The fundamental concept of Rings, Fields, subrings, integral domains and the corresponding morphisms.
- ii) Learn in detail about polynomial rings, fundamental properties of finite field extensions, and classification of finite fields.
- iii) Appreciate the significance of unique factorization in rings and integral domains.

Course Contents:

Unit 1: Rings and Fields

[08 lectures]

- 1.1 Ring, Subring, Fields.
- 1.2 Divisors of zero, Integral Domain, The Characteristics of a Ring.
- 1.3 The Field of Quotients of an Integral Domain.

Unit 2: Rings of Polynomials & Factorization

[08 lectures]

- 2.1 Polynomials in an indeterminate,
- 2.2 The Evaluation Homomorphism Zeros.
- 2.3 Factorization of a Polynomial over a Field: The Division Algorithm in $F[x]$
- 2.4 Irreducible Polynomials, Uniqueness of Factorization in $F[x]$.

Unit 3: Ideals and Factor Rings

[08 lectures]

- 3.1 Homomorphism, Properties of Homomorphism
- 3.2 Ideals, Factor Ring, Fundamental Homomorphism Theorem.
- 3.3 Maximal Ideal, Prime Ideal, Ideal Structure in $F[x]$.

Unit 4: Factorization

[12 Lectures]

- 4.1 Unique Factorization Domain, Principal Ideal Domain, Gauss Lemma, $D[x]$ is a UFD.
- 4.2 Euclidean Norm, Euclidean Domain, Euclidean Algorithm (Without Proof).
- 4.3 Gaussian Integers, Multiplicative Norm.



- 2.3 Sectional Units
- 2.4 Labeling and Referring Numbered Items
- 2.5 Texts Alignment and Quoted text
- 2.6 New Lines and Paragraphs
- 2.7 Creating and Filling Blank Space
- 2.8 Producing Dashes Within Texts

Unit 3. Listing and Tabbing Texts

[09 Lectures]

- 3.1 Listing Texts
- 3.2 Tabbing Texts Through the tabbing Environment

Unit 4. Table Preparation

[12 Lectures]

- 4.1 Table Through the tabular Environment
- 4.2 Table Through the tabularx Environment
- 4.3 Vertical Positioning of Tables
- 4.4 Sideways (Rotated) Texts in Tables
- 4.5 Adjusting Column Width in Tables
- 4.6 Additional Provisions for Customizing Columns of Tables
- 4.7 Merging Rows and Columns of Tables.

Practicals:

Practical 1: Introduction to LaTeX (Unit-1; 1.1, 1.2)

Practical 2: Syntax and Keyboard Characters in LaTeX (Unit-1; 1.3, 1.4)

Practical 3: Fonts in LaTeX (Unit -2; 2.1, 2.2)

Practical 4: Sections, Labelling and Text Alignment in LaTeX (Unit-2; 2.3, 2.4, 2.5)

Practical 5: New Lines, Paragraphs, Blank Space and Dashes in LaTeX (Unit-2; 2.6-2.8)

Practical 6: Listing Texts -I (Unit-3; 3.1[Chapter 6, 6.1.1, 6.1.2])

Practical 7: Listing Texts -II (Unit-3; 3.1[Chapter 6, 6.1.3, 6.1.4, 6.1.5])

Practical 8: Tabbing Texts (Unit-3; 3.2)

Practical 9: Table Through the tabular Environment (Unit-4; 4.1)

Practical 10: Table Through the tabularx Environment (Unit-4; 4.2)

Practical 11: Positioning and Texts in Tables (Unit-4; 4.3, 4.4)

Practical 12: Customizing Tables in LaTeX (Unit-4; 4.5, 4.6, 4.7)

Text Book:

1. **LaTeX in 24 Hours, A Practical Guide for Scientific Writing, Dilip Datta, Springer International Publishing AG, 2017.**

Unit 1: Chapter 1; 1.1 to 1.6, Unit 2: Chapter 2; 2.1 to 2.4, Chapter 3; 3.1 to 3.7

Unit 3: Chapter 6; 6.1, 6.2, Unit 4: Chapter 7; 7.1 to 7.7

Reference Books:

1. **LaTeX, A Document Preparation System, User's Guide and Reference Manual, Leslie Lamport, Addison-Wesley Publishing Company, Inc., 1994.**
2. **LaTeX Beginner's Guide, Stefan Kottwitz, Packt Publishing Ltd, 2011.**

**Text Book:**

1. John B. Fraleigh, **A First Course In Abstract Algebra**, 7th Edition, Pearson.
Unit 1: Section 18, 19, 21. Unit 2: Section 22 and 23.
Unit 3: Section 26 and 27. Unit 4: Section 45, 46 and 47 (except theorem 47.10).

Reference Books:

1. Josheph A. Gallian, **Contemporary Abstract Algebra**, 7th Edition, Narosa Publishing House.
2. David S. Dummit and Richard M. Foote, **Abstract Algebra**, 3rd Edition, Jonh Wiley and Sons, Inc.
3. I.N. Herstein, **Abstract Algebra**, 3rd Edition, Prentice Hall of India.
4. P.B. Bhattacharya, S.K. Jain and S.R. Nagpal, **Basic Abstract Algebra**, 2nd Edition, Cambridge University Press.

DSE-5B: MT 364: Partial Differential Equations (2 credits)

Course Objectives: The main goals of this course are to teach students how to form, solve, and apply partial differential equations to solve physical problems. Also, to introduce first and second order partial differential equations and their classifications and methods of finding solutions of these partial differential equations.

Course Learning Outcomes: The course will enable the students to:

- i) formulate, classify and transform partial differential equations into canonical form.
- ii) solve linear partial differential equations using various methods and apply these methods in solving some physical problems.
- iii) solve Laplace equations using various analytical methods demonstrate uniqueness of solutions of certain kinds of these equations.

Course Contents:**Unit 1: Introduction to Ordinary and Partial Differential Equations** [10 Lectures]

- 1.1 Surfaces and Curves in Three Dimensions
- 1.2 Simultaneous Differential Equations of the First Order and the First Degree in Three Variables.
- 1.3 Methods of solution of $dx/P = dy/Q = dz/R$
- 1.4 Pfaffian Differential Forms and Equations.
- 1.5 Solution of Pfaffian Differential Equations in Three Variables

Unit 2: Partial Differential Equations

[08 Lectures]

- 2.1 Introduction to Partial Differential Equations
- 2.2 Origin of first order Partial Differential Equations
- 2.3 Linear Equations of First order equations
- 2.4 Integral surfaces passing through given curve

Unit 3: Second Order Partial Differential Equations

[10 lectures]

- 3.1 The Origin of Second Order Partial Differential Equations.
- 3.2 Linear Partial Differential Equations with constant coefficients.
- 3.3 Methods of solving Linear Partial Differential Equations
 - 3.3.1. Solution of reducible equations
 - 3.3.2. Solution of irreducible equations with constant coefficients



[03 Lectures]

Unit 3: Sufficient Conditions of Extremum

- 3.1 Higher order variations
- 3.2 Sufficient condition for extremum
- 3.3 Jacobi equation and Jacobi equation

[06 Lectures]

Unit 4: Mechanics of a Particle and System of Particles

- 4.1 Conservation principles (laws)
- 4.2 Conservation of linear momentum
- 4.3 Conservation of angular momentum
- 4.4 Conservation of energy, Constrained motion, constraints, degrees of freedom
- 4.5 Generalized co-ordinates
- 4.6 Limitations of Newton's laws

[15 Lectures]

Unit 5: Variational Principle and Lagrangian Formulation

- 5.1 Hamilton's variational principle
- 5.2 Deduction of Lagrange's equations of motion from Hamilton's principle
- 5.3 Deduction of Lagrange's equations by D'Alembert's Principle
- 5.4 Lagrangian for charged particle in an electromagnetic field, gyroscopic forces, nonconservative forces.
- 5.5 Deduction of Hamilton's principle from D'Alembert's Principle
- 5.6 Deduction of Newton's second law of motion from Hamilton's principle
- 5.7 Deduction of Lagrange's equations of motion using variational principle for non-conservative systems
- 5.8 Applications of Lagrange's equations of motion
- 5.9 Non-holonomic systems
- 5.10 Conservation theorems
- 5.11 Worked Examples

Text Books:

1. Classical Mechanics by SL Gupta, V. Kumar and H.V. Sharma PragatiPrakashan.
Unit-4: Chapter 1: 1.1 to 1.6, Unit-5: Chapter-2: 2.1 to 2.12
2. An elementary course on variational problems in Calculus, Naveen Kumar Narosa Publishing House.
Unit-1: Chapter 1: 1.1 to 1.9, Unit-2: Chapter-2: 2.1 to 2.4, Unit-3: Chapter-3: 3.1 to 3.3.

Reference Books:

1. Classical Mechanics by Herbert Goldstein, Pearson Publication.
2. Introduction to classical Mechanics: with problems and solutions by David J. Morrin Cambridge University Press.
3. Mathematical Methods of Classical Mechanics by V.I. Arnold. Springer Publication.

DSE-6A: MT 365 (C): Financial Mathematics (2 credits)

Course Objectives:

This course enables the students to understand the basic securities, organization of financial markets, the concept of interest rates, present and future value of cash flow.



Unit 5: Classical Optimization Theory

[05 Lectures]

- 5.1 Unconstrained problems, Necessary and sufficient conditions
- 5.2 Newton Raphson method, Constrained problems, Equality constraints (Lagrangian Method Only).

Text Books:

1. Hamdy A. Taha, Operation Research (Eighth Edition, 2009), Prentice Hall of India Pvt. Ltd, New Delhi.
Unit-11: Ch.6: 6.5 (6.5.1 to 6.5.3 & 6.5.5), Unit-2: Ch.13: 13.4(13.4.1, 13.4.2, 13.4.3), Unit-4: Ch.18: 18.1(18.1.1, 18.1.2), 18.2 (18.2.1).
2. J K Sharma, Operations Research (Theory and Applications, second edition, 2006), Macmillan India Ltd.
Unit-5: Ch.17: 17.1, 17.2, 17.3, Ch.20: 20.1, 20.2, 20.3, 20.4.

Reference Books:

1. Frederick S. Hillier, Gerald J. Lieberman, Introduction to Operation Research (Eighth Edition) Tata McGraw Hill.
2. Hira and Gupta, Operation Research

DSE-6A: MT 365(B): Calculus of Variation and Classical Mechanics (2 credits)

Course Objectives: Using mathematical methods, the course seeks to comprehend various definitions of physical quantities and their effects on various bodies. It stresses the acquisition of knowledge in order to apply mathematics to the real world.

Course Learning Outcomes: The course will enable the students to:

- i) understand problems, methods and techniques of calculus of variations.
- ii) understand necessary conditions for the equilibrium of particles acted upon by various forces and learn the principle of virtual work for a system of coplanar forces acting on a rigid body.
- iii) deal with the kinematics and kinetics of the rectilinear and planar motions of a particle including the constrained oscillatory motions of particles.
- iv) determine the center of gravity of some materialistic systems and discuss the equilibrium of a uniform cable hanging freely under its own weight.

Course Contents:

Unit 1: Variational Problems with Fixed Boundaries

[06 Lectures]

- 1.1 Necessary condition of extremum of functionals
- 1.2 Euler equation
- 1.3 Euler-Poisson equation
- 1.4 Euler-ostrogradsky equation
- 1.5 Euler equation in parametric form
- 1.6 Isoperimetric problems
- 1.7 Principle of reciprocity

Unit 2: Variational Problems with Moving Boundaries

[06 Lectures]

- 2.1 Moving boundaries in explicit form
- 2.2 Moving boundaries in implicit form
- 2.3 One sided variation
- 2.4 Functional in parametric form



Course Learning Outcomes:

The students learning outcomes are designed to specify what the students will be able to perform after completion of the course: Ability to select and implement machine learning techniques and computing environment that are suitable for the applications under consideration.

Course Contents:

Unit 1: Classification of MNIST dataset

[10 Lectures]

- 1.1 MNIST
- 1.2 Training a Binary Classifier
- 1.3 Performance Measures - Measuring accuracy using Cross Validation, Confusion Matrix, Precision and Recall
- 1.4 Multiclass Classification
- 1.5 Multilabel Classification

Unit 2: Linear Regression

[10 Lectures]

- 2.1 Linear Regression
 - 1. The Normal Equation
- 2.2 Gradient Descent
 - 1. Batch Gradient Descent
 - 2. Stochastic Gradient Descent
 - 3. Mini-batch Gradient Descent
- 2.3 Polynomail Regression

Unit 3: Logistic Regression

[06 Lectures]

- 3.1 Estimating Probabilities
- 3.2 Training and Cost Function
- 3.3 Decision Boundary
- 3.4 Softmax Regression

Unit 4: Other Supervised Algorithms

[10 Lectures]

- 4.1 K Nearest Neighbors
- 4.2 Decision Trees
- 4.3 Ensembles of Decision Trees - Random Forest
- 4.4 Support Vector Machines

Text Books:-

1. Hands-on Machine Learning with Scikit-Learn, Keras and Tensorflow – Aurelien Geron. Chapter-3: Sections: 3.1, 3.2, 3.3, 3.4, 3.6, Chapter-4: 4.1, 4.2, 4.3, 4.6
2. Introduction to Machine Learning With Python - Andreas C. Muller & Sarah Guido, Chapter-2: Sections: 2.2.2, 2.2.5, 2.2.6, 2.2.7

Reference Book:-

1. Introduction to Machine Learning With Python - Andreas C. Muller & Sarah Guide.
2. Head first Python by Paul Barry (O Reilly publication).
3. Jason Brownlee - Basics of Linear Algebra for Machine Learning, 2018.
4. M. P. Deisenroth, A. A. Faisal, C. S. Ong - Mathematics for Machine Learning, Cambridge University Press, 2019.



- Course Learning Outcomes:** The course will enable the students to:
- describe and explain the fundamental features of a financial instruments.
 - demonstrate a clear understanding of financial research planning, methodology and implementation.
 - demonstrate understanding of basic concepts in linear algebra, relating to linear equations, matrices, and optimization.
 - demonstrate understanding of concepts relating to functions and annuities.
- Course Contents:**

Unit 1: Mathematical models in economics, recurrences, and the elements of finance [08 Lectures]

- 1.1 Introduction, a model of the market, market equilibrium and excise tax.
- 1.2 The first-order recurrence, limits, special cases, continuous compounding of interest.
- 1.3 Interest and capital growth, income generation, the interval of compounding.

Unit 2: The Cobweb model, and Introduction to optimization [10 Lectures]

- 2.1 Stability of market equilibrium, the general linear case and economic interpretation.
- 2.2 Marginal cost as a derivative, Profit maximization, critical points, optimization in an interval and infinite intervals.

Unit 3: The derivative in economics [08 Lectures]

- 3.1 Elasticity of demand, profit maximization again.
- 3.2 Competition versus monopoly, the efficient small firm, startup and break-even points.

Unit 4: Linear equations and the input-output model [10 Lectures]

- 4.1 Making money with matrices, a two-industry 'economy', arbitrage portfolios and state prices and IS-LM analysis.
- 4.2 An economy with many industries and the technology matrix.

Text Book:

1. **Martin Anthony and Norman Biggs, Mathematics for Economics and Finance Methods and Modeling, Cambridge University Press, Reprint 2012.**
Unit-1: Chapters-3: 3.2, 3.3, 3.4 and Chapter-4,
Unit-2: Chapter-5, Chapter-6: 6.3, Chapter-8
Unit-3: Chapter-9, Chapter-10,
Unit-4: Chapter-15:15.3, Chapter-16:16.1, Chapter-17:17.4, Chapter-18:18.5,
Chapter- 19.

Reference Books:

1. Edward T. Dowling, Mathematical Economics, Second Edition, Schaum's Outline Series, McGraw Hill International Edition.
2. AswathDamodaran, Corporate Finance- Theory and Practice, John Wiley and Sons, Inc.
3. Sheldon M. Ross, An Introduction to Mathematical Finance, Cambridge University Press.

DSE-6B: MT-366(A): Machine Learning-II (2 Credits)

Course Objectives:

The main goal of this course is to help students learn, understand, and practice machine learning approaches, which include the study of modern computing big data technologies and scaling up machine learning techniques focusing on industry applications.



[08 Lectures]

3.3 Oblique projections.

3.4 Perspective Transformations.

Unit 4: Plane and Space Curves

4.1 Introduction.

4.2 Curve representation.

4.3 Parametric curves.

4.4 Parametric representation of a circle.

4.5 Bezier Curves – Introduction, definition, properties (without proof), Curve fitting (up to $n = 3$), equation of the curve in matrix form (up to $n = 3$).

Text Book:

1. D. F. Rogers, J. A. Adams, **Mathematical Elements for Computer Graphics**, Tata McGraw Hill, Second Edition.

Unit 1: Chapter 2: Sec. 2.1 to 2.20, Unit 2: Chapter 3: Sec. 3.1 to 3.10.

Unit 3: Chapter 3: Sec. 3.12 to 3.15, Unit 4: Chapter 4: Sec. 4.1, 4.2, 4.4, 4.5, Chapter 5: Sec. 5.1, 5.8.

Reference Books:

1. Computer Graphics with OpenGL, Donald Hearn, M. Pauline Baker, Warren Carithers, Pearson (4th Edition).
2. Schaum Series, Computer Graphics by Zhigang Xiang and Roy A. Plastock.

DSE-6B: MT-366(C): Lebesgue Integration (2 Credits)

Course Objectives: To develop skills and to acquire knowledge on basic concepts of Lebesgue Measure, The Lebesgue Integral, Measurable Functions, Convergence and completeness.

Course Learning Outcomes: The course will enable the students:

- i) To understand the concept of measure and properties of Lebesgue measure.
- ii) To study the properties of Lebesgue integral and compare it with Riemann integral.

Course Contents:

Unit 1. Measurable Sets:

[08 Lectures]

1.4 Length of open sets and closed sets

1.5 Inner and outer measure

1.6 Measurable sets

1.7 Properties of measurable sets.

Unit 2. Measurable Functions:

[08 Lectures]

1.4 Definition of measurable functions and other criteria for measurability equivalent

1.5 Sums, Products, and limits of a measurable functions

1.6 Sequences of a measurable function

Unit 3. The Lebesgue integral for bounded function

[10 Lectures]

3.1 Measurable partition, lower sum, upper sum,

3.2 Lebesgue integral for bounded measurable function

3.3 Properties of Lebesgue integrals for bounded measurable functions

Unit 4. The Lebesgue integral for unbounded function

[10 lectures]

4.1 The Lebesgue integral for non-negative valued function

4.2 The Lebesgue integral for real valued function

4.3 Properties of Lebesgue integrals for unbounded functions

4.4 Some fundamental theorems



5. DipanjanSarkar, Raghav Bali, Tushar Sharma - Practical Machine Learning with Python, 2018.
6. Andrew Ng Playlist - https://www.youtube.com/playlist?list=PLLsTSz_DsK-h9vYZkQkYNWcltqhIRJLN (First 4 Lectures (till 4.6))
<https://towardsdatascience.com/search?q=machine%20learningwww.kaggle.com>
[geeksforgeeks.org/machine-learning](https://www.kaggle.com/geeksforgeeks/machine-learning)

DSE-6B: MT- 366(B): Computational Geometry(2 credits)

Course Objectives: This course enables the students to gain detailed knowledge of the fundamental problems within computation geometry and general techniques for solving problems within computational geometry and practical experience with implementation issues involved in converting computation geometry algorithms into running programs.

Course Learning Outcomes: The course will enable the students to:

- v) construct algorithms for simple geometrical problems.
- vi) characterize invariance properties of Euclidean geometry by groups of transformations.
- vii) describe and construct basic geometric shapes and concepts by computational means.

Course Contents:

Unit 1: Two Dimensional Transformations

[12 Lectures]

- 1.1 Introduction.
- 1.2 Representation of points.
- 1.3 Transformations and matrices.
- 1.4 Transformation of – points, straight lines.
- 1.5 Midpoint Transformation.
- 1.6 Transformation of – parallel lines, intersecting lines.
- 1.7 Transformation: rotations, reflections, scaling.
- 1.8 Combined transformations.
- 1.9 Transformation of a unit square.
- 1.10 Solid body transformations.
- 1.11 Translations and homogeneous coordinates.
- 1.12 Rotation about an arbitrary point.
- 1.13 Reflection through an arbitrary line.
- 1.14 Projection – A Geometric Interpretation of Homogeneous Coordinates.
- 1.15 Overall Scaling.
- 1.16 Points at Infinity.

Unit 2: Three Dimensional Transformations

[08 Lectures]

- 2.1 Introduction.
- 2.2 Three dimensional – Scaling, shearing, rotation, reflection, translation.
- 2.3 Multiple transformations.
- 2.4 Rotation about – an axis parallel to coordinate axes, an arbitrary axis in space.
- 2.5 Reflection through an arbitrary plane.

Unit 3: Projection

[08 Lectures]

- 3.1 Orthographic projections.
- 3.2 Axonometric projections.



Practical 2: Rings of Polynomials (Unit 2)

Practical 3: Homomorphism and Factor Ring (Unit 3: 3.1)

Practical 4: Ideals in a Ring (Unit 3: 3.2)

Practical 5: Unique Factorization Domain (Unit 4: 4.1)

Practical 6: Euclidean Domain and Gaussian Integers (Unit 4: 4.2, 4.3)

Section-II: Partial Differential Equations Practical

Practical 1: Simultaneous Differential Equations of the First Order and the First Degree in Three Variables (Unit 1: 1.1, 1.2, 1.3)

Practical 2: Pfaffian Differential Equations and their Solution (Unit 1: 1.4, 1.5)

Practical 3: Solution of First order Partial Differential Equations (Unit 2: 2.1, 2.2, 2.3)

Practical 4: Linear Equations of First order equations and Integral surfaces passing through given curve (Unit 2: 2.3, 2.4)

Practical 5: Solution of Second order Partial Differential Equations (Unit 3)

Practical 6: Canonical Forms and Solution of Second order Partial Differential Equations by Separation Variables Method (Unit 4)

MT 369: Practical Course Lab-III (Based on DSE-6A and DSE-6B) (2 credits)

Section-I: Optimization Techniques/Calculus of Variation and Classical Mechanics/Financial Mathematics

Section-I(A): Optimization Techniques Practical

Practical 1: Network Models (Unit 1)

Practical 2: Game Theory (Unit 2)

Practical 3: Network Models and Game Theory (Unit 1, Unit 2)

Practical 4: Replacement Theory (Unit 3)

Practical 5: Sequencing (Unit 4)

Practical 6: Classical Optimization Theory (Unit 5)

OR

Section-I(B): Calculus of variation and classical Mechanics Practical

Practical 1: Applications of Euler -Lagrange's equation (Unit 1)

Practical 2: Isoperimetric Problems and Variational Problems with Moving Boundaries (Unit 1 and Unit 2)



Text-Book:

1. Richard R. Goldberg, Methods of Real Analysis, Oxford and IBH Publishing Co. Pvt. Ltd. (1970).

Unit 1: Chapter 11: Sec 11.1 to 11.3. (Theorem No. 11.1B and 11.1C Statements only).

Unit 2: Chapter 11: Sec 11.4. Unit 3: Chapter 11: Sec 11.5 to 11.4.

Unit 4: Chapter 11: Sec. 11.5 to 11.8 (Theorem 11.8 D statement only)

Reference Books:

1. Tom M. Apostol, Mathematical Analysis, Second Edition, Narosa Publishing House.
2. D. Somasundaram and B. Choudhari, A first course in Mathematical Analysis, Narosa Publishing House.
3. R.G. Bartle and D.R. Scherbert, Introduction to real analysis Fourth Edition, Wiley India Edition.
4. Inder K. Rana, An Introduction to Measure and Integration Second Edition, Narosa Publishing House.
5. G. de Barra, Measure Theory and Integration, New Age International (P) Limited, Publishers.

MT 367: Practical Course Lab-I (Complex Analysis and Real Analysis-II) (2 Credits)

Section-I: Complex Analysis Practical

Practical No. 1: Analytic Functions (Unit 1)

Practical No. 2: Elementary Functions (Unit 2)

Practical No. 3: Integrals - I (Unit 3 upto and including Anti-derivatives)

Practical No. 4: Integrals – II (Unit 3 from Cauchy-Goursat's Theorem onwards)

Practical No. 5: Series (Unit 4)

Practical No. 6: Residues and Poles (Unit 5)

Section-II: Real Analysis-II Practical

Practical 1: Definition and Existence of Riemann Integral (Unit 1)

Practical 2: Properties of Riemann Integrals and Applications (Unit 1)

Practical 3: Improper Integrals (Unit 2)

Practical 4: Pointwise Convergence of Sequences of Functions (Unit 3)

Practical 5: Uniform Convergence of Sequences of Functions (Unit 3)

Practical 6: Series of Functions: Convergence and Divergence (Unit 4)

MT 368: Practical Course Lab-II (Ring Theory and Partial Differential equations) (2 credits)

Section-I: Ring Theory Practical

Practical 1: Rings and Fields (Unit 1)



Text-Book:

1. Richard R. Goldberg, *Methods of Real Analysis*, Oxford and IBH Publishing Co. Pvt. Ltd. (1970).

Unit 1: Chapter 11: Sec 11.1 to 11.3. (Theorem No. 11.1B and 11.1C Statements only).

Unit 2: Chapter 11: Sec 11.4. Unit 3: Chapter 11: Sec 11.5 to 11.4.

Unit 4: Chapter 11: Sec. 11.5 to 11.8 (Theorem 11.8 D statement only)

Reference Books:

1. Tom M. Apostol, *Mathematical Analysis*, Second Edition, Narosa Publishing House.
2. D. Somasundaram and B. Choudhari, *A first course in Mathematical Analysis*, Narosa Publishing House.
3. R.G. Bartle and D.R. Scherbert, *Introduction to real analysis* Fourth Edition, Wiley India Edition.
4. Inder K. Rana, *An Introduction to Measure and Integration* Second Edition, Narosa Publishing House.
5. G. de Barra, *Measure Theory and Integration*, New Age International (P) Limited, Publishers.

MT 367: Practical Course Lab-I (Complex Analysis and Real Analysis-II) (2 Credits)

Section-I: Complex Analysis Practical

Practical No. 1: Analytic Functions (Unit 1)

Practical No. 2: Elementary Functions (Unit 2)

Practical No. 3: Integrals - I (Unit 3 upto and including Anti-derivatives)

Practical No. 4: Integrals – II (Unit 3 from Cauchy-Goursat's Theorem onwards)

Practical No. 5: Series (Unit 4)

Practical No. 6: Residues and Poles (Unit 5)

Section-II: Real Analysis-II Practical

Practical 1: Definition and Existence of Riemann Integral (Unit 1)

Practical 2: Properties of Riemann Integrals and Applications (Unit 1)

Practical 3: Improper Integrals (Unit 2)

Practical 4: Pointwise Convergence of Sequences of Functions (Unit 3)

Practical 5: Uniform Convergence of Sequences of Functions (Unit 3)

Practical 6: Series of Functions: Convergence and Divergence (Unit 4)

MT 368: Practical Course Lab-II (Ring Theory and Partial Differential equations) (2 credits)

Section-I: Ring Theory Practical

Practical 1: Rings and Fields (Unit 1)



Practical 5: Projection (Unit 3)

Practical 6: Plane and Space Curve (Unit 4)

OR

Section-II(C): Lebesgue Integration Practical

Practical 1: Length of Open and closed sets (Unit 1:1.1, 1.2)

Practical 2: Measurable Sets (Unit 1: 1.2, 1.3)

Practical 3: Measurable functions (Unit 2)

Practical 4: Lebesgue Integral - I (Unit 3: 3.1, 3.2, 3.3)

Practical 5: Lebesgue Integral - II (Unit 3: 3.3, 3.4)

Practical 6: Fourier Series (Unit 4: 4.1, 4.2)

SEC-III: MT-3610: Programming in Python –II(2 Credits)

Course Objectives:

1. To acquire Object Oriented Skills in Python.
2. To develop the skill of designing Graphical user Interfaces in Python.
3. To learn and understand Python programming basics and paradigm.
4. To learn the concepts of visualization of data and database connectivity.
5. To develop the ability to write database applications in Python.

Course Learning Outcomes:

Upon successful completion of this course the student will be able to:

1. Demonstrate the use of Python in Mathematics such as operations research and computational Geometry etc.
2. Study graphics and design and implement a program to solve a real world problem.
3. The students will implement the concepts of data with python and database connectivity.

Course Contents:

Unit 1: Graphics

[06 Lectures]

- 1.1 Turtle Graphics: Overview of Turtle Graphics , Turtle Operations, Object Instantiation and the turtle graphics Module.
- 1.2 Drawing Two-Dimensional Shapes
- 1.3 Taking a Random Walk
- 1.4 Colors and the RGB System
- 1.5 Drawing with Random Colors
- 1.6 Using the str Function with Objects.

Unit 2: Data Visualization with Python

[04 Lectures]

- 2.1 Seaborn
- 2.2 Matplotlib
- 2.3 Plotly
- 2.4 MayaVI



Practical 11: Study of Operational Research in Python (Unit 5-5.1)

Practical 12: Study of Operational Research in Python (Unit 5-5.2)

Text Books:

1. **Kenneth A. Lambert, Fundamentals of Python: From First Programs to DataStructure, Martin Osborne, 2010, Course Technology, Cengage Learning.**
Unit-1: Chapter-7: Sec-7.1.1 to 7.1.8
2. **Python: Notes for Professionals, Goalkicker.com, Free Programming books.**
Unit-2: Chapter-108, Unit-3: Chapter-19 Section: 19.1 to 19.10 and Chapter-72: Section: 72.1 to 72.8
3. **Jim Arlow, Interactive Computational Geometry in Python.**
Unit-4: Chapter-1: Sec.-1 to 7, Chapter-2: Sec.-1 to 2, Chapter-3: Sec.-1, 3 to 11, Chapter-4: Sec.-1 to 3, Chapter-5: Sec.-3 to 7.
4. **Operations Research: Unit-5: <https://pypi.org/project/PuLP/>**

Reference Books:

1. Guzdial, M. J., Introduction to Computing and Programming in Python, Pearson India.
2. Perkovic, L., Introduction to Computing Using Python, 2/e, John Wiley, 2015.
3. Zelle, J., Python Programming: An Introduction to Computer Science, Franklin, Beedle and Associates Inc.
4. Jim Arlow, Interactive Computational Geometry in Python.
5. Robert Johansson, Introduction to Scientific Computing in Python.
6. Jason Brownlee, Basics of Linear Algebra for Machine Learning, Discover the Mathematical Language of Data in Python.
7. Jaan Kiusalaas, Numerical Methods in Engineering with Python, Cambridge University Press, (2005).

SEC-IV: MT-3611: Mathematics into LaTeX (2 Credits)

Course Objectives: The purpose of this course is to acquaint students with typesetting basic Mathematics in LaTeX.

Course Learning Outcomes: After studying this course the student will be able to:

- i) typeset mathematical formulas, use nested list, tabular and array environments.
- ii) import figures and pictures that are stored in external files.

Course Contents:

Unit 1. Figure Insertion

[06 Lectures]

- 1.1 Commands and Environment for Inserting Figures
- 1.2 Inserting a Simple Figure
- 1.3 Side-by-Side Figures
- 1.4 Sub-numbering a Group of Figures
- 1.5 Figures in Tables

Unit 2. Equation Writing -I

[12 Lectures]

- 2.1 Basic Mathematical Notations and Delimiters.
- 2.2 Mathematical Operators
- 2.3 Mathematical Expressions in Text-Mode



- Practical 3: Degrees of freedom and Generalized coordinates (Unit 3)
Practical 4: Problems on Conservation laws (Unit 4)
Practical 5: Lagrangian Formulation and worked examples-I (Unit 5)
Practical 6: Lagrangian Formulation and worked examples-II (Unit 5)

OR

Section-I (C): Financial Mathematics Practical

- Practical 1: Mathematical Models in Economics (Unit 1)
Practical 2: Recurrences and the elements of finances (Unit 1)
Practical 3: The Cobweb model (Unit 2)
Practical 4: Introduction to Optimization (Unit 2)
Practical 5: The derivative in Economics (Unit 3)
Practical 6: Linear Equations and the Input Output Model (Unit 4)

Section-II(A): Machine Learning-II Practical

- Practical 1: Revision of python and scikit learn (Unit 1)
Practical 2: MNIST classification with python - 1 (Unit 1)
Practical 3: MNIST classification with python - 1 (Unit 1)
Practical 4: Linear Regression Implementation - 1 (Unit 2)
Practical 5: Linear Regression Implementation - 2 (Unit 2)
Practical 6: LogisticRegressionImplementation 1 (Unit 3)
Practical 7: LogisticRegressionImplementation 2 (Unit 3)
Practical 8: Dealingwith Data (Unit 4)
Practical 9: KNN Implementation (Unit 4)
Practical 10: Decision Tree Implementation 4 (Unit 4)
Practical 11: Random Forest Implementation 4 (Unit 4)
Practical 12: Support Vector Machine Implementation 4 (Unit 4)

OR

Section-II (B): Computational Geometry Practical

- Practical 1: Two Dimensional Transformation-I (Unit 1)
Practical 2: Two Dimensional Transformation-II (Unit 1)
Practical 3: Two and three Dimensional Transformation-I (Unit 1, Unit 2)
Practical 4: Three Dimensional Transformation-II (Unit 2)

MORE



- 2.4 Simple Equations
- 2.5 Array of Equations
- 2.6 Left Aligning an Equation
- 2.7 Sub-numbering a Set of Equations

Unit 3. Equation Writing -II

- 3.1 Texts and Blank Space in Math-Mode
- 3.2 Conditional Expression
- 3.3 Evaluation of Functional Values
- 3.4 Splitting an Equation into Multiple Lines
- 3.5 Vector and Matrix
- 3.6 Overlining and Underlining
- 3.7 Stacking Terms
- 3.8 Side-by-Side Equations

[12 Lectures]

Unit 4. User-Defined Macros

- 4.1 Defining New Commands
- 4.2 Defining New Environments

[06 Lectures]

Practicals:

- Practical 1: Commands and Environment for Inserting Figures (Unit 1: 1.1, 1.2)
- Practical 2: More about Figure Insertion (Unit-1; 1.3, 1.4, 1.5)
- Practical 3: Mathematical Notations, Operators and Expression in LaTeX (Unit 2: 2.1- 2.3)
- Practical 4: Simple Equations (Unit-2: 2.4)
- Practical 5: Array of Equations (Unit-2: 2.5)
- Practical 6: Alignment and numbering a Set of Equations (Unit-2: 2.6, 2.7)
- Practical 7: Texts, Blank Space and Conditional Expression in Math mode (Unit-3: 3.1, 3.2)
- Practical 8: Evaluation of Functional Values and Splitting an Equation (Unit-3: 3.3, 3.4)
- Practical 9: Vector and Matrix (Unit-3; 3.5)
- Practical 10: More about equation writing in LaTeX (Unit-3: 3.6, 3.7, 3.8)
- Practical 11: New Commands in LaTeX (Unit-4: 4.1)
- Practical 12: New Environments in LaTeX (Unit-4: 4.2)

Text Book:

1. LaTeX in 24 Hours, A Practical Guide for Scientific Writing, Dilip Datta, Springer International Publishing AG 2017.

Unit 1: Chapter 9; 9.1 to 9.4, 9.8, Unit 2: Chapter 11; 11.1 to 11.7

Unit 3: Chapter 12; 12.1 to 12.8, Unit 4: Chapter 13; 13.1, 13.3 (13.3.1, 13.3.2, 13.3.3)

Reference Books:

1. LaTeX, A Document Preparation System, User's Guide and Reference Manual, Leslie Lamport, Addison-Wesley Publishing Company, Inc., 1994.
2. LaTeX Beginner's Guide, Stefan Kottwitz, Packt Publishing Ltd, 2011.
3. LATEX and Friends, M.R.C. van Dongen, Springer-Verlag Berlin Heidelberg, 2012.
4. Math into LaTeX, George Gratzner, Springer Science Business Media New York, 1996.



- Unit 3: Dictionary and Sorting, Minimum and Maximum:** [08 Lectures]
- 3.1 Introduction to Dictionary , Avoiding Key Error Exceptions, Iterating Over a Dictionary
 - 3.2 Dictionary with default values, Merging dictionaries, Accessing keys and values, Accessing values of a dictionary, Creating dictionary, Creating an ordered dictionary, Unpacking dictionaries using the ** operator.
 - 3.3 Sorting, Minimum and Maximum: Special case: dictionaries, Using the key argument, Default Argument to max, min, Getting a sorted sequence, Extracting N largest or N smallest items from an iterable, Getting the minimum or maximum of several values, Minimum and Maximum of a sequence.

Unit 4: Computational Geometry [10 Lectures]

- 4.1 Points: The distance between two points, Lists of Points - the PointList class, Integer point lists, Ordered Point sets, Extreme Points of a PointList, Random sets of Points not in general position.
- 4.2 Points: Displaying Points and other geometrical objects, Lines, rays, and line segments, The geometry of line segments, Displaying lines, rays and line segments.
- 4.3 Polygon: Representing polygons in Python, Triangles, Signed area of a triangle, Triangles and the relationships of points to lines, is Collinear, is Left, is Left On, is Right, is Right On, Between
- 4.4 Two dimensional rotation and reflection
- 4.5 Three dimensional rotation and reflection
- 4.6 Generation of Bezier curve with given control points

Unit 5: Study of Operational Research in Python [08 Lectures]

- 5.1 Linear Programming in Python
- 5.2 Introduction to Simplex Method in Python

Practicals:

Practical 1: Turtle Graphics (Unit 1)

Practical 2: Data Visualization (Unit 2)

Practical 3: Dictionary and Sorting, Minimum and Maximum (Unit 3)

Practical 4: Application to Computational Geometry-I (Unit 4)

Practical 5: Application to Computational Geometry-II (Unit 4)

Practical 6: Application to Computational Geometry-II (Unit 4)

Practical 7: Study of Graphical aspects of Two dimensional transformation matrix using Matplotlib (Unit 4)

Practical 8: Study of Graphical aspects of Three dimensional transformation matrix using Matplotlib (Unit 4)

Practical 9: Study of Graphical aspects of Three dimensional transformation matrix using Matplotlib and Study of effect of concatenation of Two dimensional and Three dimensional transformations (Unit 4)

Practical 10: Generation of Bezier curve using given control points (Unit 4)



Modalities For Conducting The Practical and The Practical Examination:

1. There will be one 4 hours and 20 minutes (260 minutes) practical session for each batch of 15 students per week for each practical course.
 2. The College will conduct the Practical Examination at least 15 days before the commencement of the Main Theory Examination. The University practical examination will consist of written examination of 30 marks and oral examination of 05 marks.
 3. There will be external examiner; the practical exam will be of the duration of 3 hours. The teacher will set a question paper at the time of paper setting meeting conducted by Savitribai Phule Pune University, Pune based on respective papers I and II given in **Practical Lab-I, Practical Lab-II and Practical Lab-III**, and the pattern is as follows
- Q1.** Any 3 out of 5 each question of 5 marks on paper – I (from Practical Lab-I, Practical Lab-II and Practical Lab-III).
- Q2.** Any 3 out of 5 each question of 5 marks on paper – II (from Practical Lab-I, Practical Lab-II and Practical Lab-III).
4. SEC: MT -3510, MT -3511, MT -3610, MT -3611 University practical written examination of 30 marks, oral examination 05 marks and internal examination of 15 marks.
 5. The courses MT-356(A): Machine Learning-I, MT-366(A): Machine Learning-II, MT -3510: Programming in Python -I, MT -3610: Programming in Python -II, MT-3511: LaTeX for Scientific Writing and MT 3611: Mathematics into LaTeX will teach in Computer Laboratory with live sessions for better understanding of students.
 6. Each student will maintain a journal to be provided by the college. The internal 15 marks will be given on the basis of journal prepared by student and the cumulative performance of student at practical. **Methods of assessment for Internal exams:** Seminars, Viva-voce, Projects, Surveys, Field visits, Tutorials, Assignment, Group Discussion.
 7. It is recommended that concept may be illustrated using computer software (Python, Maxima etc.) and graphing calculators wherever possible.
 8. Study tours may be arranged at places having important mathematical institutes or historical places.
 9. **Special Instruction:**
 - a) There should be well equipped mathematics practical laboratory of size 20x20 sq. ft. containing at least 20 computers because there are six papers based on Software's (like Machine Learning-I & II, Programming in Python -I & II, LaTeX Software for Scientific Writing and Mathematics into LaTeX).
 - b) Examiners should set separate question papers, solutions and scheme of marking for each batch and claim the remuneration as per University rule.
 - c) Before starting each practical necessary introduction, basic definitions, intuitive inspiring ideas and prerequisites must be discussed.

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Savitribai Phule Pune University

(Formerly University of Pune)

Three Year B.Sc. Degree Program in Computer Science

(Faculty of Science & Technology)

F.Y.B.Sc. (Computer Science)

Choice Based Credit System Syllabus

To be implemented from Academic Year 2019-2020



Title of the Course: B. Sc. (Computer Science)

Preamble:

The B. Sc. (Computer Science) course is systematically designed three year degree program under the faculty of Science and Technology. The objective of the course is to prepare students to undertake careers involving problem solving using computer science and technologies, or to pursue advanced studies and research in computer science. The syllabus which comprises of Computer Science subject along with that of the three allied subjects (Mathematics, Electronics and Statistics) covers the foundational aspects of computing sciences and also develops the requisite professional skills and problem solving abilities using computing sciences.

Introduction:

At the first year of under-graduation, the basic foundations of two important skills required for software development are laid. A course in problem solving and programming along with a course in database fundamentals forms the preliminary skill set for solving computational problems. The practical courses are designed to supplement the theoretical training in the year. Along with Computer Science, the two theoretical and one practical course each in Statistics, Mathematics and Electronics help in building a strong foundation. Career Advancement courses are introduced in both semesters to cover additional areas of Computer Science.

At the second year of under-graduation, computational problem solving skills are further strengthened by a course in Data structures. Software engineering concepts that are required for project design are also introduced. Essential concepts of computer networking are also introduced in this year. The practical course included in both semesters complements the theory courses.

At the third year of under-graduation, all the subjects are designed to fulfill core Computer Science requirements as well as meet the needs of the software industry. Theory courses are adequately supplemented by hands-on practical courses. Skill Enhancement courses enable the students to acquire additional value-added skills.

Objectives:

- To develop problem solving abilities using a computer.
- To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems.
- To train students in professional skills related to Software Industry.
- To prepare necessary knowledge base for research and development in Computer Science.
- To help students build-up a successful career in Computer Science and to produce entrepreneurs who can innovate and develop software products.

Titles of Papers, Credit Allocation and Scheme of Evaluation**Semester I (Total credits=22)**

Course type	Paper Code	Paper title	Credits		Evaluation		
			T	P	CA	UA	TOTAL
CC-I	CS-111	Problem Solving using Computer and 'C' Programming	2		15	35	50
	CS-112	Database Management Systems	2		15	35	50
	CS-113	Practical course based on CS101 and CS102		1.5	15	35	50
CC-II*		Mathematics – I, II and III					
CC-III*		Electronics – I,II and III					
CC-IV*		Statistics – I, II and III					

Semester II (Total credits=22)

Course type	Paper Code	Paper title	Credits		Evaluation		
			T	P	CA	UA	TOTAL
CC-V	CS-121	Advanced 'C' Programming	2		15	35	50
	CS-122	Relational Database Management Systems	2		15	35	50
	CS-123	Practical course based on CS201 and CS202		1.5	15	35	50
CC-VI*		Mathematics – I,II and III					
CC-VII*		Electronics – I, II and III					
CC-VIII*		Statistics – I,II and III					

**S. Y. B. Sc.(Computer Science)****Semester III (Total credits=22)**

Course type	Paper Code	Paper title	Credits		Evaluation		
			T	P	CA	UA	TOTAL
CC-IX	CS-231	Data Structures and Algorithms – I	2		15	35	50
	CS-232	Software Engineering	2		15	35	50
	CS-233	Practical course based on CS301		2	15	35	50
CC-X*		Mathematics – I, II and III					
CC-XI*		Electronics – I,II and III					
AECC-I*		Environment Science – I	2				
AECC-II*		Language Communication – I	2				

Semester IV (Total credits=22)

Course type	Paper Code	Paper title	Credits		Evaluation		
			T	P	CA	UA	TOTAL
CC-XII	CS-241	Data Structures and Algorithms – II	2		15	35	50
	CS-242	Computer Networks - I	2		15	35	50
	CS-243	Practical course based on CS401		2	15	35	50
CC-XIII*		Mathematics – I,II and III					
CC-XIV*		Electronics – I, II and III					
AECC-III*		Environment Science – I	2				
AECC-IV*		Language Communication – I	2				



T. Y. B. Sc.(Computer Science)
Semester V (Total credits=22)

Course type	Paper Code	Paper title	Credits		Evaluation		
			T	P	CA	UA	TOTAL
DSEC - I	CS-351	Operating Systems - I	2		15	35	50
	CS-352	Computer Networks - II	2		15	35	50
	CS-357	Practical course based on CS501		2	15	35	50
DSEC - II	CS-353	Web Technologies - I	2				
	CS-354	Foundations of Data Science	2				
	CS-358	Practical course based on CS503		2			
DSEC - III	CS-355	Object Oriented Programming - I (Core Java)	2				
	CS-356	Theoretical Computer Science and Compiler Construction - I	2				
	CS-359	Practical Course based on CS505		2			
SECC - I	CS-3510	Python Programming / R Programming	1	1	15	35	50
SECC - II	CS-3511	Open Elective	1	1	15	35	50

Semester VI (Total credits=22)

Course type	Paper Code	Paper title	Credits		Evaluation		
			T	P	CA	UA	TOTAL
DSEC - IV	CS-361	Operating Systems - II	2		15	35	50
	CS-362	Software Testing	2		15	35	50
	CS-367	Practical course based on CS601		2	15	35	50
DSEC - V	CS-363	Web Technologies - II	2				
	CS-364	Data Analytics	2				
	CS-368	Practical course based on CS603 and CS604		2			
DSEC - VI	CS-365	Object Oriented Programming - II (Advanced Java)	2				
	CS-366	Theoretical Computer Science and Compiler Construction - II	2				
	CS-369	Practical Course based on CS605		2			
SECC- III	CS-3610	Mobile Application Development OR Software Testing Tools	1	1	15	35	50
SECC - IV	CS-3611	Project OR Open Elective	1	1	15	35	50

**Detailed Syllabus:**

Semester- I Paper - I Course Type: Core Credit Course Code: CS101 Course Title : Problem Solving Using Computer and 'C' Programming - I		
Teaching Scheme 2 Hours / Week	No. of Credits 2	Examination Scheme IE : 15 Marks UE: 35 Marks
Course Objectives 1. To introduce the foundations of computing, programming and problem- solving using computers. 2. To develop the ability to analyze a problem and devise an algorithm to solve it. 3. To formulate algorithms, pseudocodes and flowcharts for arithmetic and logical problems 4. To understand structured programming approach. 5. To develop the basic concepts and terminology of programming in general. 6. To implement algorithms in the 'C' language. 7. To test, debug and execute programs.		
Course Outcomes:- On completion of this course, students will be able to : 1. Explore algorithmic approaches to problem solving. 2. Develop modular programs using control structures and arrays in 'C'.		
Course Contents		
Chapter 1	Problem Solving Aspects	5 Hours
1.1. Introduction to problem solving using computers. 1.2. Problem solving steps. 1.3 Algorithms-definition, characteristics , examples ,advantages and limitations. 1.4 Flowcharts - definition, notations , examples , advantages and limitations, Comparison with algorithms. 1.5 Pseudo codes - notations, examples, advantages and limitations. 1.6 Programming Languages as tools, programming paradigms, types of languages 1.7 Converting pseudo-code to programs. 1.8 Compilation process (compilers , interpreters), linking and loading, syntax and semantic errors, testing a program 1.9 Good Programming Practices (naming conventions , documentation, indentation).		
Chapter 2	'C' Fundamentals	7 Hours
2.1 History of 'C' language. 2.2 Application areas. 2.2 Structure of a 'C' program. 2.3 'C' Program development life cycle.		



- 2.4 Function as building blocks.
- 2.5 'C' tokens
- 2.6 Character set, Keywords , Identifiers
- 2.7 Variables, Constants (character, integer, float, string, escape sequences, enumeration constant).
- 2.8 Data Types (Built-in and user defined data types).
- 2.9 Operators, Expressions, types of operators, Operator precedence and Order of evaluation.
- 2.10 Character input and output.
- 2.11 String input and output.
- 2.12 Formatted input and output.

Chapter 3	Control Structures	6 Hours
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- 3.1 Decision making structures:- if ,if-else, switch and conditional operator.
- 3.2 Loop control structures:- while ,do while, for.
- 3.3 Use of break and continue.
- 3.4 Nested structures.
- 3.5 Unconditional branching (goto statement).

Chapter 4	Functions	6 Hours
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- 4.1 Concept of function, Advantages of Modular design.
- 4.2 Standard library functions.
- 4.3 User defined functions:- declaration , definition, function call, parameter passing (by value), return statement.
- 4.4 Recursive functions.
- 4.5 Scope of variables and Storage classes.

Chapter 5	Arrays	6 Hours
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- 5.1 Concept of array.
- 5.2 Types of Arrays – One , Two and Multidimensional array.
- 5.3 Array Operations - declaration, initialization, accessing array elements.
- 5.4 Memory representation of two-dimensional array (row major and column major)
- 5.5 Passing arrays to function.
- 5.6 Array applications - Finding maximum and minimum, Counting occurrences, Linear search, Sorting an array (Simple exchange sort, bubble sort), Merging two sorted arrays, Matrix operations (trace of matrix, addition, transpose, multiplication, symmetric, upper/ lower triangular matrix)

Reference Books:

1. How to Solve it by Computer, R.G. Dromey, Pearson Education.
2. Problem Solving and Programming Concept, Maureen Sprankle, 7th Edition, Pearson Publication.

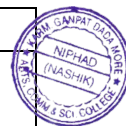


3. C: the Complete Reference, Schildt Herbert, 4th edition, McGraw Hill
4. A Structured Programming Approach Using C, Behrouz A. Forouzan, Richard F. Gilberg, Cengage Learning India
5. The 'C' programming language, Brian Kernighan, Dennis Ritchie, PHI
6. Programming in C ,A Practical Approach, Ajay Mittal , Pearson
7. Programming with C, B. Gottfried, 3rd edition, Schaum's outline Series, Tata McGraw Hill.
8. Programming in ANSI C, E. Balagurusamy, 7th Edition, McGraw Hill.

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Semester- I Paper - II Course Type: Core Credit Course Code: CS102 Course Title : Database Management Systems		
Teaching Scheme 02 Hours / Week	No. of Credits 2	Examination Scheme IE : 15 Marks UE: 35 Marks
Prerequisites Basic Knowledge of file system, storing data in file system and Operations on sets		
Course Objectives - To understand the fundamental concepts of database. - To understand user requirements and frame it in data model. - To understand creations, manipulation and querying of data in databases.		
Course Outcomes On completion of the course, student will be able to– - Solve real world problems using appropriate set, function, and relational models. - Design E-R Model for given requirements and convert the same into database tables. - Use SQL.		
Course Contents		
Chapter 1	Introduction to DBMS	3 Hours
1.1. Introduction 1.2. File system Vs DBMS 1.3. Levels of abstraction & data independence 1.4. Structure of DBMS (Roles of DBMS Users) 1.5. Users of DBMS Advantages of DBMS		
Chapter 2	Conceptual Design	11 Hours
2.1. Overview of DB design process 2.2. Introduction to data models (E-R model, Relational model, Network model, Hierarchical model) 2.3. Conceptual design using ER data model (entities, attributes, entity sets, relations, relationship sets) 2.4. Constraints (Key constraints, Integrity constraints, referential integrity, unique constraint, Null/Not Null constraint, Domain, Check constraint, Mapping constraints) 2.5. Extended features – Specialization, Aggregation, Generalization 2.6. Pictorial representation of ER(symbols) 2.7. Structure of Relational Databases (concepts of a table) 2.8. DBMS Versus RDBMS 2.9. Case Studies on ER model		



Chapter 3	SQL	9 Hours
3.1. Introduction to query languages 3.2. Basic structure 3.3. DDL Commands 3.4. DML Commands 3.5. Forms of a basic SQL query (Expression and strings in SQL) 3.6. Set operations 3.7. Aggregate Operators and functions 3.8. Date and String functions 3.9. Null values 3.10. Nested Subqueries 3.11 SQL mechanisms for joining relations (inner joins, outer joins and their types) 3.12 Views 3.13. Examples on SQL (case studies)		
Chapter 4	Relational Database Design	7 Hours
3.1. Introduction to Relational-Database Design (undesirable properties of a RDB design) 3.2. Functional Dependency(Basic concepts, F+, Closure of an Attribute set, Armstrong's axioms) 3.3. Concept of Decomposition 3.4. Desirable Properties of Decomposition (Lossless join, Lossy join, Dependency Preservation) 3.5. Concept of normalization, Normal Forms (1NF,2NF and 3NF), Examples 3.6 Keys Concept with Examples : Candidate Keys and Super Keys, Algorithm to find the super keys / primary key for a relation		
Reference Books:		
1. Database System Concepts, Henry F. Korth, Abraham Silberschatz, S.Sudarshan,ISBN:9780071289597,Tata McGraw-Hill Education 2. Database Management Systems ,RaghuRamakrishnan,ISBN:9780071254342,Mcgraw-hill higher Education 3. Database Management Systems, Raghu Ramakrishnan and Johannes Gehrke,McGraw-Hill Science/Engineering/Math; 3 edition, ISBN: 9780072465631 4. Database Systems, Shamkant B. Navathe, RamezElmasri,ISBN:9780132144988,PEARSON HIGHER EDUCATION 5. Beginning Databases with PostgreSQL: From Novice to Professional, Richard Stones, Neil Matthew, ISBN:9781590594780, Apress 6. PostgreSQL, Korry Douglas, ISBN:9780672327568, Sams 7. Practical PostgreSQL (B/CD),JohnWorsley, Joshua Drake,ISBN:9788173663925Shroff/O'reilly 8. Practical Postgresql , By Joshua D. Drake, John C Worsley (O'Reillypublications) 9. "An introduction to Database systems", Bipin C Desai, Galgotia Publications		

**Semester- I
Paper - III**



Course Type: Core Credit

Course Code: CS103

**Title : Practical course on Problem Solving using Computer and 'C' programming
and
Database Management Systems**

Teaching Scheme 3 Hrs / week	No. of Credits 1.5	Examination Scheme IE : 15 Marks UE: 35 Marks
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Course Objectives

- To understand the program development life cycle.
- Solve simple computational problems using modular design and basic features of the 'C' language.
- Understand basic database management operations.
- Design E-R Model for given requirements and convert the same into database tables.

Course Outcomes:-

On completion of this course, students will be able to :

- Devise pseudocodes and flowchart for computational problems.
- Write, debug and execute simple programs in 'C'.
- Create database tables in postgresQL.
- Write and execute simple, nested queries.

Guidelines :

Lab Book: The lab book is to be used as a hands-on resource, reference and record of assignment submission and completion by the student. The lab book contains the set of assignments which the student must complete as a part of this course.

Submission:

Problem Solving Assignments:

The problem solving assignments are to be submitted by the student in the form of a journal containing individual assignment sheets. Each assignment includes the Assignment Title, Problem statement, Date of submission, Assessment date, Assessment grade and instructors sign.

Programming Assignments:

Programs should be done individually by the student in the respective login. The codes should be uploaded on either the local server, Moodle, Github or any open source LMS. Print-outs of the programs and output may be taken but not mandatory for assessment.

DBMS Assignments:

For each problem/case study, the student must design the database model in the form of an E-R



diagram. Table design should be based on the same and must include proper constraints and integrity checks. The students have to create, populate the tables and then perform the activities specified in each of the assignments. A pool of databases will get created as student progresses through the assignments and these databases can be repeatedly used in subsequent assignments. A separate softcopy of the queries must be maintained for each assignment.

Assessment:

Continuous assessment of laboratory work is to be done based on overall performance and lab assignments performance of student. Each lab assignment assessment will be assigned grade/marks based on parameters with appropriate weightage. Suggested parameters for overall assessment as well as each lab assignment assessment include- timely completion, performance, innovation, efficient codes and good programming practices.

Operating Environment:

For 'C' Programming :

Operating system: Linux

Editor: Any linux based editor like vi, gedit etc.

Compiler : cc or gcc

For DBMS:

Operating System: Linux Operating system

DBMS: PostgreSQL

Language: SQL

Suggested List of Assignments:**A) Problem Solving and C programming:****Assignment 1.**

Problem Solving using Pseudo code and Flowchart, Simple programs, Understanding errors and error handling.

Assignment 2.

Decision Making Control Structures.

Assignment 3.

Loop Control Structures

Assignment 4.

Functions (User Defined functions, Library functions and Recursion).

Assignment 5.

Arrays (1-D and 2-D).



B) Database Management Systems

Assignment 1.

To create simple tables with only the primary key constraint (as a table level constraint & as a field level constraint) (include all data types)

Assignment 2.

To create more than one table, with referential integrity constraint, PK constraint.

Assignment 3.

To create one or more tables with following constraints, in addition to the first two constraints (PK & FK)

- a. Check constraint
- b. Unique constraint
- c. Not null constraint

Assignment 4.

To drop a table, alter schema of a table, insert / update / delete records using tables created in previous Assignments. (use simple forms of insert / update / delete statements)

Assignment 5.

To query the tables using simple form of select statement Select <field-list> from table [where <condition> order by <field list>] Select <field-list, aggregate functions > from table [where <condition> group by <> having <> order by <>]

Assignment 6.

To query table, using set operations (union, intersect)

Assignment 7.

To query tables using nested queries (use of 'Except', exists, not exists, all clauses

Assignment 8.

To create views.

Books: Laboratory handbook prepared by the University.



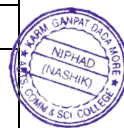
Semester- II
Paper - I

Course Type: Core Credit

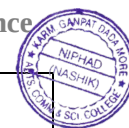
Course Code: CS201

Course Title : Advanced 'C' Programming

Teaching Scheme 2 Hours / Week	No. of Credits 2	Examination Scheme IE : 15 Marks UE: 35 Marks
Prerequisites • Problem Solving tools like algorithms, flowcharts and pseudocodes. • Basic knowledge of 'C' language.		
Course Objectives :- • To study advanced concepts of programming using the 'C' language. • To understand code organization with complex data types and structures. • To work with files.		
Course Outcomes:- Student will be able to :- • Develop modular programs using control structures, pointers, arrays, strings and structures • Design and develop solutions to real world problems using C.		
Course Contents		
Chapter 1	Pointers	8 Hours
1.1. Introduction to Pointers. 1.2. Declaration, definition, initialization, dereferencing. 1.3. Pointer arithmetic. 1.4. Relationship between Arrays & Pointers- Pointer to array, Array of pointers. 1.5. Multiple indirection (pointer to pointer). 1.6. Functions and pointers- Passing pointer to function, Returning pointer from function, Function pointer. 1.7. Dynamic memory management- Allocation(malloc(),calloc()), Resizing(realloc()), Releasing(free()), 1.8. Memory leak, dangling pointers. 1.9. Types of pointers.		
Chapter 2	Strings	6 Hours
2.1 String Literals, string variables, declaration, definition, initialization. 2.2 Syntax and use of predefined string functions 2.3 Array of strings. 2.4. Strings and Pointers 2.5. Command line arguments.		



Chapter 3	Structures And Unions.	8 Hours
3.1. Concept of structure, definition and initialization, use of typedef. 3.2. Accessing structure members. 3.3. Nested Structures 3.4. Arrays of Structures 3.5. Structures and functions- Passing each member of structure as a separate argument, Passing structure by value / address. 3.6. Pointers and structures. 3.7. Concept of Union, declaration, definition, accessing union members. 3.8. Difference between structures and union.		
Chapter 4	File Handling	6 Hours
4.1. Introduction to streams. 4.2. Types of files. 4.3. Operations on text files. 4.4. Standard library input/output functions. 4.5. Random access to files.		
Chapter 5	Preprocessor	2 Hours
6.1. Role of Preprocessor 6.2. Format of preprocessor directive 6.3. File inclusion directives (#include) 6.4. Macro substitution directive, argumented and nested macro 6.5. Macros versus functions		
Reference Books:		
1. C: the Complete Reference, Schildt Herbert, 4 th edition, McGraw Hill 2. A Structured Programming Approach Using C, Behrouz A. Forouzan, Richard F. Gilberg, Cengage Learning India 3. The 'C' programming language, Brian Kernighan, Dennis Ritchie, PHI 4. Programming in C ,A Practical Approach, Ajay Mittal , Pearson 5. Programming with C, B. Gottfried, 3 rd edition, Schaum's outline Series, Tata McGraw Hill. 6. Programming in ANSI C, E. Balagurusamy, 7 th Edition, McGraw Hill.		



Semester- II
Paper - II

Course Type: Core Credit

Course Code: CS202

Course Title : Relational Database Management Systems

Teaching Scheme 2 Hours / Week	No. of Credits 2	Examination Scheme IE : 15 Marks UE: 35 Marks
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Prerequisites

- Basic Knowledge of DBMS
- Knowledge of SQL Queries
- Basics of relational design
- Basics of ER model

Course Objectives

- To teach fundamental concepts of RDBMS (PL/PgSQL)
- To teach database management operations
- Be familiar with the basic issues of transaction processing and concurrency control
- To teach data security and its importance

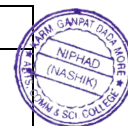
Course Outcomes

On completion of the course, student will be able to–

- Design E-R Model for given requirements and convert the same into database tables.
- Use database techniques such as SQL & PL/SQL.
- Explain transaction Management in relational database System.
- Use advanced database Programming concepts

Course Contents

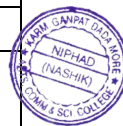
Chapter 1	Relational Database Design Using PLSQL	8 Hours
1.1 Introduction to PLSQL 1.2 PL/PgSQL: Datatypes, Language structure 1.3 Controlling the program flow, conditional statements, loops 1.4 Stored Procedures 1.5 Stored Functions 1.6 Handling Errors and Exceptions 1.7 Cursors 1.8 Triggers		



Chapter 2	Transaction Concepts and concurrency control	10 hours
2.1 Describe a transaction, properties of transaction, state of the transaction. 2.2 Executing transactions concurrently associated problem in concurrent execution. 2.3 Schedules, types of schedules, concept of Serializability, Precedence graph for Serializability. 2.4 Ensuring Serializability by locks, different lock modes, 2PL and its variations. 2.5 Basic timestamp method for concurrency, Thomas Write Rule. 2.6 Locks with multiple granularity, dynamic database concurrency (Phantom Problem). 2.7 Timestamps versus locking. 2.8 Deadlock and deadlock handling - Deadlock Avoidance(wait-die, wound-wait), Deadlock Detection and Recovery (Wait for graph).		
Chapter 3	Database Integrity and Security Concepts	6 Hours
3.1 Domain constraints 3.2 Referential Integrity 3.3 Introduction to database security concepts 3.4 Methods for database security 3.4.1 Discretionary access control method 3.4.2 Mandatory access control 3.4.3. Role base access control for multilevel security. 3.5 Use of views in security enforcement. 3.6 Overview of encryption technique for security. 3.7 Statistical database security.		
Chapter 4	Crash Recovery	4 Hours
4.1 Failure classification 4.2 Recovery concepts 4.3 Log base recovery techniques (Deferred and Immediate update) 4.4 Checkpoints, Relationship between database manager and buffer cache. Aries recovery algorithm. 4.5 Recovery with concurrent transactions (Rollback, checkpoints, commit) 4.6 Database backup and recovery from catastrophic failure		
Chapter 5	Other Databases	2 Hours
5.1 Introduction to Parallel and distributed Databases 5.2 Introduction to Object Based Databases 5.3 XML Databases 5.4 NoSQL Database 5.5 Multimedia Databases 5.6 Big Data Databases		

Reference Books:

1. Database System Concepts, By Silberschatz A., Korth H., Sudarshan S., 6th Edition, McGraw Hill Education
2. Database Management Systems, Raghu Ramakrishnan, McGraw-Hill Education
3. Database Systems, Shamkant B. Navathe, Ramez Elmasri, PEARSON HIGHER EDUCATION
4. Fundamentals of Database Systems, By: Elmasri and Navathe, 4th Edition Practical PostgreSQL O'REILLY
5. Database Management Systems, Raghu Ramakrishnan and Johannes Gehrke, McGraw-Hill Science/Engineering/Math; 3 edition, ISBN: 9780072465631
6. NoSQL Distilled, Pramod J. Sadalage and Martin Fowler, Addison Wesley
7. An Introduction to Database Systems", C J Date, Addison-Wesley
8. Database Systems : Concepts, Design and Application", S.K.Singh, Pearson, Education
9. NoSQL Distilled A Brief Guide to the Emerging World of Polyglot Persistence : by Pramod J. Sadalage, Martin Fowler, Addison-Wesley, Pearson Education, Inc.
10. MongoDB: The Definitive Guide , Kristina Chodorow, Michael Dirolf, O'Reilly Publications





Semester- II Paper - III Course Type: Core Credit Course Code: CS203 Title : Practical Course on Advanced ‘C’ Programming and Relational Database Management Systems		
Teaching Scheme 3 Hours / week	No. of Credits 1.5	Examination Scheme IE : 15 Marks UE: 35 Marks
Course Objectives - To solve real world computational problems. - To perform operations on relational database management systems.		
Course Outcomes:- On completion of this course, students will be able to : - Write, debug and execute programs using advanced features in ‘C’. - To use SQL & PL/SQL. - To perform advanced database operations.		
Guidelines : Lab Book: The lab book is to be used as a hands-on resource, reference and record of assignment submission and completion by the student. The lab book contains the set of assignments which the student must complete as a part of this course. Submission: Programming Assignments: Programs should be done individually by the student in respective login. The codes should be uploaded on either the local server, Moodle, Github or any open source LMS. Print-outs of the programs and output may be taken but not mandatory for assessment. RDBMS Assignments: For each problem/case study, the student must design the database model in the form of an E-R diagram. Table design should be based on the same and must include proper constraints and integrity checks. The students have to create, populate the tables and then perform the activities specified in each of the assignments. A separate softcopy of the table creation statements and queries must be maintained for each assignment. Assessment Continuous assessment of laboratory work is to be done based on overall performance and lab assignments performance of student. Each lab assignment assessment will be assigned grade/marks based on parameters with appropriate weightage. Suggested parameters for overall		



assessment as well as each lab assignment assessment include- timely completion, performance, innovation, efficient codes and good programming practices.

Operating Environment:

For 'C' Programming :

Operating system: Linux

Editor: Any linux based editor like vi, gedit etc.

Compiler : cc or gcc

For DBMS:

Operating System: Linux Operating system

DBMS: PostgreSQL 11 and higher

Language: PL/SQL

Suggested List of Assignments:**A) Advanced C Programming:****Assignment 1.**

Simple Pointers.

- a) Pointer initialization and use of pointers.
- b) Pointer Arithmetic.

Assignment 2.

Dynamic Memory Allocation.

Assignment 3.

String handling using standard library functions.

Assignment 4.

Structure and Unions.

Assignment 5.

File Handling.

Assignment 6.

C Preprocessors.

B) Relational Database Management Systems:**Assignment 1: Stored Procedure**

- 1) A Simple Stored Procedure
- 2) A Stored Procedure with IN, OUT and IN/OUT parameter

Assignment 2: Stored Function

- 1) A Simple Stored Function
- 2) A Stored Function that returns
- 3) A Stored Function recursive

Assignment 3 : Cursors

- 1) A Simple Cursor
- 2) A Parameterize Cursor

Assignment 4 : Exception Handling

- 1) Simple Exception- Raise Debug Level Messages
- 2) Simple Exception- Raise Notice Level Messages
- 3) Simple Exception- Raise Exception Level Messages

Assignment 5 : Triggers

- 1) Before Triggers (insert, update, delete)
- 2) After Triggers (insert, update, delete)



Books: Laboratory handbook prepared by the University.



Savitribai Phule Pune University

(Formerly University of Pune)

Revised Syllabus for **M.A. Economics Part - I** [Semester I & II]

Choice Based Credit System Syllabus NEP 2020

To be implemented from Academic Year 2023-2024

INTRODUCTION:

M.A in (Economics) Program (Pattern 2023/CBCS/NEP2020) will be introduced in the following order:

- a) First Year PG 2023-2024
- b) Second Year PG 2024-2025
- ✓ M. A. Degree Programme will consist of four semesters divided into two Years.
- ✓ The First Year (Semester I and II), Second Year (Semester III and IV), Choice Based Credit System
- ✓ Examination (CIE & SEE) will be held for each semester. Continuous Internal Assessment will have 50% weightage and Semester End Assessment will carry 50% weightage. Internal Assessment tools used for previous Semester should be avoided for the next Semester.
- ✓ It covers in-depth study of Economics as a major subject at post-graduation level with focus on the advanced economic theory, different streams in the subject of Economics like micro, macro, public economics, international economics, agricultural economics, rural and urban development, demography, financial systems and market, its application, policy making and contemporary changes in the subject.

PROGRAMME OBJECTIVES:

The objectives of a Master of Arts (M.A) programme in Economics offered as per the National Education Policy [2020] to provide complete knowledge of Economics to the students, to develop theoretical base of the subject with the help of classical and advanced theories, to skill them to apply the knowledge in policy making in different sectors at the national and international level. The program also aims at providing the knowledge to the students about the Indian policy making perspective and contemporary changes in the policies.

OBJECTIVES OF A M.A IN ECONOMICS PROGRAMME ARE:

- 1) To develop a strong foundation of advanced economic theory aligned with the graduation and honours program.
- 2) To help the students to gain the comprehensive understanding of the policy making for rural and urban economy along with national and international level.
- 3) To help the students in understanding the intricacies of policy making process from local to global level.
- 4) To build the foundations of Economics and its inter and multidisciplinary relationship with respect to pure and other social sciences.

- 4) To develop an understanding about the role of the national and international governments/institutions for building consensus about the policies that help in welfare.
- 5) To aware the students about the interrelations between economy and society, and develop a critical thinking about policy making, growth and development and sustainability.

PROGRAMME SPECIFIC OUTCOMES (PSOS):

- PSO - 1. Knowledge of Economic Theories:** Graduates of an M.A. in Economics will possess a strong understanding of economic theories, including microeconomics, macroeconomics, econometrics, and other specialized areas of economics.
- PSO - 2. Analytical Skills:** Graduates will be able to apply economic concepts and theories to analyse real-world economic issues, such as market behaviour, policy implications, and economic trends. They should also be able to critically evaluate economic research and data using statistical and econometric techniques.
- PSO - 3. Research and Writing Skills:** Graduates will have developed advanced research and writing skills, including the ability to conduct independent research, analyse economic data, and communicate their findings effectively through written reports, policy briefs, and other forms of economic writing.
- PSO - 4. Policy Analysis:** Graduates will be able to assess the impact of economic policies on various stakeholders and evaluate their effectiveness in achieving desired outcomes. They should also be able to propose evidence-based policy recommendations to address economic challenges and promote economic growth.
- PSO - 5. Quantitative Skills:** Graduates will develop a strong foundation in quantitative methods, including statistical and econometric techniques, and be able to apply these skills to analyse economic data and conduct empirical research.
- PSO - 6. Communication Skills:** Graduates will be able to communicate complex economic concepts and findings to different audiences, including policymakers, business leaders, and the general public, in a clear and concise manner.
- PSO - 7. Critical Thinking:** Graduates will develop critical thinking skills and be able to analyse economic problems from multiple perspectives, consider trade-offs, and propose innovative solutions based on economic principles and evidence.
- PSO - 8. Professional Ethics:** Graduates will understand and adhere to the professional ethics and standards of the economics, including academic integrity, objectivity, and confidentiality in research and policy analysis.
- PSO - 9. Professional Development:** MA Economics programs often include professional development components, such as internships or seminars, to prepare students for careers in economics.

Syllabus Designing Committee

MA – I – Economics, Semester – I & II

Sr. No.	Name of Professor	BoS Member / Member
1	Dr. Sunil P. Ugale	Chairman
2	Dr. Vilas B. Adhav	BoS Member
3	Dr. Amita Yadwadkar	BoS Member
4	Dr. Gorakshanath K. Sanap	BoS Member
5	Dr. Baban M. Sonawane	BoS Member
6	Dr. Nitin D. Ade	BoS Member
7	Dr. Madhav H. Shinde	BoS Member
8	Dr. Parmeshwar S. Gadkar	BoS Member
9	Dr. Somnath V. Patil	BoS Member
10	Dr. Jaywant R. Bhadane	BoS Member
11	Dr. Amol A. Gaikwad	BoS Member
12	Dr. Ramdas K. Gadge	BoS Member
13	Dr. Suresh Manid	BoS Member
14	Mr. Jignesh C. Furiya	BoS Member
15	Dr. Ajit Bhandakkar	BoS Member
16	Dr. Eknath Mundhe	Member
17	Dr. Deepak N. Kare	Member
18	Dr. Ganesh R. Deshmukh	Member
19	Prof. Santosh P. Adhav	Member

**Credit distribution structure for Two Years PG
M.A. Economics, Part – I & II**

With effect from Academic Year 2023-2024

Level	Semester	Credits Related to Major		RM	OJT	RP	Total
		Mandatory / Core	Electives				
6.0	I	12 (T)+2 (P)	4 (T)	4	0	0	22
	II	12 (T)+2 (P)	4 (T)	0	4	0	22
Total Credit – 1 Years / 2 Semester		28	8	4	0	0	44
6.5	III	12 (T)+2 (P)	4 (T)	0	0	4	22
	IV	10 (T)+2(P)	4 (T)	0	0	6	22
Total Credit - 2 Years / 4 Semester		54	16	4	4	10	88

Abbreviations –

1. T – Theory
2. P – Practical
3. RM - Research Methodology
4. OJT: On Job Training (Internship)
5. FP - Field Project
6. RP - Research Project

**Credit distribution structure and Subject Title for M.A. Economics
– Semester I & II**

With effect from Academic Year 2023-2024

Level	Semester	Credits Related to Major		RM	OJT	RP	Total
		Mandatory / Core	Electives				
6.0	I	1. ECO 501 MJ - Micro Economic Analysis I - [4T] 2. ECO 502 MJ - Public Finance I - [4T] 3. ECO 503 MJ - International Economics I - [4T] 4. ECO 504 MJP - Modern Banking – [2P]	1. ECO 510 MJ - Indian Economic Policy - [4T] or 2. ECO 511 MJ - Agricultural Economics - [4T] or 3. ECO 512 MJ - Foreign Exchange Market [4T]	ECO 530 RM - Research Methodology [4]		0	22
6.0	II	1. ECO 551 MJ - Micro Economic Analysis II - [4T] 2. ECO 552 MJ - Public Finance II – [4T] 3. ECO 553 MJ - International Economics II - [4T] 4. ECO 554 MJP - Tools of Economics Analyses – [2P]	1. ECO 560 MJ - Labour Economics - [4T] or 2. ECO 561 MJ - Industrial Economics- [4T] or 3. ECO 562 MJ - Statistical Techniques - [4T]	0	ECO 581 OJT - On Job Training [4]	0	22
Total Credit - 1 Years / 2 Semester		28	8	4	4	0	44

Abbreviations – 1. ECO – Economics
 2. MJ – Major Subject
 3. MJP - Major Practical Subject
 4. RM - Research Methodology

Examination Pattern:

Credits Related to Major [Mandatory, Electives, RM]

Total Credits: 4 Credits

Total Marks: 100

Scheme of Examination:

A. Semester End Exam 50 Marks (Minimum Marks 20 for passing)

B. Internal Assessment 50 Marks (Minimum Marks 20 for passing)

Pattern for Semester End Assessment in both the semesters:

1. The Semester End Assessment shall cover the entire syllabus prescribed for the course.
2. Question Paper Pattern for Semester End Examination (SEE) for both semesters.
3. The details of Question Paper Pattern for offline Examination should be mentioned here.

Time (3 Hours), 4 Credit Course, Marks (50)

Q.1 Answer any five in twenty words each. 10 Marks

Q.2 Answer any one out of two. 10 Marks

Q.3 Answer any one out of two. 10 Marks

Q.4 Answer any one out of two. 10 Marks

Q.5 Answer any one out of two. 10 Marks

Pattern for Internal Assessment: (50 marks) (Minimum Marks 20 for passing)

Suggested assessment tools for PG courses:

The concerned teacher shall announce the units for which internal assessment will take place. A teacher may choose one of the methods given below for the assessment.

- i. Journal/Lecture/Library notes
- ii. Seminar presentation
- iii. Short Quizzes / MCQ Test
- iv. Home Assignments
- v. Tutorials/ Practical
- vi. Oral test
- vii. Mini Research Project
- viii. Group Discussion
- ix. An Open Book Test
- x. Field visit/ Study Tour
- xi. Written Test
- xii. Open Book Test
- xiii. Field Visit
- xiv. Industrial Visit
- xv. Home Assignments
- xvi. Viva Voce

Credits Related to Major [Mandatory / Core]

Total Credits: 2 Credits

Total Marks: 50 Marks

Scheme of Examination:

- A. Semester End Exam 25 Marks
- B. Internal Assessment 25 Marks
- or
- A. Practical Examination – 50 Marks

Teaching Methodology:

1. Classroom Teaching
2. Guest Hours
3. Discussions
4. Surveys
5. Power Point Presentation
6. Visit to Institutions
7. Research Papers & Projects
8. E-content & ICT tools

Syllabus

Class: M.A. - I Economics

Semester: I

Course Type: Credits Related to Major – Mandatory / Core

Course Name: Micro Economic Analysis - I

Course Code: ECO 501 MJ

No. of Credits: 4 Credits [Theory]

No. of Hours: 60 Hours

Total Marks: 100 Marks

Course Outcomes:

The Post Graduate (MA Economics) Students will be able to:

- CO1) Understand the basic principles of micro economics or price theory.
- CO2) Apply the micro economic concepts in various contexts.
- CO3) Understand the basic theories in microeconomics such as demand theory, production theory, market structures etc.
- CO4) Discuss the modern developments in micro economics such as Modern Demand theories, Production theories, social welfare theories, etc.

UNITS AND CONTENTS

1. Introduction 10 Hours

- 1.1 - Meaning, Nature, Scope & Limitations of Micro Economics
- 1.2 - The Basic Economic Problems of Scarcity and Choice.
- 1.3 - Market and Price Mechanism- Functions & Limitations

2. Consumer Theory 18 Hours

- 2.1 - Utility: Concept and Types
- 2.2 - Cardinal Approach: Law of Diminishing Marginal Utility and Law of Equi-Marginal Utility
- 2.3 - Consumer Surplus: Concept and Measurement
- 2.4 - Concept of Elasticity: Price, Income and Cross Elasticity of Demand - Mathematical Applications/Examples
- 2.5 - Ordinal Approach: Indifference curve analysis-Concept, Characteristics, Consumer Equilibrium

2.6 - Income and Price Expansion Paths, Income and Substitution Effects: Slutsky and Hicksian Approach.

2.7 - Theory of Revealed Preference

3. Production Theory

20 Hours

3.1 Cost Concepts- Total Cost, Average Cost & Marginal Cost, Short Run and Long Run Costs- Mathematical Applications /Examples

3.2 - Derivation of Supply curve- Firm and Industry, Short and Long Run.

3.3 Concept of Revenue: Total Revenue, Average Revenue and Marginal Revenue- Mathematical Applications/ Examples

3.4 - Production Function – One Input, Two Inputs

3.5 - Isoquants: Concept & Features

3.6 - Concept of Producers' Surplus

3.7 - The Law of Variable Proportions

3.8 - The Law of Returns to Scale

4. Introduction to Welfare Economics

12 Hours

4.1 Concept of Economic & Social Welfare

4.2 Social Welfare Function, Compensation Criteria

4.3 Pigou's Contribution to Welfare Economics

4.4 Pareto Optimality

4.5 Product Exhaustion Theorem (Euler's Theorem)

4.6 Thoughts of Amartya Sen on Welfare Economics & Social Choice

References:

Sr. No.	Title of Books	Name of Author/s	Publisher	Year	Place
1	Advanced Economic Theory	Ahuja H.L.	S. Chand & Company Ltd.	2004	New Delhi
2	Micro Economics	D.N. Dwivedi	Pearson Publication	2011	New Delhi
3	Advanced Microeconomic Theory	Misra S.K. and V.K. Puri	Himalaya Publishing House	2001	New Delhi
4	Micro Economics	Mansfield, E.	W. W. Norton and Company	1997	New York

5	Principles of Economics	Mankiw, N.G.	Thomson Asia Pvt. Ltd.	2002	Singapore
6	Micro Economics	Salvatore, D.	Oxford University Press	2003	New Delhi
7	‘Collective Choice and Social Welfare’	Sen Amartya	Penguin [Original Edition (1970)]	2017	
8	‘Handbook of Social Choice and Welfare’ Edited	Kenneth Arrow, Amartya Sen and Kotaro Suzumura		2001	
9	सूक्ष्म अर्थशास्त्रभाग 1 व 2	उशीर डी. जी.	निराली प्रकाशन	२०२०	पुणे
10	सूक्ष्म अर्थशास्त्र	तिवारी एच. आर.	अद्वैत प्रकाशन	२००१	अमरावती
11	आधुनिक उच्चतर आर्थिक सिद्धांत	देशमुख राम	विद्या प्रकाशन	२००७	नागपूर
12	उच्चतर आर्थिक सिद्धांत	पाटील कृष्णराव	श्रीमंगेश प्रकाशन	२००४	नागपूर
13	सूक्ष्मलक्षी अर्थशास्त्र	शिंदे एम. एन.	अजित पब्लिकेशन	२००३	इस्लामपूर
14	प्रगत सूक्ष्मलक्षी अर्थशास्त्र	चव्हाण एन, एल.	प्रशांत पब्लिकेशन	२०१५	जळगाव

Web References :

1. <https://en.wikipedia.org/wiki/Microeconomics>
2. <https://www.youtube.com/watch?v=iLd1eod4A5w>
3. <https://pressbooks.bccampus.ca/uvicecon103/chapter/6-3-understanding-consumer-theory/>
4. <https://www.youtube.com/watch?v=P2kaQccjFIA>
5. <https://www.economicdiscussion.net/theory-of-production/theory-of-production-and-the-production-function/12410>
6. <https://www.econ.msu.ru/ext/lib/Category/x48/x05/18437/file/unit%2010.pdf>
7. <https://www.project-syndicate.org/commentary/kenneth-arrow-impossibility-theorem-social-welfare-by-amartya-sen-2014-11?barrier=accesspaylog>

Class: M.A.-I Economics

Semester: I

Course Type: Credits Related to Major - Mandatory / Core

Course Name: Public Finance-I

Course Code: ECO 502 MJ

No. of Credits: 4 Credits [Theory]

No. of Hours: 60 Hours

Total Marks: 100 Marks

PREAMBLE

There is great socio-economic significance of public finance, both in developed and developing countries. There has been a considerable change in the role of the government in modern times. The objective of this paper is to provide a detailed treatment of issues in public finance to those intending to specialise in this area. Student should know the public revenue, public expenditure, debt, budgets and federal finance system. Traditionally, Public Finance was applied to the policies and operation of revenue, expenditure and debt, while the applications have extended to resource utilization, distribution, equality, stabilization, etc. An understanding is provided on how political processes are instrumental in the fiscal policy processes and decision-making, supported by theoretical concepts and practical applications.

Course Objectives:

1. To develop an ability to understand the changing role of the government and the fiscal functions of the modern governments.
2. To discuss and deliberate on the concepts and theories in public economies like public policy, principles of taxation, theories of public expenditure, etc.
3. To improve the level of understanding of various policies in public economics like fiscal policy, taxation policy, public expenditure policy etc.
4. To know the structure of public expenditure its theories and social cost-benefit analysis.

Course Outcomes:

The Post Graduate (MA Economics) Students will be able to-

- 1) Analyse the Economic Issues related to local to global scenarios.
- 2) Understand how economic policies affect the common people through interactions
- 3) Understand the changing role of the government and the Fiscal functions of the modern governments.
- 4) Discuss on the concepts and theories in public economies, Like public policy, principles of taxation, theories of public expenditure, etc.
- 5) Analyse various policies in public economics like fiscal, Policy, taxation policy, public debt policy, public expenditure policy etc.

- 6) Interpret various concepts associated with the Taxation and Public Expenditure.

UNITS AND CONTENTS

Unit No.1 – Introduction **16 Hours**

- 1.1 - Role of Government in organized society
- 1.2 - Changing prospective - Government in a Mixed Economy
- 1.3 - Public and Private Sector- cooperation or competition
- 1.4 - Government as an agent for economic planning and development
- 1.5 - Meaning and features of Private Goods, Public Goods, Social Goods, Merit Goods, Club Goods

Unit No.2 - Rationale for Public Policy **14 Hours**

- 2.1 - Allocation of Resources- Provision of Public Goods
- 2.2 - Voluntary Exchange Models- Lindahl
- 2.3 - Impossibility of Decentralized Provision of Public Goods-Contribution of Samuelson and Musgrave
- 2.4 - Tiebout Model, Stabilization Policy

Unit No.3. – Taxation **15 Hours**

- 3.1 - Principles of Taxation- Benefit and Ability to Pay Approaches
- 3.2 - Theory of Incidence; Alternative concepts of Incidence
- 3.3 - Allocative and equity aspects of Individual Taxes
- 3.4 - Theory of Optimal Taxation; Excess Burden of Taxes
- 3.5 - Shifting of Tax Burden

Unit No.4. - Public Expenditure **15 Hours**

- 4.1 - Wagner's Law of Increasing State Activities
- 4.2 - Wiseman-Peacock Hypothesis; Pure Theory of Public Expenditure
- 4.3 - Structure and Growth of Public Expenditure
- 4.4 - Criteria for Public Investment; Social Cost-Benefit Analysis, Project Evaluation, Estimation of Costs, Discount Rate; Zero Base Budgeting

References:

1. Mueller, D.C. (1979), 'Public Choice', Cambridge University Press, Cambridge.
2. Houghton, J.M. (1970), The Public Finance: Selected Readings, Penguin, Harmondsworth.
3. Rajesh K. Jha (2012) Public Finance. Pearson Publication. New Delhi.

4. Musgrave, Richard A and Musgrave, Peggy B (1989), Public Finance in4. Theory and Practice, Tata McGraw Hill, new Delhi.
5. Stiglitz, Joseph E (1999), Economics of the Public Sector, W. W. Norton and Company New York
6. Patil J. F. (1983): & quot; Taxation for Development in Maharashtra, & quot; Continental Prakashan, Pune.
7. Stiglitz, Joseph E (1986), 'Economics of Public Sector, Norton, NewYork.
8. Deshpande D.K(1984), 'Sarvajnikvitta', Shri Mangesh Prakashn, Nagpur.
9. Dev S.P. and ZamareG.N.(1988), 'Rajasv' Pimpalpure Prakashan, Nagpur.
10. Patil J.F.(2011), 'Vrudddhi va vikasache arthshahstra', Phadke Prakshan, Kolhapur.
11. Datir R.K., Lomate G.J., ChiantamaniR.M.(2015), 'Arthik Vikas va Niyojan', Nirali,Pune.
12. Datir R.K., Lomate G.J., Chiantamani R.M.(2015), 'Sarvajanik Aywyay, Nirali, Pune.

Web References:

1. <https://www.economicdiscussion.net/government/role-of-government-in-economic-systems/4041>
2. <https://www.britannica.com/topic/allocation-of-resources>
3. https://www.youtube.com/results?search_query=principle+of+taxation
4. <https://www.youtube.com/watch?v=Y2q6ECLJBAg>
5. <https://www.jstor.org/stable/1829823>
6. <https://www.fincomindia>
7. <https://www.finmin.nic.in>
8. <https://www.imf.org.in>
9. <https://www.indiabudget.nic.in>
10. <https://.www.nipfp.org.in>
11. <https://.www.rbi.org.in>

***Recommended Journals:**

1. Journal of Public Economics- Science Direct
2. South Asian Journal of Macroeconomics and Public Economics- Sage Journals
3. Journal of Public Economics-Elsevier

Class: M.A. - I Economics

Semester: I

Course Type: Credits Related to Major - Mandatory / Core

Course Name: International Economics- I

Course Code: ECO 503 MJ

No. of Credits: 4 Credits [Theory]

No. of Hours: 60 Hours

Total Marks: 100 Marks

Course Outcomes:

The Post Graduate (MA Economics) Students will be able to-

CO1) Understand the theoretical concept in international trade.

CO2) Analyse international economics with reference to terms of trade, trade policy, trade agreements etc.

CO3) Discuss Free Trade & Controlled trade, tariff & non-tariff barriers & its effect.

CO4) Explain the role of WTO and changing scenario of International Trade.

UNITS AND CONTENTS

1. Classical and Modern Trade Theories

24 Hours

1.1 - International Economics & Trade: Meaning, Nature, Scope & Importance

1.2 - The Theory of Comparative Cost- David Ricardo

1.3 - The Heckscher-Ohlin Theorem- The Opportunity Cost Approach

1.4 - Leontief Paradox, Factor Price Equalization [Edgeworth Box Diagram]

1.5 - New Theories of Trade- Product Life Cycle and Technology Gap Models

1.6 - Trade based on Product Differentiation: Intra-industry Trade, Trade based on Economies of Scale

1.7 - Neo-Heckscher Ohlin Theorem

2. Terms of Trade

06 Hours

2.1 - Concepts of Terms of Trade, Factors affecting Terms of Trade

2.2 - Gross & Net Barter Terms of Trade

2.3 - Terms of Trade and Economic Development

3. Trade Policy

15 Hours

3.1 - Free Trade vs. Protected Trade

3.2 - Tariffs and Non-Tariff Barriers on Trade

3.3 - Effects of Tariffs under Partial Equilibrium. (Price Effect, Terms of Trade Effect, Competitive Effect, Income Effect, Revenue Effect)

3.4 - Effects under General Equilibrium

4. Trade Organizations

15 Hours

4.1 - Introduction to International Trade Agreements - Dunkel Proposal and WTO, Important Agreements,

4.2 - Major developments in WTO since 1995, WTO Effects on the Indian Economy

4.3 - Features of Global Trade

4.4 - India's participation in Global Trade

References:

Sr. No.	Title of Books	Name of Author/s	Publisher	Year	Place
1	International Economics	Salvatore, D.	Prentice Hall	1997	New York
2	International Economics	Srivastava, O.S	Kalyani Publishers	2012	Ludhiyana
3	International Economics	Soderston, Bo	The Macmillan Press Ltd	2005	London
4	International Economics Theory and Policy	Paul R. Krugman & Maurice Obstfeld	Pearson Education Publication	2009	New Delhi
5	International Economics	Pugel T.A	TataMcGraw-Hill	2008	New Delhi

★ Web References :

1. <https://www.economicdiscussion.net/economic-theories/comparative-costs-theory/david-ricardos-theory-of-comparative-cost-advantage-economics/30673>
2. <https://www.economicshelp.org/blog/6957/trade/new-trade-theory/>
3. <https://www.economicdiscussion.net/trade/various-terms-of-trade-economics/26218>
4. https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact5_e.htm
5. <https://www.dripcapital.com/en-in/resources/blog/coronavirus-impact-indian-exports-global-trade-part2>

Class: M.A. - I Economics

Semester: I

Course Type: Credits Related to Major - Mandatory / Core

Course Name: Modern Banking

Course Code: ECO 504 MJP

No. of Credits: 2 Credits [Practical]

No. of Hours: 60 Hours

Total Marks: 50 Marks

The course "Modern Banking" provides a comprehensive understanding of the practical aspects of modern banking. It aims to equip students with the knowledge and skills required to excel in the banking industry, taking into account the latest trends and advancements. This course combines theoretical concepts with practical exercises to give students a hands-on experience in various areas of banking operations.

Course outcomes:

After completion of the course students will be able to:

CO1: Understand the fundamentals of modern banking.

CO2: Explore the various functions and departments within a bank.

CO3: Develop an understanding of different banking products and services.

CO4: Acquire practical knowledge of banking operations, including account opening, cash handling, payment processing, and reconciliation.

CO5: Understand the role of technology in modern banking, including digital banking platforms, financial Technology innovations, and cyber security measures.

CO6: Develop critical thinking and problem-solving skills through case studies and real-world scenarios relevant to modern banking.

Course Structure:

The course will be delivered through a combination of Hours, interactive discussions, case studies, and practical exercises. Guest speakers from the banking industry may be invited to share their experiences and insights. Additionally, students will have access to banking software simulations and online resources to enhance their understanding of practical banking operations.

UNITS AND CONTENTS

- 1. Introduction to Procedure and Opening of Bank Account** **15 Hours**
 - 1.1 - Types of bank accounts and their features
 - 1.2 - Bank Account opening procedure.
 - 1.3 – Customer identification and verification process,
 - 1.4- KYC norms and guidelines, identification documents require for account opening, address verification documents, Nominee
 - 1.5 - To arrange the visit to nearest bank,
 - 1.6 - Demonstration of filling various bank account opening forms
- 2. Methods of Remittances** **15 Hours**
 - 2.1 - Features of various Methods of Remittances
 - 2.2 - Practical on fund Transfer through: Demand Draft, cheque, Electronic fund Transfer: RTGS, NEFT, SWEFT
 - 2.3 - Various Cards: ATM, Debit Card, Credit Card, Virtual Card, CDA
- 3. Introduction to Digital Banking** **15 Hours**
 - 3.1 - Hands-on Training on online banking platforms,
 - 3.2 – Digital payment systems and methods, Electronic Banking
 - 3.3 – Mobile banking applications, Digital wallets, UPI Applications- Google pay, Phone pay, BHIM etc.
 - 3.4 - Demonstration on online transactions and transfer through UPI.
 - 3.5 - Cyber security measures and authentication methods in Digital banking,
- 4. Practical Work Book** **15 Hours**
 - 4.1 – Preparation of the Practical work Book on Banking Operations.

Note: Students should prepare the Practical Work Book.

Assessment Method:

Sr. No.	Particulars	Marks
1	Student engagement and active participation in Practical work, (Field Visit/ workshop/ seminar/ Exhibition)	10
2	Practical work Book	20
3	Viva Voce (Problem Solving / PPT/ Poster/ Exhibition)	20
	Total	50

* Viva Voce to be conducted by Internal & External Examiner in the end of Semester.

BASIC READING LIST

1. Harris, C.L. (1961), Money and Banking, Allyn and Bacon, London.
2. Laliwala, J.I. (1984), The Theory of Inflation, Vani Educational Book, New Delhi.
3. Muraleedharan D. (2014) Modern Banking: Theory and Practice, PHI learning Pvt.Ltd. Delhi
4. Datir R.K. (2014), Aadhunik Bank Vayvasay, Nirali Prakashan, Pune.
5. Rajesh R., Sivaganasithi (2009), Banking Theory – Law & Practice, TheMc Graw – Hill Companies, New Delhi.
6. Datir ,Lomate, Ushir (2012), Bank Vayvasaychi Multatve, Nirali Prakashan, Pune.
7. Parameswaran R. (2010), Indian Banking, S. Chand & Company, New Delhi.

Class: M.A. - I Economics
Semester: I
Course Type: Credits Related to Major - Electives
Course Name: Indian Economic Policy
Course Code: ECO 510 MJ
No. of Credits: 4 Credits [Theory]
No. of Hours: 60 Hours
Total Marks: 100 Marks

Learning Outcomes:

1. The syllabi equips the students to comprehend and critically appraise current Indian Economic Issues and Identify the concepts and the issues and policies in Economic Development.
2. Demonstrate the various Issues and policies of Infrastructural, Social and Industrial sector of the economy.
3. Exemplify various issues of Agriculture LPG, Infrastructure, Financial and Monetary institutions, Foreign Trade and Fiscal Policy pertaining to India's economic development.
4. Propose a way in which past policies could have been more effectively applied and examine the consequences.
5. Appraise the contemporary developments in the Indian as well as International economy.

UNITS AND CONTENTS

Unit 1: Framework of Indian Economy.

(15 Hours)

- 1.1 Economic Policy: An introduction.
- 1.2 Digital Economy: Importance and Impact.
- 1.3 National Income: Trends and Structure of National Income, Trends in rural-urban income disparity.
- 1.4 Demographic Features and Indicators of Economic Growth and Development Rural-Urban Migration and issues related to Urbanization
- 1.5 Unemployment-Nature, Central and State Government's policies, policy implications, Employment trends in Organized and Unorganized Sector, Gender issues in agricultural services.

Unit 2: Development Strategies in India.**(15 Hours)**

- 2.1 Agricultural-Pricing, Marketing and Financing of Primary Sector
- 2.2 Economic Reforms- Rationale of Economic Reforms, Liberalization, Privatization and Globalization of the Economy,
- 2.3 Interdependence between Agriculture and industrial development.
- 2.4 Changing structure of India's Foreign Trade
- 2.5 Role of Public Sector- Redefining the role of Public Sector, Government Policy towards Public Sector, problems associated with Privatization, issues regarding Deregulation-Disinvestment and future of Economic Reforms.

Unit 3: The Economic Policy and Infrastructure Development.**(15 Hours)**

- 3.1 Energy and Transport
- 3.2 Social Infrastructure- Education, Health and Gender related issues, Social Inclusion
- 3.3 Issues and policies in Financing Infrastructure Development.
- 3.4 Public-Private partnership and Infrastructure.
- 3.5 Indian Financial System-issues of Financial Inclusion. Financial Sector Reforms-review of Monetary Policy of R.B.I. Capital Market in India.

Unit 4: The Economic Policy and Industrial Sector.**(15 Hours)**

- 4.1 Industrial Sector development Pre-reforms period and Post-reform period
- 4.2 Problems of MSMEs.
- 4.3 Amalgamation, Mergers, Acquisition, Takeovers.
- 4.4 Labour Market - Characteristics of Indian Labour Market, Labour efficiency and productivity, technical change, Labour absorption.

References:

- 1. Buchanan, James M. and Tullock, Gordon (1962); The Calculus of Consent. Dixit, A.K. (1996); The Making of Economic Policy, The MIT Press.
- 2. Amartya Sen, Poverty and Famine - An Essay on Entitlement and Deprivation Oxford University Press. New Delhi, 1982.
- 3. Gupta S.P. [1989], 'Planning and Development in India: A Critique,' Allied Publishers Private Limited, New Delhi.
- 4. Bimal Jalan: Indian Economic Crisis: The Way Ahead; Oxford University Press, New Delhi 1992
- 5. India's Economic Policy Preparing for the 21st Century: Penguin. New

Delhi,1996.

6. Brahmananda P.R. and V.A. Panchmukhi. [2001], Ed. 'Development Experience in Indian Economy, Inter-state Perspective,' Book well, New Delhi.
7. Bhagwati, Jagdish. [2004], 'In Defence of Globalization,' Oxford University Press, U.K.
8. Dhingra, Ishwar//C. [2006], 'Indian Economy,' Sultan Chand and Sons, New Delhi.
9. Datt, Ruddar and Sundaram, K.P.M. [Latest edition], 'Indian Economy,' S. Chand and Co, New Delhi
10. Ramesh Singh-Indian Economy-Tata Mcgraw Hill Publication New Delhi
11. Vijay Joshi: IMD Little; India's Economy Reforms; Oxford University Press. New Delhi, 1991-2001.
12. Recent Developments in Indian Economy
13. Usha Kapila Indian Economy since Independence; Vol. I, II & III, Academic Foundation. New Delhi.

Class: M.A. - I Economics
Semester: I
Course Type: Credits Related to Major - Electives
Course Name: Agricultural Economics
Course Code: ECO 511 MJ
No. of Credits: 4 Credits [Theory]
No. of Hours: 60 Hours
Total Marks: 100 Marks

Agricultural Economics is an applied field in economics; the objective of this course is to provide a detailed of issues in agricultural economics to those intending to specialize in this area. Agricultural Economics provides an understanding of the various aspects of agriculture- productivity, labour, credit, markets for farm products, with appropriate economic analysis. The subject discusses agrarian structures, growth, employment, efficiency and prices as well as incomes. It is important to analyse the challenges to agriculture in the context of emerging economies.

Course Objectives:

- To understand the basic concepts of agricultural economics.
- To develop an understanding of agricultural economics in the theoretical as well as practical context.
- To discuss and debate the various issues and challenges faced by agrarian economies w.r.t. Policy, production, productivity, efficiency, employment, etc.

Programme Outcome:

- The students will be able to analyse and evaluate the subject with reference to various aspects of agrarian economies.
- They will understand the role of agriculture with its intricacies and imperfections and to be able to construct intellectual dialogue on the challenges before the agriculture.

UNITS AND CONTENTS

1. Introduction to Agricultural Economics (15 Hours)

- 1.1 Definition, Nature & Scope of Agricultural Economics.
- 1.2 Role of Agriculture in Economic Development.
- 1.3 Agrarian Structure in India in a Liberalizing and Globalizing Economy.

- 1.4 Need for Policy Intervention–Productivity, Equity and Sustainability.
- 1.5 Challenges to Indian Agriculture- Productivity, Supply of Credit, Marketing etc.
- 2. Agriculture Productivity (15 Hours)**
 - 2.1 Concept of Agricultural Productivity.
 - 2.2 Causes of Low Agricultural Productivity in India.
 - 2.3 Measures to Increase of Agricultural Productivity in India.
 - 2.4 Trends in Agricultural Productivity in India since 1991.
 - 2.5 Role of National Employment Guarantee Scheme in Agriculture
- 3. Agriculture Credit and Marketing (15 Hours)**
 - 3.1 Financial Sector Reforms and Rural Credit.
 - 3.2 Role of NABARD, Commercial Banks and Cooperative Institutions.
 - 3.3 Challenges to Rural and Agricultural Credit in India.
 - 3.4 Characteristics of Agricultural Markets in India.
 - 3.5 Defects in Agricultural Marketing System in India.
 - 3.6 Measures to overcome defects in agricultural marketing system in India.
- 4. Agricultural Growth and Rural Development. (15 Hours)**
 - 4.1 Recent Trends in Agricultural Growth in India.
 - 4.2 Food Security in India.
 - 4.3 Agriculture and Industry-Inter dependence between Agriculture and Industry, Terms of Trade between Agriculture and Industry
 - 4.4 Sustainable Agriculture-Concept, Need and Issues.
 - 4.5 Importance of Agricultural Education and Research in India.
 - 4.6 WTO and Indian agriculture: Agreement of Agriculture (AoA).

Recommended Readings:

1. Maharshi Dayanand University, ROHTAK (2003) 'Agricultural Economics', EXCEL BOOKS PVT. LTD., A-45 Naraina, Phase 1, New Delhi-110028.
2. Mishra, Puri & Garg, (2022), 'Indian Economy, Himalaya Publishing House,
3. Ajit Singh and Hamid Tabatabai (1993) 'Economic Crisis and Third World Agriculture', Cambridge University Press.
4. R.G. Desai (2001), 'Agricultural Economics- Madels Problems and Policy Issues' Himalaya Publishing House, Mumbai.
5. C.S.Prasad (2006) 'Sixty years of Indian Agriculture'–New Delhi

6. K.N.R. Kumar (2015), 'Agricultural Production Economics', Vol-I, Daya Publication House, A Division of Astral International Pvt. Ltd. New, Delhi.
7. Gopalji & Suman Bhakari (2012) 'Indian Economy Performance and Policies', Pearson Publication, Delhi.
8. Lekhi R.K. & Singh J. (2013), 'Agricultural Economics', Kalyani Publisher, New Delhi.
9. Hansra P. & Chandrakarn – 'Modernization of Indian Agriculture in the 21st Century-Challenges, Opportunity and Strategies' Concept Publication Co. New Delhi.
10. Reddy, Ram, Sastry & Devi (2010), 'Agricultural Economics', Oxford & IBH Publishing Co. Pvt.Ltd., New Delhi.
11. Kayande Patil G. (2004) 'Agricultural Economics', Chaitanya Publication, Nashik-13
12. Mamoria C.B. (2005) 'Agricultural Problems of India' Kitab Mahal Pub.
13. Chirstpher R. (1977), Agricultural Economics-Principal and Policy, Czosby Luckwood Staples, London.
14. Singh A. & Sagar (2002) 'Sustainable Agricultural Poverty and Food Securities' Rawat Publications Jaipur Vol-I&II

Recommended Journals:

- The Indian Economic Journal-Sage Journals
- International Journal of Agricultural Economics-Science Publishing
American Journal of Agricultural Economics-Oxford Academic
- Journal of Agricultural and Applied Economics-Cambridge University Press
Economic & Political Weekly

Class: M.A. - I Economics
Semester: I
Course Type: Credits Related to Major - Electives
Course Name: Foreign Exchange Market
Course Code: ECO 512 MJ
No. of Credits: 4 Credits [Theory]
No. of Hours: 60 Hours
Total Marks: 100 Marks

PREAMBLE:

The course provides a deep understanding to the foreign exchange market. Foreign exchange market is an elective course that covers meaning and concept of foreign exchange market, transactions in foreign exchange market, exchange rate mechanism and risk management of the foreign exchange market. Foreign exchange market will try to clear the concepts regarding the currency market and provides basic knowledge to the students to be engaged in the activities.

Course Objectives:

- To understand Indian foreign exchange market.
- To understand how the foreign Exchange Market operates.
- To understand operational aspects of foreign exchange market and foreign exchange contracts.
- To explain techniques that can be used to hedge foreign exchange risk.

Learning Outcome:

After successful completion of the requirements for this course, students will be able to:

- Understand functioning of different foreign exchange markets, exchange rates, arbitrage possibilities etc.
- To identify operational difficulties in financing, settling in foreign currency and currency forecasting.
- To Identify foreign exchange risk management and the techniques available to small business operators for risk exposure containment.
- To evaluate foreign exchange market concepts, market structure, transactions and its use in real life.

UNITS AND CONTENTS

1. Foreign Exchange Market Overview

14 Hours

1.1 - Foreign Exchange and Foreign Currency- Meaning & Definitions

1.2 - Structure of Foreign Exchange Market

1.3 - Features & Functions of Foreign Exchange Market

1.4 - Constituents of Foreign Exchange Market- Central Bank, Commercial Banks, Non-Banks, Individuals & Firms, Speculators & Arbitrageurs, Forex Dealers, Forex Brokers

2. Foreign Exchange Transactions

14 Hours

2.1 - Foreign Exchange Transactions - Meaning & features

2.2 - Types of Foreign Exchange Transactions –Spot, Forward, Swaps, Futures and Options

2.3 - Exchange Rate Quotations – Direct and Indirect Quotations

2.4 - Role of RBI in Foreign Exchange Market in India; Developments since 1991

3. Exchange Rate Mechanism

16 Hours

3.1 - Exchange Rate Determination: PPP Theory, BOP Theory

3.2 - Fixed and Flexible Exchange Rates

3.3 - Exchange Rate Control Methods- Direct& Indirect Methods - Merits and Demerits

3.4 - Relation between Rate of Interest and Foreign Exchange Rate

3.5 - FOREX Regulations.

4. Foreign Exchange Risk Management

16 Hours

4.1 - Nature of Risk & Exposure in Foreign Exchange Market

4.2 - Foreign Exchange Settlement Risk & Foreign Exchange Settlement Exposure

4.3 - Types of Risks & Exposure in Foreign Exchange Market - Transaction Exposure, Translation Exposure& Economic Exposure

4.4 - Intervention in Foreign Exchange Market

4.5 - Risk Management Tools

Basic Reading:

1. Das S. C. (2015) 'The Indian Financial System: Markets, Instruments, Institutions, Services and Regulations' PHI Learning
2. Anthony Steve (2002) 'Foreign Exchange in Practice: the New Environment' Palgrave
3. Brandl Michael (2019) 'Money, Banking, Financial Markets and Institutions' Cengage Learning
4. Batra G.S. "Financial Services and Markets", New Delhi: Deep and Deep Publications Pvt. Ltd., Latest Ed.
5. Bhole, L. M., Jitendra Mahakud (2017) 'Financial Institutions and Markets' Tata McGraw Hill, ND

6. Frederic Mishkin and Stanley Eakins (2006) 'Financial Markets and Institutions', Pearson 5th Edition
7. Frederic Mishkin (2019) 'The Economics of Money, Banking and Financial Markets' Pearson Education India, 11th edition
8. Luca Cornelius (2007) 'Trading in Global Currency Markets' Penguin, USA
9. Gupta SL (2017) 'Financial Derivatives- Theory, Concept and Problems' PHI Learning
10. Srivastava Rajeev (2014) 'Derivatives and Risk Management' OUP
11. Kothari Rajesh. "Financial Services in India Concept and Application", New Delhi, Sage Publications. 2010.
12. Gurusamy S (2004) "Financial Services and Markets", Vijay Nicole Imprints
Hull John C, Sankarshan Basu (2018) "Options, Futures and Other Derivatives", Pearson Education, 10th Edition

Class: M.A. - I Economics
Semester: I
Course Type: Research Methodology [RM]
Course Name: Research Methodology
Course Code: ECO 530 RM
No. of Credits: 4 Credits [Theory]
No. of Hours: 60 Hours
Total Marks: 100 Marks

A) Course Objectives

- 1) To introduce the basic concepts in Research Methodology.
- 2) To understand the Research Design.
- 3) To understand the methods of data collection
- 4) To understand the formulation of research problem.
- 5) To understand the various types of sampling.
- 6) To understand the analysis of data with statistical tools.
- 7) To understand the role of computer in research.

B) Course Outcomes: After successful completion of the course the students will be able to:

- 1) Understand some basic concepts of research and its methodologies.
- 2) Identify appropriate research topics.
- 3) Select and define appropriate research problem and parameters.
- 4) Organize and conduct research (advanced project) in a more appropriate manner.
- 5) Write a research report and thesis.
- 6) Write a research proposal.

UNITS AND CONTENTS

Unit 1: Introduction to Research

10 Hours

- 1.1 - Research - Meaning, importance and types.
- 1.2 - Social Science Research- Meaning and Importance.
- 1.3 - Research Design – Meaning, Need and Stages.
- 1.4- Review of Literature
- 1.5. Research Method - Meaning and types.

Unit 2: Research Problem and Sampling **10 Hours**

- 2.1 - Research Problem - Meaning, Identification and Selection of Research Problems.
- 2.3- Hypothesis - Definition, Formulation and Types.
- 2.3- Sampling Method- Meaning, Principles and Process.
- 2.4- Types of Samples, Size of Samples.

Unit 3: Data Collection and Analysis of Data **20 Hours**

- 3.1 - Data Collection - Meaning and Sources of Data.
- 3.2 -Methods of Primary Data Collection - Interviews, Questionnaire, Observation, Schedule.
- 3.3 - Sources of Secondary Data Collection.
- 3.4- Classification and Tabulation- Meaning and Concept.
- 3.5- Types of Classification and Tabulation.
- 3.6- Graphs and Diagrams – Meaning, Importance.
- 3.7- Types of Graphs and Diagram.

Unit 4: Statistics Analysis and report writing **20 Hours**

- 4.1 - Measures of Central Tendencies - Mean, Median, Mode.
- 4.2 - Standard deviation, Correlation Analysis
- 4.3- Hypothesis Testing - Chi Square Test, T Test, Z Test, F Test.
- 4.4- Presentation – Drawing on Slide for Power Point Presentation.
- 4.5- Computer Use of Data Analysis- Excel, SPSS and Use of Word tools.
- 4.6- Stages of report writing.
- 4.7 - Ordering References, Bibliography and Appendix in Research.

References -

1. Bhandarkar P. L.and Wilkinson T. C. (2016), *“Methodology and Techniques of Social research”*, Himalaya Publishing House, Mumbai.
2. William Josiah Goode, Paul K. Hatt (1952), *“Methods in Social Research”*, McGraw-Hill Book Co., New York.
3. Krishnaswamy, O.R. (2010), *“Methodology of Research in Social Sciences”*, Himalaya Publishing House, Mumbai.
4. Arunangshu Giri and Debasish Biswas (2018), *“Research Methodology for Social Sciences”*, SAGE Publications India Pvt Ltd, New Delhi.

5. M, Thamilarasan (2015), *“Research Methodology for Social Sciences”*, New Century Publications, New Delhi.
6. Sharma, Prasad and Satyanarayana (1983), *“Research Methods in Social Sciences”*, Sterling Publishers Private Ltd., New Delhi.
7. C.A. Moser, G. Kalton (2017), *“Survey Methods in Social Investigations”*, eBook Published 5 January 2017.
8. Sadhu AN, Amarjit Singh (2007), *“Research Methodology in Social Sciences”*, Himalaya Publishing House, New Delhi.
9. Kurein C. T. (1973), *“A guide to research in Economics”*, Sangam Publishers for Madras Institute of Development Studies, Madras.
10. Devendra Thakur (2009), *“Research Methodology in Social Sciences”*, Deep & Deep Publications, Delhi.
11. G.R. Basotia, K.K.N. Sharma (2009), *“Research Methodology”*, Mangal Deep Publications, Jaipur.
12. Kothori C.R., Gaurav Garg (2019), *“Research Methodology”*, New Age International Publishers, New Delh.
13. Gopal M.H. (1971), *“Introduction to Research Procedure in Social Sciences”*, Asia Publishing House.
14. Khandhare V.B., Yadav Y., (2016), *“Research Methodology”*, Chinmay Publication, Aurangabad.
15. Sharma, B.A.V.; D. Ravindra Prasad, P. Satyanarayana (1983), *“Research Methods in Social Sciences”*, Sterling publishers, New Delhi.
16. Thakur Devendra (2009), *“Research Methodology in Social Sciences”*, Deep and Deep Publications, Delhi.
17. Young P.V. (1984), *“Scientific Social Survey and Research”*, Prentice Hall, India
18. Aaglave Pradeep, (2020), *“Samajik Sanshodhan : Paddhatishastra Wa Tantr”*, Shree Sainath Prakashan, Nagpur.

Web References:

- 1) <https://libguides.reading.ac.uk/economics/e-resources>
- 2) https://www.researchgate.net/publication/325846733_INTRODUCTION_TO_RESEARCH
- 3) <https://www.youtube.com/watch?v=BlzR2PjZSdY>
- 4) <https://www.youtube.com/watch?v=gUU - DUiss>
- 5) <http://www.jiwaji.edu/pdf/ecourse/economics/Research%20Report.pdf>

Recommended Journals:

1. Journal of Mixed Methods Research- Sage
2. Journal of Applied Social Sciences- Sage
3. Research in Economics- Elsevier
4. Social Science Research- Elsevier
5. The Social Science Journal – Elsevier/ ScienceDirect

Class: M.A. - I Economics
Semester: II
Course Type: Credits Related to Major - Mandatory / Core
Course Name: Micro Economic Analysis - II
Course Code: ECO 551 MJ
No. of Credits: 4 Credits [Theory]
No. of Hours: 60 Hours
Total Marks: 100 Marks

Course Outcomes:

The Post Graduate (MA Economics) Students will be able to

- CO1) Understand the basic principles of micro economics or price theory.
- CO2) Apply micro economic concepts in various contexts.
- CO3) Understand the basic Market structure in microeconomics.
- CO4) Analyse the equilibrium of firm and industry in short and long run in various markets
- CO5) Discuss the modern developments in micro economics such as Kinky Demand Curve, Game Theory etc.

UNITS AND CONTENTS

1. Market Structures & Perfect Competition **12 Hours**

- 1.1 - Classification of Markets
- 1.2 - Perfect Competition: Meaning & Features
- 1.3 - Equilibrium of Firm and Industry in Short Run under Perfect Competition
- 1.4 - Equilibrium of Firm and Industry in Long Run under Perfect Competition

2. Monopoly **16 Hours**

- 2.1 - Monopoly: Meaning & Features
- 2.2 - Equilibrium of Firm and Industry in Short Run under Monopoly
- 2.3 - Equilibrium of Firm and Industry in Long Run under Monopoly
- 2.4 - Price Discrimination under Monopoly, Types & Degrees of Price Discrimination
- 2.5 - Comparison of Monopoly and Perfect Competition Markets

2.6 - Concept of Monopoly Power, Measurement of Monopoly Power & Regulation & Control of Monopoly Power

3. Monopolistic Competition

12 Hours

- 3.1 - Monopolistic Competition: Meaning & Features
- 3.2 - Equilibrium of Firm and Industry in Short Run under Monopolistic Competition
- 3.3 - Equilibrium of Firm and Industry in Long Run under Monopolistic Competition
- 3.4 - Non-price competition- Equilibrium
 - 3.4.1 - Product Differentiation
 - 3.4.2 - Selling Costs
- 3.5 - Excess Capacity.

4. Oligopoly & Game Theory

20 Hours

- 4.1 - Oligopoly & Duopoly: Meaning & Features
- 4.2 - Equilibrium under Collusive Oligopoly
 - 4.2.1 - Perfect Collusive Oligopoly: Price & Output Determination
 - 4.2.2 - Imperfect Collusive Oligopoly: Price & Output Determination (Price Leadership, Cartels)
- 4.3 - Equilibrium under Non-Collusive Oligopoly (Price War & Price Rigidity), Cournot & Bertrand Solution
- 4.4 - Kinked Demand Curve: Meaning & Nature
- 4.6 - Game Theory, Basic Concepts, Dominant Strategy Equilibrium,
- 4.7 - Nash Equilibrium, Repeated and Sequential Games

References -

Sr. No.	Title of Books	Name of Author/s	Publisher	Year	Place
1	Advanced Economic Theory	Ahuja H.L.	S.Chand & Company Ltd.	2004	New Delhi
2	Micro Economics	D.N.Dwivedi	Pearson Publication	2011	New Delhi
3	Advanced Microeconomic Theory	Misra S.K. and V.K. Puri	Himalaya Publishing House	2001	New Delhi

4	Micro Economics	Mansfield, E.	W. W. Norton and Company	1997	New York
5	Principles of Economics	Mankiw, N.G.	Thomson Asia Pvt. Ltd.	2002	Singapore
6	Micro Economics,	Salvatore, D.	Oxford University Press	2003	New Delhi
7	सूक्ष्म अर्थशास्त्र भाग 1 व 2	उशीर डी. जी.	निराली प्रकाशन	२०२०	पुणे
8	सूक्ष्म अर्थशास्त्र	तिवारी एच. आर.	अद्वैत प्रकाशन	२००१	अमरावती
9	आधुनिक उच्चतर आर्थिक सिद्धांत	देशमुख राम	विद्या प्रकाशन	२००७	नागपूर
10	उच्चतरआर्थिक सिद्धांत	पाटील कृष्णराव	श्रीमंगेश प्रकाशन	२००४	नागपूर
11	सूक्ष्मलक्षी अर्थशास्त्र	शिंदे एम. एन.	अजित पब्लिकेशन	२००३	इस्लामपूर
12	प्रगत सूक्ष्मलक्षी अर्थशास्त्र	चव्हाण एन, एल.	प्रशांत पब्लिकेशन	२०१५	जळगाव

Web References:

1. <https://www.youtube.com/watch?v=b0QNCsIEMgw>
2. <https://www.economicdiscussion.net/market/types-of-market-structures-on-the-basis-of-competition/3731>
3. <https://www.intelligenteconomist.com/perfect-competition/>
4. http://www.economicsconcepts.com/short_run_equilibrium_price_and_output_under_monopoly.htm
5. <https://sites.google.com/site/maeconomicsku/home/monopoly>
6. <https://www.economicdiscussion.net/monopoly/monopoly-and-perfect-competition-difference/7250>
7. https://en.wikipedia.org/wiki/Monopolistic_competition
8. <http://egyankosh.ac.in/bitstream/123456789/22874/1/Unit-9.pdf>
9. <https://www.intelligenteconomist.com/oligopoly/>
10. <https://www.ignitionframework.com/basics-game-theory-make-right-decision-every-time/>
11. <https://www.youtube.com/watch?v=q5tVM3tt-tc>

Class: M.A. - I Economics

Semester: II

Course Type: Credits Related to Major - Mandatory / Core

Course Name: Public Finance-II

Course Code: ECO 552 MJ

No. of Credits: 4 Credits [Theory]

No. of Hours: 60 Hours

Total Marks: 100 Marks

There is considerable change in the public finance in modern economies. This paper analyses important issues in Indian public finance in the context of the India's economic development. It deals with the effectiveness of public finance in India. Public Finance was applied to the policies and operation of public debt, budgets, deficits as well as fiscal federalism, with understanding of the fiscal policy in the management and responsibility context. An understanding is provided on their forms and change in government finances, supported by theoretical concepts and practical applications.

Course Objectives:

- 1) To develop an understanding of various policies in public economics like fiscal, Policy, public debt policy, fiscal finances, etc.
- 2) To help the students to understand the normative public policies and compare it with the policies framed and followed in India.
- 3) To impart information to the students about the reforms like taxation reforms in India.
- 4) To develop an understanding of various aspects of Indian public finance
- 5) To understand the concept of public debt and the principle of debt management and repayment.
- 6) To know the detail about central and states sources of Tax and Non-tax Revenue and the concept of Finance Commission, NITI Aayog, Gender Budget, GST.

Course Outcomes:

The Post Graduate (MA Economics) Students will be able to-

- 1) To understand, apply and analyse concepts of public finance like, public debt policy, fiscal policy, etc.
- 2) Understand the normative policies and compare it with the policies framed and followed by Union Government.
- 3) Analyse causes and effects of fiscal reforms.
- 4) Interpret various aspects of Indian Fiscal Federalism.

Unit No.1 – Public Debt

14 Hours

- 1.1 - Sources of Public Debt
- 1.2 - Burden of Public Debt
- 1.3 - Deficit financing, Public Borrowings and Level of Prices
- 1.4 - Causes of Increasing Public Debt
- 1.5 - Principles of Public Debt Management and Repayment

Unit No. 2 - Fiscal Policy

14 Hours

- 2.1 - Objectives of Fiscal Policy in Developed and Developing Countries
- 2.2 - Interdependence between Fiscal and Monetary Policies
- 2.3 - Budgetary deficits and its Implications.
- 2.4 - Fiscal Sector Reforms in India
- 2.5 - Fiscal Responsibility and Budget Management Act-2003.

Unit No. 3 - Fiscal Federalism

16 Hours

- 3.1 - Fiscal Federalism in India- Meaning and Relevance;
- 3.2 - Vertical and Horizontal Imbalance
- 3.3 - Distribution of Tax in Centre and State
- 3.4 - Constitutional provisions; Finance Commission and Planning Commission (NITI Ayog), Recommendation of 15th Finance Commission.
- 3.5 - Resource transfer from Union to States - Criteria for Transfer of Resources
- 3.6 - Centre-State Financial Relations in India and Conflict

Unit No.4 - Indian Public Finance

16 Hours

- 4.1 - Structure of Indian Tax System- Tax and Non-tax Revenue
- 4.2 – Major Taxes in India - Direct and Indirect Taxes- Merits & Demerits
- 4.3 - Reforms in Direct and Indirect Taxes, Introduction of GST, Union & State share in GST
- 4.4 - Budget- Meaning and Components, Economic Classification of Budget, Balanced Budget Multiplier, Gender Budget- Concept, Objectives.
- 4.5 - Trends of Public Expenditure and Public Debt.

References:

- 1.Rajesh K. Jha (2012), 'Public Finance'. Pearson Publication, New Delhi.
- 2.Y. V. Reddy, G. R. Reddy (2019), 'Indian Fiscal Federalism', Oxford University Press, New Delhi.

3. Mankar & Sharma (2001), 'Public Finance Theory & Practice', Himalaya Publishing, New Delhi.
4. Tyagi B.P. (1980), 'Public Finance', Jai Prakash Nath Publisher, Meerat (UP).
5. Bhatia H.L. (18th Edition), 'Public finance', Vikas Publishing house, New Delhi.
6. Mundle Sudipto (2005), 'Public Finance: Policy Issues for India', Oxford University Press, New Delhi.
7. Deshpande D.K.(1984), 'Sarvajnikvitta', Shri Mangesh Prakashn, Nagpur.
8. Dev S.P. and Zamare G.N.(1988), 'Rajasv' Pimpalpure Prakashan, Nagpur.
9. Patil J.F.(2011), 'Vruddddhi va vikasache arthshahstra', Phadke Prakshan, Kolhapur.
10. Datir R.K., Lomate G.J., Chiantamani R.M.(2015), 'Arthik Vikas va Niyojan', Nirali, Pune.
11. Datir R.K., Lomate G.J., Chiantamani R.M.(2015), 'SarvajnikAywyay, Nirali,Pune.

Web References :

1. <https://www.youtube.com/watch?v=QFehvfAZ-VM>
2. <https://trak.in/india-tax/tax-structure-india/>
3. <https://www.economicdiscussion.net/debt-2/public-debt-meaning-classification-and-method-of-redemption/17472>
4. <https://www.indiabudget.gov.in/>
5. <https://www.yourarticlelibrary.com/economics/5-main-aspects-of-fiscal-federalism-in-india/39563>
6. <https://www.fincomindia>
7. <https://www.finmin.nic.in>
8. <https://www.imf.org.in>
9. <https://www.indiabudget.nic.in>
10. <https://.www.nipfp.org.in>
11. <https://.www.rbi.org.in>

Recommended Journals:

- ☐ Journal of Public Economics- Science Direct
- ☐ South Asian Journal of Macroeconomics and Public Economics- Sage Journals
- ☐ Indian Journal of Finance
- ☐ The Indian Economic Journal- Sage Journals

Class: M.A. - I Economics
Semester: II
Course Type: Credits Related to Major - Mandatory / Core
Course Name: International Economics-II
Course Code: ECO 553 MJ
No. of Credits: 4 Credits [Theory]
No. of Hours: 60 Hours
Total Marks: 100 Marks

Course Outcomes:

The Post Graduate (MA Economics) Students will be able to-

- CO1) - Understand the theoretical concepts of Balance of Payments, exchange rate policies, capital flows, etc.
- CO2) - Analyse & Interpret various aspects of Foreign Exchange.
- CO3) - Interpret recent developments and changes in international banking, international banking agreements, International Capital Flows etc.
- CO4) - Explain the role of international economic organization.
- CO5) - Discuss various concepts associated with International Banking.

UNITS AND CONTENTS

Unit No.1 – Balance of Payment

16 Hours

- 1.1 - Balance of Trade & Balance of Payments – Concept & difference
- 1.2 - Balance of Payments- Structure & Components, Importance of Balance of Payments
- 1.3 - Causes of Disequilibrium in Balance of Payments
- 1.4 - Correction of Disequilibrium-Automatic Correction, Deliberate Correction
- 1.5 - Policies for Internal and External Balance-Fiscal and Monetary Policies Under Fixed and Floating Exchange Rates
- 1.6 - Devaluation of Indian Rupee in 1991: Need and Effects

Unit No. 2 - Foreign Exchange

14 Hours

- 2.1 - Components of Foreign Exchange Market- Transfer of Purchasing Power, Provision of Credit, Provision of Hedging Facilities

- 2.2 - Transactions in the Foreign Exchange Market- Options, Forwards, Futures, and Swap, Concept of Arbitrage, Hedging and Speculation; Types of Risk in International Markets
- 2.3 - Determination of Rate of Exchange- Purchasing Power Parity Theory, Balance of Payments Theory, Monetary Models.
- 2.4 - Exchange Control- Objectives and Methods of Exchange Control.

Unit No. 3 - International Capital Flows

15 Hours

- 3.1 - Classification of International Capital Flows-Direct and Portfolio Investment, Government, Institutional and Private Capital, Short term and long-term Capital, Domestic and Foreign Capital, Foreign Aid.
- 3.3 - Importance and Role of Foreign Capital-Trade and Investment, the concept of de-dollarization, Factors Affecting International Capital Movements.
- 3.4 - Current and Capital Account Convertibility of Rupee - Concept and Prerequisites, Developments on Convertibility of Rupee in India.
- 3.5 - Foreign Exchange Management Act 1999- Objectives and Features.

Unit No.4 - International Banking

15 Hours

- 4.1 - International Banking- Concept, Classification - Offshore Banking Unit, Foreign Banks, Foreign Subsidiaries/ Affiliates, Correspondent Banks
- 4.2 - International Banking Agreements-Basel Norms; Introduction to LIBOR
- 4.3 - Functions and Importance - International Monetary Fund & International Bank for Reconstruction and Development (World Bank), New Development Bank.

References:

Sr · N o	Title of Books	Name of Author/s	Publisher	Year	Place
1	International Economics	Salvatore, D.	Prentice Hall	1997	New York
2	Financial Markets and Institutions	Frederic Mishkin and Stanley Eakins	Pearson	2006	UK
3	IMF and the Global Economic Crisis	Joyce Joseph	Cambridge University Press	2013	Cambridge
4	Foreign Exchange and Financing of Foreign Trade	Verghese, S.K	Vikas Publishing House	1986	New Delhi

5	The World Economy-A Textbook in International Economics'	Williamson, J & Milner, C	New York University Press	1991	N. York
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*** Web References:**

1. <https://www.economicdiscussion.net/balance-of-payment/balance-of-payments-bop-its-components/6441>
2. <https://www.economicshelp.org/blog/10251/currency/devaluation-indian-rupee/>
3. <https://www.yourarticlelibrary.com/economics/foreign-exchange/foreign-exchange-market-nature-participants-and-segments/72308>
4. <https://www.bis.org/bcbs/basel3.htm>
5. <https://www.youtube.com/watch?v=oTmHN3RVeT8>

Class: M.A. - I Economics
Semester: II
Course Type: Credits Related to Major - Mandatory / Core
Course Name: Tools of Economics Analyses
Course Code: ECO 554 MJP
No. of Credits: 2 Credits [Practical]
No. of Hours: 60 Hours
Total Marks: 50 Marks

The course on "Tools of Economic Analysis" with a practical approach typically consists of a combination of Hours, workshops, hands-on exercises, data analysis projects, and case studies. The practical approach emphasizes real-world applications of economic concepts and tools, providing students with the skills and experience needed to tackle economic problems and make informed decisions in various contexts.

Course outcomes:

After completion of the course students will be able to:

- CO 1. Understand and apply key economic concepts and principles to real-world economic scenarios.
- CO 2. Acquire proficiency in collecting, cleaning, and handling economic data for analysis.
- CO 3. Develop data analysis and econometric skills to estimate economic relationships and draw meaningful conclusions.
- CO 4. Apply economic analysis to real-world economic problems and policy challenges.
- CO 5. Analyze market behavior, consumer choices, production, and cost structures using economic models.
- CO 6. Present economic analysis and findings effectively through written reports and presentations.
- CO 7. Enhance critical thinking and problem-solving abilities related to economic issues.

Course Structure:

The course will be delivered through a combination of Hours, interactive discussions, case studies, and practical exercises. Guest speakers may be invited to share their experiences and insights. Additionally, students will have access to online

resources to enhance their understanding of practical work and Tools for economic analysis.

UNITS AND CONTENTS

Sr. No.	Topic	Practical and Activities	Hours
1.	Tools of Economic Analysis	Economic Variables - Classification of Economic Variables Functional Relationship - Definition and Features of Functional Relationship Linear and Nonlinear Functions Schedules - Definition, Merit and Demerits of Schedule Graphs - Definition, Merit and Demerits of Graphs Equations - Definition and types of Equation Single and Two variable equation Linear and Quadratic Equations	15
2	Index Number	Definitions of Index Numbers, Features of Index Numbers, Construction of Index numbers: Simple and Weighted Index Number Simple Index Number: Price Index Number, Quantity Index Number, Value Index Number Weighted Index Number: Laaspeyre's Price Index Number, Paasche's Price Index Number, Fisher Index Number	15

3.	Computer Application in Economics	Use of Computer in Economic Analysis: Use of MS word, Excel, Power point etc. Computer Lab Work: Graphs, Bars, Charts, Tables, Formulas etc.	15
4.	Case Studies	Analyzing real-world economic case studies. Applying economic analysis to policy challenges. Discussion and debate on economic policy issues. Presenting and discussing case study findings.	15

Note: Students should prepare the Project report and presentation.

Assessment

Method:

Sr.No.	Particulars	Marks
1	Student engagement and active participation in Practical work, (Field Visit/ workshop/ seminar/ Exhibition)	10
2	Project report	20
3	Viva Voce (Presenting and discussing case study findings)	20
	Total	50

Viva Voce is conducted by Internal and External Examiner at the end of semester.

Class: M.A. - I Economics
Semester: II
Course Type: Credits Related to Major - Electives
Course Name: Labour Economics
Course Code: ECO 560 MJ
No. of Credits: 4 Credits [Theory]
No. of Hours: 60 Hours
Total Marks: 100 Marks

Learning Outcomes:

1. This Course will give exposure to the students for theoretical as well as empirical issues relating to the labour market with special reference to India.
2. This Course covers traditional and contemporary topics in labour economics and aims to encourage the development of independent research interests.
3. Students will be able to understand Issues pertaining to the labour market, wage theories, employment policies trade unions and collective bargaining in the globalized economy have become vitally important for developing countries.
4. Students will be able to understand the labour force is in the unorganized sector and the organized sector is witnessing “Jobless” growth.
5. Students will develop an understanding of labour as social relations of production that will enable them to locate it in that perspective rather than locating labour simply as a factor of production.

UNITS AND CONTENTS

Unit 1: Introduction to Labour (15 Hours)

- 1.1 - Meaning and concepts of Labour, significance and Peculiarities of Labour
- 1.2 – Formal and Informal Labor: Concept and Characteristics
- 1.3 – Farm and Non-Farm Labour: Characteristics and difference
- 1.4 – Labour and Social Security.

Unit 2: Labour Market and Policies (15 Hours)

- 2.1 - Labour Market, Nature and characteristics.
- 2.2 - Demand for Labour, Cost of Production and Demand for Labour.
- 2.3 – Production Techniques and Labour: Capital-Intensive and Labour-Intensive

2.4 - Supply of Labour, Growth of Labour force

2.5 - Mobility of Labour, occupational and geographical mobility.

Unit 3: Employment and Wage Determination (15 Hours)

3.1 - Development and Employment: relationship

3.2 - Unemployment – Concept, types and measurement Employment Policy

3.3 - Poverty and unemployment

3.4 - Wage Determination- Classical & Modern Theories

3.5 - Concepts of Minimum Wage and Fair Wage

3.6 - National Labour Commission, Wage Code and Recent Developments.

Unit 4: Women and Child Labour (15 Hours)

4.1 – Characteristics of Women Labour and Child labour

4.2 - Women and Child Labour in organized and unorganized sectors

4.3 - Women Labour in India- Problems & Remedies

4.4 - Factors Affecting of Women Labour

4.5 - Legislative measures for Welfare of Child Labour in India

References:

1. Keynes, J. M. (1935). The General Theory of Employment, Interest and Money. Atlantic Publishers and Distributors (P) Ltd, New Delhi, India.
2. Roy B Helfgott: Labour Economics. Random House New York (1973).
3. Marx, K. (1976). Wage, Labour and Capital & Value, Price and Profit, International Publishers, New York.
4. Akerlof G. A and J. L. Yellen, (1986). Efficiency Wage Models of the Labour Market. Cambridge University Press.
5. Chakravarty, S. (ed.) (1990). The Balance between Industry and Agriculture in Economic Development: Volume 3, Manpower and Transfers. Macmillan Press, London.
6. Papola T-S and sharma, AN (Eds] [1999] Gender and Employment in India, Vikas Publishing House, New Delhi.
7. Jabwala R and R. K subrahmanya [Eds] [2000] The Unorganised sector: Work Security and Social Protection Sage Publishers, New Delhi.
8. Sharma A. N. and A. Kundu (Ed] [2001] informal sector in India: Emerging Perspectives institute for Human Development New Delhi

9. Bhagoliwal T. N. Economics of Labour and industrial relations, sahitya Bhavngar (2002)
10. Smith Stephen W. [2003] Labour Economics Routledge, USA
11. Banerjee, D. and Goldfield, M. (eds.) (2007). Labour, Globalisation and the State: Workers, Women and Migrants Confront Neoliberalism. Routledge, London and New York.
12. Khera, R (2011). The Battle for Employment Guarantee, Oxford University Press, New Delhi.
13. Bazen Stephen (2011). Econometric methods for Labour Economics, oxford, UK
14. Puneekar S. D Deodhar S.B, Saraswati Sankaran, Labour Welfare Trade Union and Industrial Relations Himalaya Publishing House, New Delhi (2012)

Class: M.A. - I Economics
Semester: II
Course Type: Credits Related to Major - Electives
Course Name: Industrial Economics
Course Code: ECO 561 MJ
No. of Credits: 4 Credits [Theory]
No. of Hours: 60 Hours
Total Marks: 100 Marks

PREAMBLE

The candidates are expected to understand the process of industrialization as a part of rapid development. This course intends to provide knowledge to the students on the basic issues such as current challenges to the industrial sector- growth, productivity, changing policy and performance. The course explores the emergence of Industrial economics as a separate area of study; the theories of location are discussed and debated in the present context and analyzed with reference to the development of the industrial sector. The study is essential to understand the dynamics of the changes in the Industrial sector in India as well as around the world.

Course Objectives:

- To Understand the basic concept of Industrial Economics.
- To provide an understanding of Industry, Industrial sector and growth and its relation to various economic issues and challenges.
- To demonstrate the practical and the applied aspects of Industrial economics and the study of Industry and its relation to Economics.

Programme Outcome: After completing this course students will be able to:

- Analyze and evaluate the subject with reference to various aspects of Industrial Economics
- Develop, demonstrate and examine various topics under Industrial Economics.
- Evaluate and examine subject are as in economics bringing out the relation to Industry and Industrial Development.

UNITS AND CONTENTS

1 Introduction

(15 Hours)

- 1.1 - Meaning, Definition, Nature and Scope of Industrial Economics.
- 1.2 - Need and Significance of Industrial Economics

- 1.3 - Industrial Structure-Large, Medium and Small-Scale Industries.
- 1.4 - Role, Problems of Public and Private Sector Industries.
- 1.5 - Relationship between Industrial Development and Economic Development.
- 1.6 - Industrial Combinations-Causes, Mergers and Amalgamation, Industrial Monopoly- Control of Monopolies.

2 Theories of Industrial Location

(15 Hours)

- 2.1 - Meaning of Industrial Location.
- 2.2 - Factors influencing Location of Industries.
- 2.3 – Theories of Industrial Location
 - 2.3.1 Alfred Weber’s Theory of Industrial Location
 - 2.3.2 Sergeant Florence’s Theory of Industrial Location
 - 2.3.3 August Losch’s Theory of Location
- 2.4 – Policy of Industrial Location in India.
- 2.5 – Need for Balanced Regional Development of Industries.

3 Industrial Productivity and Growth

(15 Hours)

- 3.1 - Meaning, Definition, Norms and Measurement
- 3.2 – Factors affecting Industrial Productivity.
- 3.3 - Measures required for improving Industrial Productivity,
- 3.4 – Industrial Growth in India: Cause for Concern, Challenges to Private Sector
- 3.5 - Problems of regional imbalance and Industrial Growth in India.
- 3.6 - Performance and Problems of Micro, Small, Medium Industries.
- 3.7 - Role of MNC’s in India

4 Industrial Finance and Government Policy

(15 Lecture)

- 4.1 - Meaning, Scope, importance of Industrial Finance
- 4.2 - Source of Industrial Finance-Private Sector, Public Sector and Cooperative Sector
- 4.3 - Foreign Capital- Direct investment, Foreign institutional investment, Euro issues, GDRs, ADRs, External Resources flow.
- 4.4 - Industrial Policy in India – Progress since 1991
- 4.5 - Developments in Industrial Policy- Special Economic Zones, ‘Make in India’ Public & Private Partnership.
- 4.6 – Changing Role and Performance of Public and Private Sector in India

Basic Reading List:

1. Ahluwalia I.J. (1985), 'Industrial Growth in India' Oxford University Press, New Delhi.
2. Barthwal R.R. (2019), 'Industrial Economics,' New Age Publications
3. Cherunilam F. (1994), 'Industrial Economics: Indian Perspective (3rd Edition), Himalaya Publishing House, Mumbai.
4. Barthwal R.R. (1985), 'Industrial Economics,' Wiley Eastern Ltd. New Delhi.
5. Das Keshab (2011) 'Micro and Small Enterprises in India: The Era of Reforms' Routledge India
6. Desai B. (1999), 'Industrial Economics in India', Himalaya Publishing House, Mumbai.
7. Divine P.J. and Jones R.M. (1976), 'An Introduction to Industrial Economics', George, Allen and Unwin Ltd., London.
8. Flanagan Robert J. (2006) 'Globalization and Labor Conditions: Working Conditions and Worker Rights in a Global Economy, OUP
9. Hajela, P.D. (1998), 'Labour Restructuring in India: A Critique of the New Economic Policies, Common wealth Publishers, New Delhi
10. Jaya Prakash Pradhan (2008) 'Indian Multinational in the World Economy: Implications for Development', Book well Publications
11. Khanna Tarun (2008) 'Billions of Entrepreneurs: How India and China are Reshaping their Future and Yours' Penguin in India
12. Gupta Parul (2019) 'Industrial Relations and Labour Laws for Managers' Sage Pub.
13. Sharma RC (2016) 'Industrial Relations and Labour Laws' PHI Learning
14. Sinha P.R.N., Indu Bala Sinha (2017) 'Industrial Relation Trade Unions and Labour Legislation Pearson Publication. New Delhi
15. Saumitra Mohan (2018) "Indian Policy and Development: A Manual for National Schemes and International Policies" McGraw Hill Education.
16. Singh and Sandhu 'Industrial Economics', Himalaya Publishing House, Mumbai.
17. Kuchhal S.C. (1980), 'Industrial Economy of India, Chaitanya Publishing House, Allahabad.

Recommended Journals:

- International Journal of Economics and Business research- Inderscience
- International Journal of Industrial Organization-Elsevier
- The Journal of Industrial Economics- Wiley
- The Journal of Industrial Economics-Scimago

Class: M.A. - I Economics
Semester: II
Course Type: Credits Related to Major - Electives
Course Name: Statistical Techniques
Course Code: ECO 562 MJ
No. of Credits: 4 Credits [Theory]
No. of Hours: 60 Hours
Total Marks: 100 Marks

PREAMBLE

The role of Statistics is important as well as relevant in Economics. The use of Statistics can provide a better understanding of various topics discussed and studied under economics. Statistical tools and techniques help understand, discuss and appreciate various topics under micro and macroeconomics better. Besides, applied subjects in economics make use of statistical tools and techniques to provide more elaborate and enhanced understanding of issues and challenges in the real world.

Course Objectives:

- ✓ To provide an understanding of Statistics and its application under various topics under economics.
- ✓ To demonstrate the practical and the applied aspects of economics with the help of Statistical techniques.

Programme Outcome: After completing this course the students will be able to:

- ✓ Develop, demonstrate and examine various topics under economics with the help of statistical techniques.
- ✓ Examine subject areas in economics with the use of statistical tools.

UNITS AND CONTENTS

1. Introduction to Statistical Methods (10 Hours)

1.1 - Statistics- Meaning, Importance, Scope and limitations

1.2 - Data: Meaning, Types- Categorical Vs Non-Categorical, Cross-Sectional, Time Series, Panel Data, Pool Data

1.3 - Measurement of Scales: Nominal, Ordinal, Interval, Ratio

1.4 - Collection, Organization and Presentation of Data

2. Descriptive Statistics (15 Hours)

2.1 - Measures of Central Tendency- Arithmetic Mean, Median, Mode-meaning, Merits, demerits

2.2 - Absolute and Relative Measures of Dispersion- Range, Quartile Deviation, Percentile, Standard Deviation, Variance, Covariance

2.3 - Measures Lorenz Curve, Gini-Co-efficient, Skewness and Kurtosis

2.4 - Correlation and Regression Analysis

3. Sampling and Sampling Methods (10 Hours)

3.1 - Sample and Population, Parameters and Statistics, Variables and Attributes;

3.2 - Types of Sampling

3.3 - Sampling and Non-sampling Errors

4. Theory of Probability (15 Hours)

4.1 - Probability, Distribution, Events Spaces

4.2 -Joint, Marginal and Conditional Probability- Certainty & Uncertainty conditions

4.3 - Random Variable: Expectation and Distribution

4.4 - Addition and Multiplication Theorems

4.5 - Probability Distribution, Discrete and Continuous and Expected Values

4.6 - Probability Distribution Function-Binomial, Poisson

5. Time Series (10 Hours)

5.1 - Components of Time Series- Cyclical, Seasonal and Random

5.2 - Measurement of Trend- Freehand or Graphic Method, Semi-Average Method, Moving Average Method and Method of Least Squares

5.3 - Correlation in Time Series

References:

Books:

1. Anderson David & al (2015) Statistics for Business and Economics', 12th Edition, Cengage India

2. Gupta, S.P. (2012), Statistical Methods, S. Chand & Sons, New Delhi
3. Gupta S.C. (Latest Edition) 'Fundamentals of Applied Statistics' Sultan Chand & Sons,
4. Gupta S.C. (2014) 'Fundamentals of Mathematical Statistics' Sultan Chand & Sons,
5. Nagar A.L. & Das R.K. (1997) 'Basic Statistics' 2nd Edition, OUP
6. Rohatgi Vijay K., A.K. Md. Ehsanes Saleh (2008) 'An Introduction to Probability and Statistics, Wiley, 2nd Edition
7. Vohra N.D. (2017) "Business Statistics' McGraw Hill Education
8. मुलभूत सांख्यिकी, देशमुख राम

Recommended Reading:

1. Croxton F. E and Cowden D. J. (1968) 'Applied General Statistics' Pitman Publishing
2. Croxton F. E and Cowden D. J. (2012) 'Practical Business Statistics' Literary Licensing, LLC
3. Keller Gerald (2015) Statistics for Management and Economics, South Western
4. Lind, Marchal and Wathen (2017) 'Basic Statistics for Business and Economics' McGraw Hill Education, 7th Edition
5. Richard I. L, M. H. Siddiqui, D S. Rubin, Sanjay Rastogi (2017) Statistics for Management and Economics' 5th Edition, Pearson Education

Recommended Journals:

1. Journal of Applied Statistics- Francis & Taylor
2. Journal of Statistics Education- Francis & Taylor

Class: M.A. - I Economics

Semester: II

Course Type: Credits Related to On Job Training

Course Name: On Job Training (Internship)

Course Code: ECO 581 OJT

No. of Credits: 4 Credits [Internship]

No. of Hours: 60 Hours

Total Marks: 100 Marks

Preamble

In the era of globalization, the study of Economics has gained importance because of sustained interest of the developing countries in uplifting their economic condition by restructuring their economies to greater diversity, efficiency and equity in consonance with their priorities. The National Education Policy 2020 also emphasizes Practical Assignments and Skill Development to the students across institutes of higher learning in various streams. Accordingly, syllabus has been revised in view to understand recent trends in economics and interdisciplinary subjects along with the introduction of semester and credit system. In view of this, Savitribai Phule Pune University has come up with a concept to provide 'OJT' to all students studying in PG in M.A. Part-I Economics semester II, across faculty of Humanities.

The internship programme will provide valuable work experience to the students, help them explore a career path and develop and refine skills that will eventually give themselves an edge in the job market. The students should be able to find a career in Economics and Develop professional entrepreneurial ability and skills. The University has established a pool of business establishments who are willing to provide practical exposure to the students for sixty hours in their respective organisations. The certificate awarded by these establishments will add a value to the academic credentials of participating students.

What is OJT? -

On-the-job training (OJT) is a practical approach to acquiring new competencies and skills needed for a job in a real, or close to real, working environment. It is often used to learn how to use particular tools or equipment in a live-work practice, simulated, or training environment. OJT is a type of training that is provided at the workplace. It helps students get direct experience in using tools, software, techniques, or equipment used in a live environment. As employees need different skills to accomplish their tasks, OJTs are customized to train students to acquire a specific skill set. Professional trainers and co-workers usually provide this training.

Generally, students acquire academic knowledge and develop specific skills before graduation. OJT helps them to strengthen these skills and facilitates their career growth. Besides teaching students how to apply their knowledge and skills, OJT introduces them to the company's core values, mission, and vision. It is a precisely structured plan that consists of different job phases and procedures that new employees need to follow during their tenure within the company.

The types or methods of OJT for students.

On-the-job training (OJT) is one of the most influential and well-established ways of teaching students the skills and knowledge needed to work in a professional environment. Lack of OJT often reduces the chances of a smooth transition between university and the labour market. As a result, several organizations give OJT to students before appointing them to full-time job positions.

1. Internship, 2. Apprenticeship, 3. Job shadowing, 4. Online learning modules

1. Eligibility for OJT/Internship Programme –

The students who have sought admission in the M.A. Economics for semester-II. Under Choice Based Credit System need to undergo ‘On Job Training/Internship Programme’. The OJT or Internship Programme is compulsory to all PG students of Economics.

2. Nature on-job training/Internship Programme -

A student has to undergo sixty hours of practical training in various business establishments. In case, a student is unable to join the enlisted establishment, he/ she can choose an establishment in consultation with the concerned teacher.

3. Salient features of on-job training/Internship Programme –

The fundamental framework of OJT / Internship is as below:

- a. The on-job training or internship is of 4 credits and 100 marks.
- b. The OJT/ Internship should be in the form of practical examination of PG students of semester-II only.
- c. The on-job training/ Internship will be of sixty clock hours.
- d. The on-job training Programme is based on the contents of the syllabus prescribed for M.A.-I.
- e. The on-job training Programme has to be completed before the Semester-III Examination
- f. In case of backlog, he/ she can complete the on-job training prior to appearing for the semester III examination.
- g. Successful completion of the on-job training Programme is mandatory, in case a student could not complete the on-job training as per prescribed standards, he/ she has to undergo the on-job training or internship Programme again in different establishment.
- h. A student is entitled to a ‘Completion Certificate’ after successful completion of the on-job training/ internship Programme.
- i. The on-job training / internship provider establishment may select the apprentice student for regular employment depending on the skill set and

nature of performance exhibited by the student.

- j. A student is solely responsible for his behaviour in the business establishment during the on-job training/ internship Programme

4. Framework of the for On-Job Training/ Internship Programme:

- a. The area in which a student has to undergo On-Job-Tanning/internship Programme (Contents of the On-job-Tanning Programme) will be finalized by the concerned subject teacher in consultation with the On-Job-Tanning/internship Programme providing organisation.
- b. It is essential to ensure that all key contents of the syllabus of semester-I, II and III & IV are incorporated in the framework of the On-Job-Tanning/Internship Programme.
- c. This will help a student to have hands - on experience of the important aspects of the Special Subject chosen by him / her.
- d. The contents of the On-Job-Tanning Programme should be adequate and a students should be able to understand various concepts and put it into practice within a time frame of sixty hours.

*Evaluation and credits :-

The On Job Training/Internship Programme in form of practical's and practical examination of Special Subjects –for semester II However, The 4-credits and 100 marks allotted to final examination 'On Job Training/Internship Programme.

The process of evaluation has been restructured as below:

Process of Evaluation- Semester II

Semester-II				
Internal examiner	External examiner	Total Marks	Duration	Credit
Marks - 50	Marks - 50	100	60 Hour's	4



SAVITRIBAI PHULE PUNE UNIVERSITY

FACULTY OF COMMERCE & MANAGEMENT (COMMERCE)

NATIONAL EDUCATION POLICY- 2020

STRUCTURE AND SYLLABUS

MASTER OF COMMERCE (M.COM.)

w.e.f. 2023-24

(For Colleges affiliated to Savitribai Phule Pune University)

Preamble

As per the guidelines of the National Education Policy - 2020, Higher Education System is required to focus on consistent growth and development of learners, which help them to face global challenges with required competence and a mind-set full of human values and integrity.

Savitribai Phule Pune University has revamped its two year Post Graduate degree program, Master of Commerce (M.Com.) to inculcate holistic approach through a well-designed syllabus, to achieve the multidisciplinary approach as envisioned by the NEP- 2020.

Keeping in view the requirements of global trade, commerce and industry, the level of the M. Com program has been elevated by integrating theory, practical, on the job training through extensive internship programme, research and community-oriented courses.

The programme will empower learners to accept professional challenges in a more effective and efficient manner. Learners will further develop an ability to make appropriate decisions based on skills and knowledge inculcated through the curriculum.

Objectives

1. To train and equip learners of post graduate program to understand and accept the challenges of corporate world and to withstand them through the study of analysis of advanced commercial and business methods and processes.
2. To develop independent logical thinking and facilitate personality development.
3. To acquaint learners with significance of research in business.
4. To impart skills regarding methods of data collection and their interpretations.
5. To develop communication and analytical skills among learners.
6. To make learners industry ready.
7. To impart required knowledge to help them to provide new insights for the better work culture in the corporate world.
8. To help learners to imbibe correct values through capacity building and implement them through on the job training.

Program Outcome

1. Demonstrate an understanding of advanced commercial and business methods and processes, enabling learners to tackle and overcome challenges in the corporate world effectively.
2. Exhibit independent and logical thinking skills, leading to enhanced personality development and the ability to approach complex business situations with a critical mindset.
3. Recognize the significance of research in the business domain and apply research methodologies to address industry-specific problems and opportunities.
4. Acquire proficiency in various methods of data collection and interpretation, enabling learners to make informed decisions based on data-driven insights.
5. Enhance communication and analytical skills, fostering effective collaboration and problem-solving in professional settings.
6. Develop industry-ready competencies, preparing learners to thrive in the dynamic corporate environment.
7. Acquire essential knowledge to provide new insights and contribute to the promotion of a better work culture within corporate organizations.
8. Embrace and uphold correct values through capacity building and on-the-job training, reflecting ethical conduct and responsible business practices throughout their careers

**Illustrative Credit distribution structure for Two Years/ One Year PG
(M.A./M.Sc./M.Com.) and Ph. D. Programme**

Year (2 Yr PG)	Level	Sem. (2 Yr)	Major		RM	OJT / FP	RP	Cum. Cr.	Degree
			Mandatory	Electives					
I	6.0	Sem I	12-14 (2*4 +2*2 or 3*4+2)	4	4			20-22	PG Diploma (after 3 Yr Degree)
		Sem II	12-14 (2*4 +2*2 or 3*4+2)	4		4		20-22	
		Cum. Cr. For PG Diploma		24-28	8	4	4	-	
Exit option: PG Diploma (40-44 Credits) after Three Year UG Degree									
II	6.5	Sem III	12-14 (2*4 +2*2 or 3*4+2)	4			4	20-22	PG Degree After 3- Yr UG Or PG Degree after 4- Yr UG
		Sem IV	10-12 (2*4 +2 or 3*4)	4			6	20-22	
		Cum. Cr. for 1 Yr PG Degree		22-26	8			10	
Cum. Cr. for 2 Yr PG Degree			46-54	16	4	4	10	80-88	
2 Years-4 Sem. PG Degree (80-88 credits) after Three Year UG Degree or 1 Year-2 Sem PG Degree (40-44 credits) after Four Year UG Degree									
	8.0		Course Work Min. 12 (3*4)		Training in Teaching / Education/ Pedagogy: 4		16 + Ph. D. Work		Ph.D. in Subject

Abbreviations: Yr.: Year; Sem.: Semester; OJT: On Job Training; Internship/ Apprenticeship; FP: Field projects; RM: Research Methodology; Research Project: RP; Cumulative Credits: Cum. Cr.

1. Duration:

The M.Com. Course will be of Two Years duration consisting of two part. I.e. Part I and Part II. Each part consists of two semesters. Thus, the M.Com. Course is of Four Semesters. For each Semester, there will be 22 credits. Total credits are 88.

2. Eligibility:

The student who has passed any Bachelors degree of this University or any other recognized University shall be held eligible to be admitted to M.Com. Course.

3. Course Structure:

The M.Com. degree course will be of two-year duration consisting of four semesters and of 88 credits as below:

Sr. No.	Semester	Total Credits
1	Semester I	22
2	Semester II	22
3	Semester III	22
4	Semester IV	22
	Grand Total	88

4. Exit Options:

After completion of the first two semesters (44 credits) of specified courses of those two semesters (i.e. 1st and 2nd) an exit option is provided to learners , at their specific request only, resulting in award of Post Graduate Diploma in Commerce.

5. Examination: -

- A. A student cannot appear for semester end examination unless he/she has maintained 75% attendance during the teaching period of that course. If a student fails to maintain attendance up to 75%, at the time of filling of examination forms, an undertaking from the student should be taken stating that he/she will be allowed to appear for examination subject to fulfilment of required attendance criteria during the remaining period of teaching of the course.
- B. Each credit will be evaluated for 25 marks.
- C. Each course will have a distribution of 30:70 for CIE and SEE.

- D. To pass a course, the student has to obtain forty percent marks in the CIE and SEE separately.
- E. If a student misses CIE examination, he/she will have a second chance with the permission of the teacher concerned. Such a second chance shall not be the right of the student; it will be the discretion of the teacher concerned to give or not to give second chance to a student to appear for internal assessment.
- F. A student cannot register for the third semester, if he/she fails to complete 50% credits of the total credits expected to be ordinarily completed within two semesters. In this case, a student can seek admission to first or second semester in order to complete the requisite number of credits and to be able to seek admission in the third semester. He or she will have to score 22 credits out of total 44 credits to be able to seek admission in the third semester.
- G. There shall be revaluation of the answer scripts of semester-end examination but not of internal assessment papers as per Ordinance no 134 A and B.

6. Format for CIE : -

- 1. CIE will be of 30% of the total marks for the particular course.

Following methodology be followed to conduct CIE:-

The subject teacher needs to adopt any two of the following methods for internal assessment:

- a) Written examination
- b) Online Quiz
- c) Power Point Presentations
- d) Projects
- e) Assignments
- f) Tutorials / Tutorials using Microsoft Excel
- g) Oral examination
- h) Open Book Test

7. Format for SEE (Theory):

SEE (Semester End Exam) Pattern for 70 marks

Instructions -

- 1) Q1 and Q6 are compulsory
- 2) Students can attempt any three questions from Q. No. 2 to Q.No. 5

Q1) Fill in the Blanks	5 marks
Q2) Descriptive Question from Unit 1	15 marks
Q3) Descriptive Question from Unit 2	15 marks
Q4) Descriptive Question from Unit 3	15 marks
Q5) Descriptive Question from Unit 4	15 marks
Q6) Write short notes on (Any 4 out of 6)	20 marks

8. Format for SEE for 35 marks (2 credits paper) (Theory):-

Instructions -

All questions are compulsory

Q1) Descriptive Question from Unit 1	10 marks
Q2) Descriptive Question from Unit 2	10 marks
Q3) Write short notes on (Any 3)	15 marks

9. Format for SEE :

Subjects:

- 1) Management Accounting (4 Credits) (70 Marks and 3 Hours)
- 2) Advanced Accounting (4 Credits) (70 Marks and 3 Hours)

Instructions:

- 1) Question No. 1 and 6 are compulsory.
- 2) Attempt any three questions from Question No. 2 to 5.

Q. 1: Fill in the Blanks on all Units (One mark each)	=	5 Marks
Q. 2: Descriptive question on Unit-1	=	15 Marks
Q. 3: Problem on Unit-2	=	15 Marks
Q. 4: Problem on Unit-3	=	15 Marks
Q. 5: Problem on Unit-4	=	15 Marks
Q. 6: Short Notes on all Units (Any 4 out of 6)	=	20 Marks

10. Format for SEE :

Subjects:

- 1) Personal Income Tax and Tax Planning (4 Credits) (70 Marks and 3 Hours)

Instructions:

- 1) Question No. 1 and 6 are compulsory.
- 2) Attempt any three questions from Question No. 2 to 5.

Q. 1: Fill in the Blanks on all Units (One mark each)	=	5 Marks
Q. 2: Descriptive question on Unit-1	=	15 Marks
Q. 3: Problem on any Head of Income of Unit-2	=	15 Marks
Q. 4: Descriptive question on Unit-3	=	15 Marks
Q. 5: Numerical Problem on Unit No. 4 (Taxable Income and Tax Liability of Individual)	=	15 Marks
Q. 6: Short Notes on all Unit (Any 4 out of 6)	=	20 Marks

11. Format for SEE :

Subjects:

1) Direct Tax (2 Credits) (35 Marks and 2 Hours)

Instructions:

1) Attempt any three questions from Question No. 1 to 4.

Q. 1: Descriptive question on Unit-1	=	10 Marks
Q. 2: Descriptive question on Unit-2	=	10 Marks
Q. 3: Numerical Problems on Unit-1 & 2 (Any 2 out of 4) (On Basic Concepts & Section 234A, 234B & 234C)	=	10 Marks
Q. 4: Short Notes (Any 3 out of 4)	=	15 Marks

12. Format for SEE :

Subject: Costs for Decision Making and Activity Based Costing

Semester End Examination Question Paper Pattern: 35 Marks (2 Credits)

Instructions:

1. Attempt any three questions from Question No.1 to 4

Q. 1 Descriptive Type Question	10 Marks
Q.2 Descriptive Type Question	10 Marks
Q.3 Problem Type Question	10 Marks
Q.4 Short Notes (Any 3 out of 4)	15 Marks

13. Format for SEE:

Subject: Costing Techniques and Responsibility Accounting

Semester End Examination Question Paper Pattern: 70 Marks (4 Credits)

Instructions:

1. Question No. 1 and 6 are compulsory.
2. Attempt any three questions from Question No.2 to 5

Q. 1 Fill in the Blanks	05 Marks
Q.2 Descriptive Type Question	15 Marks
Q.3 Problem Type Question	15 Marks

Q.4 Problem Type Question	15 Marks
Q.5 Problem Type Question	15 Marks
Q.6 Short Notes (Any 4 out of 6)	20 Marks

14. Format for SEE :

Subject: Advanced Cost Accounting & Cost System

Semester End Examination Question Paper Pattern: 70 Marks (4 Credits)

Instructions:

1. Question No. 1 and 6 are compulsory.
2. Attempt any three questions from Question No.2 to 5

Q. 1 Fill in the Blanks	05 Marks
Q.2 Descriptive Type Question	15 Marks
Q.3 Problem Type Question	15 Marks
Q.4 Problem Type Question	15 Marks
Q.5 Problem Type Question	15 Marks
Q.6 Short Notes (Any 4 out of 6)	20 Marks

FACULTY OF COMMERCE & MANAGEMENT - COMMERCE
Structure and Subject Codes for M.Com. as per NEP-2020
w.e.f. 2023-2024
Semester - I

Sr. No.	Course Code	Subject	Credits	Name of BOS
Major Mandatory (Compulsory)				
1.	MA501MJ	Management Accounting	4	Accountancy
2.	IE502MJ	Industrial Economics OR	4	Bus. Economics
	BS503MJ	Business Statistics OR	4	Statistics & Computer Application
	QA504MJ	Quantitative Applications	4	Statistics & Computer Application
Advanced Accounting & Taxation				
Major Mandatory				
3.	PT505MJ	Personal Income tax & Tax Planning	4	Accountancy
4.	DT506MJ	Direct Tax	2	Accountancy
Major Elective				
5.	AA507MJ	Advanced Accounting	4	Accountancy
Commercial Laws & Practices				
Major Mandatory				
6.	IS508MJ	Information Systems & E-Commerce Practices	4	Business Law
7.	LL509MJ	Labour Laws	2	Business Law
Major Elective				
8.	IP510MJ	Intellectual Property Laws	4	Business Law
Advanced Cost Accounting & Cost System				
Major Mandatory				
9.	AC511MJ	Advanced Cost Accounting & Cost Systems	4	Cost & Works Accounting

Sr. No.	Course Code	Subject	Credits	Name of BOS
10.	CD512MJ	Costs for Decision Making & Activity Based Costing	2	Cost & Works Accounting
Major Elective				
11.	CT513MJ	Costing Techniques and Responsibility Accounting	4	Cost & Works Accounting
Co-Operation & Rural Development				
Major Mandatory				
12.	CM514MJ	Cooperative Movement in India	4	Business Practices
13.	RI515MJ	Rural Infrastructure	2	Business Practices
Major Elective				
14.	OC516MJ	Organization of Cooperative Business	4	Business Practices
Business Practices & Environment				
Major Mandatory				
15.	OT517MJ	Organized Trades & Markets	4	Business Practices
16.	LO518MJ	Leadership and Organizational Behaviour	2	Business Practices
Major Elective				
17.	BE519MJ	Business Environment & Policy	4	Business Practices
Business Administration				
Major Mandatory				
18.	PO520MJ	Production & Operation Management	4	Bus. Administration
19.	EC521MJ	E-Commerce	2	Bus. Administration
Major Elective				
20.	FM522MJ	Financial Management	4	Bus. Administration
Advanced Banking & Finance				
Major Mandatory				

Sr. No.	Course Code	Subject	Credits	Name of BOS
21.	CB523MJ	Central Banking	4	Banking & Finance
22.	UB524MJ	Universal Banking	2	Banking & Finance
Major Elective				
23.	LF525MJ	Legal Framework of Banking	4	Banking & Finance
Advanced Marketing				
Major Mandatory				
24.	SM526MJ	Social Media Marketing	4	Marketing
25.	EM527MJ	Event management	2	Marketing
Major Elective				
26.	MT528MJ	Marketing Techniques	4	Marketing
Research Methodology (Compulsory)				
27.	RM529MJ	Research Methodology	4	Business Practices

Semester - II

Sr. No.	Course Code	Subject	Credits	Name of BOS
Major Mandatory (Compulsory)				
1.	FA551MJ	Financial Analysis & Control	4	Accountancy
2.	ST552MJ	Strategic Management	4	Bus. Administration
Advanced Accounting & Taxation				
Major Mandatory				
3.	BT553MJ	Business Tax Assessment & Planning	4	Accountancy
4.	IT554MJ	Indirect Tax	2	Accountancy
Major Elective				
5.	SA555MJ	Specialized Areas in Accounting	4	Accountancy
Commercial Laws & Practices				
Major Mandatory				
6.	DC556MJ	Laws Relating to Copyright & Design	4	Business Law
7.	LA557MJ	Law of Arbitration	2	Business Law
Major Elective				
8.	ES558MJ	E-Security & Cyber Laws	4	Business Law
Advanced Cost Accounting & Cost System				
Major Mandatory				
9.	CA559MJ	Application of Cost Accounting	4	Cost & Works Accounting
10.	VA560MJ	Variance Analysis & Interpretation	2	Cost & Works Accounting
Major Elective				
11.	CC561MJ	Cost Control & Cost System	4	Cost & Works Accounting
Co-Operation & Rural Development				

Sr. No.	Course Code	Subject	Credits	Name of BOS
Major Mandatory				
12.	MC562MJ	Management of Co-Operative Movement	4	Business Practices
13.	RE563MJ	Rural Entrepreneurship & Micro Finance	2	Business Practices
Major Elective				
14.	IC564MJ	International Cooperative Movement	4	Business Practices
Business Practices & Environment				
Major Mandatory				
15.	BP565MJ	Modern Business Practices	4	Business Practices
16.	BL566MJ	Business Laws & Ethics	2	Business Practices
Major Elective				
17.	BA567MJ	Business Environment Analysis	4	Business Practices
Business Administration				
Major Mandatory				
18.	BV568MJ	Business Ethics & Professional Values	4	Bus. Administration
19.	CS569MJ	Corporate Social Responsibility	2	Bus. Administration
Major Elective				
20.	KM570MJ	Elements of Knowledge Management	4	Bus. Administration
Advanced Banking & Finance				
Major Mandatory				
21.	LP571MJ	Banking Law & Practices	4	Banking & Finance
22.	PS572MJ	Banking Product & Services	2	Banking & Finance
Major Elective				
23.	MP573MJ	Monetary Policy	4	Banking & Finance

Sr. No.	Course Code	Subject	Credits	Name of BOS
Advanced Marketing				
Major Mandatory				
24.	CR574MJ	Customer Relationship Marketing & Retailing	4	Marketing
25.	BR575MJ	Branding	2	Marketing
Major Elective				
26.	MS576MJ	Service Marketing	4	Marketing
On the Job Training / Field Project (Compulsory)				
27.	JT577MJT	On the Job Training OR	4	Concerned Specialization
	FP578MJT	Field Project	4	Concerned Specialization

M.COM

Semester - I

Syllabus

Revised Syllabus (2023 Pattern as per NEP-2020)

Faculty: COMMERCE & MANAGEMENT (Commerce)
Program Name: M. Com. in Advanced Accounting & Taxation
Program Code: M.Com.

Class: M. Com. SEM-I
Subject: Management Accounting

Name of the Program: M. Com.	Course Code: MA501MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name	No. of Lectures Per Week	Credits	Marks
M. Com.	I	MA501 MJ	Management Accounting	5	4	100

Course Objectives:

- To enhance the abilities of learners to develop the concept of management accounting and its significance in the business.
- Equip the students with the knowledge and skills of concepts, techniques of management accounting.
- Enhance skills of students regarding managerial decision-making.
- To enable the learners to understand, develop and apply the techniques of management accounting in the financial decision-making in the business corporates.

Course Outcomes:

- 1) Students will understand importance of management accounting and functions of Management Accounting.
- 2) Students will understand various decision-making techniques of marginal costing and its application in modern business.
- 3) Product Pricing decision-making capacity of the students will be developed.
- 4) Learners can prepare various budgets independently

Unit	Title and Contents	No. of Lectures
1	Introduction to Management Accounting (Theory) 1.1 Introduction of Management Accounting 1.2 Limitations of Financial Accounting 1.3 Meaning, definition and evolution of Management Accounting 1.4 Scope and functions of Management Accounting	15

	1.5 Distinguish between Financial Accounting and Management Accounting 1.6 Distinguish between Cost Accounting and Management Accounting 1.7 Advantages and Limitations of Management Accounting 1.8 Study and analysis of Case Studies: 1.8.1 Parle G Case: History of Parle G and Success of the Century 1.8.2 Ford Accounts Payable Case: Business Process Reengineering	
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2	Application of Marginal Costing Technique 2.1 Introduction of Marginal Costing 2.2 Comparison among Marginal Costing, Absorption Costing and Differential Costing 2.3 Features and Assumptions of Marginal Costing 2.4 Key Terms: Marginal Cost, Contribution, Profit-Volume Ratio, Break Even Point (BEP), Angle of Incidence, Margin of Safety, Cost-Volume-Profit Analysis 2.5 Advantages and Limitations of Marginal Costing 2.6 Break Even Analysis, Assumptions of Break Even Analysis, Break Even Chart 2.7 Cost Volume Profit Analysis and its utility 2.8 Key factors / Limiting factors (Material, Labour, Plant Capacity, Sales) 2.9 Numerical Problems on various Key Terms of Marginal Costing, BEP, Cost-Volume-Profit Analysis and Key Factors	15
3	Budget and Budgetary Control 3.1 Introduction and Meaning of Budget, Forecast, Budgeting and Budgetary Control 3.2 Features of Budget 3.3 Objectives of Budgetary Control 3.4 Advantages and Limitation of Budgetary Control 3.5 Installation of Budgetary Control System 3.6 Classification of Budgets (According to Time, Function and Flexibility) 3.7 Zero Base Budgeting: Meaning, Process, Advantages & Limitations 3.8 Numerical problems on Flexible Budget and Functional Budgets	15
4	Pricing Decisions 4.1 Concept of Pricing 4.2 Objectives of Pricing 4.3 Types of Pricing 4.4 Factors affecting Pricing of Product 4.5 Methods of Product Pricing: Cost-Based Pricing (Marginal Cost / Variable Cost, Full Cost), Penetration Pricing, Skimming Pricing, Special Order Pricing, Return on Investment (ROI) Pricing 4.6 Numerical Problems on Marginal Cost / Variable Cost, Full Cost, Special Order Pricing only	15

Teaching Methodology:	• Class Room Lectures. • Guest Lectures of Professionals, Industry Experts etc. • Teaching with the help of ICT tools • Visits to various Professionals Units, Companies and Business Units • Group Discussion • Assignments, Tutorials and Presentations • YouTube Lectures developed by MHRD & UGC • Case Study / Case Problems
Internship for Students if any: Not applicable	
Recommended Books: 1. Management Accounting- Text, Problems and Cases, M.Y. Khan & P.K. Jain, Tata McGraw Hill Education Private Limited, New Delhi 2. Management Accounting, R.S.N. Pillai and Bagawati, S. Chand Publication, New Delhi 3. Advanced Management Accounting, Jawahar Lal, S. Chand Publication, New Delhi 4. Accounting for Management, N. P. Srinivas & M. Shaktivel Murugan, S. Chand Publication, New Delhi 5. Management Accounting, M.A. Sahaf, S. Chand Publication, New Delhi 6. Fundamental of Financial Management, Amit Singhal, S. Chand Publication, New Delhi 7. Management Accounting, Dr. S. K. Paul, New Century Book Agency (P) Ltd. 8. Accounting for Management, Dr. Suneel K. Maheshwari, CA Shard Maheshwari, Vikas Publishing House Pvt. Ltd. 9. Management Accounting and Financial Control, Dr. S.N. Maheshwari, Sultan Chand & Sons, New Delhi 10. Accounting for Management, S. Ramanathan, Oxford University Press, New Delhi 11. Advanced Cost and Management Accounting, V. K. Saxena & C. D. Vashist, Sultan Chand and Sons, New Delhi. 12. Cost and Management Accounting, Inamdar S.M., Everest Publishing House. 13. Study Materials of ICAI, ICSI, ICMA 14. Journal of Chartered Accountants, Journal of Cost and Management Accountants and Journal of Company Secretary	
Scheme of Examination: 1. Internal Assessment: 30% 2. External Assessment: 70%	

Revised Syllabus (2023 Pattern as per NEP) Faculty: COMMERCE

Program Name: M. Com

Class: M. COM. PART I (SEM I)

Subject: Industrial Economics

Academic Year: 2023-2024

Name of the Program: M.Com.	Course Code IE502MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name/ Subject	No. of Lectures/ per week	Credits	Marks
M. Com. Part I	I	IE502MJ	Industrial Economics	5	4	100

Course Objectives:

1. To help the learners to understand the concepts of industrial economics.
2. To help the learners to acquire knowledge about the recent changes in industrial finance, measures to correct industrial imbalance.
3. To enable the students to identify the location of industries and the concepts associated therewith.
4. To make the learners aware of the industrial profile of Maharashtra.
5. To enable the students to apply and interpret the concepts of industrial economics.

Course Outcome:

1. Learners will be acquainted with the concepts of industrial economics
2. The learners will get exposed to recent changes in industrial finance, measures to correct industrial imbalance etc.
3. The students will identify the location of industries and the concepts associated therewith
4. The learners will be aware of the industrial profile of Maharashtra
5. The students will develop an ability to apply and interpret the concepts of industrial economics

Unit	Title and Contents	No. of Lectures
1	Introduction to Industrial Economics 1. Meaning, Nature and Scope of Industrial Economics 2. Need and Significance of Industrial Economics 3. Concept of Productivity and Efficiency 4. Concept of Composition and Growth - Structural Transformation of Public Sector Industries and Private Sector Industries 5. Classification of Industries after 1991 6. Role of Agro Industries after 1991 7. Changing Role of Public Sector and Private Sector Industries and their Problems. 8. Industrial Combinations- Causes, Mergers, Amalgamation and Acquisition	15
2	Industrial Location and Regional Development 1. Factors Affecting Location of Industries 2. Theories of Industrial Location - a) Alfred Weber's Theory b) Sergeant Florence Theory c) Matrix Theory of Industrial Location 3. Industrial Imbalance - a) Need for Balanced Regional Development b) Causes of Industrial Imbalance c) Measures for Solving Industrial Imbalance 4. Hirschman Theory of Unbalanced Growth 5. Regional Industrial Imbalance in India- a) Extent of Regional Industrial Imbalance b) Government Policy for Balanced Regional Industrial Development.	15
3	3. Industrial Finance and Policy 1. Sources of Industrial Finance- 1. Types of Internal Sources of Finance 2. Types of External Sources of Finance 2. Institutional Finance- Role and Contribution of IDBI, SFCs, SIDBI, NABARD and EXIM Bank 3. Foreign Capital- 1. Institutional Foreign Capital- International Development Agency (IDA), International Financial Corporation (IFC), Asian Development Bank (ADB), BRICS Bank 2. External Commercial Borrowings- American Depositary Receipt (ADR), Global Depositary Receipt (GDR) 4. Recent Trends in Financing Large Scale Industries 5. Recent Trends in Financing MSMEs (MUDRA, Startup Loan, Crowd Funding)	15

4	4. Major Industries in Maharashtra: Working, Problems and Progress 1. Pharmaceutical Industries 2. Petrochemical and Chemical Industries 3. Electronics Industries 4. Software Industries 5. Cooperative Industries 6. Agro Based and Forest Industries 7. Food Processing Industries 8. Construction Industries	15
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Teaching Methodologies:	1. Class Room Lectures. 2. Expert Sessions. 3. Industrial Visits 4. Open Book Test 5. Library Assignment. 6. Assignments & Presentations 7. Case Studies.
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Internship for Students if any: Not Applicable

Suggested Reference Books:

1. Ahluwalia. I. J. (1985), Industrial Growth in India, Oxford University Press, New Delhi.
2. Barthwal. R. R. (2021), Industrial Economics (4th Edition), Wiley Eastern Ltd., New Delhi.
3. Cherunilam. F. (1994), Industrial Economics: Indian Perspective (3rd Edition), Himalaya Publishing House, Mumbai.
4. Mishra M. (2022), Industrial Economics, Kunal Book, New Delhi
5. Desai. B. (1991), Industrial Economy in India, (3rd Edition), Himalayan Publishing House, Mumbai.
6. Divine, P.J. and R.M. Jones et al. (1976), An Introduction to Industrial Economics, George Allen and Unwin Ltd., London.
7. Kar S. and et. al. (2015), Industrial and Labour Economics, Springer India
8. Mani N (2022), Industrial Economics, New Century Publications, New Delhi
9. Singh A. K. and Kanaujiya K. S. (2022), Rural Industrialization: Challenges and Opportunities , Kunal Book, New Delhi
10. Rajesh Kumar R (2021) Industrial Economics and Foreign Trade, Jyothis Publishers, Ernakulam, Kerala
11. Sabade B.R (2009), Industrial Development of Maharashtra, Mahratta Chamber of Commerce and Industries, Pune
12. Industrial Maharashtra: Facts, Figures and Opportunities, (2007), Maharashtra Economic Development Council, Maharashtra, Mumbai
13. Mungekar B. (2003), The Economy of Maharashtra- Changing Structure and Emerging Issues, Dr. Ambedkar Institute of Social and Economic Change, Mumbai
14. Mahajan D. J. (2017), Industrial Economy: A Macro Study of Maharashtra, Indian Books and Periodicals, New Delhi
15. Vishwanathan R. (2016), Industrial Finance, Laxmi Publication, Chennai
16. Khan M. Y. (1982), Industrial Finance, Tata McGraw Hill Publication, Mumbai

Revised Syllabus (2023 Pattern as per NEP) Faculty: COMMERCE

Program Name: M. Com.

Class: M. COM. PART I (SEM I)

Subject: Business Statistics

Academic Year: 2023 - 2024

Name of the Program: M. Com.	Course Code: BS503MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name	No. of Lectures/ per week	Credits	Marks
M. COM. PART I	I	BS503MJ	Business Statistics	05	04	100

Course Objectives:

1. To make students understand the concept of Sampling and Data collection.
2. To make students understand the role of statistics in business.
3. To make students understand the applicability of various statistical tools and tests.
4. To teach the utility / Practical use of Business Statistics.

Course Outcomes: After successful completion of this course student

1. Can understand the difference between Sampling and Non - Sampling
2. Can apply various statistical tools to fit the data.
3. Can use index numbers to formulate price policies
4. Can understand maximum concepts of Business Statistics and give applications of it.

Unit	Title and Contents	No. of Lectures
1	Sampling and Non Sampling: - 1.1] Types of Sampling with example 1.2] Difference between Sampling and Non - Sampling 1.3] Errors in Sampling with an Examples 1.4] Steps for Minimizing Errors 1.5] Non - Sampling Errors: Definition and examples 1.6] Types of Non - Sampling Errors with an examples 1.7] Sampling Distribution	15
2	Parametric and Non Parametric Tests: - 2.1] T - Test and its examples 2.2] 2 - Sample T - Test and its examples 2.3] Difference between T - Test and 2 - Sample T - Test 2.4] Chi - Square Test and its example 2.5] Limitations of Chi - Square Test 2.6] F - Test and Analysis of Variance (ANOVA)	15

3	Index Number: - 3.1] Definition and types of index numbers 3.2] Problems in constructions of Index Numbers 3.3] Uses of Index Numbers 3.4] Methods of Constructing Index Numbers 3.5] Applications of Index Numbers	15
4	Applications of Microsoft Excel to Business Statistics: - 4.1] Finding Mean, Mode and Median of given data 4.2] Finding of Variance, Standard Deviation of given data 4.3] Drawing Pie chart, Bar diagram using Excel 4.4] Drawing 3 - D maps using Excel 4.5] Chi - Square Test using Excel 4.6] Statistical Testing using Excel	15

Teaching Methodology	1. Class Room Lectures. 2. Guest Lectures 3. Group Discussion 4. Assignments & Presentation 5. Use of Microsoft Excel
Internship for Students: Not Applicable	
Reference Books (Suggested): 1. Statistics for Business and Economics: by Hooda R.P (Publisher - Vikas Publishing, New Delhi) 2. Statistics for Management: by Richard I. Levin and David S. Rubin (Publisher - Prentice Hall India) 3. Statistics: Theory, Methods and Application: by D. C. Sancheti, V. K. Kapoor (Publisher - S Chand and Sons, New Delhi) 4. Comprehensive Statistical Method - P. N. Arora, Sumeet Arora, S. Arora (Publisher - S. Chand Publishing, New Delhi) 5. Statistics using Excel Succinctly by Charles Zaiontz (Publisher - Syncfusion Technology Resource Portal)	
Scheme of Examination: [I] Internal Assessment: 30 % [II] Semester End Exam: 70 %	

Note: There will be Separate Passing (30% Passing) for each CIE and SEE

Revised Syllabus (2023 Pattern as per NEP) Faculty: COMMERCE

Program Name: M. Com.

M. Com. PART - I (SEM-1)

Subject: Quantitative Applications

Academic Year: 2023-2024

Name of the Program: M. Com.	Course Code: QA504MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name	No. of Lectures/ per week	Credits	Marks
M. COM. PART I	I	QA504MJ	Quantitative Applications	05	04	100

Course Objectives:

1. To gain the knowledge of basic statistical tools and techniques.
2. To inculcate an attitude of inquiry, logical thinking about statistical quantitative techniques among students.
3. To prepare students to understand the art of applying statistical tools and techniques.
4. To develop skills of solving real life business problems using statistical tools among students.
5. To prepare students to solve business decision problems using statistical tools and techniques.
6. To prepare students with statistical quality control techniques to monitor quality of business products.

Course Outcomes:

Upon completion of this course, the student will be able to:

1. Solve the quantitative problems using basic statistical tools and techniques.
2. Make business process analysis.
3. Solve Business decision problems.
4. Monitor quality of business products.
5. Prepare a business report using statistical tools and techniques.

Unit	Title and Contents	No. of Lectures
I	A. Introduction to Statistics and Business Analytics 1. Basic Statistical Concepts - Statistics, Population, Census, Sample, Descriptive Statistics, Inferential Statistics, Parameter, Statistic, Variable, Measurement, Data 2. Data Measurement - Levels of data (Nominal, Ordinal, Interval and Ratio), 3. Introduction to Business Analytics - Big data, Business Analytics, Categories of Business Analytics, Data Mining, Data Visualization B. Visualizing Data with Charts and Graphs	15

	1. Frequency Distributions - Class Midpoint, Relative Frequency, Cumulative Frequency, 2. Quantitative Data Graphs - Histograms, Frequency Polygons, Frequency Curves, Ogives, Dot plots, Stem and Leaf Plots 3. Qualitative Data Graphs - Pie Charts, Bar Graphs, Pareto Charts, 4. Charts and Graphs for Two Variables - Cross Tabulation, Scatter Plots, 5. Visualizing Time-Series Data	
II	Descriptive Statistics 1. Measures of Central Tendency - Mode, Median, Mean, Percentile, Quartiles 2. Measures of Variability - Range, Coefficient of Range, Interquartile range, Variance, Standard Deviation, Coefficient of Variation 3. Measures of Shape - Skewness, Box-and-Whisker Plots and Five-Number Summary, 4. Business Analytics Using Descriptive Statistics	15
III	Statistical Quality Control 1. Introduction to Quality Control - Meaning of Quality Control, Chance and assignable Causes of variation, Uses of SQC, Total Quality Management, Six Sigma, Design for Six Sigma, Lean Manufacturing, Some Important Quality Concepts (Benchmarking, Just-in-Time Inventory Systems, Reengineering, Poka-Yoke, Value Stream Mapping, Kaizen Event, Quality and Business Analytics,) 2. Process Analysis - Flowcharts, Pareto Analysis, Cause-and-Effect (Fishbone) Diagrams, Control Charts, Check Sheets or Checklists, Histogram, Scatter Chart or Scatter Diagram 3. Control Charts - Control limits, Specification limits, Tolerance limits Process and product control, Control charts for mean, range, p-Chart, c-Chart, Interpreting Control Charts Process Capability study, Interpretation of capability index cp and cpk	15

IV	Decision Analysis 1. The Decision Table and Decision-making Under Certainty - Acts/Decision Alternatives, States of nature, Decision Table/Pay off, Regret 2. Decision-making Under Uncertainty - Maximax Criterion, Maximin Criterion, Hurwicz Criterion, Minimax Regret, Laplace Criterion 3. Decision-making Under Risk - Decision Trees, Expected Opportunity Loss (EOL) Criterion, Expected Monetary Value (EMV) Criterion, Expected Value of Perfect Information, Utility	15
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Teaching Methodology	1. Classroom Lectures. 2. Guest Lectures 3. Group Discussion 4. Assignments & Presentation
Internship for Students: Not Applicable	

Textbooks:

1. Ken Black, Business Statistics: For Contemporary Decision Making, John Wiley & Sons, Inc. (7th Edition and 10th Edition),
2. Kanti Swaroop, P. K. Gupta and Man Mohan, Operations Research, Sultan Chand and Sons, New Delhi.

Reference Books:

1. S. C. Gupta, Fundamentals of Statistics, Himalya Publishing, New Delhi.
2. S. P. Gupta and M. P. Gupta, Business Statistics, Sultan Chand and Sons, New Delhi.
3. S. C. Gupta and Indra Gupta, Business Statistics, Himalya Publishing, New Delhi.
4. N. D. Vohra and Hitesh Arora, Quantitative Techniques in Management, Mc-Graw Hill Education, New Delhi.
5. D. S. Hira and P. K. Gupta, Operations Research, Sultan Chand and Sons, New Delhi.

Revised Syllabus (2023 Pattern as per NEP) Faculty: COMMERCE

Program Name: M. Com.

M. Com. PART - I (SEM-1)

Subject: Research Methodology (Compulsory)

Name of the Program: M. Com.	Course Code: RM529MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name	No. of Lectures per week	Credits	Marks
M. COM. PART I	I	RM529MJ	Research Methodology	5	4	100

Course Objectives:

1. To acquaint the students with the areas of Business Research Activities
2. To enhance capabilities of students to conduct the research in the field of business and social sciences
3. To enable students in developing the most appropriate methodology for their research studies
4. To make them familiar with the art of using different research methods and techniques

Course Outcomes:

1. Students will understand research process and can explore various ethical issues and modern practices in research.
2. Students will gain fundamental knowledge about Methods of Data Collection and formulating questionnaire. They will understand the process of Analysis and Interpretation of data.
3. Students will grasp knowledge on developing the most appropriate methodology for their research studies
4. Students will develop knowledge on how to write a research report by using different research methods and techniques.

Unit	Title and contents	No of Lectures
1	Introduction to Business Research 1. Introduction. Definition, Objectives, Significance & Types of Research 2. Criteria of research, Features of a Good Research, Steps in Scientific Research Process, Research Methods versus Methodology. 3. Ethics and Modern practices in Research: Ethical Issues in Research - Plagiarism. 4. Role of Computer in Research, Application of Statistical software-. Introduction to SPSS	15
2	Formulation of the Research Problem, Development of the Research Hypotheses, Research Design & Sampling 2.1 Research Problem: Defining the Research Problem, Techniques involved in Defining Research Problem 2.2 Review of Literature 2.3 Hypotheses: Meaning, Definition & Types of Hypothesis, Formulation of the Hypotheses, Methods of testing Hypothesis 2.4 Research Design: Meaning, Nature & Classification of Research Design, Need for Research Design, Phases/Steps in Research Design 2.5 Sampling: Meaning & definition of Sampling, Key terms in Sampling, Types of Sampling: Probability & Non-probability, Sampling Errors	15
3	Data Collection, Measurement & Scaling, Processing of Data: Sources of Data Collection: 3.1 Primary Data: Methods of Data Collection, Merits & Demerits 3.2 Secondary Data: Internal & External Sources of Data Collection Factors influencing choice of method of data collection 3.3 Designing of a questionnaire - Meaning, types of questionnaires, Stages in questionnaire designing, Essentials of a good questionnaire. 3.4 Measurement Scaling: Meaning & Types of Measurement Scale, Classification of Scales 3.5 Processing of Data: Editing, Coding, Classification & Tabulation. 3.6 Analysis & Interpretation of Data: Types of Analysis- Univariate, Bivariate and Multivariate Analysis of Data	15
4	Research Report and Mode of Citation & Bibliography: 1. Research Report: Importance of Report Writing, Types of Research Reports, Structure or Layout of Research Report 2. Mode of Citation & Bibliography: Author, Date, System, Footnote or Endnote System, Use of Notes. Position of Notes 3. Citing for the first time, Subsequent Citing, List of Abbreviation used in Citation, Mode of preparing a Bibliography, Classification of Entries, Bibliography Entries compared with Footnotes, Examples of Bibliography Entries	15

Teaching Methodology:	• Class Room Lectures. • Problems solving • Guest Lectures. • Visiting to various Companies. • Group Discussion, Debates • Assignments & Presentation • Corporate Cases and Discussions on it
Internship for Students if any: Not Applicable	
Suggested Reference Books: 1 Research Methodology-Methods & Techniques C. R. Kothari New Age International Publishers 2. Research Methodology Dipak Kumar Bhattacharyya Excel Books 3. Research Methodology-Methods & Techniques Anil Kumar Gupta Value Education of India 4. Methodology & Techniques of Social Research, P. L. Bhandarkar, T. S. Wilkison & D. K. Laldas Himalaya Publishing House 5. Business Research Methods, Donald R. Cooper & Pamela S. Schindler Tata McGraw- Hill Edition 6. Investigating the Social World-The Process and Practice of Research Russell K. Schutt Sage Publication 7. Business Research Methods Alan Bryman & Emma Bell Oxford University Press	

P.T.O.

M.COM.
ADVANCED ACCOUNTING & TAXATION

Revised Syllabus (2023 Pattern as per NEP-2020)

Faculty: COMMERCE & MANAGEMENT (Commerce)
Program Name: M. Com in Advanced Accounting & Taxation
Program Code: M.Com.

Class: M. Com. SEM-I
Subject: Personal Income Tax and Tax Planning

Academic Year: 2023-24

Name of the Program: M. Com.	Course Code PT505MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name	No. of Lectures Per Week (Per Lecture = 60 Minutes)	Credits	Marks
M. Com.	I	PT505 MJ	Personal Income Tax and Tax Planning	5	4	100

Course Objectives:

- To understand the provisions of residential status of individual assessee
- To learn various forms of ITR and other forms
- To understand Tax Planning and deductions under Chapter VI
- To study of clubbing income and computation of individual's taxable income and tax liability under different tax regime.

Course Outcomes:

After completion of the course, learners would be able to:

- Determine the residential status of individual, and learn various forms of ITR and e-filing of Income Tax Return
- Learn computation of income under different heads of incomes
- Make Tax Planning and learn deductions under Chapter VI
- Learn clubbing income and compute individual's taxable income and tax liability under different tax regime

Unit	Title and Contents	No. of Lectures
1	Residential Status of Individual, ITR and Other Forms:	15

	1.1 Relevance of residential status and general norms of residential status 1.2 Residential status of an individual 1.3 ITR Forms under Income Tax (ITR 1-7, Form 16, Form 16A, 15H, 15G, Form 26AS, Annual Information System (AIS), Tax Payers Information Summary (TIS) 1.4 E-Filing of Income Tax Return	
2	Heads of Income: 2.1 Income from Salary 2.2 Income from House Property 2.3 Profit or Gains from Business or Profession 2.4 Income from Capital Gains 2.5 Income from Other Sources	15
3	Tax Planning and Deductions under Chapter VIA to Individual Assessee: 3.1 Brief Concept: Tax planning / avoidance / evasion 3.2 Distinction between the Tax Avoidance and Tax Evasion 3.3 Distinction between Tax Planning and Tax Management 3.4 Hints for tax planning of salaried employee 3.5 Deductions from Gross Total Income under Chapter VIA to Individual Assessee	15
4	Clubbing of Income and Computation of Total Taxable Income and Tax Liability of Individual: 4.1 Income of other persons included in Assessee's total income (Clubbing of Income) 4.2 Computation of Taxable Income and Tax Liability of Individual under Old and Alternate Tax Regimes	15

Teaching Methodology:	• Class Room Lectures. • Guest Lectures of Professionals, Industry Experts etc. • Teaching with the help of ICT tools • Visits to various Professionals Units, Companies and Business Units • Group Discussion • Assignments, Tutorials and Presentations • YouTube Lectures developed by MHRD & UGC • Case Study / Case Problems
Internship for Students if any: Not applicable	
Suggested Reference Books:	
1. Students' Guide to Income Tax by Dr. Vinod K. Singhania and Dr. Monica Singhania, Taxmann Publication (P) Ltd., New Delhi	

2. Direct Taxes Law and Practice (Professional Edition) by Dr. Vinod K. Singhania and Dr. Kapil Singhania, Taxmann Publication (P) Ltd., New Delhi 3. Constitution of India 4. Bare Act: Income Tax Act 1961 5. Direct Taxes Ready Reckoner by Dr. Vinod K. Singhania, Taxmann Publication (P) Ltd., New Delhi 6. Income Tax Ready Reckoner by CA N. V. Mehta, Shri Kuber Publishing House 7. Study Materials of ICAI, ICSI, ICMA 8. Journal of Chartered Accountants, Journal of Cost and Management Accountants and Journal of Company Secretary
Scheme of Examination: 1. Internal Assessment: 30% 2. External Assessment: 70%

Revised Syllabus (2023 Pattern as per NEP-2020)

Faculty: COMMERCE & MANAGEMENT (Commerce)
Program Name: M. Com in Advanced Accounting & Taxation
Program Code: M.Com.

Class: M. Com. SEM-I
Subject: Direct Tax

Academic Year: 2023-24

Name of the Program: M. Com.	Course Code DT506MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name	No. of Lectures	Credits	Marks
M. Com.	I	DT506 MJ	Direct Tax	30	2	50

Course Objectives:

- To understand the Constitutional provisions for levy of Tax in India.
- To learn basic concepts of Income Tax Act 1961.
- To learn the old tax regime and alternative tax regime.
- To learn the provision pertaining to ICDS, payments of advance tax and interest penalty.

Course Outcomes:

After completion of this course, learners would be able to:

- Understand Tax System in India and Constitutional provisions for enactment of Taxation Laws
- Interpret various basic terms / concepts of Income Tax Act 1961
- Differentiate old tax regime and alternative tax regime
- Understand procedure of ICDS, payments of advance tax and interest penalty

Unit	Title and Contents	No. of Lectures
1	Basic Concepts and ICDS: 1.1 Money Bill and Finance Bill: Meaning and its Constitutional Provisions. 1.2 Introduction of Tax, Types of Taxes and difference between Direct Tax and Indirect Tax. 1.3 Features of Income Tax Act 1961. 1.4 Basic Concepts of Income Tax:	15

	1.4.1 Assessment Year 1.4.2 Previous Year and Uniform Previous Year 1.4.3 Person 1.4.4 Assessee 1.4.5 Income 1.4.6 Charge of Income Tax 1.4.7 Gross Total Income 1.4.8 Agricultural Income 1.4.9 Assessment 1.4.10 Capital Expenditure and Revenue Expenditure 1.4.11 Capital Income and Revenue Income 1.5 Difference between exemption and deduction 1.6 Methods of Accounting 1.7 Introduction of Income Computation and Disclosure Standards (ICDS) 1.8 Problems on Basic Concepts	
2	Tax Regime and Advance Payment of Tax: 2.1 Rate of Income Tax under Old Tax Regime 2.2 Rates of Income Tax under Alternative Tax Regime 2.3 Conditions and restriction under Alternative Tax Regime 2.4 Exemptions and deductions disallowed under the Alternative Tax Regime 2.5 Exemptions and deductions allowed under the Alternative Tax Regime 2.6 Advance payment of tax 2.7 Interest payable by the Assessee under section 234A, 234B, and 234C 2.8 Problems on under section 234A, 234B, and 234C	15

Teaching Methodology:	• Class Room Lectures. • Guest Lectures of Professionals, Industry Experts etc. • Teaching with the help of ICT tools • Visits to various Professionals Units, Companies and Business Units • Group Discussion • Assignments, Tutorials and Presentations • YouTube Lectures developed by MHRD & UGC • Case Study / Case Problems
Internship for Students if any: Not applicable	
Suggested Reference Books:	
1. Students' Guide to Income Tax by Dr. Vinod K. Singhania and Dr. Monica Singhania, Taxmann Publication (P) Ltd., New Delhi	

2. Direct Taxes Law and Practice (Professional Edition) by Dr. Vinod K. Singhania and Dr. Kapil Singhania, Taxmann Publication (P) Ltd., New Delhi
3. Constitution of India
4. Bare Act: Income Tax Act 1961
5. Direct Taxes Ready Reckoner by Dr. Vinod K. Singhania, Taxmann Publication (P) Ltd., New Delhi
6. Income Tax Ready Reckoner by CA N. V. Mehta, Shri Kuber Publishing House
7. Study Materials of ICAI, ICSI, ICMA
8. Journal of Chartered Accountants, Journal of Cost and Management Accountants and Journal of Company Secretary

Scheme of Examination:

1. Internal Assessment: 30%
2. External Assessment: 70%

Revised Syllabus (2023 Pattern as per NEP-2020)

Faculty: COMMERCE & MANAGEMENT (Commerce)
Program Name: M. Com. in Advanced Accounting & Taxation
Program Code: M.Com.

Class: M. Com. SEM-I
Subject: Advanced Accounting

Academic Year: 2023-24

Name of the Program: M. Com.	Course Code AA507MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name	No. of Lectures Per Week (Per Lecture = 60 Minutes)	Credits	Marks
M. Com.	I	AA507MJ	Advanced Accounting	5	4	100

Course Objectives:

- To understand the application of IND - AS, IFRS for companies
- To learn treatment of Accounting for Price Level Changes
- To study of accounting treatment of the preparation of consolidated statements
- To learn the incorporation of Statement of Accounts of Foreign Branch into Head Office Statement of Accounts.

Course Outcomes:

After completion of the course, learners would be able to:

- Inculcate knowledge of AS, Ind AS, IFRS, BRSR and IR.
- Prepare consolidated financial statements of Holding Company and its subsidiary.
- Understand and present the realistic view of the company's profitability with the help of Price Level Accounting.
- Incorporate the Financial Statements of Foreign Branch into Financial Statements of Head Office.

Unit	Title and Contents	No. of Lectures
1	Introduction, Accounting Principles and Reporting: 1.1 Need for Accounting 1.2 Development of Accounting and Accounting as Information System 1.3 Bases or Methods Accounting	15

	1.4 Qualitative characteristics of Accounting Information System 1.5 Meaning of Branches of Accounting (Financial, Cost, Management, Environmental, Human Resource, Inflation etc.) 1.6 Accounting Principles (Concepts and Conventions) and US GAAP 1.7 Rules of Accounting (Traditional Approach Vs. Modern Approach) 1.8 IFRS (History & Structure, Objectives of IASB, Meaning of IFRS, Scope of IFRS, Assumptions of IFRS, IFRS around the world, IFRS Main Financial Statements) 1.9 IFRS-Convergence in India & Ind AS (Meaning of Ind AS, Applications of AS and Ind AS, Difference between AS and Ind AS) 1.10 Business Responsibility and Sustainability Reporting (BRSR) 1.11 Integrated Reporting: Aspects of Integrated Reporting, Financial Reporting Vs Integrated Reporting	
2	Accounting for Price Level Changes: 2.1 Introduction 2.2 Price Level Accounting 2.3 Inflation Accounting 2.4 Limitations of Conventional Financial Statements 2.5 Methods of Accounting for changing prices 2.5.1 Current / General Purchasing Power Method (CPP / GPP) 2.5.2 Current Cost Accounting Method (CCA) 2.5.3 Hybrid Method (A mixture of CPP and CCA) 2.6 India and Price Level Accounting 2.7 Numerical Problems on CPP and CCA Method)	15
3.	Holding Companies 3.1 Definition of Holding and Subsidiary Companies 3.2 Advantages and Disadvantages of Holding Companies 3.3 Ind AS 27: Consolidated and Separate Financial Statements 3.4 Preparation of Consolidated Balance Sheets (As per Schedule III of The Companies Act 2013) 3.4.1 Capital Profits & Revenue Profits 3.4.2 Goodwill / Capital Reserve 3.4.3 Non-Controlling Interest (Minority) 3.4.4 Mutual Owings (Inter Company) 3.4.5 Controlling Interest acquired during the course of the year 3.4.6 Treatment relating to preference shares of the subsidiary 3.4.7 Unrealized Profits	15

	3.4.8 Bonus Shares 3.4.9 Dividend from subsidiary company out of pre and post-acquisition profits 3.4.10 Proposed Dividend	
4	Branch Accounts 4.1 Introduction to Branch 4.2 Classification of Branches 4.3 Foreign Branch 4.4 AS-11: The effects of changes in foreign exchange rates 4.5 Ind AS-21: Effects of Changes in Foreign Exchange Rates 4.6 Difference between AS-11 and Ind AS-21 4.7 Numerical problems on Foreign Branch	15

Teaching Methodology:	• Class Room Lectures. • Guest Lectures of Professionals, Industry Experts etc. • Teaching with the help of ICT tools • Visits to various Professionals Units, Companies and Business Units • Group Discussion • Assignments, Tutorials and Presentations • YouTube Lectures developed by MHRD & UGC • Case Study / Case Problems
Internship for Students if any: Not applicable	
Suggested Reference Books: 1. Introduction to Accountancy by T. S. Grewal S. Chnad and Company (P) Ltd., New Delhi 2. Advanced Accounts Vol.-I & II by Shukla, Grewal & Gupta, S. Chand and Company (P) Ltd., New Delhi 3. Advanced Accountancy by R. L. Gupta and M. Radhaswamy S. Chand and Company (P) Ltd., New Dehi 4. Students Guide to Accounting Standards by D.S. Rawat, Taxmann 5. Financial Accounting by P. C. Tulsian, Pearson Publications, New Delhi 8 6. Indian Accounting Standards, Ashish Bhattacharya, Tata McGraw Hill & Co. Ltd., Mumbai 7. Corporate Accounting by S N Maheshwari, Suneel Maheshwari and Sharad Maheshwari, Vikas Publishing House Pvt. Ltd. New Delhi 8. Advanced Accounts by Jain and Narang, Kalyani Publishers, Ludhiyana 9. Accountancy Volume I and II by S. K. Paul, New Central Book Agency, Kolkata 10. Financial Accounting by M. Mukherjee M. Hanif. Tata McGraw Hill Education Private Ltd., New Delhi 11. Advanced Accountancy Vol.-I & II by S N Maheshwari, Suneel Maheshwari and Sharad Maheshwari, Vikas Publishing House Pvt. Ltd. New Delhi. 12. Accounting for Management by S. Ramnathan, Oxford University Press, New Delhi	

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| <p>13. A Textbook of Accounting for Management by S N Maheshwari, Suneel Maheshwari and Sharad Maheshwari, Vikas Publishing House Pvt. Ltd. New Delhi.</p> <p>14. Study Materials of ICAI, ICSI, ICMA</p> <p>15. Journal of Chartered Accountants, Journal of Cost and Management Accountants and Journal of Company Secretary</p> |
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Scheme of Examination:

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| <p>1. Internal Assessment: 30%</p> <p>2. External Assessment: 70%</p> |
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M.COM.
COMMERCIAL LAW & PRACTICES

Revised syllabus for M. Com. Course (CBCS)
Commercial Law and Practices
M.Com. Sem-I

Name of the Program: M. Com.	Course Code: IS508MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name /Subject	No. of Lectures per week	Credits	Marks
M.Com.	Semester - I	IS508MJ	Information System and E-Commerce Practices	05	04	100

- **Objectives of the Course:**

- To help students understand the concept and application of Information System
- To help students understand the concept and application of E-Commerce
- To make students understand the Data Management System and Electronic Data Interchange
- To make students understand the Payment Process of E-Commerce
- To provide information to students regarding difference E-Commerce applications

- **Course Outcome:**

- Students will understand the concept of Information System
- Students will understand the process and working of Information System
- Students will understand the how E-Commerce works and operates
- Students will know the various applications of E-Commerce

Unit No.	Title and Contents	No. of Lectures
1.	Introduction to Information Systems 1.1 Introduction to Information Systems 1.2 Business applications, and its benefits, 1.3 Functional and cross-functional Information Systems 1.4 Transaction Processing Systems, 1.5 Electronic Data Interchange, 1.6 On-Line Analytical Processing, 1.7 Management Information Systems, 1.8 Decision Support Systems, 1.9 Executive Information Systems, Executive Support Systems, Enterprise applications 1.10 Supply Chain Management Systems 1.11 Customer Relationship Management Systems.	15
2.	Database Management System and Electronic Data Interchange 2.1 Concept of Database 2.2 Centralized and distributed Database Systems, 2.3 Planning, and designing of Information Systems: 2.4 System Flow Charts, 2.5 Traditional System Development Life Cycle, 2.6 Modern System Development Methods, 2.7 Implementing Information Systems as planned organizational change. 2.8 Electronic Data Interchange (EDI) 2.9 Applications 2.10 Security and Privacy Issues 2.11 Software Implementations 2.12 Value Added Networks Internal Information System – Workflow Automation and Coordination – Customization	15

3.	Introduction to E-Commerce 3.1 Concept of E-commerce 3.2 Digital Markets and Digital Goods 3.3 Advantages and disadvantages of transacting online 3.4 Types of E-commerce and M-commerce, 3.5 E-commerce business models 3.6 B2B,B2C,C3G,B2G and G2B,B2B applications 3.7 Benefits of E-Commerce to Business 3.8 Drivers of E-Commerce 3.9 Present Scenario of E-Commerce 3.10 Consumer Interaction with E-Commerce 3.11 Business of E-Commerce	15
4.	E-Commerce Supporting functions 4.1Purchase and sale Procedures 4.2Supply Chain management, 4.3 Value Chains in E-Commerce. 4.4Electronic Payment Systems, 4.5 Authentication of payment, 4.6 Mode of Payments E-Commerce 4.7 Security and Security Requirements. 4.8 SecurityMechanisms-Encryption, Digital Signature, E-Certificate, Secure electronic transaction protocol. 4.9 Problems in Taxing of E-Commerce	15

- **Teaching Methodology:**

- ❖ Class Room Lectures
- ❖ Guest Lectures
- ❖ Visiting to various Companies
- ❖ Group Discussion, Debates
- ❖ Assignments and Presentation

References: -

1. E-commerce – Devid Whiteley- McGraw Hill
2. E-commerce – P.Joseph- PHI
3. E-commerce – The cutting edge of business – K.Bajaj and Nog TMH
4. System Analysis, Design and Introduction to Software Engineering – S.Parthasarathy, B.W.Khalkar
5. Text book on Intellectual property rights – N.K. Acharya, Asia Law House
6. Guide to Cyber Laws – By Rohnay D. Ryder[Wadhwa, Nagpur]
7. Cyber Laws – Justice Yatindra Singh, Universal Law Publishing Co.

Subject: - Labour laws

Class	Semester	Course Code	Course Name /Subject	No. of Lectures	Credits	Marks
M.Com.	Semester - I	LL509MJ	Labour laws	30	02	50

- **Course Objectives:**

1. To introduce the concept of Labour Law.
2. To understand the nature and applicability of labour laws
3. To understand the labour law in India.

- **Course Outcome:**

1. Students will understand the concept of Labour laws.
2. Students will know how labour law works in India.
3. Students will understand the different laws applicable in India

Labour laws

Unit No.	Title and Contents	No. of Lectures
1.	Introduction to Labour Law 1.1 The concept of labour law in India 1.2 Objectives and Principles of Labour Laws 1.3 Labour Policy in India 1.4 Development of Labour Law in India 1.5 International Labour law and their reference in India	15

2.	Understanding Different Laws 2.1 Law relating to Wages and Monetary Benefits 2.2 Law relating to Social Security and Safety Means 2.3 Law Relating to Industrial Relations 2.4 Law Relating to Trade Union and Labour Welfare	15
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Teaching Methodology:

- ❖ Class Room Lectures
- ❖ Group Discussion, Debates
- ❖ Guest Lectures
- ❖ Assignments and Presentation
- ❖ Visiting to various Companies

Scheme of Examination:

- ❖ Internal Assessment (CIE) : 15 Marks
- ❖ Semester End Examination (SEE) : 35 Marks

Recommended Readings:

- 1) Avtar Singh and Harpreet Kaur, Introduction to Labour and Industrial Law, LexisNexis
- 2) G.M. Kothari, How to Conduct and Defend Disciplinary Inquiry and Cases, Eastern Book Company
- 3) H.L. Kumar, Law Relating to Disciplinary Proceedings in Industries, Universal Publishing Co. Pvt. Ltd
- 4) P.L. Malik, Handbook of Labour and Industrial Law, Eastern Book Company
- 5) S.D. Puri and Sandeep Puri, Treatise on the Contract Labour (Regulation and Abolition) Act, 1970, Snow White Publications.
- 6) S.K. Puri, Labour and Industrial Law, Allahabad Law Agency
- 7) S.N. Mishra, Labour and Industrial Laws, Central Law Publications
- 8) S.P. Jain, Industrial and Labour Laws, Dhanpat Rai & Co.
- 9) Taxmann's Labour Law 10) V.G. Goswami, Labour and Industrial Laws, Central Law Agency

Subject: - Intellectual Property Laws

Class	Semester	Course Code	Course Name /Subject	No. of Lectures per week	Credits	Marks
M.Com.	Semester - I	IP510MJ	Intellectual Property Laws	05	04	100

• **Objectives of the Course:**

1. To introduce fundamental aspects of Intellectual Property Rights which plays a major role in development and management of innovative projects in industries
2. To disseminate / provide knowledge about patterns, copy rights and trade marks
3. To make students aware of the recent trends in IPR and government steps in fostering IPR

Course Outcome:

- a) Students will understand the concept of IPR its need and importance
- b) Students will know how one can register for IPR and create an influence on creativity of individuals
- c) Students will understand the difference between Patents, Copy rights and Trade marks
- d) Student will also understand the legal effects of IP infringements.

Intellectual Property Law

Unit	Title and Contents	Lectures
1	Introduction of Intellectual Property and Law 1.1 Historical evolution of IPR protection patent, copy right, trade make, Design, GI, Plant Varieties, bio- diversity, layout designs of Genetic Resources, Trade Secrets 1.2 IPR in India Genesis and Development 1.3 1.3 IPR and International Conventions: Paris Convention, Berne Convention, Lisbon and Madrid Agreement, TRIPS Agreement	15
2	Law Relating to Patents 2.1 Objectives of Patent Laws 2.2 Elements of Patentability, Novelty and Non obviousness 2.3 Subject Matter of Patent 2.4 Procedure for filing 2.5 Registration Procedures 2.6 Rights and Duties of Patentee 2.7 Assignment and License 2.8 Restoration and lapsed patent 2.9 Surrender and Revocation of Patents 2.10 Infringement, Remedies and Penalties 2.11 Patent Office and Appellate Board	15
3	Copy Rights 3.1 Nature of Copy rights 3.2 Subject Matter of Copy Right, Original literary, dramatic musical/artistic work, cinematography films and sound recording 3.3 Registration Procedure, Terms of Protection, Ownership of Copy Right 3.4 Assignment and license of Copy Right 3.5 Infringement, Remedies and Penalties 3.6 Distinction between Related Rights and Copy Rights	10
4	Trade Marks	10

	4.1 Concept of Trade Marks, Different Kinds of Trade Marks[brand names, logos, signature and symbols] 4.2 Registration of Trade Marks, Non Registered Trade Marks 4.3 Rights of holder and Assignment and licensing of trade marks, Infringement Remedies and Penalties, Trade Marks Registry and Appellate Board	
5	Contemporary Issues in IPR 5.1 IPR and E-Commerce 5.2 IPR and Competition Law 5.3 IPR and Sustainable Development	10

References:-

1. Intellectual Property Law - P. Narayan, Eastern Law House.
2. Text book on Intellectual Property Rights. - N.K. Acharya , Asia Law House, Hyderabad.
3. Law Relating to Intellectual Property - Dr. B.L. Waderha, Universal Law Publishing Co.
4. Intellectual Property Rights, (2011), - Dr. Sreenivasulu N. S., Regal Publications, New Delhi - 7.
5. Intellectual Property Law in India (2006) - Justice P. S. Narayana, Goigia Law Agency, Hyderabad.
6. Universal's "Intellectual Property Laws" (Bare Acts) Universal Law Publishing Co. Pvt. Ltd.
7. Law of Intellectual Property - Dr. S. R. Mynei - Asia Law House, Hyderabad (2011).
8. Intellectual Property Rights - Heritage, Science & Society Under International Treaties, A. Subbian Deep & Deep Publications Pvt. Ltd., New Delhi (2007)
9. Intellectual Property Laws—Bextly & Sherman, Asia Law House

- **Teaching Methodology:**

- ❖ Class Room Lectures
- ❖ Guest Lectures
- ❖ Visiting to various Companies
- ❖ Group Discussion, Debates
- ❖ Assignments and Presentation

Scheme of Examination:

- ❖ Internal Assessment (CIE) : 30 Marks
- ❖ Semester End Examination (SEE) : 70 Marks

M.COM.
Cost & Works Accounting

Revised Syllabus (2023 Pattern as per NEP) Faculty: COMMERCE
Class: M. COM. PART I (SEM I) Paper-I
M.Com. Advanced Cost Accounting & Cost System
Subject: Advanced Cost Accounting
Academic Year: 2023-2024

Name of the Program: M.Com.	Course Code: AC511MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name	No. of Lectures per week	Credits	Marks
M. COM. PART I	I	AC511MJ	Advanced Cost Accounting & Cost Systems	5	4	100

Course Objectives:

1. To familiarize students with the various elements of cost, cost classification and relationship amongst cost accounting, financial accounting and Management accounting.
2. To expose students to understand the applicability of various Cost Accounting Standards in the elements of costs.
3. To know the application of cost accounting in calculation of material, labour and overhead costs along with their Cost Accounting treatment.
4. To know various cost ledgers and statements under non-integral accounting system.

Course Outcomes:

1. Students will understand objectives of Cost Accounting along with relationship of Cost Accounting with Financial Accounting and Management Accounting.
2. Students will be able to understand preface and objectives of Cost Accounting Standards.
3. Students will be able to learn Cost Accounting treatment to Material Cost, Employee Cost and Overheads as per as per Cost Accounting Standards.
4. Students will understand non-integrated accounting system which includes preparation of journal entries, ledgers, treatment for specific items mentioned in the syllabus.

5. Students will be able to understand need to reconcile Cost and Financial Accounts along with reasons for disagreement.

Unit	Title and contents	No of Lectures
1	Basic Cost Concepts and Material Cost Control (CAS -1 & 6) 1. Meaning, Definitions, and objectives of Cost Accounting 2. Relationship among Cost Accounting, Financial Accounting & Management Accounting. 3. Cost Classification (theory only) - Meaning, important characteristics and examples of each following costs: a) According to elements (material, wages, expenses), b) According to functions or operations (Product Cost, Administration Cost, Selling Cost, Distribution Cost, Research & Development Cost), c) According to nature or behaviour (Fixed Cost, Variable Cost, Semi-variable Cost), d) According to Controllability (Controllable Cost, Uncontrollable Cost), e) According to direct & Indirect Cost, f) According to normality (Normal cost, abnormal cost), g) According to time (Historical Cost and Predetermined Cost), h) Classification of Costs for Decision Making (Marginal Cost, Differential or incremental Costs, Opportunity Cost, Out-of-Pocket Costs, Replacement Cost, Imputed Costs, Sunk Cost Committed Cost. 4. Preparation of Cost Sheet. 5. Material Cost Control - Concept of Material Cost and Material control, Objectives of Material Management, Material Purchasing Procedure, Inventory or Material Control Techniques - a) Perpetual Inventory System, b) ABC Analysis, c) Inventory Turnover Ratio, d) Just in Time, e) Economic Order Quantity, f) Inventory Levels. 6. Preface to Cost Accounting Standards - Objectives and Functions of Cost Accounting Standards Board, Scope of Cost Accounting Standards. 7. Cost Accounting Standard (CAS-1) : Classification of Cost 8. Cost Accounting Standard (CAS-6) : Material Cost (Numerical Problems on Preparation of Cost Sheet, Inventory Turnover Ratio, Economic Order Quantity, Inventory Levels)	15
2	Employee Cost (CAS - 7) 1. Meaning, Definitions and Significance of Labour Cost. 2. Classification of Labour Cost.	15

	3. Methods of Remuneration and their advantages and Disadvantages - Time Rate System, Piece Rate System, Incentive Plans (Halsey Plan, Rowan Plan, Taylor's Plan) 4. Treatment of Overtime, Idle Time and special Labour costs like Fringe benefits, Bonus and Employees Welfare Costs. 5. Meaning of the term 'Job Evaluation, Advantages and procedure of Job Evaluation. 6. Labour Turnover - Meaning, Measurement of Labour Turnover, Causes and Effect of Labour Turnover, Cost of Labour Turnover. 7. Cost Accounting Standard (CAS-7) : Employee Cost (Numerical Problems on Methods of Remuneration, Labour Turnover)	
3	Overhead Accounting (CAS - 3) 1. Meaning of Overhead, Classification of Overheads, 2. Allocation and Apportionment of Overheads & Reapportionment of overheads (Primary and Secondary Apportionment or Distribution), Methods of secondary distribution- Repeated distribution method, Simultaneous Equations method. 3. Absorption of Overheads - 1. Overhead Absorption Rates / Methods (Direct Material Cost Percentage rate, Direct Wages percentage rate, Prime Cost percentage rate, Labour hour rate, Cost unit rate, Machine hour rate). 2. Absorption of Administration Overhead and Selling & Distribution Overhead. 3. Treatment of Special Items of Overhead - Interest on Capital, Cash Discount, Carriage Inward, Packing Expenses, Defective or Spoiled Work, Setting up Costs, Depreciation, Research & Development Cost, Bad Debts, Cost of Small Tools. 4. Under or Over absorption of Overheads - Treatment of under and over absorbed overheads in cost accounting. 4. Cost Accounting Standard (CAS-3): Production and Operation Overheads. (Numerical Problems on Allocation, Apportionment & Reapportionment of Overheads - Repeated Distributed Method and Simultaneous Equation Method, Computation of Overhead Rates along with treatment of under and over absorbed overheads)	15
4	Non-Integrated Accounting System and Reconciliation of Cost and Financial Accounts 1. Non-Integrated Accounting System 1. Concept of Non-integral accounting system, Characteristics of the non-integrated accounting system. 2. Difference between non-integrated and integrated cost control accounting. 3. Importance of various Control Accounts - Journal entries and Ledgers under non-integral accounts. 4. Accounting for materials, wages, direct expenses and overhead. 5. Capital orders, repair orders and special orders. 2. Reconciliation of Cost and Financial Accounts	15

	1. Meaning and Need for reconciliation. 2. Causes of Disagreement of between Cost Accounts and Financial Accounts-(a) Items included in Financial Accounts but not in Cost Accounts (b) Items which are included in cost accounts but not in financial accounts. 3. Procedure for reconciliation. (Numerical problems on Non-integrated accounting system, Reconciliation of Cost & Financial Accounts)	
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Teaching Methodology:	1. Class Room Lectures. 2. Guest Lectures. 3. Visiting to various Companies. 4. Group Discussion, Debates 5. Assignments & Presentation 6. Presentation 7. Field Visits/Industrial Visits 8. Online Resources and Interactive Learning
Internship for Students if any: Not Applicable	

Suggested Reference Books				
Sr. No.	Title of the Book	Author	Publisher	Place
1.	Advanced Cost and Management Accounting (Problems and Solutions)	V.K.Saxena, C.D. Vashist	Sultan Chand & Sons	New Delhi
2.	Cost and Management Accounting	Colin Drury	Cengage Learning	Delhi
3.	Cost and Management Accounting - Theory, Problems & Solutions	M N Arora	Himalaya Publishing House	Mumbai
4.	Cost Accounting -Methods & Problems	B.K. Bhar	Academic Publisher	Calcutta
5.	Advanced Cost Accounting	Dr. D.M. Gujarathi	Idol Publications	Pune
6.	Advanced Management Accounting	Ravi M. Kishore	Taxmann Allied Services (P) Ltd.	New Delhi
7.	Cost Accounting - Principles & Practices	Jawahar Lal & Seema Shrivastawa	Tata Mcgraw Hill	New Delhi
8.	Cost Accounting Theory & Problems	S.N. Maheshwari	Mittal Shree Mahavir Book Depot.	New Delhi
9.	Advanced Cost Accounting	Jain & Narang	Kalyani Publication	New Delhi
10.	Principles & concepts of Cost Management System	- Asish K. Bhattacharyya,	Prentice Hall	New Delhi

Scheme of Examination:

- i. Internal Assessment: 30 %
- ii. Semester End Exam: 70 %

M. COM. PART I (SEM I)

M.Com. Advanced Cost Accounting & Cost System Subject: Costs for Decision Making and Activity Based Costing

Academic Year: 2023-2024

Name of the Programme M.Com.	Course Code: CD512MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name	No. of Lectures	Credits	Marks
M. COM. PART I	I	CD512MJ	Costs for Decision Making and Activity Based Costing	30	2	50

Course Objectives:

1. To make students understand classification of various types of costs from decision point of view and its application for different types of decision making.
2. To impart the knowledge of principles that should be used to identify relevant and irrelevant costs while taking costs and revenue related decisions.
3. To provide students with a conceptual understanding of Activity Based Costing along with the behaviour of cost drivers and its relevance.

Course Outcomes:

1. Students will get acquainted and equipped with the knowledge and understanding of meaning and application of 'Relevant and Irrelevant costs' in different types of decision making such as Make or Buy decision, Accepting or Rejecting an Order, Extra Shift Decision, choosing best budget using only one limiting factor and adding or deleting departments or products etc.
2. Students will be able to understand meaning and application of Activity Based Costing and its important concepts such as Cost Object, Cost Drivers along with stages involved in Activity Based Costing.

Unit	Title and contents	No of Lectures
1	Costs for Decision Making 1. Revision of Cost concepts required for decision making (Marginal Cost, Differential or incremental Costs, Opportunity Cost, Out-of-	15

Unit	Title and contents	No of Lectures
	Pocket Costs, Replacement Cost, Imputed Costs, Sunk Cost Committed Cost.) 2. Meaning of 'Relevant and Irrelevant costs', Types of Relevant and Irrelevant Costs, Difference between Relevant and Irrelevant Costs, Decisions based on Relevant and Irrelevant Costs 3. Make or Buy Decision 4. Decision relating to 'Accepting or Rejecting an Order' 5. Extra Shift Decision 6. Decision relating to 'choosing best budget using only one limiting factor' 7. Decision relating to 'adding or deleting departments or products' (Theory and Numerical Problems)	
2	Activity Based Costing 1. Meaning, Nature, and Scope of Activity Based Costing 2. Difference between Traditional Costing and Activity Based Costing 3. Meaning of terms used in Activity Based Costing - Activity, Cost Object, Cost Drivers, Cost Pool. 4. Main Activities and its Cost Drivers 5. Steps / Stages involved in Activity Based Costing / steps for calculating activity-based costing for a product 6. Advantages of Activity Based Costing (Theory and Numerical Problems)	15
Teaching Methodology:	1. Class Room Lectures. 2. Guest Lectures. 3. Visiting to various Companies. 4. Group Discussion, Debates 5. Assignments & Presentation 6. Presentation 7. Field Visits/Industrial Visits 8. Online Resources and Interactive Learning	
Internship for Students if any: Not Applicable		

Suggested Reference Books

Sr. No.	Title of the Book	Author	Publisher	Place
1.	Advanced Cost and Management Accounting (Problems and Solutions)	V.K. Saxena, C.D. Vashist	Sultan Chand & Sons	New Delhi
2.	Cost and Management Accounting	Colin Drury	Cengage Learning	Delhi
3.	Cost and Management Accounting - Theory, Problems & Solutions	M N Arora	Himalaya Publishing House	Mumbai
4.	Cost Accounting -Methods & Problems	B.K. Bhar	Academic Publisher	Calcutta
5.	Advanced Cost Accounting	Dr. D.M. Gujarathi	Idol Publications	Pune
6.	Advanced Management Accounting	Ravi M. Kishore	Taxmann Allied Services (P) Ltd.	New Delhi
7.	Cost Accounting - Principles & Practices	Jawahar Lal & Seema Shrivastawa	Tata Mcgraw Hill	New Delhi
8.	Cost Accounting Theory & Problems	S.N. Maheshwari	Mittal Shree Mahavir Book Depot.	New Delhi
9.	Advanced Cost Accounting	Jain & Narang	Kalyani Publication	New Delhi
10.	Principles & concepts of Cost Management System	- Asish K. Bhattacharyya,	Prentince Hall	New Delhi

M.Com. Advanced Cost Accounting & Cost System
Subject: Costing Techniques and Responsibility Accounting

Name of the Program: M.Com.	Course Code: CT513MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name	No. of Lectures per week	Credits	Marks
M. COM. PART I	I	CT513MJ	Costing Techniques and Responsibility Accounting	5	4	100

Course Objectives:

1. To enable students to understand and apply the techniques of costing in the decision making in the corporate world.
2. To provide in-depth understanding of Budgetary Control and Standard Costing along with its applicability.
3. To make students understand the comparison of costs and performances of different units in the same industry with the help of uniform costing and inter firm comparison.
4. To make students understand about how to assess the performance of a responsible centre along with efficiency measures the relation between inputs from a responsible centre and the output produced.

Course Outcomes:

1. Students will understand in-depth various concepts relating to budgetary control, its objectives, types, advantages, disadvantages along with decisions relating to limiting factors.
2. Students will learn the concept of Zero-Base Budgeting and its advantages and disadvantages.
3. Students will understand standards costing technique and its application in decision making along with various classification and calculation of variances and reasons for variances.

4. Students will understand in-depth meaning of uniform costing and interfirm comparison along with their advantages and disadvantages.
5. Students will understand the concept of Productivity along with measurement of productivity, difficulties in measuring of productivity, causes of low productivity and factors to improve productivity.
6. Students will understand Responsibility Accounting along with its types, difficulties and methods.

Unit	Title and contents	No of Lectures
1	Budgetary Control 1. Concept of Budget, Budgeting and Budgetary Control, Objectives of Budgetary Control, Steps involved in the preparation of Budgets, Advantages & Disadvantages of Budgetary Control System 2. Types of Budgets 3. Preparation of Flexible Budget, Cash Budget, Purchase Budget, Sales Budget, Production Budget. 4. Key or Limiting Factors to Budgeting 5. Zero Base Budgeting (ZBB) - Meaning, advantages and disadvantages	15
2	Standard Costing 1. Meaning of the term Standard Costing, Need and Importance of Standard Costing, Steps involved in Standard Costing, Meaning & Classification of 'Variances', Reasons for different types of variances 2. Computation of Variances along with reasons for variances - Material, Labour, Overhead, Sales and Profit Variances.	15
3	Uniform Costing, Interfirm Comparison and Productivity 1. Meaning and objectives of uniform Costing, Important Factors Required for consideration under Uniform Costing, Advantages and Disadvantages of Uniform Costing 2. Meaning and requirement of an interfirm comparison, advantages and limitations of Interfirm Comparison 3. Productivity: (Theory only) 1. Meaning of the concept 'Productivity' 2. Difficulties in measuring Productivity 3. Measurement of Productivity - Labour Productivity, Material and purchase efficiency, Machine Productivity, Productivity of power and services, Selling, distribution and administration productivity and overall productivity 4. Causes of Low Productivity 5. Factors to improve productivity	15

Unit	Title and contents	No of Lectures
4	Responsibility Accounting 1. Definition & Meaning of the term Responsibility Accounting, Principles of Responsibility Accounting, Process of Implementation of Responsibility Accounting, 2. Center of Control/Types of Responsibility Centres - Cost Centre, Revenue Centre, Responsibility Centre, Profit Centre, Investment Centre. 3. Benefits of Responsibility Accounting 4. Difficulties in implementation of Responsibility Accounting 5. Responsibility Centre Performance Management 6. Arguments in favour of decentralised profit responsibility 7. Arguments against decentralised profit responsibility 8. Methods of measuring divisional performance - a) Return on Investment Method b) Residual income method	15

Teaching Methodology:	1. Class Room Lectures. 2. Guest Lectures. 3. Visiting to various Companies. 4. Group Discussion, Debates 5. Assignments & Presentation 6. Presentation 7. Field Visits/Industrial Visits 8. Online Resources and Interactive Learning
Internship for Students if any: Not Applicable	

Suggested Reference Books				
Sr. No.	Title of the Book	Author	Publisher	Place
1.	Advanced Cost and Management Accounting (Problems and Solutions)	V.K. Saxena, C.D. Vashist	Sultan Chand & Sons	New Delhi
2.	Cost and Management Accounting	Colin Drury	Cengage Learning	Delhi
3.	Cost and Management Accounting - Theory, Problems & Solutions	M N Arora	Himalaya Publishing House	Mumbai
4.	Cost Accounting -Methods & Problems	B.K. Bhar	Academic Publisher	Calcutta
5.	Advanced Cost Accounting	Dr. D.M. Gujarathi	Idol Publications	Pune
6.	Advanced Management Accounting	Ravi M. Kishore	Taxmann Allied Services (P) Ltd.	New Delhi
7.	Cost Accounting - Principles & Practices	Jawahar Lal & Seema Shrivastawa	Tata Mcgraw Hill	New Delhi

8.	Cost Accounting Theory & Problems	S.N. Maheshwari	Mittal Shree Mahavir Book Depot.	New Delhi
9.	Advanced Cost Accounting	Jain & Narang	Kalyani Publication	
10.	Principles & concepts of Cost Management System	- Asish K. Bhattacharyya,	Prentice Hall	New Delhi

Scheme of Examination:

- i. Internal Assessment: 30 %
- ii. Semester End Exam: 70 %

M.COM.
Co-operation & Rural Development

Revised Syllabus (2023 Pattern as per NEP) Faculty: COMMERCE

Class: M. COM. Co-operation & Rural Development

PART I (SEM I)

Subject: Co-operative Movement in India

Academic Year: 2023-2024

Name of the Program	Course Code	Name of the Department
M. Com.	CM514MJ	Commerce

Class	Semester	Course Code	Course Name/ Subject	No. of Lectures per week	Credits	Marks
M. Com. Part- I	I	CM514MJ	Co-operative Movement in India	5	4	100

Course Objectives:

1. To familiarize students with the fundamental principles and values of the Co-operative movement in India,
2. To provide students with knowledge of the Co-operative legislations and legal framework in India,
3. To students explore the historical context and evolution of the Co-operative movement in India, to give students a thorough understanding of Co-operative movement in India.
4. To understating examine the application of the Co-operative model in various sectors of the Indian economy, such as agriculture, consumer goods, finance, housing, and utilities.
5. To analyse the role of Co-operative societies in promoting economic development, poverty alleviation, and sustainable practices in India

Course Outcomes:

1. To students understand and explain the fundamental principles and values of the Co-operative movement in India.
2. To students understand knowledge of the Co-operative legislations and legal framework in India.
3. To study Evaluate the application of the Co-operative model in various sectors of the Indian economy, such as agriculture, consumer goods, finance, housing.
4. Students will be able to understand the Indian and international Co-operative Movement
5. Students will develop an insight about Co-operative Movement in India.

Unit No.	Title and contents	No of Lectures
1	CONCEPT OF CO-OPERATIVE MOVEMENT	15
	1.1 Meaning of Co-operative Movement. 1.2 Definitions of Co-operative Movement. 1.3 Basic concepts of Co-operative Movement. 1.4 Objective of Co-operative Movement. 1.5 Growth of Co-operative Movement in India. 1.6 Pre Independence of Co-operative Movement. 1.7 Post-independence of Co-operative Movement. 1.8 Problems of Co-operative Movement in India 1.9 Challenges of Co-operative Movement in India 1.10 Recent scenario in Co-operative Movement in India.	
2	STRUCTURE OF CO-OPERATIVES SOCIETIES	15
	2.1 State Level 2.2 Divisional Level 2.3 District Level 2.4 Rights Co-operative Societies. 2.5 Duties Co-operative Societies. 2.6 Responsibilities of Co-operative Societies. 2.7 Registrar of Co-operative Societies.	
3	CO-OPERATIVE LEGISLATIONS IN INDIA	15
	3.1 Introduction 3.2 Objective 3.3 Co-operative Credit Societies Act, 1904 3.4 Co-operative Societies Act, 1912 3.5 Multi Unit Co-operative Societies Act, 1942 3.6 Maharashtra State Co-operative Societies Act 1960 3.7 Multi State Co-operative Societies Act, 1984 3.8 Model Co-operatives Act, 1990 3.9 Multi-State Co-operative Societies Act, 2002: 3.10 Co-operative Housing Society Acts:	
4	Various Committees of Co-operative Movement in India	15
	4.1 Introduction 4.2 Maclagen Committee on Cooperation, 1914 4.3 Royal Commission on Agriculture, 1928 4.3 Co-operative Planning Committee (1945) 4.4 Vaidyanthan Committee. 4.5 Narsimham Committee. 4.6 Chaudhary Committee 4.7 Mirdha Committee	

Teaching Methodology:

1. Classroom Lectures.
2. Guest Lectures.
3. Visiting various Companies.
4. Group Discussion, Debates
5. Assignments & Presentation

Internship for Students if any: Not Applicable

Suggested Reference Books:

1. V.Sarada, Theory of Cooperation, Himalaya Publishing House, Bombay
2. G.R.Madan, Co-operative movement in India, Mittal Publications, Delhi.
3. D.Jha, In search of Co-operative values, Vikas publishing House Delhi.
4. Human Resource Management Practices in Co-operative sector, Idea Publication, New Delhi.
5. Journal of Commerce and Management Thought (JCMT)
6. Journal Co-operative Organization and Management, Journal of Co-operative

Class: M. COM. Co-operation & Rural Development
PART I (SEM I)
Subject: Rural Infrastructure

Name of the Program	Course Code	Name of the Department
M. Com.	RI515MJ	Commerce

Class	Semester	Course Code	Course Name/ Subject	No. of Lectures	Credits	Marks
M. Com. Part- I	I	RI515MJ	Rural Infrastructure	30	2	50

Course Objectives:

1. To Understand the rural infrastructure helps the development of Rural Power.
2. To Explore the Rural Empowerment.
3. To give students a thorough understanding of the Rural Development the backbone of the nation

Course Outcome:

1. Students will get a Panoramic View of the Rural environment.
2. Students will be able to acquire the knowledge of Changing economy and rural
3. Infrastructure.
4. Will Provide an insight for the welfare of the Rural economy and welfare.
5. Students will be exploring to the opportunities in Rural Entrepreneurship.
6. Students will develop an insight about Welfare and Development of Rural Infrastructure.

Unit No.	Title and contents	No of Lectures
1	RURAL DEVELOPMENT IN INDIA SINCE INDEPENDENCE	15
	1. Development of Rural Industries 2. Development of Allied sectors 3. Programs for weaker Sections 4. Planning and Peoples Participation 5. Supporting services to the agriculture. 6. The Changing role of Voluntary Agencies: From welfare to Development	

2	RURAL INFRASTRUCTURE DEVELOPMENT: SCOPE AND IMPORTANCE	15
	2.1 Infrastructure for rural Connectivity 2.2 Infrastructure for agriculture and allied sectors 2.3 Infrastructure for Quality of Life and Sustainable Development. 2.4 Modernising Infrastructure for a better tomorrow: a. Transport and Communication b. Housing and Education, c. Health and Sanitation d. Managing the water Resources. 2.5 Growth of Financial infrastructure in Rural India 2.6 Rural Entrepreneurship and Infrastructure.	

Teaching Methodology:

1. Classroom Lectures.
2. Guest Lectures.
3. Visiting various Companies.
4. Group Discussion, Debates
5. Assignments & Presentation

Internship for Students if any: Not Applicable

Suggested Reference Books:

1. I. K. Deb: Rural Development in India since Independence: Sterling Publishers Pvt. Ltd.
2. I.S.Sundaram: Voluntary Agencies and Rural Development: B.R.Publishing corporation
3. G.R. Madan, Cooperative movement in India, mittal publications, Delhi.
4. Co-operation Principles, Problems & Practice. T.N.Hajela Ane Books Pvt. Ltd. New Delhi.
5. Management of Co-operatives. History, Theory, Sectors & Case Studies. By: Ramkishan Y Jaico Student Edition.
6. Co-operative Organisations & Management : K K Taimni W A F M. Farmers welfare Trust Society. Krishak Bhavan, New Delhi.
7. Kurukshetra : A Journal on Rural Development Vol.62, March 2014

Class: M.COM. Co - Operation and Rural Development
PART I (SEM I)

Subject: Organization of Co-Operative Business

Name of the Program	Course Code	Name of the Department
M. Com.	OC516MJ	Commerce

Class	Semester	Course Code	Course Name/ Subject	No. of Lectures per week	Credits	Marks
M. Com. Part- I	I	OC516MJ	Organization of Co- Operative Business	5	4	100

Course Objectives:

1. To acquaint students with the concept, principles of co-operatives in the economic development of India along with the National Policy on Co-Operation.
2. To give students an understanding of the organizational and federal structure of co-operatives along with the communication and monitoring of co - operatives.
3. To educate students on the role of various co-operative-training institutions and other institutions in the development of co-operatives.
4. To give students a thorough understanding of the various types of co-operative business enterprises.

Course Outcomes:

1. Students will be able to understand the concept, principles of co-operatives in the economic development of India along with the National Policy on Co-Operation.
2. Students will thoroughly understand the organizational and federal structure of co-operatives along with the communication and monitoring in co - operatives
3. Students will review and learn the role of various co-operative-training institutions and other institutions in the development of co-operatives.
4. Students will have a thorough understanding of the various types of co-operative business enterprises.

Unit No.	Title and contents	No of Lectures
1	ORIGIN AND CONCEPT OF CO-OPERATION	15
	1. Meaning of Co-operation 2. Definition of Co-operation 3. Features of Co-operation 4. Benefits of Co-operation 5. Co-Operatives: A Thought Process a. Robert Owen b. Dr. William King c. Charles Fourier d. Jawaharlal Nehru e. Mahatma Gandhi 6. Principles of Co-Operation - Rochdale Principles 7. Co-Operative Movement in India - a. Origin of Co-Operative Movement in India b. Progress of Co-Operative Movement in India c. Role of Co-Operatives in the Economic Development of India. 8. Study of Recent National Co-Operation Policy.	
2	ORGANIZATIONAL STRUCTURE OF CO - OPERATIVES IN INDIA	15
	2.1. Organizational Structure of Co -operatives: 2.2 Organization Chart for Co-Operative Business and Banking Units 2.3 Federal Structure of Co-Operative Organization 2.4 Communication and leadership in Co-Operative Organization 2.5 Monitoring of Co-Operatives 2.6 Audit and Taxation System in Co-Operatives	
3	ROLE OF INSTITUTIONS IN CO-OPERATIVE TRAINING	15
	1. Need of Co-Operative Training 2. Importance of Co-Operative Training 3. Role of Institutions in Providing Co-Operative Training.	

	4. Study of Co - Operative Training Institutions: - National Co-Operative Union of India, - National Centre for Co-Operative Education, - National Council for Co-Operative Training, - State Co-Operative Union, - Vaikunth Mehta National Institute of Co-Operative Management 5. Study of Government and Other Institutions in the Development of Co-Operatives: - National Cooperative Development Corporation (NCDC) - National Bank for Agriculture and Rural Development (NABARD) - National Dairy Development Board (NDDB) - Reserve Bank of India (RBI) - National Co-operative Union of India (NCUI)	
4	CO-OPERATIVE BUSINESS ENTERPRISES IN INDIA	15
	4.1 Agricultural Non-credit Co-Operatives: - Meaning of Co-Operative farming - Types of Co-Operative farming - Progress Co-Operative farming - Problems Co-Operative farming - Solutions Co-Operative farming 4.2 Irrigation Co-Operatives - - Meaning Irrigation Co-Operatives - Progress Irrigation Co-Operatives - Problems Irrigation Co-Operatives - Role in Water Conservation Study of Dairy Co - Operatives and Dairy Development in India - Study of Co - Operative Business Sectors (Agriculture Co-Operatives, Processing Co-Operatives, Housing Co-Operatives, Marketing Co-Operatives etc.) - Recent developments in Co-Operation in India	

Teaching Methodology:

1. Classroom Lectures.
2. Guest Lectures.
3. Visiting various Companies.
4. Group Discussion, Debates
5. Assignments & Presentation

Internship for Students if any: Not Applicable

Suggested Reference Books:

1. G. S. Kamat: New Dimensions of Co - Operative Management
2. G. S. Kamat: Cases in Co - Operative Management
3. K. K. Taimani: Co - Operative Organization and Management
4. T. N. Haleja, Shiva Lal: Principles, Problems and Practice of Co-operation.
5. H. R. Mukhi: Co-operation in India
6. R. D. Bedi : Theory, History and Practice of Co-operation
7. Dr. B. S. Mathur : Co-operation in India
8. Ravichnadrán K and Nakkiran S : Co-operation: Theory and Practice
9. Krishnaswami O. R. and Kulandaisamy V : Co-operation: Concept and Theory
10. Sharada V : The Theory of Co-operation

Committee Reports:

1. Kushroo's Committee Report
2. Vaidyanathan Committee Report
3. Committee and Commissions on Co-operation by Paranjothi

M.COM.
Business Practices & Environment

**Class: M.COM. Business Practices & Environment
PART I (SEM I)**

**Subject: Organized Trades and Markets
Academic Year: 2023-2024**

Name of the Program	Course Code	Name of the Department
M. Com.	OT517MJ	Commerce

Class	Semester	Course Code	Course Name/ Subject	No. of Lectures per week	Credits	Marks
M. Com. Part- I	I	OT517MJ	Organized Trades and Markets	5	4	100

Course Objectives:

1. To impart knowledge regarding the service sector and its role in the modern context.
2. To understand the concepts and core ideas of business, organized trade and markets, community markets, and regulated markets.
3. To give students a thorough understanding of FDI and trading corporations.
4. To educate students on the utility and practical use of co-operative marketing.

Course Outcome:

1. Students will be able to acquire knowledge of the service sector with its facets, role, importance, growth, challenges and emerging business practices in the service sector.
2. Students will get acquainted and equipped with the knowledge and understanding of organized trades and markets, features, concepts of regulated markets, and business concepts in the modern context through product buying, selling and credit policies and eNAM.
3. Students will develop their ability to identify the FDI and its role in development through the concept of state trading corporations and their activities.
4. Students will be able to understand supermarkets overall administration and organization, recent trends and state trade in agriculture.

Unit No.	Title and Contents	No. of Lectures
1	SERVICE SECTOR	15
	1. Meaning and Characteristics of Services Sector.	

	2. Types of Service Sectors-Tourism, Banking, Insurance, Healthcare, Construction, IT, Hospitality, Entertainment, Transportation, Community and Social Services. 3. Role and Importance of the Service Sector in the Development of India. 4. Growth of Service Sector in Indian Economy. 5. Challenges of the Service Sector and Measures for Promotion of the Service Sector 6. Business Practices with reference to Service Sector. 7. Importance of Business Practices in Service Sector.	
2	ORGANIZED TRADES AND MARKETS	15
	1. Meaning of Organized Trade 2. Importance of Organized Trade. 3. Features of Organized Market and Regulated Market. 4. Concept of Business in the Modern Context 5. Objectives Business in the Modern Context 6. Nature Business in the Modern Context 7. Scope of Business in the Modern Context. 8. Policies of Regulated Market- a. Product Buying, b. Selling Price c. Credit Policies, d. APMCs and Agri Regulated Market Policies. 9. National Agriculture Market (eNAM)	
3	STATE IN TRADE	15
	1. FDI-Meaning, Importance and Objectives. 2. Role and Significance of FDI in retail trade. 3. Concept of State Trading to gain fundamental knowledge about FDI. 4. Role of State Trading in retail trade to evaluate the Performance of FDI. 5. Role of State Trading Corporation (STC) 6. State and privatization of trading Activities. 7. Administration and organization of Super Markets. 8. Recent Trends in Business Practices of Supermarkets 9. State Trade in Agriculture	
4	CO-OPERATIVE MARKETING	15
	1. Concept of Co-operative Marketing 2. Need of Co-operative Marketing 3. Features of Co-operative Marketing 4. Objectives of Co-operative Marketing. 5. Types of Co-operative Marketing 6. Structure of Co-operative Marketing 7. Functions of Co-operative Marketing 8. Advantages of Co-operative Marketing 9. Role of Co-operative Marketing 10. Innovative Business Practices of Leading Supermarket Stores in India a. Big Basket, b. Central Mall,	

	c. D-Mart, d. Reliance Mart 11. Direct Marketing for Farmers- a. Self Help Group b. Marketing by Farmers Producers Companies.	
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Teaching Methodology:

1. Classroom Lectures.
2. Guest Lectures.
3. Visiting various Companies.
4. Group Discussion, Debates
5. Assignments & Presentation

Suggested Reference Books:

1. Nishikant Jha (2017) Service Sector Management, Himalaya Publishing House Pvt. Ltd., Nagpur
2. Bhatia A K (1982), Tourism Development: principles and practices, Sterling Publication, Delhi.
3. Das Kumar (2009), Sustainable development, Reference Publication, New Delhi.
4. Joshi Seema (2008): Growth and Structure of Tertiary Sector in Developing Economies, Academic Foundation, New Delhi.
5. Basu Kaushik (ed.) (2010): The Oxford Companion to Economics in India, Oxford University Press, New Delhi.
6. Fitzsimmons and Fitzsimmons, 'Service Marketing: Operations, Strategy, and Information Technology', McGraw Hill.

PART I (SEM I)
Subject: Leadership and Organizational Behavior
Academic Year: 2023-2024

Name of the Program	Course Code	Name of the Department
M. Com.	LO518MJ	Commerce

Class	Semester	Course Code	Course Name/ Subject	No. of Lectures	Credits	Marks
M. Com. Part- I	I	LO518MJ	Leadership and Organizational Behavior	30	2	50

Course Objectives:

1. To expose the learners to learn the new trends in the area of Leadership and Organizational Behavior.
2. To understand the study of organizational Behavior and skills in all work situations.
3. To Understand the current scenario and manage the change.
4. To educate learners to align with the life skills and Professional skills to bring work life Balance.

Course Outcome:

1. Learners will be acquainted with the relationship between leadership and organizational Behavior.
2. To expose the Learners to learn new trends in Leadership and Organizational Behavior.
3. To create awareness amongst learners to get acquainted and manage the cross cultural diversity and changing work life balance in the organizations.
4. Developing the skills to manage the knowledge workforce.
5. Students will develop an insight of exploring the strategy in the field of Administration and Management.

Unit No.	Title and Contents	No. of Lectures
1	LEADERSHIP	15
	1. Leadership and Skills of Leader: a. Communication b. Presentation c. Interpersonal skills d. Time Management 2. Challenges and Transition in Leadership: Differentiate between Transactional and Transformational leaders. 3. Leadership styles: Autocratic, Democratic, Free- Rein, Laissez faire.	

	4. Leadership Theories: a. Trait b. Behavioral c. Contingency 5. Leader and Transactional analysis 6. Contemporary issues in leadership: a. Do Gender Differences lead b. Differently, leading through empowerment, Is there a moral dimension to leadership. 7. Leadership and Change Management: a. Understanding the change b. Accepting the change and Implementation of the change. 8. Leadership and work culture: How to enhance your Organization's Work culture.	
2	THE STUDY OF ORGANIZATIONAL BEHAVIOR	15
	2.1 Organizational Behavior: a. Meaning Organizational Behavior b. Nature of Organizational Behavior c. Scope Organizational Behavior d. Goals of Organizational Behavior. e. Contribution of various discipline to organizational Behavior, f. Models of Organizational Behavior g. Managing Cultural Diversity, h. Perception Organizational Behavior i. Perception Process Organizational Behavior 2.2 Attitude, Values and Motivation : a. Attitudes, b. Attitude Formation and Behavior, c. Attitude and Productivity Effects of Employee Attitudes. d. Values, Personal & Organizational values, e. Importance of Motivation at work place f. Theories of Motivation to understand workforce at workplace. 2.3 Personality and Perception: a. Determinants of Personality b. Theories of Personality, c. Matching Personality and Job, d. Personality and Organizational Behavior. 2.4 Organizational Behavior and work life Balance: a. Employee Engagement, b. stress management, c. Work- life Balance d. Employee counseling	

Teaching Methodology:

1. Classroom Lectures.
2. Guest Lectures.

3. Visiting various Companies.
4. Group Discussion, Debates
5. Assignments & Presentation

Internship for Students if any: Not Applicable

Suggested Reference Books:

1. Desai V : Entrepreneurship Management : Himalaya Publishing House, New Delhi.
2. Basu P.K. : Public Enterprises, Policy, Performance and Professionalization. : Allied Publishers Pvt. Ltd, New Delhi.
3. Dr. Sharad Jawdekar, Prof. Shobha Dadlani : Business Entrepreneurship, Environment and Organizational Behavior. : Narendra Prakashan.
4. Stephen P Robbins : Organizational Behavior
5. John Adair: Leadership and Motivation : Kogan page India Private Limited, New Delhi

Program Name: M. Com in Business Practices & Environment

Class: M.COM. PART I (SEM I)
Subject: Business Environment and Policy

Name of the Program	Course Code	Name of the Department
M. Com.	BE519MJ	Commerce

Class	Semester	Course Code	Course Name/ Subject	No. of Lectures per week	Credits	Marks
M. Com. Part- I	I	BE519MJ	Business Environment and Policy	5	4	100

Course Objectives:

1. To make students understand the concept of business environment and its types, importance, Scope and Various Components.
2. To impart the knowledge of Business Policy and its nature, Importance types, process and formulation.
3. To make students understand the applicability of Environment Management and its Problems, Effects, Prevention and Types of Pollution.
4. To teach the utility / Practical use of Business Environment and Policy enable them to realize the impact of the environment on Business.

Course Outcomes:

1. Students will get acquainted and equipped with the knowledge and understanding of Business and Business Environment and its Characteristics, Scope, importance, types and various components of Business Environment.
2. Students will be able to acquire knowledge of Business Policy and its nature, importance types, process and formulation.
3. Students will develop their ability to Environment Management and its problems, effects, prevention and types of Pollution.
4. Students will be able to understand the Indian and international business environment
5. Students will develop an insight about business Environment policy.

Unit No.	Title and contents	No of Lectures
1	INTRODUCTION TO BUSINESS ENVIRONMENT	15

	1. Meaning of Business 2. Definition of Business 3. Nature of Business 4. Scope of Business 5. Meaning of Business Environment 6. Characteristics of Business Environment 7. Scope of Business Environment 8. Importance of Business Environment 9. Types of Business Environment 10. Components of Business Environment	
2	INTERNATIONAL ENVIRONMENT	15
	2.1 Objectives of World Trade Organization (WTO) 2.2 Functions of World Trade Organization (WTO) 2.3 Role of WTO in trade and environment 2.4 Licensing 2.5 Joint Venture 2.6 Foreign Direct Investment 2.7 Franchising 2.8 Meaning of Multinational companies (MNCs) 2.9 Merits of Multinational companies (MNCs) 2.10 Demerits of Multinational companies (MNCs) 2.11 Features of Multinational companies (MNCs)	
3	ENVIRONMENT MANAGEMENT	15
	3.1 Need for environment management 3.2 Types of environment management 3.3 Meaning of Pollution 3.4 Problems of Pollution 3.5 Types of Pollution- Air, Water & Noise 3.6 Effects of Pollution On the - Environment & human health 3.7 Pollution Control Board- Maharashtra 3.8 Prevention of Pollution- Air, Water & Noise 3.9 Green Environment 3.10 Waste Management	
4	BUSINESS POLICY	15

	4.1 Definition of Business Policy 4.2 Features of Business Policy 4.3 Nature of Business Policy 4.4 Importance of Business Policies 4.4 Process Business policy 4.5 Formulation of Business Policy 4.6 Types of Policies 4.7 Difference between Policy and procedures	
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Teaching Methodology:

1. Classroom Lectures.
2. Guest Lectures.
3. Visiting various Companies.
4. Group Discussion, Debates
5. Assignments & Presentation

Internship for Students if any: Not Applicable

Suggested Reference Books:

1. K. Aswathappa : Essentials of Business Environment, Himalaya Publishing House
2. Francis Cherunilam : Business Environment, Himalaya Publishing House
3. Dr S Sankaran: : Business Environment, Margham Publications
4. S.K. Mishra and V.K. Puri : Economic Environment of Business, HPH
5. Rosy Joshi and Sangam Kapoor : Business Environment, Kalyanai Publications
6. A C Fernando: Business Environment, Pearson
7. Dr V Murali Krishna, Business Environment, Spectrum Publications
8. Namitha Gopal, Business Environment, McGraw Hill

M.COM.
Business Administration

**Program Name: M. Com in Business
Administration**
Class: M. COM. PART I (SEM I)
**Subject: Production & Operation
Management**

Name of the Program: M. Com.	Course Code: PO520MJ	Name of the Department: Commerce
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Class	Semest er	Course Code	Course Name	No. of Lectures/ per week	Credits	Marks
M. COM. PART I	I	PO520MJ	Production & Operation Management	5	4	100

Course Objectives:

1. To understand the core ideas and concepts of production and operations management (POM) and the importance of this area of management for effective organizations.
2. To give students a thorough understanding of production systems, including the various types, important components, and essential roles in both production and material management.
3. To educate students on operations management's concepts, methods, and practices and to help them understand how it can increase competitiveness and operational effectiveness.
4. To give students a thorough understanding of supply chain management (SCM) and all of its essential elements, procedures, and tactics.

Course Outcomes:

1. Students will be able to define the main goals, duties, and review of production and operation management and understand the significance of successful POM in achieving operational effectiveness and competitiveness.
2. Students will thoroughly understand production systems, which will serve as a strong basis for their further exploration of production and operation management principles and practices.
3. Students will learn about various operations management strategies and tactics, including inventory control and lean operations management. Additionally, they will learn about current trends and advancements in the industry as well as the difficulties faced in operations management.

4. Students will have a strong foundation in supply chain management principles, enabling them to apply them and optimize the movement of products and information across the supply chain to increase operational effectiveness and customer satisfaction.

Unit	Title and contents	No of Lectures
1	INTRODUCTION TO PRODUCTION AND OPERATION MANAGEMENT 1. Meaning of Production and Operation Management 2. Nature of Production and Operation Management 3. Importance of Production and Operation Management 4. Functions of Production and Operation Management 5. Types of Production Systems 6. Concept of Service System 7. Recent Trends in Production and Services System 8. Concept of Plan Layout 9. Objectives of Plan Layout 10. Basic Principles of Plan Layout 11. Types of Plan Layout 12. Safety Considerations and Environmental Aspects	15
2	PRODUCTION SYSTEM 1. Introduction - Meaning, Definition 2. Models of Production System 3. Product vs. Services 4. Functions of Production and Material Management 5. Types of Production Systems 6. Process-Focused & Product-Focused Systems 7. Production Planning and Control 8. Product Strategies 9. Product Life Cycle 10. Productivity Variables 11. Productivity Measurement 12. Product Design and Development	15

Unit	Title and contents	No of Lectures
3	OPERATION MANAGEMENT 1. Meaning of Operation Management 2. Functions of Operation Management 3. Roles & Responsibilities of Operation Management 4. Methods of Operations Management 5. Challenges in Operation Management 6. Vendor and Inventory Management 7. Techniques in Inventory Management 8. Quality Management 9. Manufacturing Management 10. Recent Trends and Development in Operation Management 11. Lean Operations Management 12. Principles of Lean Operation Management 13. Tools in Lean Operation Management 14. Simplifying an Operation for Lean Operation Management 15. Purposes of Lean Operations	15
4	SUPPLY CHAIN MANAGEMENT 1. Introduction 2. Components of Supply Chain Management 3. Process of Supply Chain Management 4. Strategies in Supply Chain Integration 5. Nature of Supply Chain Integration 6. Factors Driving Supply Chain Integration 7. Barriers to Supply Chain Integration 8. Process in Supply Chain Integration 9. Demand Forecasting in Supply Chain 10. Components of Forecasting 11. Forecasting Approaches 12. Steps In Demand Forecasting Process	15

Teaching Methodology:	1. Class Room Lectures. 2. Guest Lectures. 3. Visiting to various Companies. 4. Group Discussion, Debates 5. Assignments & Presentation
Internship for Students if any: Not Applicable	
Suggested Reference Books: 1. William J. Stevenson, “Operation Management”, McGraw-Hill Education 2. Jay Heizer, Barry Render, and Chuck Munson, “Operation Management: Sustainability and Supply Chain Management”, Pearson Education 3. Steven Nahmias, “Production and Operation Analysis”, McGraw-Hill Education 4. Lee J. Krajewski, Manoj K. Malhotra, and Larry P. Ritzman, “Operations Management: Processes and Supply Chains”, Pearson Education 5. Jay Heizer and Barry Render, “Principles and Operations Management”, Pearson Education	
Scheme of Examination: Internal Assessment: 30 % Semester End Exam: 70 %	

Revised Syllabus (2023 Pattern as per NEP) Faculty:

COMMERCE

Program Name: M. Com in Business Administration

Class: **M. COM. PART I (SEM I)**

Subject: E-Commerce

Academic Year: **2023-2024**

Name of the Program: M. Com.	Course Code: EC521MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name	No. of Lectures	Credits	Marks
M. COM. PART I	I	EC521MJ	E-Commerce	30	2	50

Course Objectives:

1. To understand the importance, role, and activities of E-Commerce.
2. To enable students to know the concepts of E-Money and E-Payment systems used in E-Commerce.
3. To help students to understand what is E-Marketing and the role of Search Engine operations.
4. To identify how Cyber Security and IT Act plays an important role in E-Commerce.

Course Outcomes:

1. Students will understand the Role of E-Commerce Industry and the utility of E-Commerce models.
2. Students will gain insight knowledge for E-Payment systems. How technology plays a vital role in the E-commerce sector will be learnt by them.
3. Students will be able to understand the recent e-marketing tools and their utility. How search engine operation help to search data will be learnt by them.
4. Functioning of Digital economy will be understood. Students will gain knowledge about various cyber threats and understand the importance of IT Act and Cyber security.

Unit	Title and contents	No of Lectures
1	E-Commerce and Business Model Concepts 1. Introduction to E-Commerce, Role of E-Commerce in Business Economy. 2. - Factors responsible for the growth of E-Commerce in India Opportunities and Challenges for E-Commerce in India 3. E-Commerce Business Models. 4. Search Engine Optimization (SEO), Content Marketing, Social Media Marketing. 5. Internet Banking, Mobile Retailing.	15
2	E-Payment Systems and Cyber Security 2.1 Digital Currencies, Crypto Currencies -Introduction, Digital Disruption in E-Money Market. 2.2 Modern Digital Payment trends - Credit/Debit Cards, QR Code Scanners, Mobile point of sale, NEFT and RTGS. Contactless Payments - Samsung Pay/Apple Pay and use of NFC Technology. 2.3 Role of modern digital payment systems and Challenges faced in Indian Retail Sector. 2.4 Cyberwarfare - Automotive hacking, Cloud services vulnerability, Mobile Hacking. Data Privacy as a discipline, Insider threats, Phishing, ATM frauds. 2.5 Information Technology Act -2000: Role, Need and Importance, Software development and legal issues, Shrink-wrap contracts.	15
Teaching Methodology:		1. Class Room Lectures. 2. Guest Lectures. 3. Visiting to various Companies. 4. Group Discussion, Debates 5. Assignments & Presentation 6. Corporate Cases and Discussions on it
Suggested Reference Books: 1 E-Commerce - An Indian Perspective S.J.P.T. Joseph PHI Learning Pvt. Ltd.; 6th edition (10 October 2019) India 2. E-Commerce Shruti Mathur Pinnacle Learning (1 January 2020) India 3. E-Commerce Concepts- Models - Strategies. C.S.V. Murthy Himalaya Publishing House India 4. E-Business and E-Commerce Management David Chaffey Pearson Education - 5th Edition India 5. E-Commerce - Strategy Technology and Applications David Whiteley McGraw Hill Education (1 July 2017) India 6. Electronic Commerce - Framework Technologies and Applications Bharat Bhasker McGraw Hill Education; Fourth edition (1 July 2017) India		

Class: M. COM. PART I (SEM I)

Subject: Financial Management

Name of the Program: M. Com.	Course Code: FM522MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name	No. of Lectures/ per week	Credits	Marks
M COM. PART I	I	FM522MJ	Financial Management	5	4	100

Course Objectives:

1. To acquaint the student with knowledge of various Financial Management terminologies (Investment ,Credit Planning , Working Capital Management
2. To understand the concepts relating to Financing & Financial Statement Analysis
3. To utilize the information gathered to reach an optimum conclusion by a process of reasoning
4. To enable the students to use their learning to evaluate, make decisions and provide recommendations

Course Outcomes:

1. Students will understand the Financial System of India ad its role and importance in financial management.
2. Students will understand the concepts of financing and will gain knowledge on Financial Statement Analysis .
3. Students will understand how to make Investment Decisions and the importance of Capital budgeting techniques.
4. Students will have a strong foundation in understanding the meaning and nature of Working Capital management and to formulate Credit and Collection policy.
5. They will gain knowledge on how to evaluate a project and provide recommendations for the same.

Unit	Title and contents	No of Lectures
1	Introduction 1.1 Meaning and objectives of Financial Management , 1.2 Financial systems in India - RBI , SEBI. 1. 3 New trends in Financial Management	15
2	Financial Statements & Financial Analysis 2.1 Concept of Financial Statements 2. Understanding and analyzing Income and Balance Statements 2.3 Financial Analysis - Types and Techniques	15
3	Investment Decisions 3.1 Capital Expenditure - meaning and concept 3.2 Capital Budgeting, techniques of Capital Budgeting. 3.3 Investment Decision Methods - Payback , Net Present Value , A.R.R and I.R.R	15
4	Working Capital & Credit Management 1. Meaning and Nature of Working Capital 2. Factors affecting Working Capital, Production Cycle 3. Formulation of Credit Policy , Collection Policy , Accounts Receivable Management, Factoring and Lease Financing	15
Teaching Methodology:		1. Class Room Lectures. 2. Problems solving 3. Guest Lectures. 4. Visiting to various Companies. 5. Group Discussion, Debates 6. Assignments & Presentation 7. Corporate Cases and Discussions on it
Internship for Students if any: Not Applicable		
Suggested Reference Books: 1. Financial Management - By M.Y.Khan and P.K. Jain (Tata Mcgraw Hill) 2. Financial Management - By I.M.Pandey (Vikas Publishing House) 3. Financial Management - By Prasanna Chnadra (Tata Mcgraw Hill) 4. Financial Management - By P.V. Kulkarni (Himalaya Publishing House) 5. Financial Management - By Prasanna Chnadra (Tata Mcgraw Hill) 6. The Indian Financial System - By Bharati Pathak (Dorling Kindersley Pvt. Ltd.) 7. Financial Policy and Management Accountant - By Bhabatosh Banerjee(PHI Learning Pvt. Ltd.)		

8. Introduction to Lease Financing - By Rajas Parchure , N. Ashok(Time Research Foundation) 9. Credit Management - By Herbert Edwards (Coles Publishing Co. Ltd.) Financial Management - Dr. Parag Kalkar, Success Publications
Scheme of Examination: i.Internal Assessment: 30 % ii.Semester End Exam: 70 %

M.COM.
Advanced Banking & Finance

Program Name: M. Com in Advanced Banking & Finance

Class: M. COM. PART I (SEM I)

Subject: Central Banking

Academic Year: 2023-2024

Name of the Program: M. Com.	Course Code: CB523MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name	No. of Lectures/ per week	Credits	Marks
M. COM. PART I	I	CB523MJ	Central Banking	5	4	100

- **Course Objectives:**

1. To make students understand the concept of Central Banking.
2. To impart the knowledge of the various facets in the working of the Central Banks.
3. To make students understand the applicability of the policies of Central Banks in general and Reserve Bank of India (RBI) in particular.
4. To teach the utility/practical use of the Central Bank regulation on the economy.

- **Course Outcome: -**

1. Students will get acquainted and equipped with the knowledge and understanding of the origin/evolution, need, role, rationale and organization of Central Banks and RBI
2. Students will be able to acquire knowledge of the various Functions, Regulatory and Supervisory role of RBI over the Commercial Banks
3. Students will develop their ability to comprehend the debate of Autonomy of Central Banks
4. Students will be able to understand the Future of Money in the light of E-Currency or Digital Currency
5. Students will develop an insight about the challenges faced by the Central Banks in the post-Covid era.

Unit	Title & Contents	No of Lectures
1	1. Central Banking A. Origin and Evolution of Central Banking Role of Central Bank in Emerging Economies Need and Rationale of Central Bank B. Evolution and Organization of Reserve Bank of India (R.B.I.) 2. Functions and Regulation of Reserve Bank of India I. Functions of RBI A. RBI as Note Issuing Authority - Issue of Currency Notes, Asset backing for Note- issue, Distribution of Currency, Currency chests, Recent developments in Currency Management. B. RBI as Banker to Government - Maintenance of Government Accounts, Banker to the Central Government and the State governments, Management of Public Debt C. RBI as a Banker's Bank: - Controller of Credit, Lender of Last Resort D. RBI as a Custodian/Manager of Foreign Reserves E. Promotional Functions of RBI. II Regulation and Supervision of RBI over Commercial banks. A. Licensing of banks, Opening of new banks, Branch Licensing, Foreign banks. B. Cash Reserves and Liquid Assets. C. Prudential Norms, Capital and Reserves. D. Control over methods of Operation. E. New Banking Licensing Policy	18.

2	Autonomy of Central Banks - A. Advantages and Limitations B. Aspects of Autonomy - Institutional Independence, Goal Independence, Functional and Operational Independence, Personal Independence, Financial Independence, Legal Independence. C. Central Bank Independence Indices. D. Autonomy of RBI.	12
3	Central Bank Digital Currency (CBDC) or E-Currency A. The future of Money B. Meaning, Need of Digital Currency. C. Benefits and Dangers of Digital Currency. D. Architecture/Models of CBDCs- Indirect, Hybrid and Direct.	14.
4	Challenges facing Central Banks in the 2020s- A. Adequacy of Policy framework - Review of Monetary Policy framework in the light of greater role for Fiscal Policy in Macroeconomic Stabilization. B. New and emerging threats to economic stability- • Implications for macroeconomic and financial stability and designing robust policies. • Role of Central Banks in pursuing the transition to a carbon-neutral economy. • Emergence of Fin Tech and Big Tech firms- their role in payments, retail lending and risk management and data analytics. • Role and adjustment of Central Bank regulation and supervision with the arrival of these firms. • Balancing regulation to foster innovation and avoiding risk.	16.

Teaching Methodologies:-

1. Class Room Lectures.
2. Guest Lectures.
3. RBI Visits
4. Group Discussion, Debates
5. Assignments & Presentation
6. Activities - Surveys, Pilot Studies.

□ References:-

Books -

1. Bhole, L M, and MahakudJitendra - *Financial Institutions and Markets - Structure, Growth & Innovations*, McGraw Hill Education Pvt Ltd., 2020.
2. Sharma, Mukund- *Banking and Financial Services*, Himalaya Publishing House. 1 Sept 2015.
3. Indian Institute of Banking and Finance (IIBF) - *Central Banking*, Macmillan Education India Pvt Ltd., 2023 Edition.
4. Herger, Nils - *Understanding Central Banks*, Springer. 1 March 2019., 1st edition.
5. Wang, J, Joseph - *Central Banking 101*, Joseph. 2021.
6. Brown-Conti Peter, and Lastra, Maria Rosa (Editors) - *Research Handbook on Central Banking*, Edward Elgar Publishing., 25May 2018.
7. Ashfaq, Muhammad; Hasan, Rashedul, and Mercon, Jost - *Global Financial System: Theory and Practice*, De Gruyter Publishers, 2023.
8. Yagei, Mustafa (Ed)- *Central Banking in a Post-Pandemic World - Challenges, Opportunities and Dilemmas*, Routledge Publishers, 2023.
9. Yagei, Mustafa (Ed) - *The Political Economy of Central Banking in Emerging Economies*, Routledge Publishers, 29 April, 2022.
10. Mohan, Rakesh - *Growth with Financial Stability: Central Banking in an Emerging Market*, Oxford University Press, USA, (Oxford India Paperbacks), 23 Sept 2012.
11. Mayes, G, David; Siklos, L, Pierre; and Sturn, Egbert Jan (Editors) - *The Oxford Handbook of the Economics of Central Banking*, Oxford University Press, 14 March 2019.
12. Davies, Howard and Green, David - *Banking on the Future: The Fall and Rise of Central Banking*, Princeton University Press, 2 May, 2010.
13. Buiter, Willem - *Central Banks as Fiscal Players*, Cambridge University Press, 2020.
14. Yeldan, Erinc; Acar, Sevil (Editors) - *Handbook of Green Economics*, Elsevier Paperback, 1st Ed. 27 Aug, 2019.
15. Cargill, F, Thomas - *The Financial System, Financial Regulation and Central Bank Policy*, Cambridge University Press, 6 Oct, 2017.

Journals -

1. Buiter, Willem H (2013), "The Role of Central Banks in Financial Stability: How has it Changed?" In Evanoff, Douglas D., Holthausen, Cornelia, Kaufman, George G, and Kremer, Manfred (Editors) - "The Role of Central Banks in Financial Stability", *World Scientific Studies in International Economics*: Vol 30, pp 11-56. World Scientific Publishing, London.
2. Taylor, M., "Institutional Structures of Regulation" in *Handbook of Safeguarding Global Financial Stability*, 2013.
3. Schoenmaker, D., "Central Bank's Role in Financial Stability" in *Handbook of Safeguarding Global Financial Stability*, 2013.
4. Acocella, N, Di Bartolomeo, G., and Hughes Hallet, A., (2012) "Central Banks and Economic Policy after the Crisis; What have we learned?" in Baker, H.K., and Riddick, L. A. (Editors) in *Survey of International Finance*, Oxford University Press, 2012.
5. Haan de Jacob; Bodea, Cristina; Hicks, Reymond and Eiffinger, Sylvester (2018), "Central Bank Independence Before and After the Crisis" in *Comparative Economic Studies*, 60 (92). Jan (2018).
6. Buiter, W., (2016) "Dysfunctional Central Banking. The End of 'Independent Central Banks' or a Return to 'Narrow Central Banking' or Both? In *CitiResearch*, 21 Dec, 2016.

Webliography -

- 1 <https://willembuiter.com>
William Buiter: Monetary Policy and Central Banks.
- 2 https://www.investopedia.com/terms/c/central_bank.asp
- 3 <https://www.sciencedirect.com>
Central Bank - an overview/Science Direct Topics.
- 4 <https://www.bis.org>
Central Bank Digital Currencies - March 2018. Bank for International Settlements.
- 5 https://www.ey.com/en_gl/eu-institutions/topic
Thomas Koss - What is the role of Central Bank of the Future.
- 6 <https://www.imf.org/-/media/Files/Publications/WP/2020/English/wpiea2>
A Survey of Research on Retail Central Bank Digital Currency - IMF Working Paper, June 2020. WP/20/104
- 7 <https://www.rbi.org.in>

Class: M. COM. PART I (SEM II)

Subject: Universal Banking

Academic Year: 2023-2024

Name of the Program: M. Com.	Course Code: UB524MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name	No. of Lectures	Credits	Marks
M. COM. PART I	I	UB524MJ	Universal Banking	30	2	50

Course Objectives:

1. To make students Understand the concept of Universal Banking.
2. To impart the knowledge of Universal Banking
3. To make students understand the applicability of Universal Banking.
4. To teach the Utility / Practical use of the Universal Banking.

• Course Outcomes: -

1. Students will get acquainted & equipped with the knowledge and understanding of the Concept Universal Banking
2. Students will be able to acquire knowledge of Universal Banking Practices.
3. Students will develop their ability to understand the Universal Banking.
4. Students will be able to understand the Commercial Banking Vs Universal Banking
5. Student will develop an insight specially about Universal Banking.

Unit	Title & Contents	No. of Lectures
Unit 1	Evolution of Universal Banking System in India Evolution of Universal Banking System in India Meaning , Definition , Objective , Characteristics of Universal Banking Difference between Commercial Banking and Universal Banking Functions of Universal Banks	15
Unit 2	Practices of Universal Banks Practices of Universal Banks Advantages and Disadvantages of Universal Banking Problems faced by the Universal Banks Recent Trends in Universal Banking in India	15

Teaching Methodology :-

- Classroom and Guest lectures,
- Visit to various Banks and Financial Companies,
- Group Discussion,
- Assignment and Presentation

Class: M. COM. Advanced Banking & Finance

PART I (SEM I)

Subject: Legal Framework of Banking

Academic Year: 2023-2024

Name of the Program: M. Com.	Course Code LF525MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name	No. of Lectures/ per week	Credits	Marks
M. COM. PART I	I	LF525MJ	Legal Framework of Banking	5	4	100

Course Objectives:

- 1) To acquaint the students with legal framework in which the Indian banking is working today.
- 2) To make the students aware about the latest developments in the field of banking law.
- 3) To enable the students to understand modern banking practices.
- 4) To enable the students to establish a link between the legal provisions and the practical aspects of banking.

Course Outcomes:

- 1) Students will understand the legal framework of how Indian banking system is working.
- 2) .Students will be familiar about the latest developments in the field of banking law .
- 3) They will build an understanding on practical applications and modern banking practices
- 4) Students will understand the link between the legal provisions and the practical aspects of banking.

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Unit	Title and contents	No of Lectures
1	Banking Regulation Act 1949 Provisions relating to- Definition of bank (Sec. 5B and 5C), Business of Banking Companies (Sec.6), Restrictions on business of banking companies (Sec.8, 19 and 20), Capital Structure(Sec.12), Powers of the RBI (Sec.21, 22 and 36 to 36AD), Applicability of the Act to Cooperative Banks (Sec.56), amendments of BRA1949 up to 2012, Banking Regulation (Amendment) Bill 2017	15
2	The Negotiable Instrument Act 1881 Provisions relating to: Definition of negotiable Instrument (Sec- 13), Promissory note (Sec -4), Bill of exchange (Sec -5), and Cheque (Sec -6), Comparative Study of Negotiable Instruments Parties to negotiable instrument (Section -7), Holder (Sec -8), Holder in due course (Sec -9), Payment in due course (Sec -10), Negotiation (Sec - 14), Endorsement (Sec -15), Dishonour of Negotiable Instruments (Sec -91-92), Noting and Protest (Sec -99-104-A), Penalties in case of dishonour of certain cheques for insufficiency of funds in the account (Sec. 138 to 147), Negotiable Instruments (Amendment and Miscellaneous Provisions) Act, 2002: Electronic Cheques/Truncated Cheques Negotiable Instruments (Amendment) Act, 2018- Empowers the Appellate Court to order payment pending the appeal against conviction (Sec.148)	15
3	A. The Reserve Bank of India Act, 1934 Provisions relating to: Incorporation, Capital management and Business (Sec 3 to 19), Central Banking functions ((Sec -20 to 45),Regulatory and Supervisory Collection and furnishing of credit information (45 A to 45 G) ,Penalties (Sec 58 B to 58 -G), RBI Act (As Amended By Finance Act 2018)- Monetary Policy Committee (Sec.45 ZA to 45 ZO) B. RBI and Regulation of Digital Financial Services in India, 2012 to 2016.	15
4	Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002 Provisions relating to: Preliminary (Section 1 and 2) Regulation of securitisation and reconstruction of financial assets and financial institutions (Section 3 to 12 A) Enforcement of security interest (Section 13 to 19) Central registry (Section 20 to 26) Offences and penalties (Section 27 to 30) Miscellaneous (Section 31 to 41) Relevant amendments between 2004 and 2008 and Amendments in SARFAESI Act in 2016: (Taking possession over collateral: Audit and inspection)	15

Teaching Methodology:	1. Practical Problem Solving 2. Class Room Lectures. 3. Guest Lectures. 4. Visiting to various Companies. 5. Group Discussion, Debates 6. Assignments & Presentation 7. Corporate Cases and Discussions on it
Internship for Students if any: Not Applicable	
Suggested Reference Books: 1) Gordon & Natarajan: Banking Theory Law and Practice, Himalya Publishing House 2) Srivastava S. P.; Banking Theory & Practice, Anmol Publications 3) PrakhasM., Bhargabhi R: Banking law & Operation, Vision Book House. 4) Tannan : Banking Law and Practice in India, Indian Law House 5) Sheldon H.P: Practice and Law of Banking. 6) VenkataramanaK., Banking Operations, SHBP. 7) Kothari N. M: Law and Practice of Banking. 8) GulatiNeelam C: Principles of Banking Management. 9) Maheshwari. S.N.: Banking Law and Practice, Vikas Publication 10) Varshaney P.N.-: Banking Law & Practice 11) Justine Paul and Pamalata Suresh; Management of Banking & Financial Services; Second Edition- Published by Dorling Kindersley (Pearson) 12) Compendium on the Insolvency and Bankruptcy Code- 2016 13) Principles and Practices of Banking- By Indian Institute of Banking & Finance- Macmillan Publication 14) www.rbi.org.in 15) Legal and Regulatory Aspects of Banking– Published by Indian Institute of Banking & Finance. 16) All relevant & recent Bare Acts. 17) Banking Law and Practices- Mr. Prakash Misal, Success Publications.	
Scheme of Examination: (i) Internal Assessment: 30 % (ii) Semester End Exam: 70 %	

M.COM.

Advanced Marketing

Program Name: M. Com in Advanced Marketing

Class: M. COM. PART I (SEM I)

Subject: Social Media Marketing

Academic Year: 2023-2024

Name of the Program: M. Com.	Course Code: SM526MJ	Name of the Department: Commerce
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Class	Semester	Course Code	Course Name / Subject	No. of Lectures Per week	Credits	Marks
M.Com	I	SM526MJ	Social Media Marketing	05	4	100

Course Objectives:

1. To understand social media marketing principles and its business impact.
2. To develop practical skills in content creation and campaign management.
3. To analyze social media metrics for effective strategy optimization.
4. To utilize social media advertising for targeted audience engagement.
5. To stay updated with emerging trends for competitive advantage.

Course Outcomes:-

1. Students will be able to understand social media marketing goals for successful online campaigns.
2. Students will analyze the effective social media marketing strategies for various types of industries and businesses.
3. Students will be able to design social media content and create strategies to optimize the content's reach to the target audience.
4. Students will be able to appraise the reach and track progress in achieving social media objectives with a variety of measurement tools and metrics.
5. Students will be able to design a suitable social media campaign for the business goals.

Unit	Title and contents	No. of lectures
1	INTRODUCTION TO SOCIAL MEDIA 1.1 Introduction to social media, how to build a successful Social Media Strategy, Goal setting 1.2 Overview of Global E-Marketing Issues, Country and Market Opportunity Analysis, User engagement on social networks 1.3 Social advertising, Social media analytics; Impact of online reputation 1.4 Social Technology and its marketing influence in India.	12
2	FACEBOOK, INSTAGRAM AND LINKEDIN MARKETING 2.1 Exploring the use of a Facebook page, Facebook Ad campaign, Facebook groups, Hashtags, 2.2 Instagram, creates automation for Instagram, Audience Insights, page Insights, exploring the various IG content types, setting a theme and flow on Instagram, and generating Leads. 2.3 The Structure of LinkedIn : Profiles, Pages, Groups, and a Social Rolodex • Optimizing Your LinkedIn Profile • Using LinkedIn as a Social Rolodex • LinkedIn Pages, Groups, and Other Opportunities • Deliverable: A LinkedIn Marketing Plan	12
3	TWITTER & YOUTUBE MARKETING 3.1 Creating a Twitter account, optimizing a page, content types, posting contents, Integrating a personal brand on Twitter, Twitter Analytics & Ads, post assistants and automation for Twitter. 3.2 YouTube marketing, creating a YouTube channel, posting content, YouTube analytics, Google Pages for YouTube Channels, Video Flow, Verify Channel, Webmaster Tool -Adding Asset.	12
4	SEARCH ENGINE OPTIMIZATION (SEO) 4.1 Search Engine Optimization (SEO) : Introduction, Understanding SEO 4.2 User Insights, Benefits And Challenges 4.3 Content Marketing 4.4 Traditional Media v/s Social Media, recent trends and challenges in Social Media marketing. 4.5 Search Engine Optimization-Recent trends and challenges	12
5	WEBSITE HOSTING USING WORDPRESS 5.1 Website Planning & Development- Website, Types of Websites, Phases of website development, Keywords: Selection process 5.2 Domain & Web Hosting- Domain, Types of Domain, Where to Buy Domain, Web Hosting, How to buy Webhosting Building Website using Word press-What is Word press, CMS, Post and Page	12

	5.3Word press Plug-ins- Different Plug-ins, social media Plug-ins, page builder plug-ins: the elementor, how to insert a section, how to insert logo, Google Microsites	
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Teaching Methodologies: -

- Class Room Lectures
- Guest lectures
- Group Discussion
- Assignments & Presentation

Reference Books:

1. Annmarie Hanlon (2022), Digital Marketing Strategic Planning & Integration, 2nd Edition, SAGE Publications Ltd.
2. Matt Golden (2022), Social Media Marketing, 1st Edition, Bravex Publications.
3. Simon Kingsnorth (2022), The Digital Marketing Handbook: Deliver Powerful Digital Campaigns, 1st Edition, Kogan Page.
4. Melissa Barker, Donald I. Barker, Nicholas F. Bormann and Debra Zahay (2016), Social Media Marketing: A Strategic Approach, 2nd Edition, Cengage Learning.
5. Tracy L. Tuten and Michael R. Solomon, (2016), Social Media Marketing, 2nd Edition, Sage Publications India Private Limited.

Scheme of Examination:

- Internal Assessment (CIE): 30
- Semester end Examination (SEE): 70

Program Name: M. Com in Advanced Marketing

Class: M. COM. PART I (SEM I)

Subject: Event Management

Academic Year: 2023-2024

Name of the Program: M. Com	Course Code: SM526MJ	Name of the Department: Commerce
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M. Com Syllabus in Advanced Marketing Sem. I

Sub Name: Event Management Credits 2

Class	Semester	Course Code	Course Name / Subject	No. of Lectures	Credits	Marks
M.Com	I	EM527MJ	Event Management	30	2	50

Course Objectives:

1. Define the concept, its advantages & disadvantages & types of events.
2. Understand the process of organizing an event.
3. Understand the importance of a checklist in organizing an event.
4. Familiarize with organizing corporate events
5. Obtain a sense of responsibility for the multidisciplinary nature of event management.
6. Learn to promote the events.

Course Outcomes:-

1. Students will get acquainted and equipped with the knowledge and understand of Events
2. Students will master event planning principles and strategies.
3. Students will develop their ability to implement effective event project management.
4. Students will be able to understand event marketing and audience engagement
5. Students will execute events with effective project management skills.
6. Student will utilize creativity and innovation in event conceptualization

Unit	Title and contents	No. of lectures
1	INTRODUCTION TO EVENT MANAGEMENT Meaning, Nature, Scope, Types of Events (Corporate, Private, or Charity, Indoor Events, Out Door Events, Celebrity Events) Tools For Event Planning & Management MICE Events, Event Operations and Services (Setting Up, Parking, Maintenance, Ticketing, Food and Beverage, Logistics). Organization structure of event management	15

	companies, Emerging trends in event industry, Human Resource Management for Events. Event Planning: Event Checklist, Hosting , Principles of Holding Event , Reserving Event Hall, Preparing and Designing ,The Schedule of Event Permissions, Policies , Government & Local Authorities , Phonographic , Performance License , Five Bridges Of Event Management ,Characteristics of Successful Event Management	
2	CORPORATE EVENT MANAGEMENT Corporate Event Organization : Preparing A Blueprint , Facilities Planning and Organizing (Assigning Staff , Maintenance of Inventory For The Chemicals and Equipments , Cleaning, Maintenance, Aesthetic Upkeep , Maintaining Back Areas, Public Areas and Surroundings, Floral Designing (- Assigning The Responsibilities , Event Organizer Arrangements , Corporate Event Packages , Corporate Hospitality , Well- Being of the Patrons & Participants , Entailing The Entertainment In Corporate Events and Corporate Event Reporting .	15

Teaching Methodologies: -

Class Room Lectures
Guest lectures
Group Discussion
Assignments & Presentation

Text Books :

1. "Event Management : an integrated & practical approach" By Razaq Raj, Paul Walters & Tahir Rashid
2. "Event Management : a professional approach" By Ashutosh Chaturvedi
3. "Successful Event Management" By Anton Shone & Bryn Parry
4. "Event Management", A.K. Bhatia, Sterling Publishers Pvt. Ltd. Delhi.
5. "Event Management", Lynn Van Der Wagen, Carlos, Pearson, New Delhi.

Reference Books:

1. "Events Management" by Glenn Bowdin, Johnny Allen, William O'Toole, Rob Harris, Ian McDonnell.
2. "The Business of Event Planning: Behind-the-Scenes Secrets of Successful Special Events" by Judy Allen.
3. "Event Management For Dummies" by Laura Capell.
4. "Special Events: Creating and Sustaining a New World for Celebration" by Dr. Joe Goldblatt.
5. "Events Management: An International Approach" by Joe Goldblatt, Fiona Wilson.
6. "Strategic Event Creation" by Joe Goldblatt.
7. "Events: A Conceptual Approach" by Donald Getz.

8. "The Wiley Event Management Series: The Wiley Guide to Event Planning" by Jeffrey C. Callister.
9. "Professional Event Coordination" by Julia Rutherford Silvers.
10. "Event Management and Sustainability" by Razaq Raj and Paul Walters.
11. "Events Marketing" by C. A. Preston and Wayne M. D. Wright.
12. "The Event Manager's Bible: The Complete Guide to Planning and Organising a Voluntary or Public Event" by D. G. Conway.
13. "Special Events: A New Generation and the Next Frontier" by Dr. Joe Goldblatt.
14. "The Event Safety Guide: A Guide to Health, Safety and Welfare at Live Entertainment Events in the United States" by The Event Safety Alliance.
15. "Event Management in Sport, Recreation, and Tourism" by Cheryl Mallen, Lorne Adams, and John J. Jepson Jr.
16. "Powerhouse Conferences", Coleman, Lee & Frnkle, Educational Institute of AH &MA.
17. "Meaning Conventions & Group Business", Hoyle, Dorf & Jones, Educational Institute of AH & MA.
18. "Meetings, Conventions & Expositions - An Introduction to the Industry ", Rhonda J. Montgomery, Ph.D. & Sandra K. Strik. Publishers - Van Nostard Reinhold, An International Thomson Publishing Co.
19. "Successful Event Management", Shone, A & Parry, B. Cengage Learning.

Scheme of Examination:

- Internal Assessment (CIE): 30%
- Semester end Examination (SEE): 70 %

Program Name: M. Com in Advanced Marketing

Class: M. COM. PART I (SEM I)

Subject: Marketing Techniques

Academic Year: 2023-2024

Name of the Program: M. Com	Course Code: MT528MJ	Name of the Department: Commerce
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M.Com Syllabus in Marketing Sem. I

Sub Name: Marketing Techniques Credits 4

Class	Semester	Course Code	Course Name / Subject	No. of Lectures Per week	Credits	Marks
M.Com	I	MT528MJ	Marketing Techniques	5	4	100

Course Objectives:

1. To expose the students to various approaches to the study of marketing.
2. To create awareness about environmental factors which are affecting marketing environment.
3. To provide in-depth knowledge about marketing mix.
4. To acquaint students with the importance of public relation in the field marketing.
5. To help students understand stake-holders role in marketing mix.

Course Outcomes:-

1. Students will understand various approaches to study marketing and also get sufficient knowledge about the factors which influencing marketing environment.
2. Students will get in-depth knowledge about Product Mix and Price Mix
3. Students will understand about Place Mix and Promotion Mix
4. Students will aware about various tools of Public Relation and also e-marketing promotion

Unit	Title and contents	No. of lectures
1	Marketing Introduction & Marketing Environment 1.1 Meaning, Definition, Elements, Objectives, Importance, Advantages and limitations, Evolution and Scope Approaches to the study of Marketing 1.2 Marketing Environment: Meaning and Definition, Internal and external Environmental factors influencing the marketing environment 1.3 Marketing Planning and Execution	15

	1.4 Marketing Strategy 1.5 Green Marketing 1.6 Marketing Innovation,	
2	Product Mix and Price Mix 2.1 Marketing Mix : Meaning, Definition, Elements, Product Mix: Concept of Product, Product Lines, Product line length, depth, width. Product Mix Width. Product Simplification diversification and elimination 2.2 Product Management: New product development and Product Life Cycle Brand Management: concept definition and history of brand/branding Brand Creation, Rebranding, Brand Positioning, Brand Equity Brand Contract, Brand Factory 2.3 Labelling: Meaning and importance 2.4 Price Mix: Meaning, Definition and Elements of price mix. Need, importance and objectives of pricing. Factors influencing pricing. Various Pricing Strategies.	15
3	Place Mix and Promotion Mix 3.1 Types of Distribution Channels , Advantages & Limitations, factors affecting selection of channel. 3.2 Promotion Mix : Meaning, Elements of Promotion Mix, 3.3 Advertising , Concept, Classification, functions , benefits of advertising, Economic, Social & ethical issues, evaluating advertising effectiveness, Recent trends in advertising 3.4 Personal Selling - concept and importance, theories of selling, process of personal selling. Selling Methods, Limitations of personal selling. 3.5 Publicity: Meaning, difference between advertising and publicity Sales Promotion: Meaning, Objectives and importance. Tools or techniques, Evaluation of sales promotion.	15
4	Public Relations, People Process and Physical Evidence 4.1 Public Relation- Concept, History, Tools of public relations, Role of Public Relation Officer 4.2 E- Marketing Promotion - E mails, different types of Web advertising, blog spots, Online Sponsorships. 4.3 Social Media Marketing, People, Process and Physical Evidence People as a part of Marketing Mix, customer interaction, customer service Process as part of the Marketing Mix, Physical evidence/ Packaging	15

Teaching Methodologies: -

Class Room Lectures

Guest lectures

Group Discussion

Assignments & Presentation

Reference Books:

1. Marketing Management, Arun Kumar, Rachana Sharma, Atlantic Publishers & Distributors, New Delhi
2. Marketing Management, Amar Jyoti, Gennext Publishers, New Delhi.
3. Marketing Management, RanjanSaxena, Tata Mc-Graw Hill Publishers, New Delhi.
4. International Marketing Mix Management, Tobias Richter, Noyos, Berlin.
5. Marketing Management, Russell Winer, Pearson Education, Delhi.
6. Public Relation in Marketing Mix, Jordan Goldman, NTC Business Books, New York
7. Public Relation for Marketing Management, Frank Jefkins, The MACMILLAN Press Ltd, London
8. Marketing Management, Prin. Dr. Babasaheb Sangale, Success Publications, Pune.

Scheme of Examination:

- Internal Assessment (CIE): 30
- Semester end Examination (SEE): 70
